4 Chassis

4.1 Naming Conventions
4.2 Port Rate Description
4.3 CE5800
4.4 CE6800
4.5 CE8800
4.6 CE9800

4.1 Naming Conventions

Figure 4-1 shows the CloudEngine 9800, 8800, 7800, 6800, and 5800 series switches naming conventions.

Figure 4-1 CloudEngine 9800, 8800, 7800, 6800, and 5800 series switches naming conventions

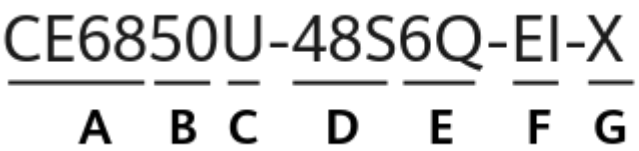


Table 4-1 describes the CloudEngine 9800, 8800, 7800, 6800, and 5800 series switches naming conventions.

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Table 4-1 CloudEngine 9800, 8800, 7800, 6800, and 5800 series switches naming conventions

Field	Meaning
A	CloudEngine series data center switches • **CE98**: CE9800 series • **CE88**: CE8800 series • **CE78**: CE7800 series • **CE68**: CE6800 series • **CE58**: CE5800 series
B	Product model category: • **10**: basic model • **20**: standard model • **50/51/55/56/80/81**: advanced model • **60/61/68**: model with flexible cards • **70/75**: large-buffer model **NOTE** Among CE6800 series switches, the CE6860EI, CE6863, CE6865EI and CE6881E provide fixed 25GE ports.
C	Special function flag. This flag is not present if the product does not provide special functions. **U**: The product supports FC ports.
D	Number and type of downlink interfaces: • **T**: GE/10GBase-T electrical interfaces • **S**: GE/10GE SFP+ optical interfaces or 25GE SFP28 optical interfaces • **Q**: 40GE quad small form-factor pluggable plus (QSFP+) optical interfaces • **xC**: For a model supporting flexible service units, x stands for the number of slots and C is a slot identifier.
E	Number and types of uplink interfaces: • **T**: GE/10GBase-T electrical interfaces • **S**: GE/10GE SFP+ optical interfaces • **Q**: 40GE QSFP+ optical interfaces • **CQ**: 40GE/100GE QSFP28 optical interfaces **NOTE** This field is not present in the product name if the product has only fixed interfaces and the uplink and downlink interfaces are the same type or if the product supports flexible service units.

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Field	Meaning
F	Product model type: • **LI**: model providing basic functions • **EI**: model providing enhanced functions • **HI**: model providing advanced functions
G	Extension bit: **A**: The continuous version.

4.2 Port Rate Description

The port rate is the nominal value of the rate at which a port transmits data. To meet various transmission rate requirements, pluggable modules with different rates are provided, including 400GE, 100GE, 40GE, 25GE, 10GE, and GE optical modules, and GE copper modules. Generally, the rate supported by a port corresponds to the rate of the pluggable module on the port, but it is also affected by the following factors: port rate auto-sensing, port auto-negotiation, port splitting, and port rate configuration.

Port Rate Auto-Sensing

Typically, port rate auto-sensing allows a port to automatically work at the rate of the medium that is installed, and you do not need to run a command to change the port rate.

Port Auto-Negotiation

Different from auto-sensing, auto-negotiation provides a mode of exchanging information between two ports on connected devices. You can connect the two ports through media that support rate auto-negotiation so that some port attribute settings can be negotiated and the two ports can automatically configure their transmission capabilities. The duplex mode, rate, and FEC of the two ports are negotiated. Ports at both ends of a physical link automatically select the same operating parameter settings by exchanging information. In this way, the transmission capabilities of the ports can reach the maximum supported by them.

Port Split

Port split allows a high-bandwidth physical port on the switch to be split into multiple independent low-bandwidth ports. With the port split function, ports on a card can connect to various types of ports on the remote device, allowing for flexible networking and lowering hardware costs.

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Port Rate Configuration

In addition to the preceding methods, you can also run commands to change the port rate. For details, see "Configuring the Interface Rate" in the *Configuration Guide - Interface Management Configuration Guide*

4.3 CE5800

4.3.1 CE5881-48T6CQ (02353RAN)

Overview

Table 4-2 Basic information about the CE5881-48T6CQ

Item	Details
Description	CE5881-48T6CQ switch (44*GE RJ45, 4*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353RAN
Model	CE5881-48T6CQ
First supported version	V200R020C00
Other part numbers	02353RAP (CE5881-48T6CQ switch (44*GE RJ45,4*10GE RJ45,6*100GE QSFP28,2*AC power modules,4*fan modules,port-side intake)) 02353RAQ (CE5881-48T6CQ switch (44*GE RJ45,4*10GE RJ45,6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE5881

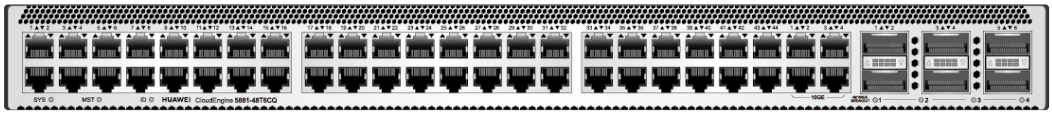
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Appearance

Figure 4-2 Appearance of the CE5881-48T6CQ



Front (power supply side)



Rear (port side)

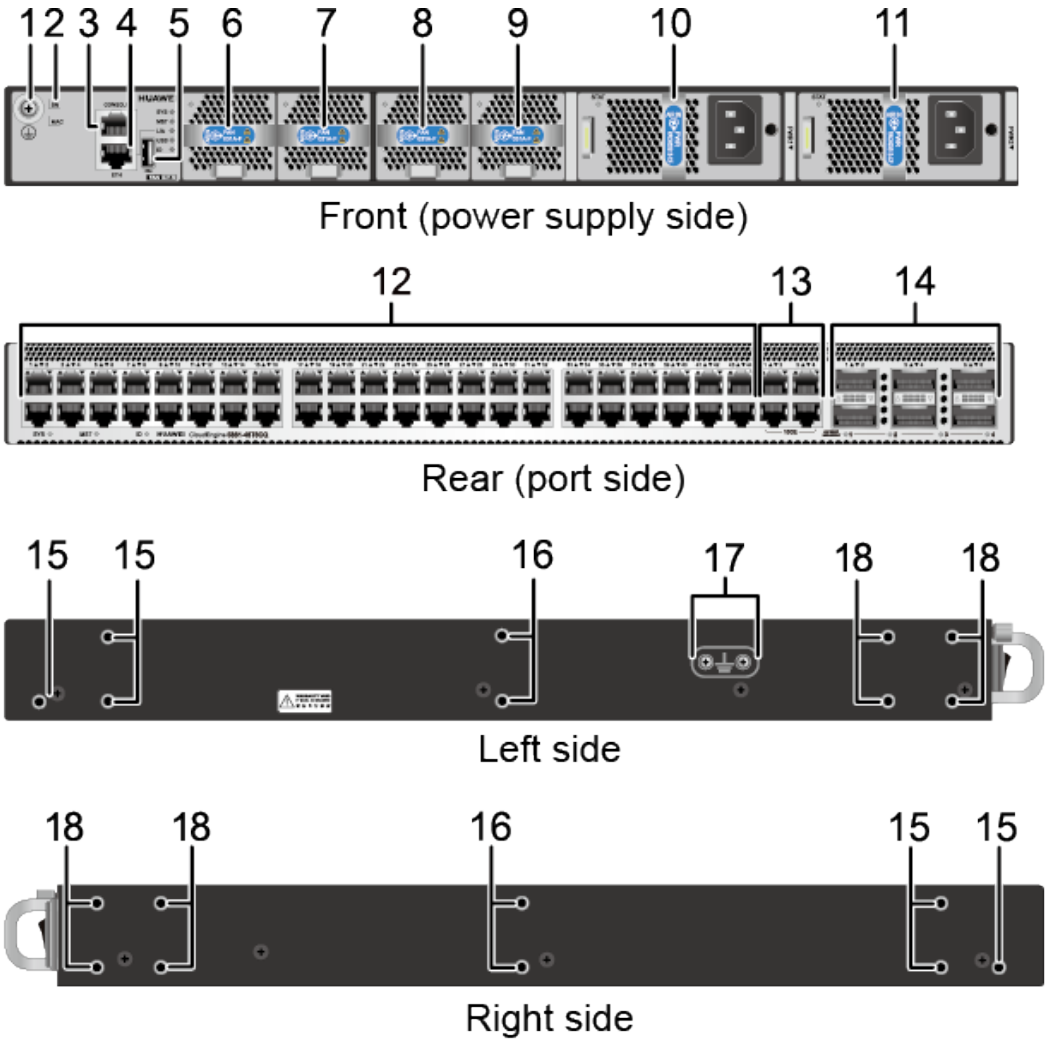
NOTE

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Components

Figure 4-3 Components of the CE5881-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-four 100/1000BASE-T Ethernet electrical ports
13	Four 10GBASE-T Ethernet electrical ports	14	Six 40GE/100GE QSFP28 Ethernet optical ports
15	Three port-side mounting holes for mounting brackets	16	Two middle mounting holes for mounting brackets
17	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal	18	Four power-supply-side mounting holes for mounting brackets

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Slot Layout

Table 4-3 Slots on the CE5881-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 5800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 5800 series switches support 1+1 backup of power modules.When both power modules are working properly, each of them provides half of the power required for the chassis.When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CloudEngine 5800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-4 Indicators on the CE5881-48T6CQ 1

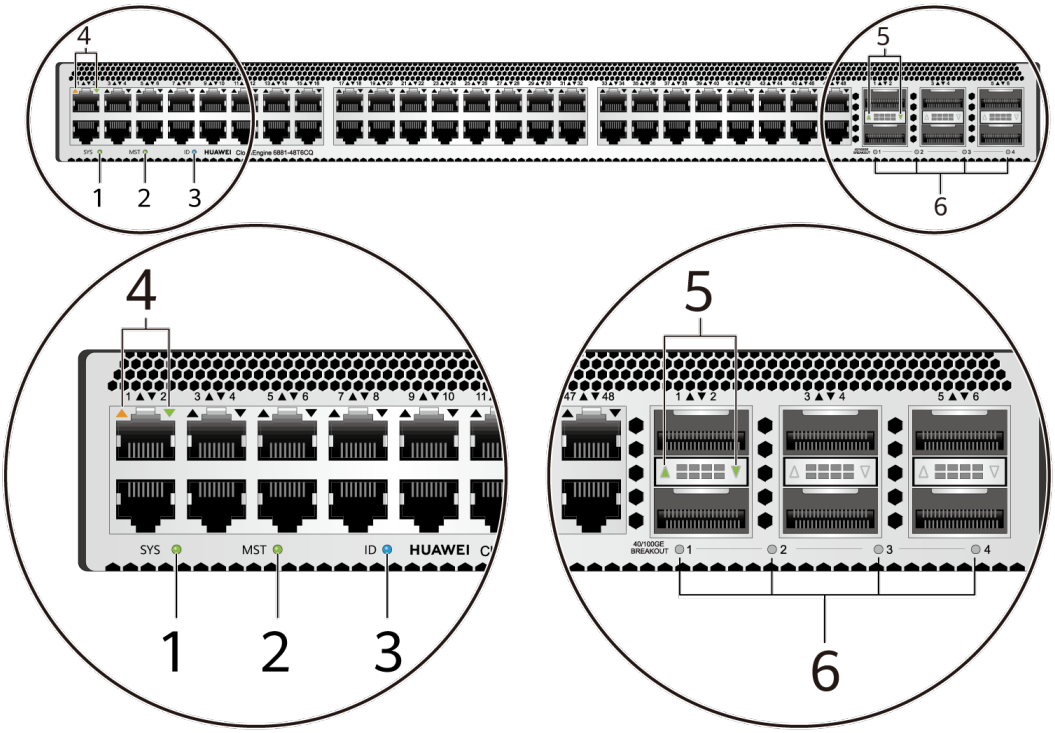
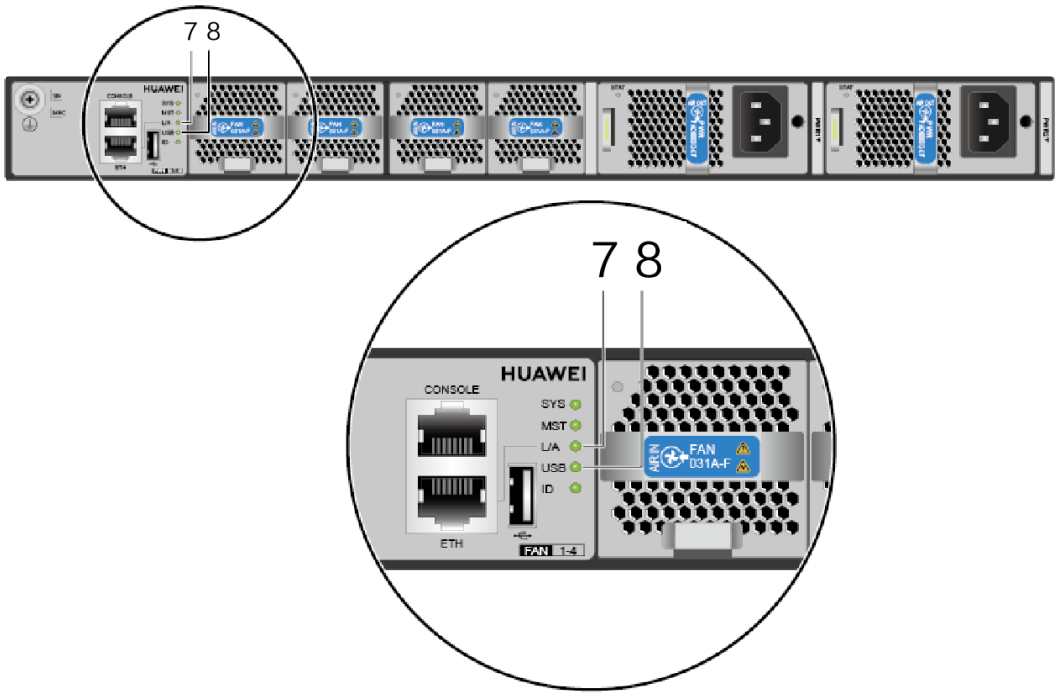


Figure 4-5 Indicators on the CE5881-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (1000BASE-T/ 10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/ 100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-4 Indicators on the CE5881-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.

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Silkscreen	Name	Color	Status	Description
MST	Stack master/ slave indicator	Green	Off	The switch is not a stack master.
		Green	Steady on	The switch is a stack master or standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
-	Service port indicator (GE electrical port/10GE electrical port) **NOTE** The indicator on the left indicates the port at the top, and the indicator on the right indicates the port at the bottom.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (40GE/100GE optical port) **NOTE** • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	ETH management port indicator	Green	Off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment has failed.

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Ports

Table 4-5 Ports on the CE5881-48T6CQ

Port	Connector Type	Description	Available Components
100/1000BASE-T Ethernet Electrical Port	RJ45	A 100/1000BASE-T Ethernet electrical port receives and sends services at a rate of 100 Mbit/s, or 1000 Mbit/s. A 100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. • Standards compliance: IEEE802.3ab • Applicable cable: straight-through cable and crossover cable • Working mode: 100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Straight-through cable and crossover cable

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Port	Connector Type	Description	Available Components
10GBASE-T Ethernet Electrical Port	RJ45	A 10GBASE-T ethernet electrical port receives and sends service traffic at the rate of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work at the rate of 100 Mbit/s or 1000 Mbit/s through auto-sensing. • Standards compliance: IEEE802.3an, IEEE802.3az • Applicable cable: straight-through cable and crossover cable • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Straight-through cable and crossover cable

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	LC/MPO	A 40GE/100GE QSFP28 optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. A 40GE/100GE QSFP28 optical port cannot be split. • Standards compliance: IEEE802.3ba • Optical port attributes: depending on the module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) The QSFP+ to QSFP+ high-speed cable and QSFP28 to QSFP28 high-speed cable can only be used as stack cables and M-LAG peer-link interface cables. 2) When a QSFP28 high-speed cable is installed on a 100GE port that works at the rate of 100 Gbit/s, the port supports only the 1 m QSFP28 high-speed cable. 3) When a QSFP28 high-speed cable is installed on a 100GE port and the speed 40000 command is run to set the rate to 40 Gbit/s, the port supports 1 m, 3 m, and 5 m QSFP28 high-speed cables.
Console Port	RJ45	The console port is connected to a console for onsite configuration. ● Standards compliance: RS232 ● Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) ● Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	Console cable.

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Port	Connector Type	Description	Available Components
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Supported rate: 10/100/1000 Mbit/s auto-sensing. Full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 5800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

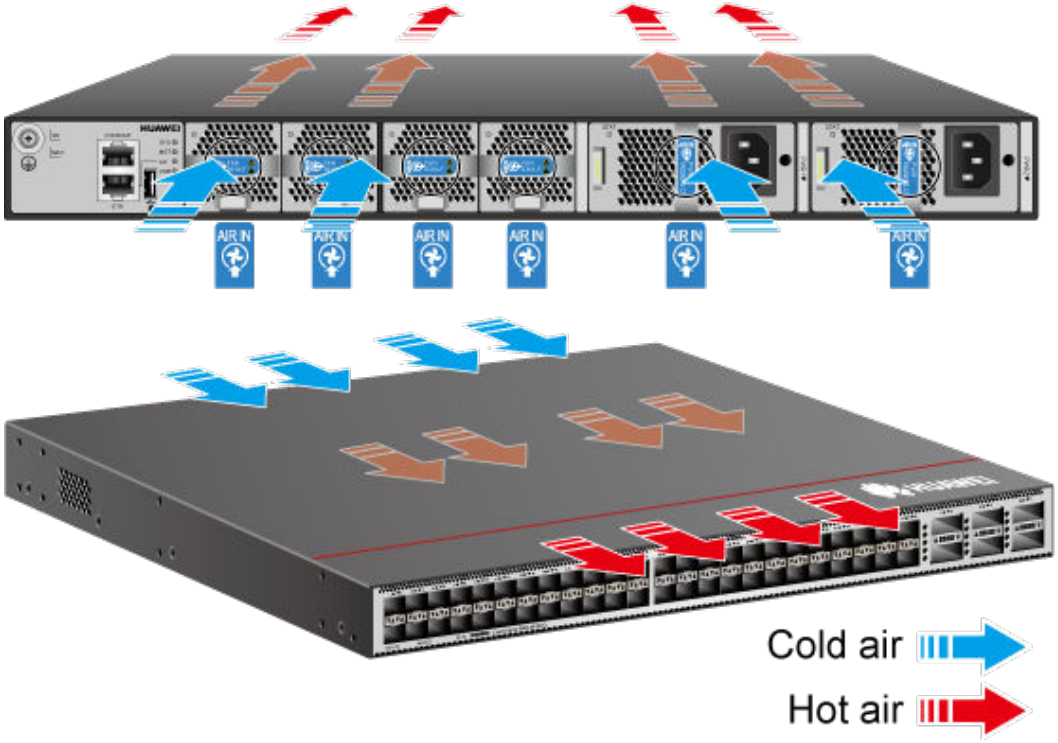
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-6**(using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

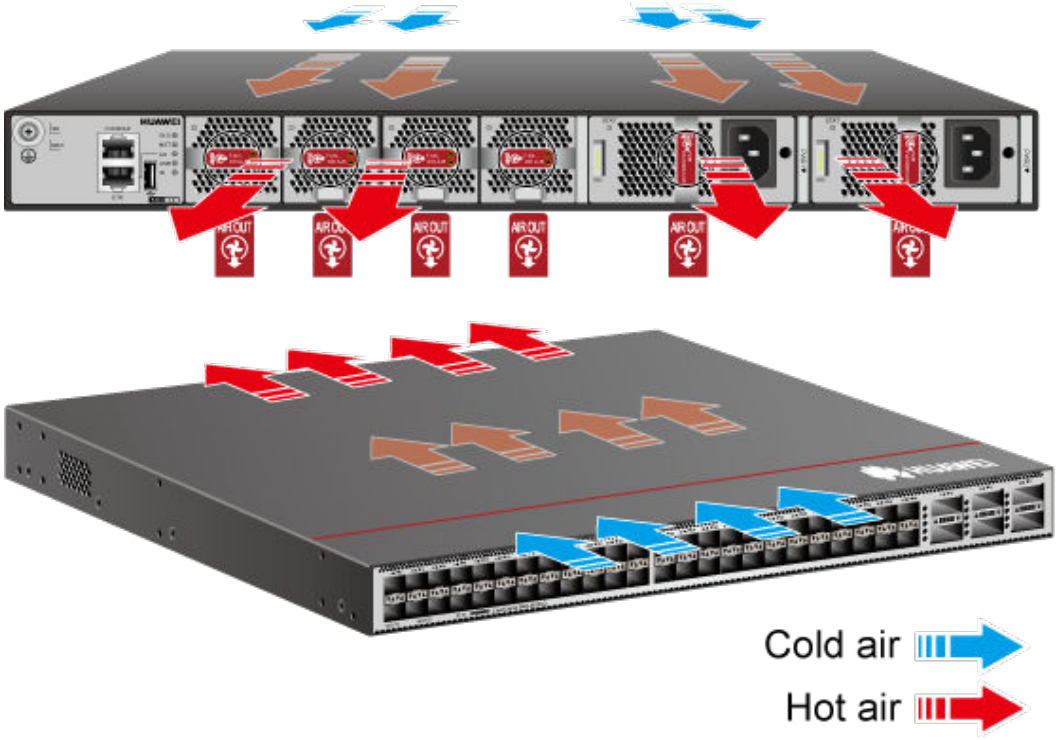
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-7** (using a CE6863 chassis as an example).

Figure 4-6 Front-to-back airflow for port-side exhaust



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Figure 4-7 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 5800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-6 Technical specifications of the CE5881-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.6 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHZ
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	44*1000Base-T RJ45 (Only full-duplex is supported)

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Item	Specification
Uplink Service interface	4x10GE RJ45 and 6*100GE QSFP28 (Note: 1. 100GE interfaces are compatible with 40GE; 2. 100G interfaces do not support splitting into 4x25GE and 4x10GE; 3. Auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports.)
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 292 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, double power modules) • 307 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, double power modules)
Typical heat dissipation [BTU/hour]	• 996 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, double power modules) • 1047 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, double power modules)
Static power consumption [W]	233 W
Static heat dissipation [BTU/hour]	795 BTU/hour
Maximum power consumption [W]	348 W
Maximum heat dissipation	1187
Number of power modules	2
Redundant power supply	1+1 backup

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Item	Specification
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48 V DC to -60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4

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Item	Specification
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999954691
MTBF [year]	49.15 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dBA in average (maximum: 52 dBA) • Back-to-front airflow: 50 dBA in average (maximum: 52 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dBA in average (maximum: 74 dBA) • Back-to-front airflow: 67 dBA in average (maximum: 73 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.3.2 CE5855E-48T4S2Q (02353VWG)

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Overview

Table 4-7 Basic information about the CE5855E-48T4S2Q

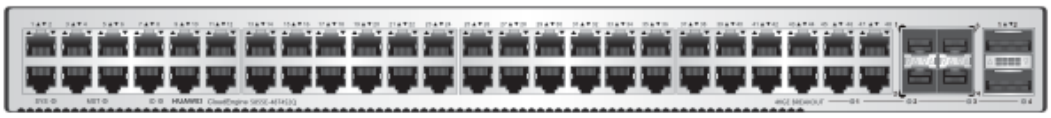
Item	Details
Description	CE5855E-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, without fan and power modules)
Part Number	02353VWG
Model	CE5855E-48T4S2Q
First supported version	V200R020C10
Other part numbers	02353VWJ (CE5855E-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side intake)) 02353VWN (CE5855E-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side exhaust))
Short Name	CE5855E

Appearance

Figure 4-8 Appearance of the CE5855E-48T4S2Q



Front (power supply side)



Rear (port side)

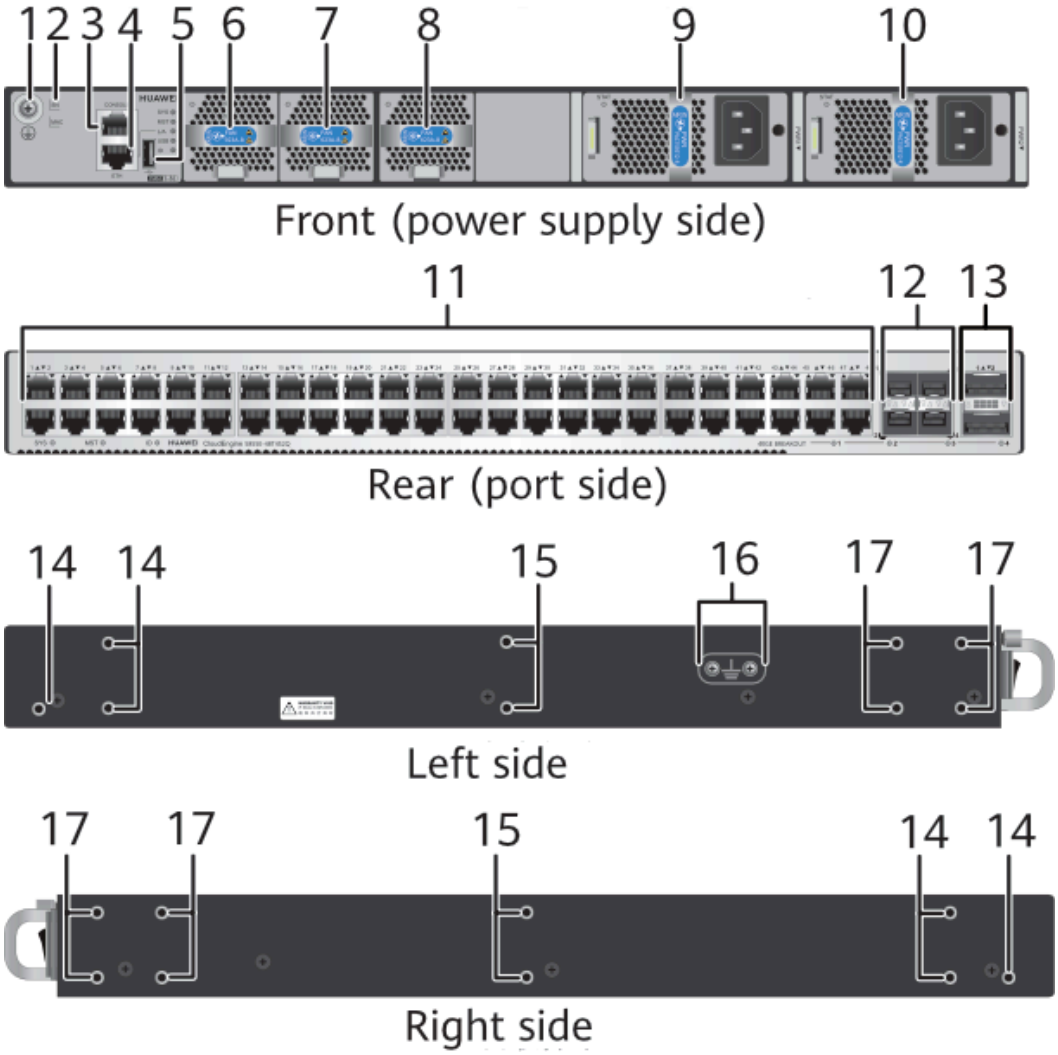
NOTE

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Components

Figure 4-9 Components of the CE5855E-48T4S2Q



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Power supply slot 1	10	Power supply slot 2

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11	Forty-eight 1000BASE-T Ethernet electrical ports	12	Four 10G SFP+ Ethernet optical ports
13	Two 40GE QSFP+ Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-8 Slots on the CE5855E-48T4S2Q

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 5800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 5800 series switches support 1+1 backup of power modules: When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CE5855E-48T4S2Q switches has three fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that three fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-10 Indicators on the CE5855E-48T4S2Q 1

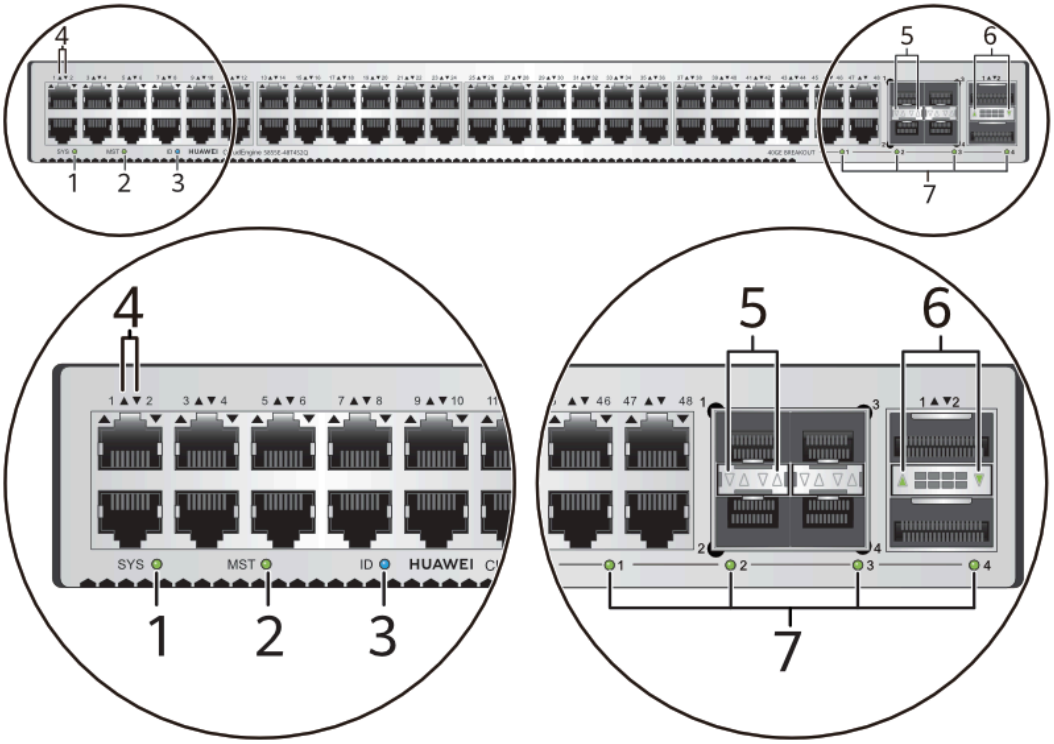
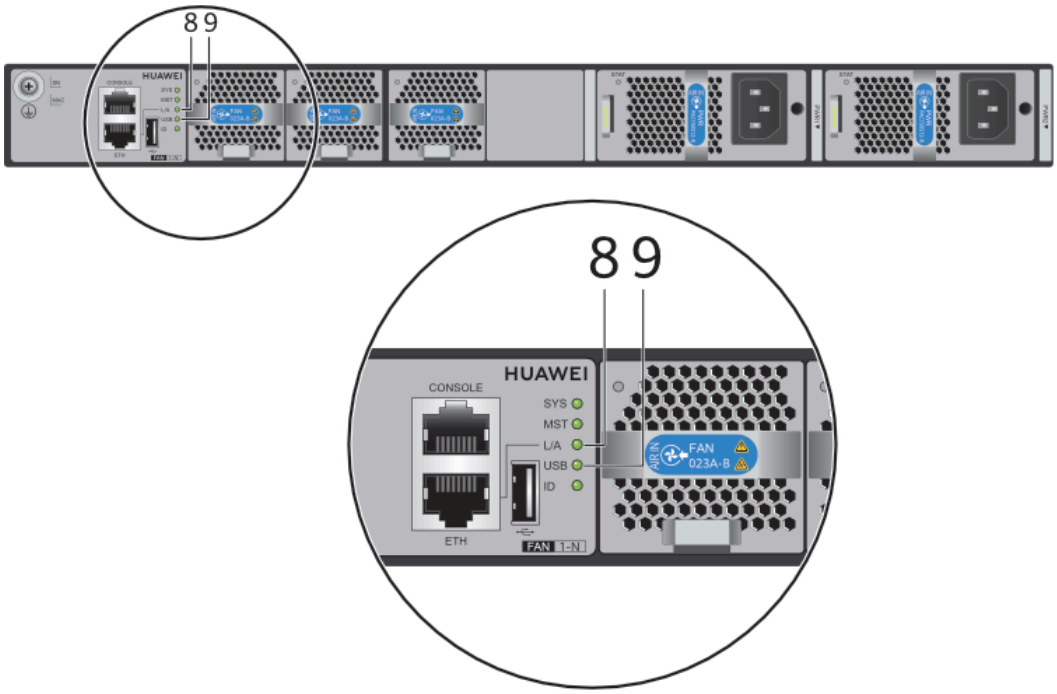


Figure 4-11 Indicators on the CE5855E-48T4S2Q 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (1000BASE-T electrical port)	5. Service port indicator (10GE SFP+ optical port)
6. Service port indicator (40GE QSFP+ optical port)	7. 40G Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE QSFP+ optical port)	8. ETH management port indicator	9. USB-based deployment indicatorc	-

Table 4-9 Indicators on the CE5855E-48T4S2Q

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running properly.
		Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
MST	Stack master/ slave indicator	Green	Off	The switch is not a master switch in the stack.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. • After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a master switch in the stack or a standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (GE electrical port) **NOTE** The indicator on the left indicates the port at the top, and the indicator on the right indicates the port at the bottom.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Yellow	Off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (40GE optical port) **NOTE** • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. • When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated port is identified by indicators 40G Breakout 1/2/3/4 on the lower right corner of the panel. • Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40GE Breakout indicators 1/2/3/4 (10GE ports converted from a 40GE port)	Green	Off	40GE ports are not split into four 10GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Steady on	At least one 40GE port has been split into four 10GE ports. When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator shows the status of a 10GE port converted from the 40GE port: ● When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port. ● When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port

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Silkscreen	Name	Color	Status	Description
				converted from the corresponding 40GE port. • When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port. • When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.
L/A	ETH management port indicator	Green	Off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
ACT	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment has failed.

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Ports

Table 4-10 Ports on the CE5855E-48T4S2Q

Port	Connector Type	Description	Available Components
10/100/1000BASE-T Ethernet Electrical Port	RJ45	A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. • Standards compliance: IEEE802.3ab • Applicable cable: straight-through cable and crossover cable • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Straight-through cable and crossover cable

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Port	Connector Type	Description	Available Components
10GE SFP+ Ethernet Optical Port	LC	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1 Gbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. • Standards compliance: IEEE802.3ae • Optical port attributes: depending on the module or cable in use • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. 10GE optical interfaces installed with GE copper modules support the rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. 2. 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE QSFP+ Ethernet Optical Port	Depending on the optical module	A 40GE QSFP+ Ethernet optical port receives and sends services at the rate of 40 Gbit/s. If a 40GE QSFP+ Ethernet optical port is split into four 10GE ports, it must use 1-to-4 QSFP+ optical modules and optical fibers or 1-to-4 QSFP+ cables. • Standards compliance: IEEE802.3ba • Optical port attributes: depending on the module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to 4*SFP+ AOC cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **NOTE** 1) A 40GE QSFP+ port can be split into four 10GE ports. 2) The QSFP-100G-4WDM-40 optical module is not supported.
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	**Console cable**

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Port	Connector Type	Description	Available Components
ETH Management Port	RJ45	The ETH management port of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Supported rate: 10/100/1000 Mbit/s auto-sensing. Full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 5800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

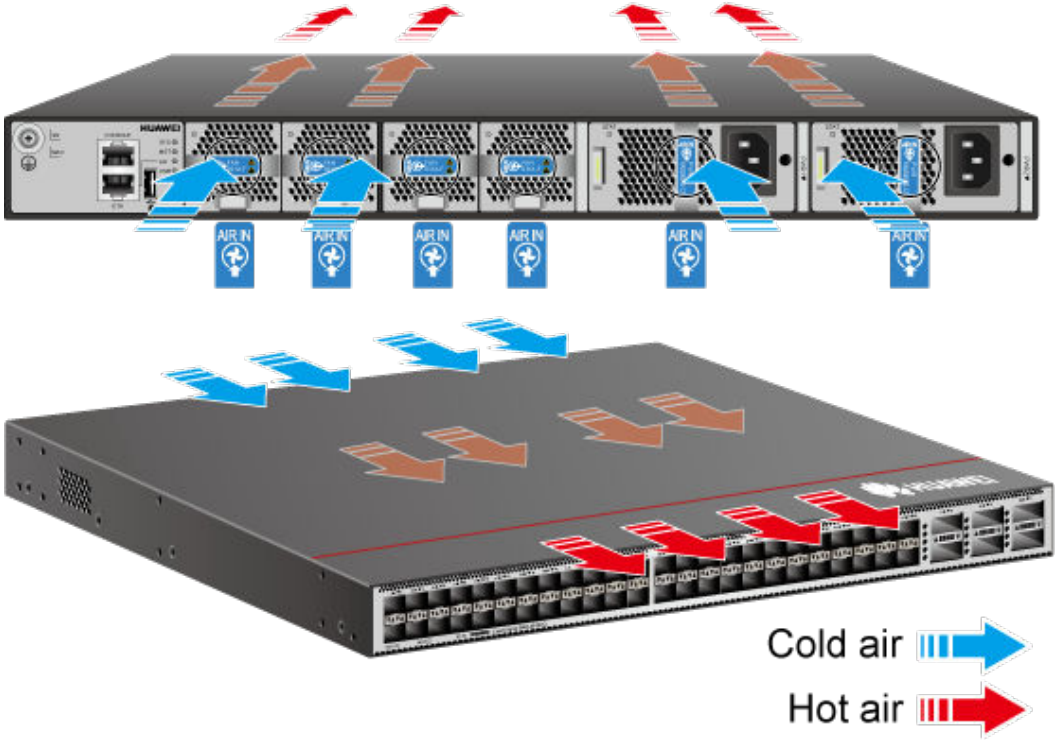
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

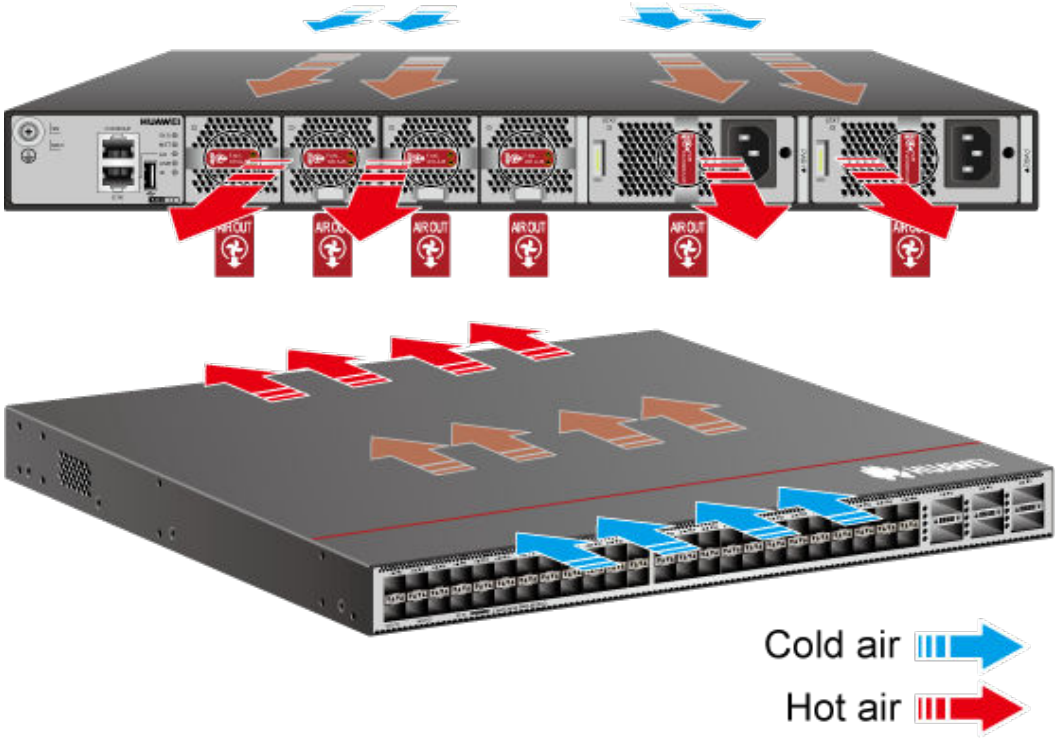
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-12 Front-to-back airflow for port-side exhaust



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Figure 4-13 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 5800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-11 Technical specifications of the CE5855E-48T4S2Q

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.1 kg (11.2 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.5 kg (16.5 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	8.6 kg (19.0 lb)
Weight with packaging (full configuration) [kg (lb)]	11 kg (24.3 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.2 GHz
Memory	DRAM: 2 GB
NOR Flash	128 MB
NAND Flash	1 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10/100/1000BASE-T
Uplink Service interface	4*10G SFP+, 2*40G QSFP+
Service port supporting the stack function	10GE optical ports and 40GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 92 W (50% throughput, 3 m Ethernet cables on 48 ports and high-speed cables on 4 x 10G and 2 x 40G ports, normal temperature, dual AC power modules) • 96 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 4 x 10G and 2 x 40G ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	• 314 BTU/hour (50% throughput, 3 m Ethernet cables on 48 ports and high-speed cables on 4 x 10G and 2 x 40G ports, normal temperature, dual AC power modules) • 327 BTU/hour (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 4 x 10G and 2 x 40G ports, normal temperature, dual AC power modules)
Static power consumption [W]	68 W
Static heat dissipation [BTU/hour]	232 BTU/hour
Maximum power consumption [W]	137 W
Maximum heat dissipation	467
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 150 W AC power module: 100 V AC to 240 V AC, 50/60 Hz • 180 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 150 W AC power module: 90 V AC to 290 V AC; 45 Hz to 65 Hz • 180 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC

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Item	Specification
Maximum input current [A]	• 150 W AC power module: 3 A (100 V AC to 240 V AC) • 180 W DC power module: 6 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 150 W AC power module: 150 W • 180 W DC power module: 180 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	3
Redundant fans	The device supports 2+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.99999643061
MTBF [year]	57.57 years
MTTR [hour]	1.8 hours

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Item	Specification
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 45.58 dB(A) on average (maximum: 49.2 dB(A)) • Back-to-front airflow: 44.48 dB(A) on average (maximum: 47.6 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 56.91 dB(A) on average (maximum: 59.6 dB(A)) • Back-to-front airflow: 56.94 dB(A) on average (maximum: 61.8 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.3.3 CE5855F-48T4S2Q

4.3.3.1 CE5855F-48T4S2Q (02354HPQ)

Overview

Table 4-12 Basic information about the CE5855F-48T4S2Q

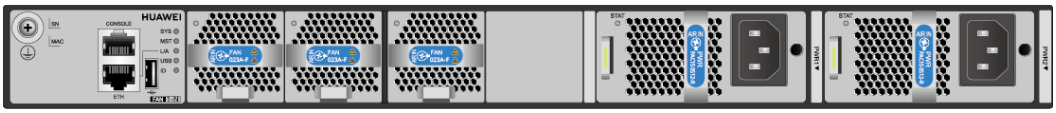
Item	Details
Description	CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, without fan and power modules)
Part Number	02354HPQ
Model	CE5855F-48T4S2Q
First supported version	V200R021C00

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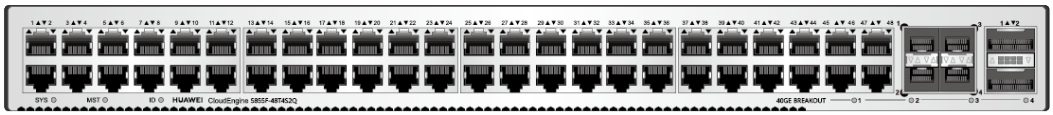
Item	Details
Other part numbers	02354HPR (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side intake)) 02354HPS (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side exhaust))
Short Name	CE5855F

Appearance

Figure 4-14 Appearance of the CE5855F-48T4S2Q



Front (power supply side)



Rear (port side)

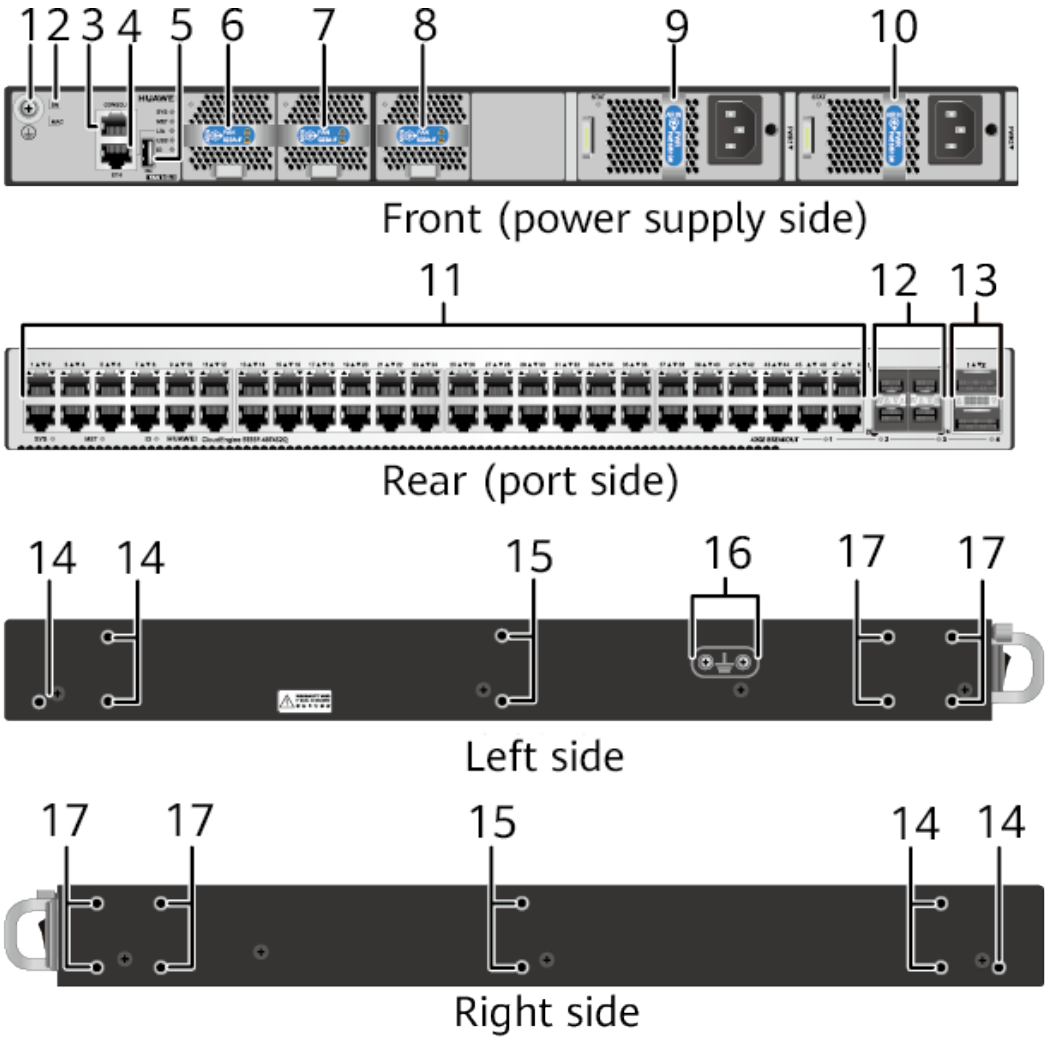
NOTE

The figures in this document are for reference only.

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Components

Figure 4-15 Components of the CE5855F-48T4S2Q



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Power supply slot 1	10	Power supply slot 2

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11	Forty-eight 1000BASE-T Ethernet electrical ports	12	Four 10G SFP+ Ethernet optical ports
13	Two 40GE QSFP+ Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-13 Slots on the CE5855F-48T4S2Q

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 5800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 5800 series switches support 1+1 backup of power modules: When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CE5855F-48T4S2Q switches has three fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that three fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-16 Indicators on the CE5855F-48T4S2Q 1

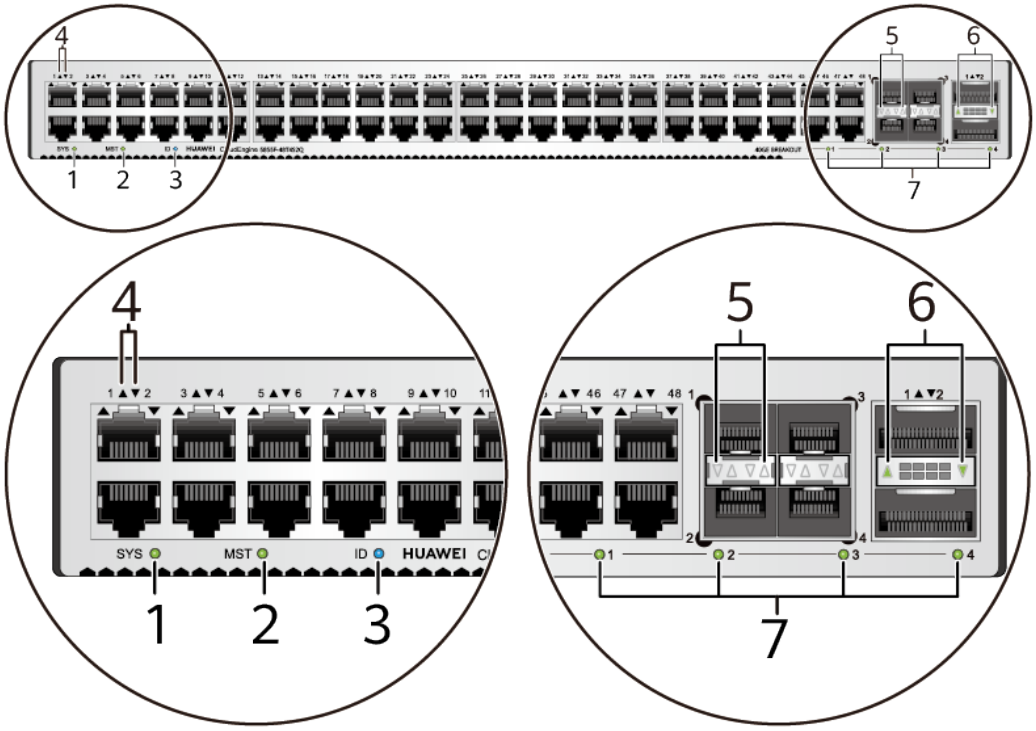
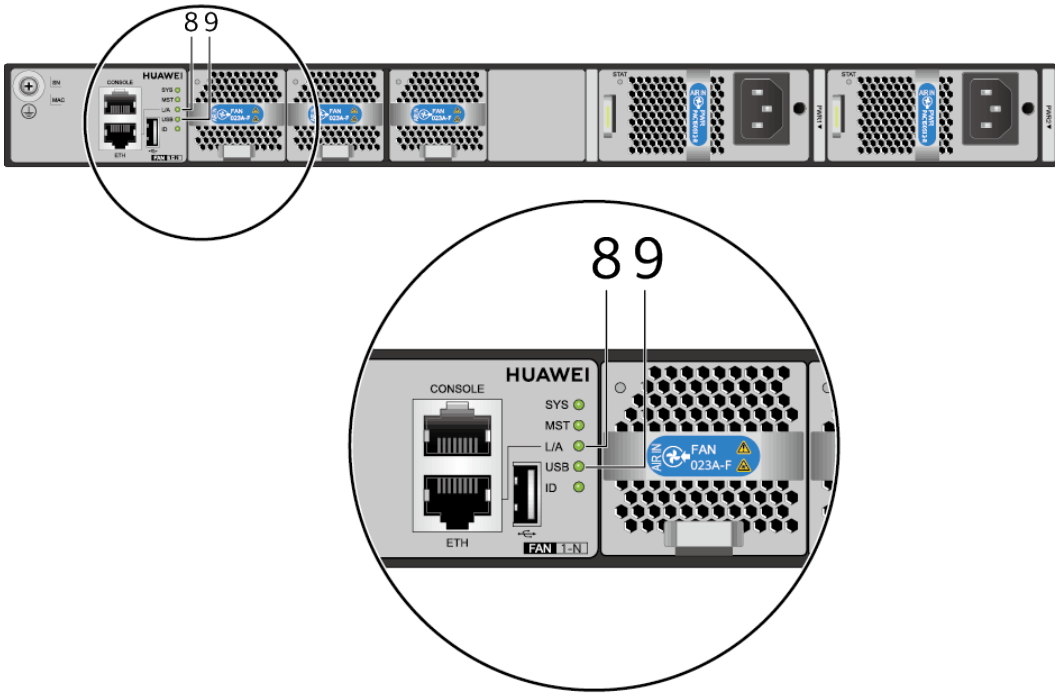


Figure 4-17 Indicators on the CE5855F-48T4S2Q 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (1000BASE-T electrical port)	5. Service port indicator (10GE SFP+ optical port)
6. Service port indicator (40GE QSFP+ optical port)	7. 40G Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE QSFP+ optical port)	8. ETH management port indicator	9. USB-based deployment indicatorc	-

Table 4-14 Indicators on the CE5855F-48T4S2Q

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running properly.
		Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
MST	Stack master/ slave indicator	Green	Off	The switch is not a master switch in the stack.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. • After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a master switch in the stack or a standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (GE electrical port) **NOTE** The indicator on the left indicates the port at the top, and the indicator on the right indicates the port at the bottom.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Yellow	Off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (40GE optical port) **NOTE** • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. • When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated port is identified by indicators 40G Breakout 1/2/3/4 on the lower right corner of the panel. • Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40GE Breakout indicators 1/2/3/4 (10GE ports converted from a 40GE port)	Green	Off	40GE ports are not split into four 10GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Steady on	At least one 40GE port has been split into four 10GE ports. When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator shows the status of a 10GE port converted from the 40GE port: ● When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port. ● When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port

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Silkscreen	Name	Color	Status	Description
				converted from the corresponding 40GE port. • When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port. • When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.
L/A	ETH management port indicator	Green	Off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment has failed.

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Ports

Table 4-15 Ports on the CE5855F-48T4S2Q

Port	Connector Type	Description	Available Components
10/100/1000BASE-T Ethernet Electrical Port	RJ45	A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. • Standards compliance: IEEE802.3ab • Applicable cable: straight-through cable and crossover cable • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Straight-through cable and crossover cable

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Port	Connector Type	Description	Available Components
10GE SFP+ Ethernet Optical Port	LC	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1 Gbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. • Standards compliance: IEEE802.3ae • Optical port attributes: depending on the module or cable in use • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1) 10GE optical interfaces installed with GE copper modules support the rate of 10Mbit/s, 100Mbit/s, or 1000 Mbit/s. 2) 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE QSFP+ Ethernet Optical Port	Depending on the optical module	A 40GE QSFP+ Ethernet optical port receives and sends services at the rate of 40 Gbit/s. If a 40GE QSFP+ Ethernet optical port is split into four 10GE ports, it must use 1-to-4 QSFP+ optical modules and optical fibers or 1-to-4 QSFP+ cables. • Standards compliance: IEEE802.3ba • Optical port attributes: depending on the module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to 4*SFP+ AOC cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **NOTE** 1) A 40GE QSFP+ port can be split into four 10GE ports. 2) The QSFP-100G-4WDM-40 optical module is not supported.
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	**Console cable**

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Port	Connector Type	Description	Available Components
ETH Management Port	RJ45	The ETH management port of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Supported rate: 10/100/1000 Mbit/s auto-sensing. Full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 5800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

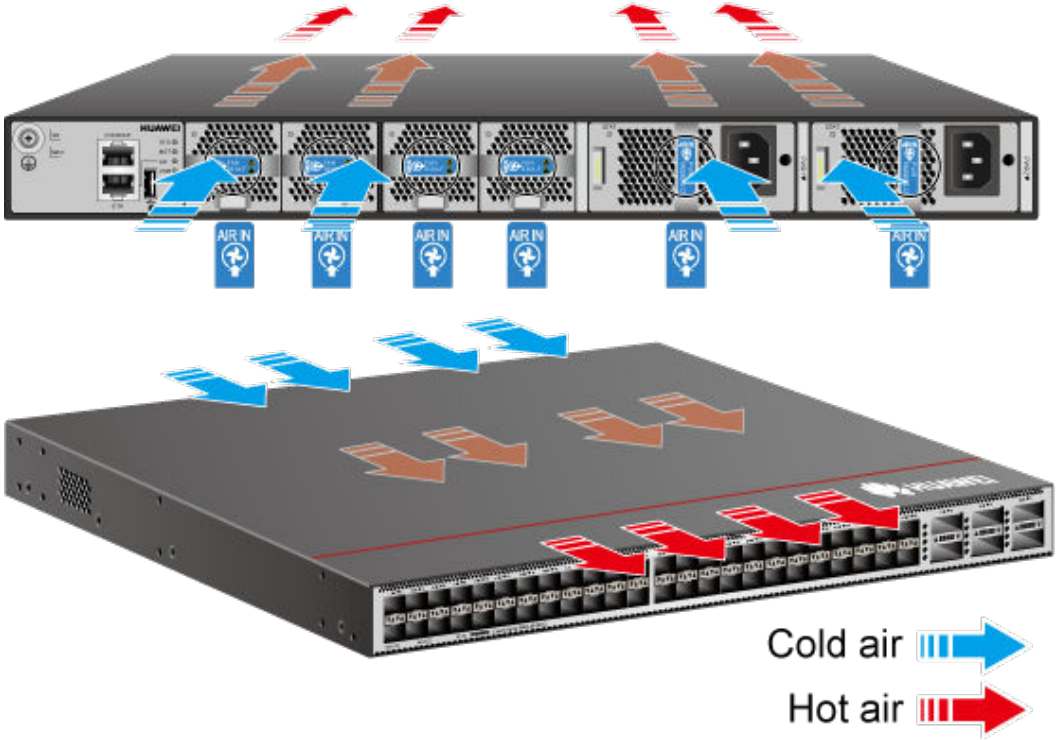
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

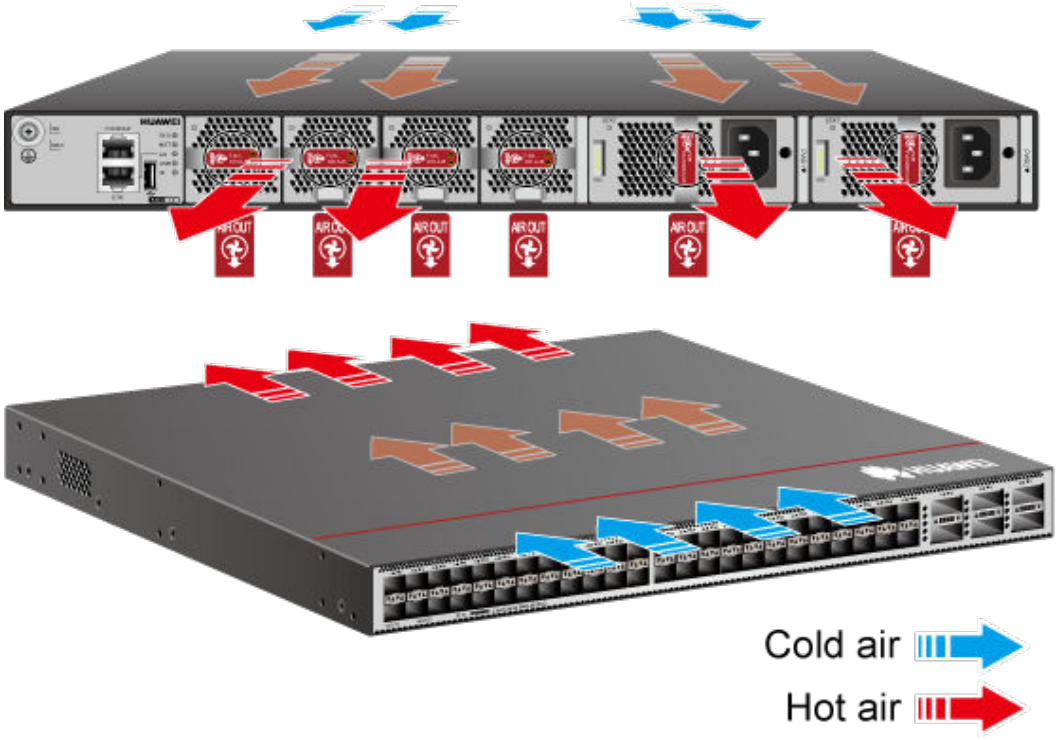
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-18 Front-to-back airflow for port-side exhaust



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Figure 4-19 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 5800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-16 Technical specifications of the CE5855F-48T4S2Q

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.2 kg (11.5 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.6 kg (16.8 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	8.7 kg (19.2 lb)
Weight with packaging (full configuration) [kg (lb)]	11.1 kg (24.5 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 2 GB
NOR Flash	64 MB
NAND Flash	1 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10/100/1000BASE-T
Uplink Service interface	4*10G SFP+, 2*40G QSFP+
Service port supporting the stack function	10GE optical ports and 40GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 98 W (50% throughput, 3 m Ethernet cables on 48 ports and high-speed cables on four 10GE and two 40GE ports, normal temperature, dual AC power modules) • 102 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on four 10GE and two 40GE ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	• 334 BTU/hour (50% throughput, 3 m Ethernet cables on 48 ports and high-speed cables on four 10GE and two 40GE ports, normal temperature, dual AC power modules) • 348 BTU/hour (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on four 10GE and two 40GE ports, normal temperature, dual AC power modules)
Static power consumption [W]	74 W
Static heat dissipation [BTU/hour]	252 BTU/hour
Maximum power consumption [W]	141 W
Maximum heat dissipation	481 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 150 W AC power module : 100 V AC to 240 V AC, 50/60 Hz • 180 W DC power module : -48 V DC to -60 V DC • 1200 W high-voltage DC power module : 240 V DC to 380 V DC
Input voltage range [V]	• 150 W AC power module : 90 V AC to 290 V AC, 45 Hz to 65 Hz • 180 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module : 190 V DC to 400 V DC

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Item	Specification
Maximum input current [A]	• 150 W AC power module : 3 A (100 V AC to 240 V AC) • 180 W DC power module : 6 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module : 8 A
Rated output power [W]	• 150 W AC power module : 150 W • 180 W DC power module : 180 W • 1200 W high-voltage DC power module : 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode. • DC: 4 kV in common mode and 2 kV in differential mode. • HVDC: 4 kV in common mode and 2 kV in differential mode.
Types of fans	Pluggable
Number of fans	3
Redundant fans	The device supports 2+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.99999643061
MTBF [year]	57.57 years
MTTR [hour]	1.8 hours

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Item	Specification
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 45.58 dBA (maximum: 49.2 dBA) • Back-to-front airflow: average 44.48 dBA (maximum: 47.6 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 56.91 dBA (maximum: 59.6 dBA) • Back-to-front airflow: average 56.94 dBA (maximum: 61.8 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.3.3.2 CE5855F-48T4S2Q (02354HPQ-001)

Overview

Table 4-17 Basic information about the CE5855F-48T4S2Q

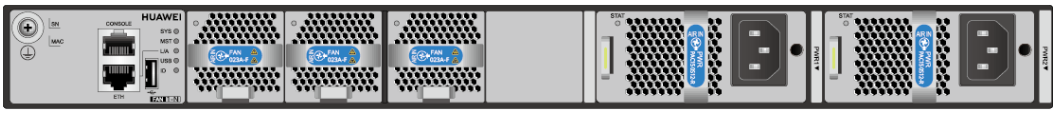
Item	Details
Description	CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, without fan and power modules)
Part Number	02354HPQ-001
Model	CE5855F-48T4S2Q
First supported version	V200R021C10SPC600

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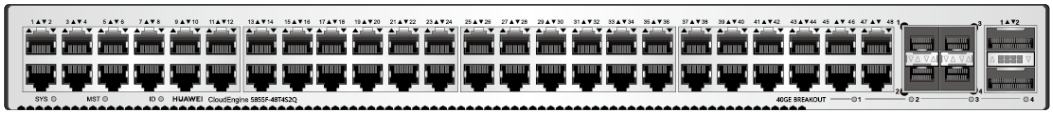
Item	Details
Other part numbers	02354HPR-001 (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side intake)) 02354HPS-001 (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side exhaust)) 02355MSV (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, without fan and power modules)) 02355MSW (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side intake)) 02355MSX (CE5855F-48T4S2Q switch (48*GE RJ45, 4*10GE SFP+, 2*40GE QSFP+, 2*AC power modules, 3*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE5855F

Appearance

Figure 4-20 Appearance of the CE5855F-48T4S2Q



Front (power supply side)



Rear (port side)

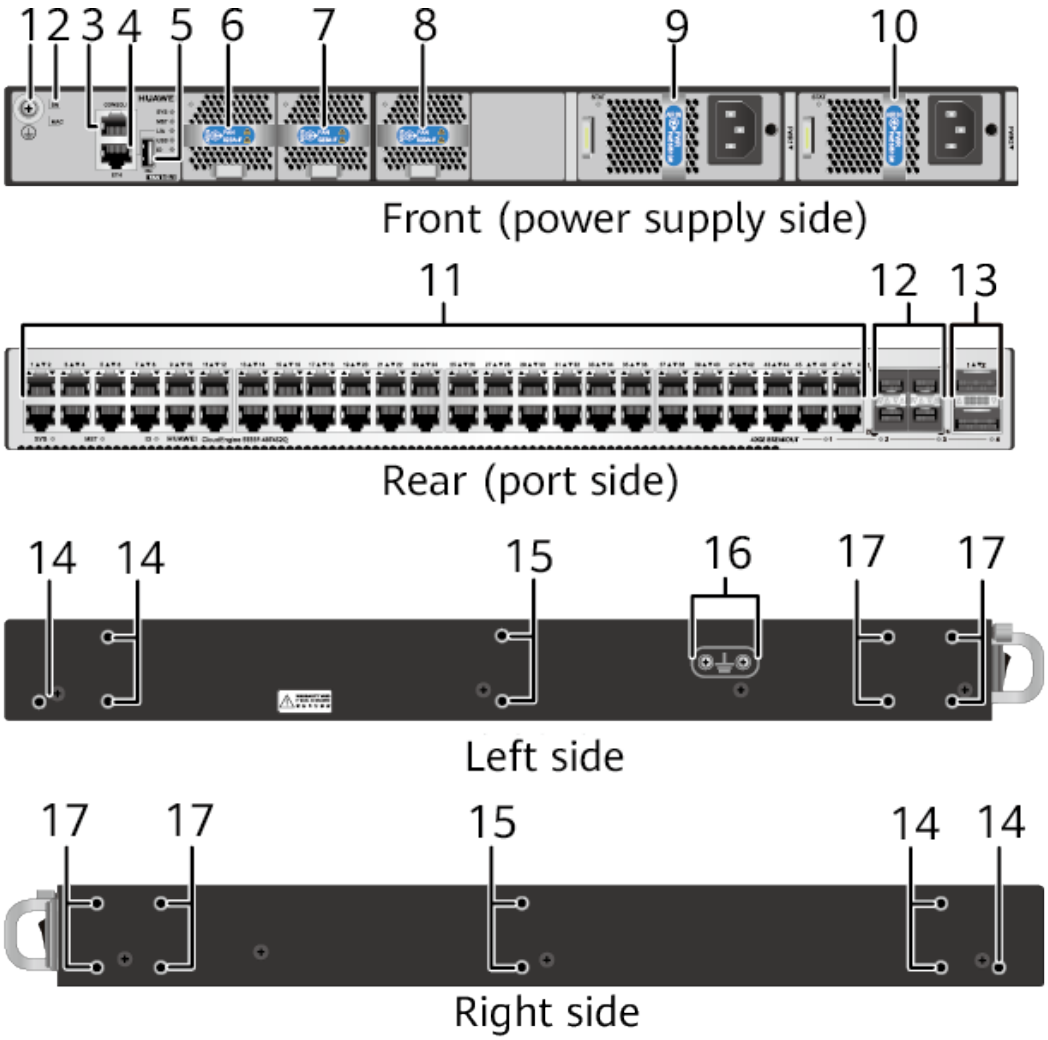
NOTE

The figures in this document are for reference only.

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Components

Figure 4-21 Components of the CE5855F-48T4S2Q



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Power supply slot 1	10	Power supply slot 2

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11	Forty-eight 1000BASE-T Ethernet electrical ports	12	Four 10G SFP+ Ethernet optical ports
13	Two 40GE QSFP+ Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-18 Slots on the CE5855F-48T4S2Q

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	1) Each of the CloudEngine 5800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 5800 series switches support 1+1 backup of power modules: When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) Each of the CE5855F-48T4S2Q switches has three fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that three fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-22 Indicators on the CE5855F-48T4S2Q 1

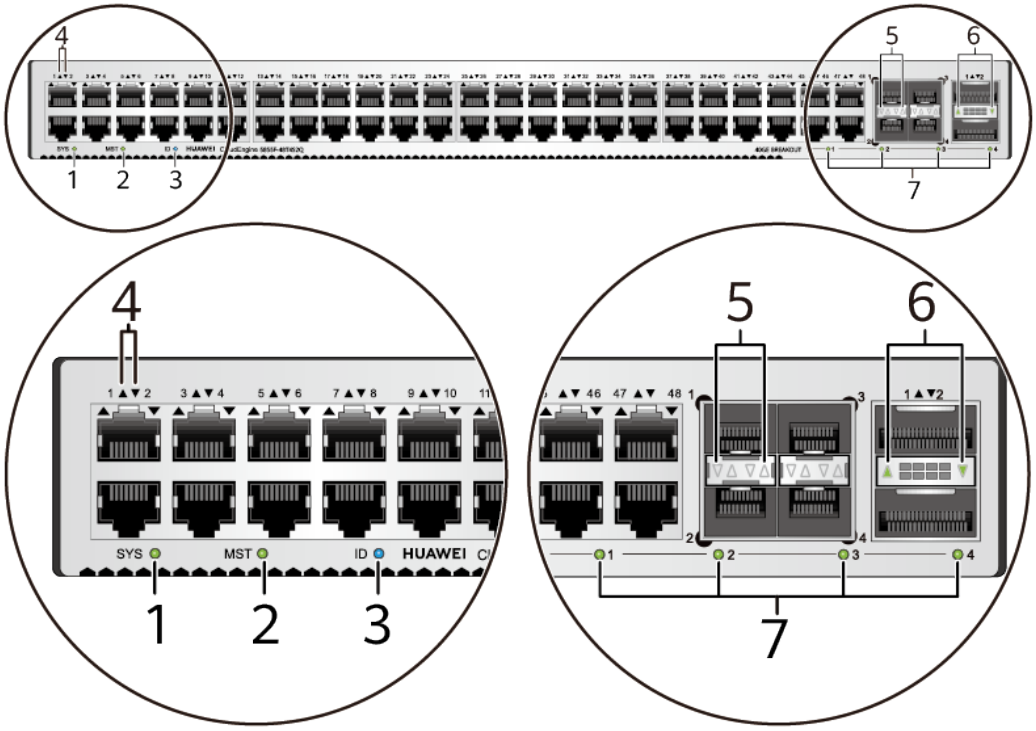
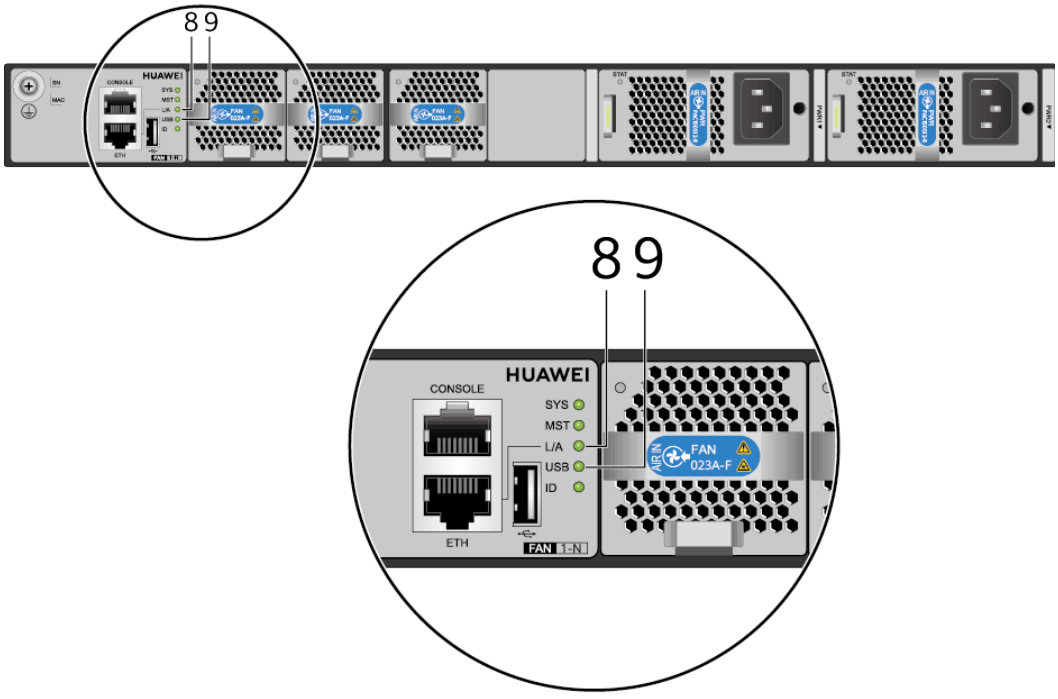


Figure 4-23 Indicators on the CE5855F-48T4S2Q 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (1000BASE-T electrical port)	5. Service port indicator (10GE SFP+ optical port)
6. Service port indicator (40GE QSFP+ optical port)	7. 40G Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE QSFP+ optical port)	8. ETH management port indicator	9. USB-based deployment indicatorc	-

Table 4-19 Indicators on the CE5855F-48T4S2Q

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. • After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is not used and is off by default.
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (GE electrical port) **NOTE** The indicator on the left indicates the port at the top, and the indicator on the right indicates the port at the bottom.	Green	Steady off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE optical port)	Green	Steady off	The port is not connected or has been shut down.

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Silkscreen	Name	Color	Status	Description
	NOTE • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. • When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated port is identified by indicators 40G Breakout 1/2/3/4 on the lower right corner of the panel. • Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default.	Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40GE Breakout indicators 1/2/3/4 (10GE ports converted from a 40GE port)	Green	Steady off	40GE ports are not split into four 10GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Steady on	At least one 40GE port has been split into four 10GE ports. When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator shows the status of a 10GE port converted from the 40GE port: ● When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port. ● When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port

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Silkscreen	Name	Color	Status	Description
				converted from the corresponding 40GE port. • When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port. • When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-20 Ports on the CE5855F-48T4S2Q

Port	Connector Type	Description	Available Components
10/100/1000BASE-T Ethernet Electrical Port	RJ45	A 10/100/1000BASE-T Ethernet electrical port receives and sends services at a rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s. A 10/100/1000BASE-T Ethernet electrical port uses a Category 5 or higher category cable. • Standards compliance: IEEE802.3ab • Applicable cable: straight-through cable and crossover cable • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1 Gbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. • Standards compliance: IEEE802.3ae • Optical port attributes: depending on the module or cable in use • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1) 10GE optical interfaces installed with GE copper modules support the rate of 10Mbit/s, 100Mbit/s, or 1000 Mbit/s. 2) 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE QSFP+ Ethernet Optical Port	The connector type of the optical fiber depends on the optical module.	A 40GE QSFP+ Ethernet optical port receives and sends services at the rate of 40 Gbit/s. If a 40GE QSFP+ Ethernet optical port is split into four 10GE ports, it must use 1-to-4 QSFP+ optical modules and optical fibers or 1-to-4 QSFP+ cables. • Standards compliance: IEEE802.3ba • Optical port attributes: depending on the module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to 4*SFP+ AOC cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **NOTE** 1) A 40GE QSFP+ port can be split into four 10GE ports. 2) The QSFP-100G-4WDM-40 optical module is not supported.
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	**Console cable**

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 5800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

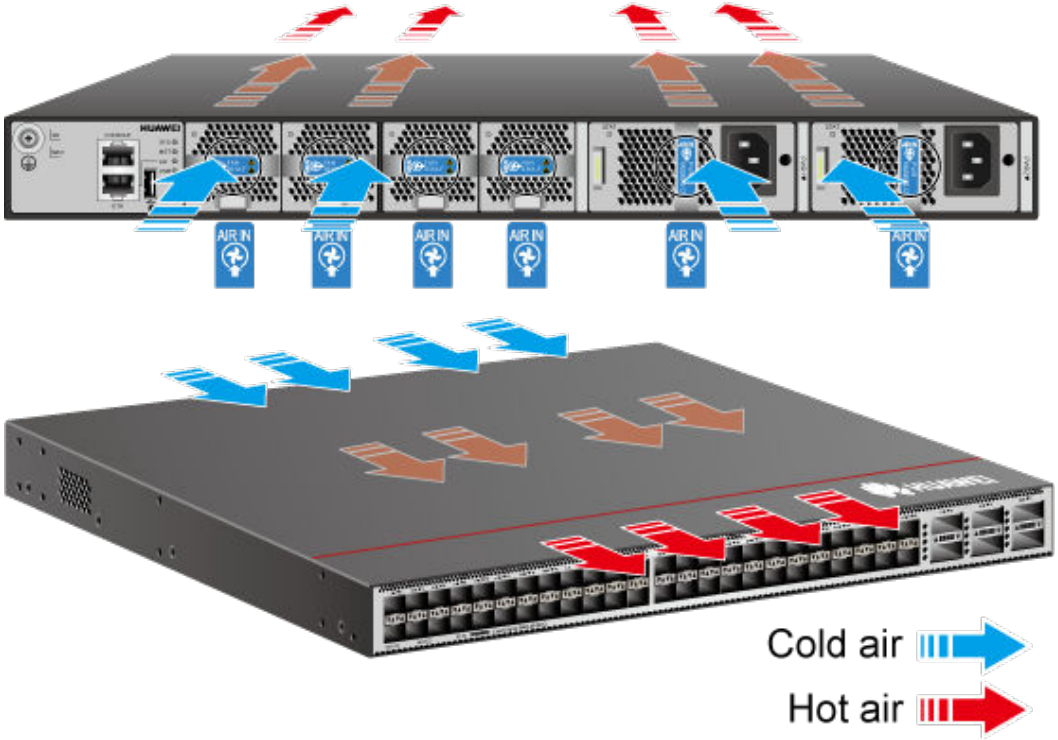
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

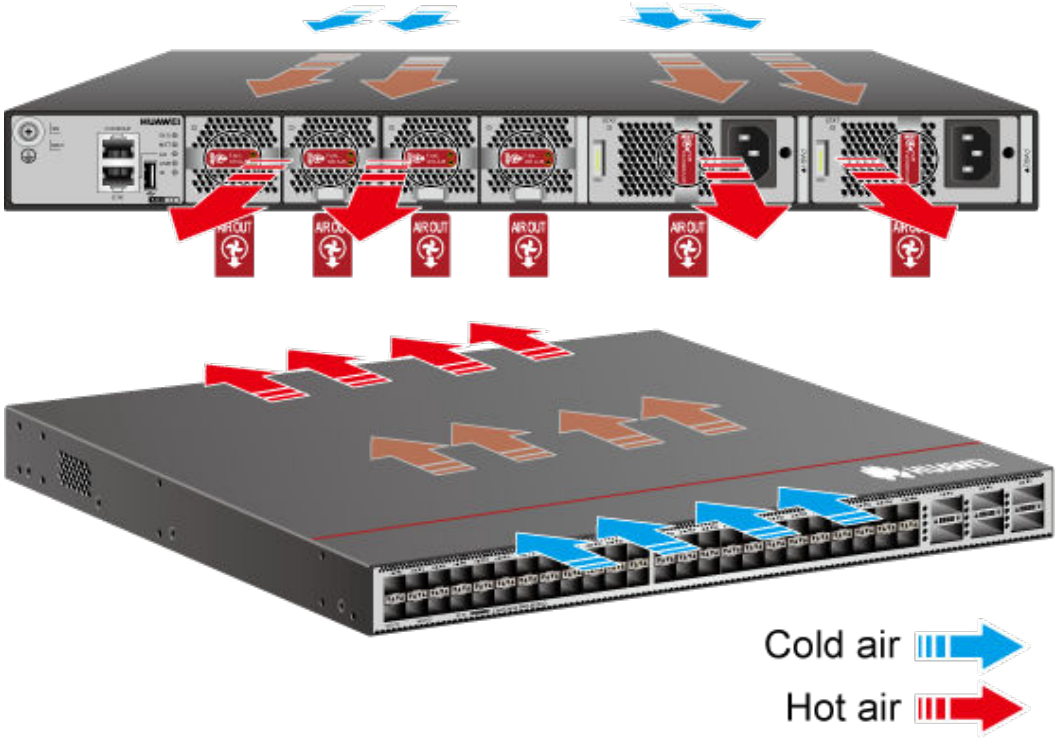
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-24 Front-to-back airflow for port-side exhaust



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Figure 4-25 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 5800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-21 Technical specifications of the CE5855F-48T4S2Q

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.2 kg (11.5 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.6 kg (16.8 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	8.7 kg (19.2 lb)
Weight with packaging (full configuration) [kg (lb)]	11.1 kg (24.5 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 2 GB
NOR Flash	64 MB
NAND Flash	1 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10/100/1000BASE-T
Uplink Service interface	4*10G SFP+, 2*40G QSFP+
Service port supporting the stack function	10GE optical ports and 40GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 98 W (50% throughput, 3 m Ethernet cables on 48 ports and high-speed cables on four 10GE and two 40GE ports, normal temperature, dual AC power modules) • 102 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on four 10GE and two 40GE ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	• 334 BTU/hour (50% throughput, 3 m Ethernet cables on 48 ports and high-speed cables on four 10GE and two 40GE ports, normal temperature, dual AC power modules) • 348 BTU/hour (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on four 10GE and two 40GE ports, normal temperature, dual AC power modules)
Static power consumption [W]	74 W
Static heat dissipation [BTU/hour]	252 BTU/hour
Maximum power consumption [W]	141 W
Maximum heat dissipation	481 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 150 W AC power module : 100 V AC to 240 V AC, 50/60 Hz • 180 W DC power module : -48 V DC to -60 V DC • 1200 W high-voltage DC power module : 240 V DC to 380 V DC
Input voltage range [V]	• 150 W AC power module : 90 V AC to 290 V AC, 45 Hz to 65 Hz • 180 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module : 190 V DC to 400 V DC

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Item	Specification
Maximum input current [A]	• 150 W AC power module : 3 A (100 V AC to 240 V AC) • 180 W DC power module : 6 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module : 8 A
Rated output power [W]	• 150 W AC power module : 150 W • 180 W DC power module : 180 W • 1200 W high-voltage DC power module : 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode. • DC: 4 kV in common mode and 2 kV in differential mode. • HVDC: 4 kV in common mode and 2 kV in differential mode.
Types of fans	Pluggable
Number of fans	3
Redundant fans	The device supports 2+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.99999643061
MTBF [year]	57.57 years
MTTR [hour]	1.8 hours

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Item	Specification
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 45.58 dBA (maximum: 49.2 dBA) • Back-to-front airflow: average 44.48 dBA (maximum: 47.6 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 56.91 dBA (maximum: 59.6 dBA) • Back-to-front airflow: average 56.94 dBA (maximum: 61.8 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4 CE6800

4.4.1 CE6820-48S6CQ (02352TLE)

Overview

Table 4-22 Basic information about the CE6820-48S6CQ

Item	Details
Description	CE6820-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02352TLE
Model	CE6820-48S6CQ
First supported version	V200R005C20

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Item	Details
Other part numbers	02352TLJ (CE6820-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)) 02352TLG (CE6820-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake))
Short Name	CE6820

Appearance

Figure 4-26 Appearance of the CE6820-48S6CQ



Front (power supply side)



Rear (port side)

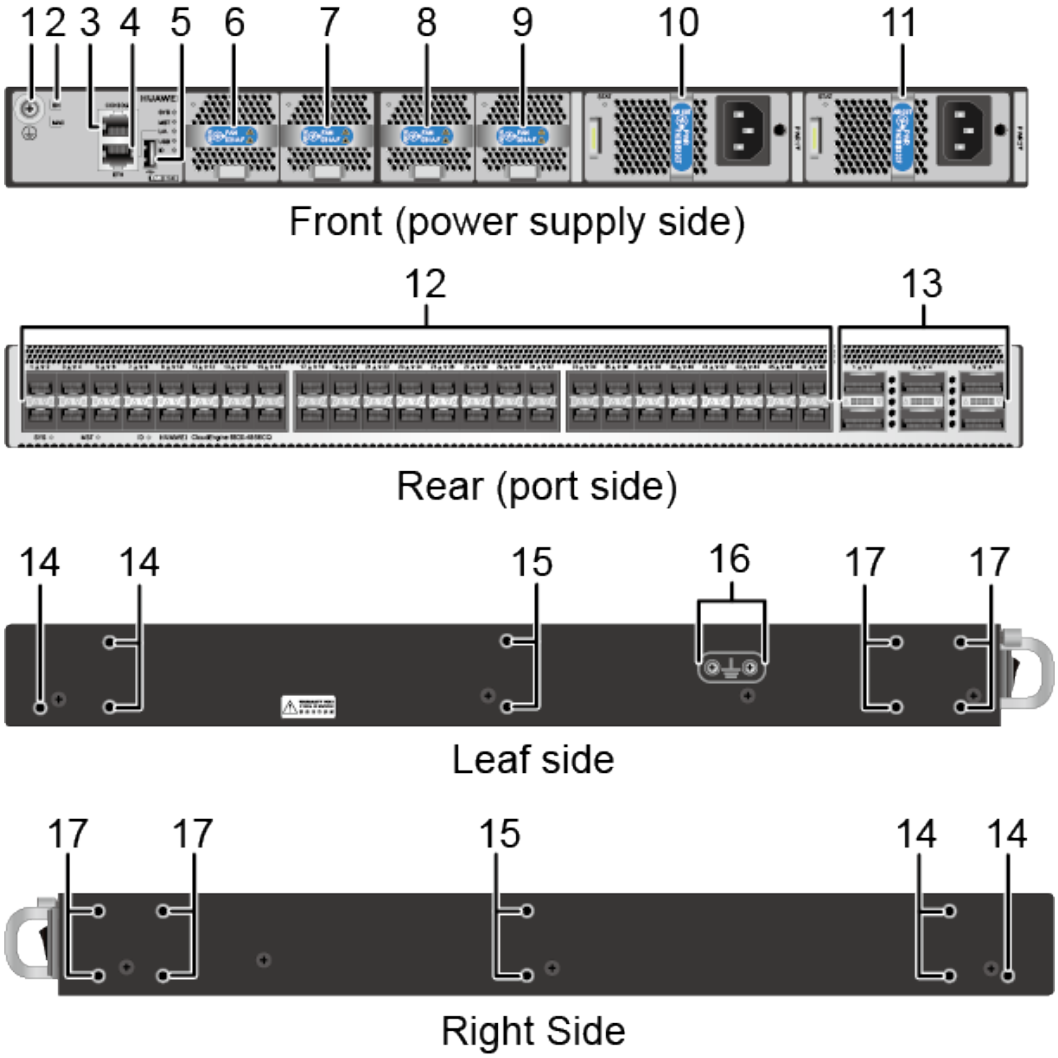
NOTE

The figures in this document are for reference only.

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Components

Figure 4-27 Components of the CE6820-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-23 Slots on the CE6820-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	• Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. • The CloudEngine 6800 series switches support 1+1 backup of power modules: When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. - All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	• Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-28 Indicators on the CE6820-48S6CQ 1

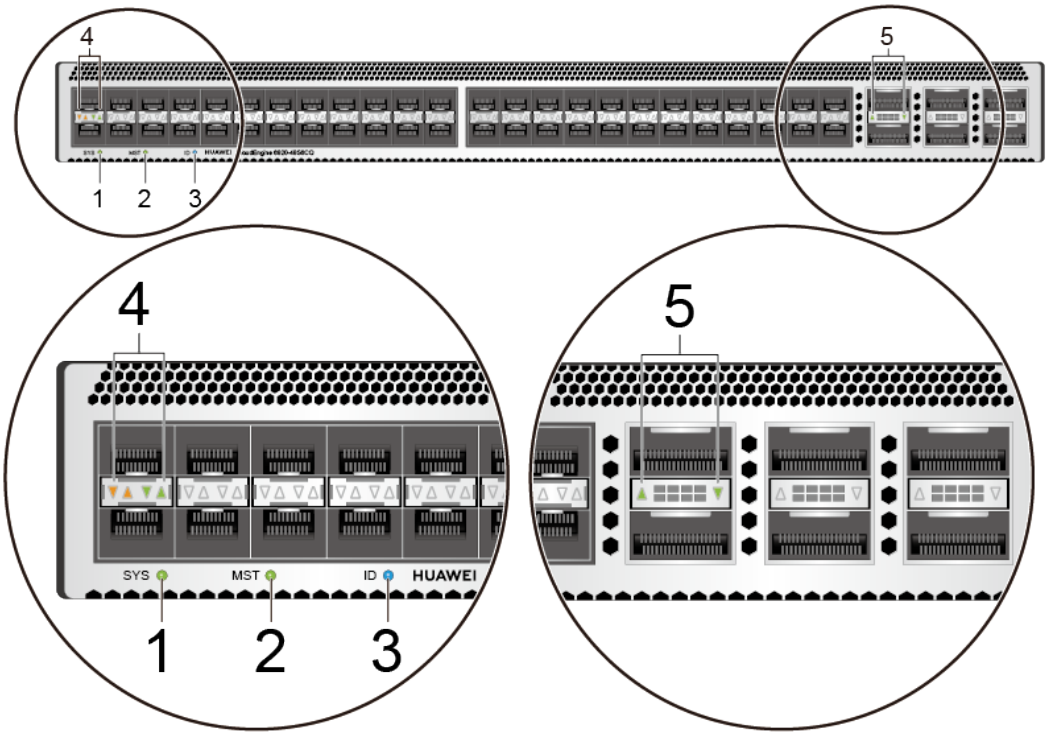
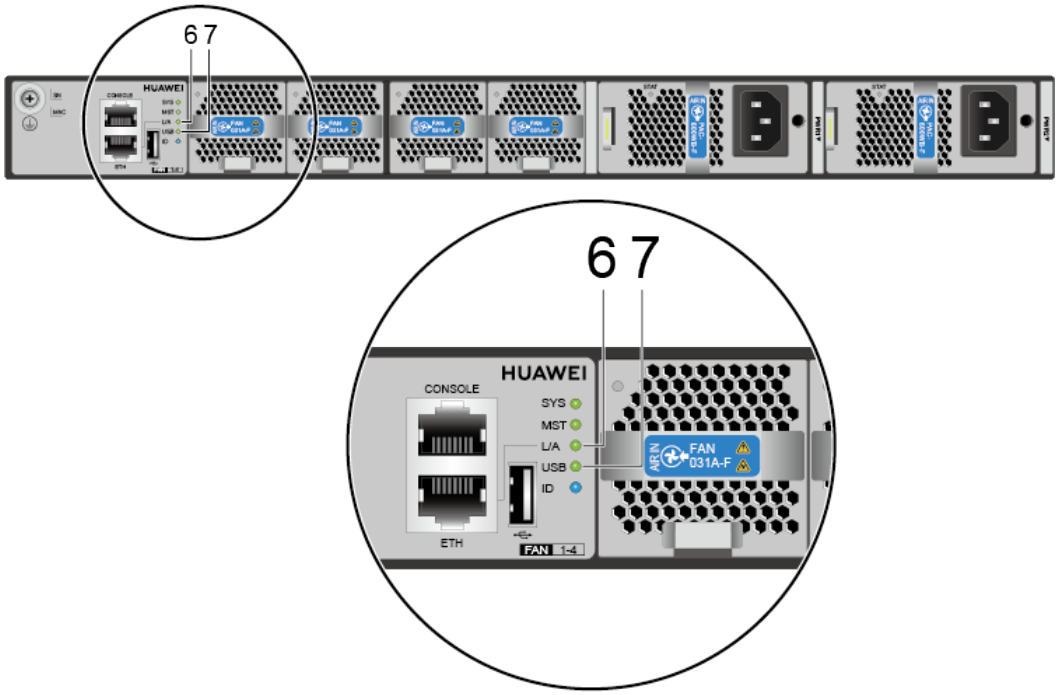


Figure 4-29 Indicators on the CE6820-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-24 Indicators on the CE6820-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Off	The switch is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status.After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a stack master or standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Yellow	Off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	ETH management port indicator	Green	Off	No link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment has failed.

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Ports

Table 4-25 Ports on the CE6820-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ Ethernet Optical Port	LC	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. • Optical attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1) 10GE optical interfaces installed with GE copper modules only support the rate of 100Mbit/s, or 1000 Mbit/s. 2) 10GE optical interfaces do not support the OSXD22N00, or LE2MXSC80FF0 optical module.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	Depending on the optical module	A 40GE/100GE QSFP28 optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • A 40GE/100GE QSFP28 optical port cannot be split. • Optical attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4 x 25GE or 4 x 10GE ports. Auto-negotiation of copper cables is not supported. QSFP+ to QSFP+ and QSFP28 to QSFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports only 1 m QSFP28 high-speed cables. 3. When a 100GE port is configured to work at 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	Console cable
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-30 Front-to-back airflow for port-side exhaust

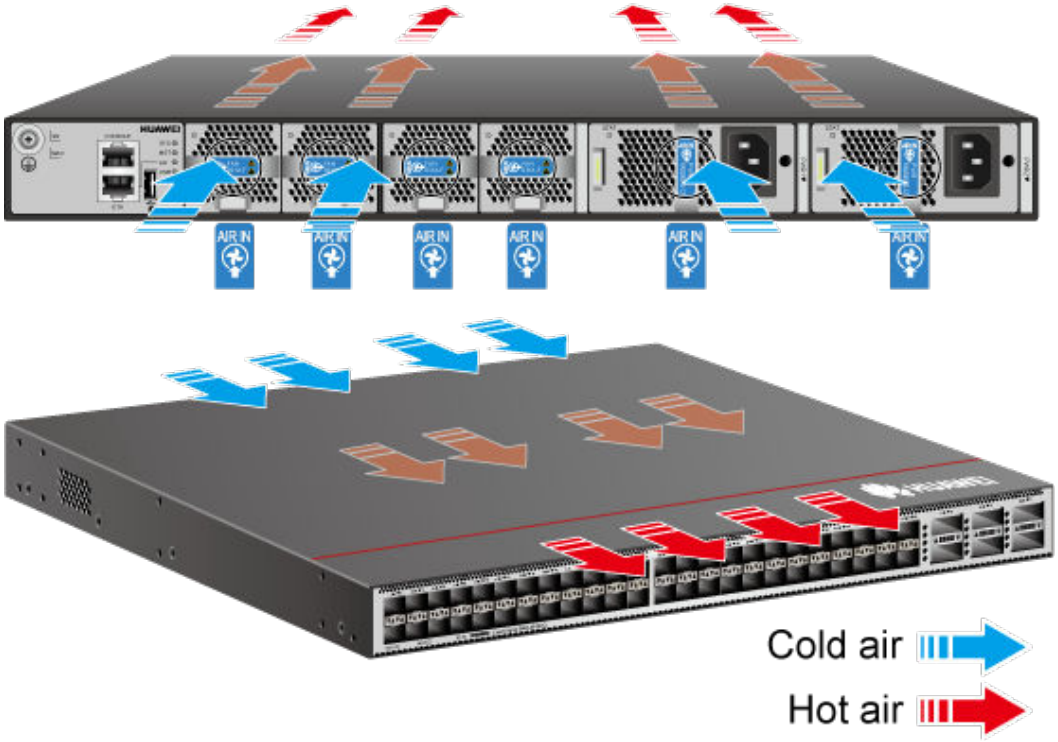
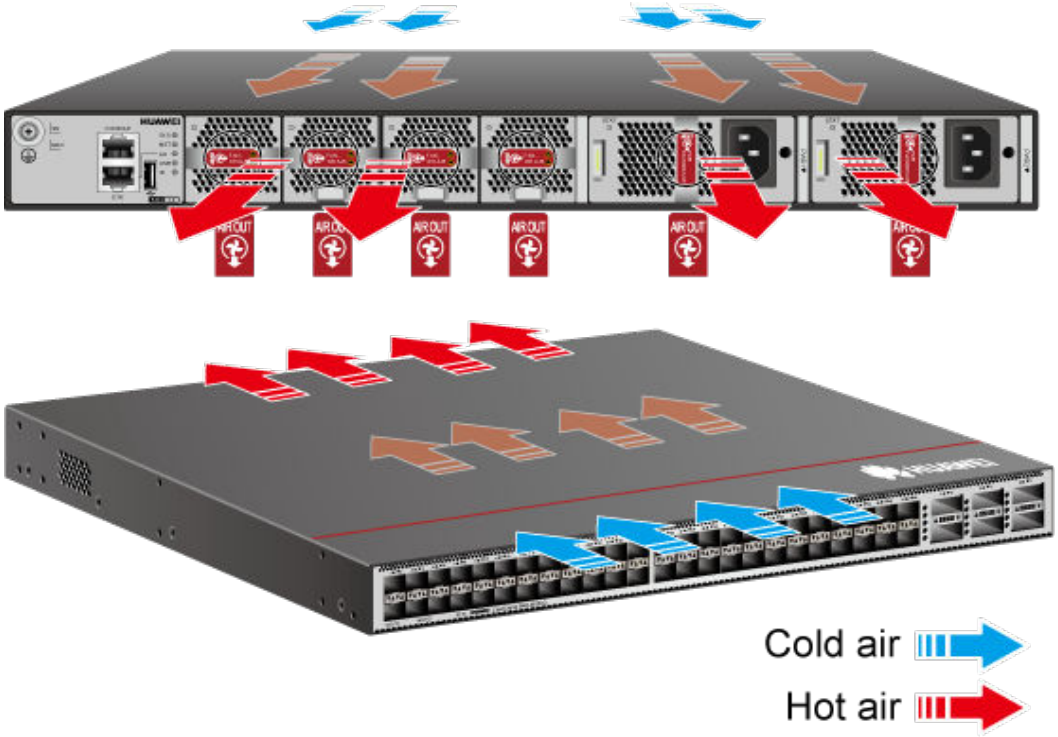


Figure 4-31 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-26 Technical specifications of the CE6820-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.6 kg (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.7 kg (17.0 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9kg (excluding optical modules, power modules, and fan modules)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	2GB
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*10GE SFP+ (Note: 1. 10GE interfaces are compatible with GE; 2. The interfaces do not support 10GE LRM/80KM linear optical modules)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE 1 m copper cables and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports.
Service port supporting the stack function	10GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 162 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 196 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 553 BTU/hr (100% throughput, SFP + high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 669BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	102 W
Static heat dissipation [BTU/hour]	348 BTU/hour
Maximum power consumption [W]	282 W
Maximum heat dissipation	962
Number of power modules	2
Redundant power supply	1+1 backup

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Item	Specification
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Maximum output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.99999618
MTBF [year]	45.48 year
MTTR [hour]	1.52 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 55 dB(A) • Back-to-front airflow: < 56 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 71 dB(A) • Back-to-front airflow: < 72 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.2 CE6856-48T6Q-HI

Version Mapping

Table 4-27 lists the mappings between the CE6856-48T6Q-HI and software versions.

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Table 4-27 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE6800	CE6856	CE6856-48T6Q-HI	CE6856HI	V200R002C50 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

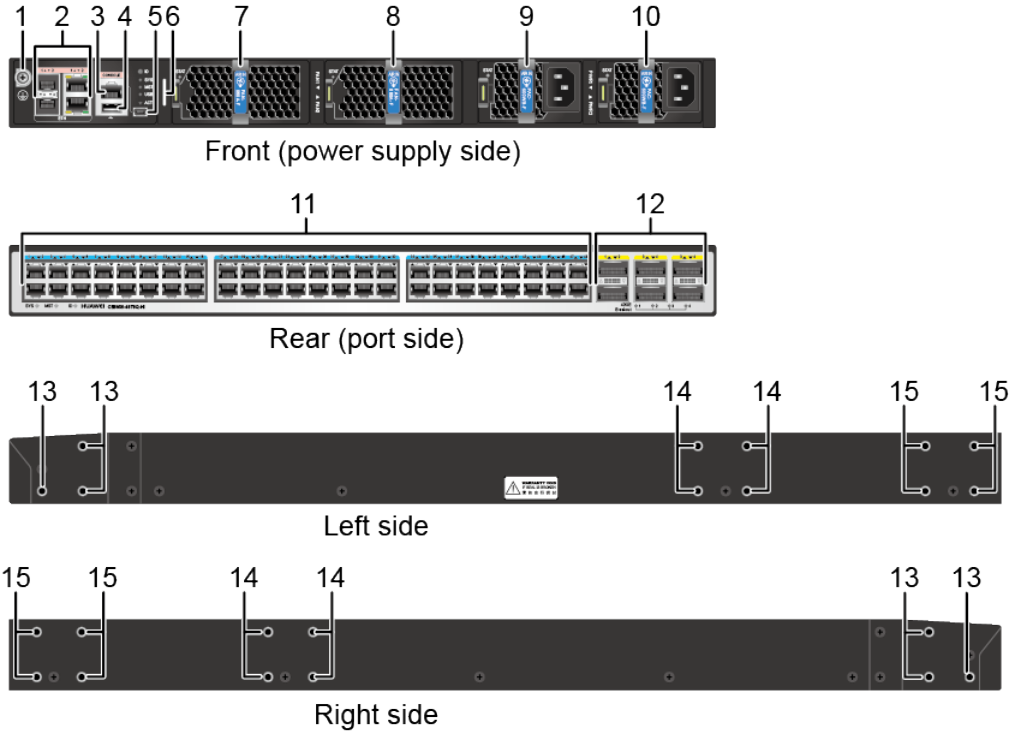
Appearance and Structure

NOTE

The appearances of devices and modules are subject to actually delivered products. The figures in this document are for reference only.

CE6856-48T6Q-HI appearance

Figure 4-32 CE6856-48T6Q-HI



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1	Ground screw	2	Two ETH management ports (combo) Applicable modules for the GE optical port of the combo port: • **9.3 FE SFP_eSFP Optical Modules** • **9.4 GE eSFP Optical Modules** **NOTE** The combo optical port uses a 100M or GE optical module and matching fibers. A 100M optical module can be used only after the switch starts successfully.
3	Console port	4	USB port
5	Mini USB port	6	Barcode label **NOTE** This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.
7	Fan slot 1 Applicable fan modules: • **6.9 FAN-060A Series Fan Modules**	8	Fan slot 2 Applicable fan modules: • **6.9 FAN-060A Series Fan Modules**
9	Power supply slot 1 Applicable power modules: • **600 W AC&240 V DC power module (PAC-600WB)** • **5.12 600 W High-Voltage DC Power Module** • **5.26 1200 W DC Power Module (PDC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)**	10	Power supply slot 2 Applicable power modules: • **600 W AC&240 V DC power module (PAC-600WB)** • **5.12 600 W High-Voltage DC Power Module** • **5.26 1200 W DC Power Module (PDC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)**

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11	Forty-eight 10GBASE-T Ethernet electrical ports	12	Six 40GE QSFP+ Ethernet optical ports **NOTE** A 40GE QSFP+ port can be split into four 10GE ports. In V200R005C00 and later versions, a QSA convertor can be installed on a 40GE interface that has been split. Installing a medium whose rate is 10 Gbit/s on the QSA convertor makes a 40GE interface function as a 10GE interface. Only the first split interface works and other three split interfaces are unavailable. If a QSA convertor is installed on an interface that is not split or a medium whose rate is not 10 Gbit/s is installed on the QSA convertor on an interface that has been split, the interface enters the Down(Transceiver type mismatch) status. Applicable modules and cables: • **9.9 40GE QSFP+ Optical Modules** • **8.9.4 QSFP+ to QSFP+ AOC cable** • **8.9.5 QSFP+ to 4*SFP+ AOC cable** • **8.8.5 QSFP+ to 4*SFP+ High-Speed Cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable**
13	Three port-side mounting holes for mounting brackets	14	Four middle mounting holes for mounting brackets
15	Four power-supply-side mounting holes for mounting brackets	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

  – When both power modules are working properly, they equally provide power for a chassis.

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  - When one power module fails, the other one provides all power required for a chassis.

  All power modules are hot swappable.

- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-33** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

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Figure 4-33 Front-to-back airflow (air flows out from the port side)

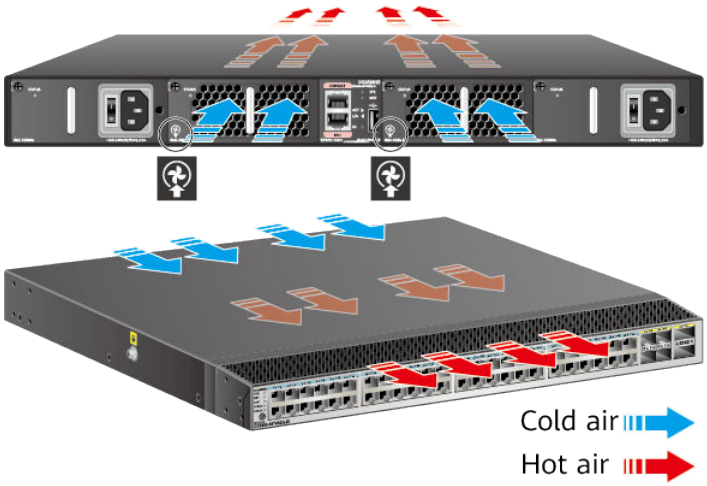
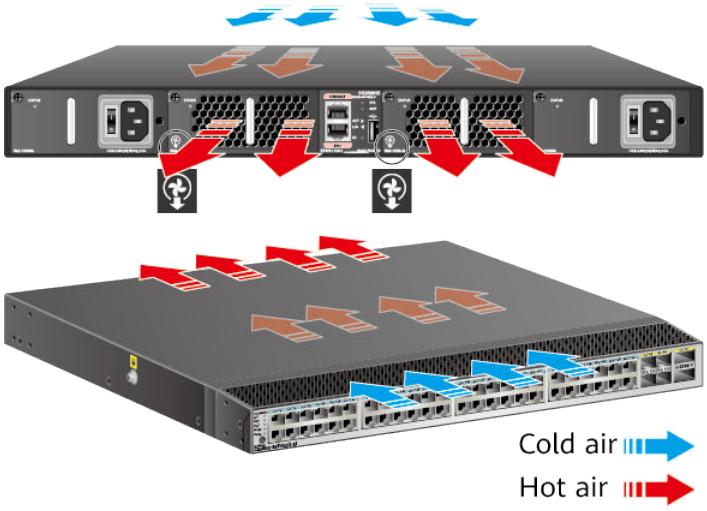


Figure 4-34 Back-to-front airflow (air flows in from the port side)



Indicators

The downlink service port indicators of the CE6856-48T6Q-HI are 10GE electrical port indicators, and other indicators on the CE6856-48T6Q-HI are the same as those on the CE6850-48S6Q-HI. This figure shows the indicators on the CE6850-48S6Q-HI.

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Figure 4-35 Indicators on the CE6850-48S6Q-HI rear panel

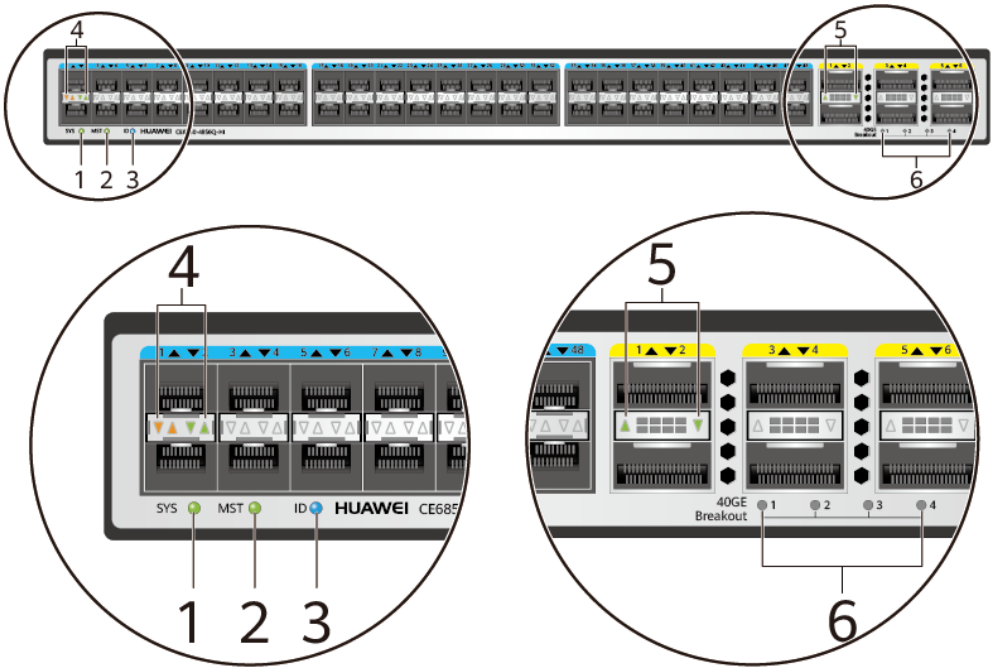


Figure 4-36 Indicators on the CE6850-48S6Q-HI front panel

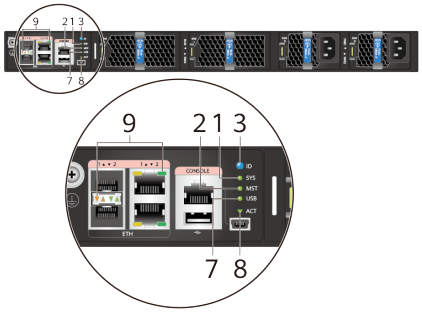


Table 4-28 Indicators on the CE6856-48T6Q-HI

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running properly.

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No.	Indicator	Name	Color	Status	Description
			Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
2	MST	Stack master/slave indicator **NOTE** In V200R003C00 and later versions, you can use the **dfs-master led enable** command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Off	The device is not a stack master.
				Steady on	The device is a stack master or standalone switch.
3	ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
				Steady on	The ID indicator can be turned on or off remotely to help field engineers find the switch to be maintained.
4	-	Service port indicator	Green	Off	The port is not connected or has been shut down.

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No.	Indicator	Name	Color	Status	Description
		(10GE electrical port) **NOTE** Each 10GE electrical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.		Steady on	The port is connected.
			Yellow	Off	The port is not sending or receiving data.
				Blinking	The port is sending or receiving data.
5	-	Service port indicator (40GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	The port is not connected or has been shut down.
				Steady on	The port is connected.
				Blinking	The port is sending or receiving data.
			When a 40GE port is divided into four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated port is identified by indicators 40GE Breakout 1/2/3/4 on the lower right corner of the panel. **NOTE** Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default. If a 40GE port is not split and is connected to four 10GE ports on a remote device using a 1-to-4 cable, the 40GE port cannot go Up and its indicator is off.		

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No.	Indicator	Name	Color	Status	Description
6	-	40GE Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE port) **NOTE** Indicators 1, 2, 3, and 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Off	40GE ports are working in 40GE mode and no port is split into four 10GE ports.

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No.	Indicator	Name	Color	Status	Description
				Steady on	At least one 40GE port is split into four 10GE ports and works in 10GE mode. When a 40GE port is divided into four 10GE ports, these indicators identify the sequence numbers of the 10GE ports together with the service port indicator (40GE optical port). A port indicator (5 in **Figure 4-35**) shows the status of a 10GE port converted from the corresponding 40GE port: • When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port. • When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port. • When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port. • When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port. Example: If the first 40GE port in **Figure 4-35** is split into four 10GE ports and the second 40GE port is not split: • When Breakout indicator 1 is on, the indicator of 40GE port 1 shows the status of the first 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2. • When Breakout indicator 2 is on, the indicator of 40GE port 1

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No.	Indicator	Name	Color	Status	Description
					shows the status of the second 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
7	USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment is complete.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment fails.
8	ACT	Mini USB port indicator	Green	Off	The mini USB port is not activated and the current console port is available.
				Steady on	The mini USB port is activated and the current console port is unavailable.
9	-	Management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.
			Yellow	Blinking	The port is sending or receiving data.

Ports

10GBASE-T Ethernet Electrical Port

A 10GBASE-T Ethernet electrical port receives and sends service traffic at the rate of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work at the rate of 100 Mbit/s or 1000 Mbit/s through auto-sensing. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. **Table 4-29** shows the attributes of a 10GBASE-T Ethernet electrical port.

Table 4-29 Attributes of a 10GBASE-T Ethernet electrical port

Attribute	Description
Connector type	RJ45

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Attribute	Description
Standards compliance	IEEE802.3an and IEEE802.3az
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 100/1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

40GE QSFP+ Ethernet Optical Port

A 40GE QSFP+ Ethernet optical port receives and sends services at the rate of 40 Gbit/s. If a 40GE QSFP+ Ethernet optical port is split into four 10GE ports, it must use 1-to-4 QSFP+ optical modules and optical fibers or 1-to-4 QSFP+ cables. **Table 4-30** describes the attributes of a 40GE QSFP+ Ethernet optical port.

Table 4-30 Attributes of a 40GE QSFP+ Ethernet optical port

Attribute	Description
Connector type	LC/MPO
Optical port attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 4-31** describes the attributes of the console port.

Table 4-31 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)

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Attribute	Description
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

NOTE

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Mini USB Port

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

ETH Management Port (Combo)

The ETH management port (combo) consists of an electrical port and an optical port. You can connect the electrical or optical port to a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The electrical and optical ports are logically multiplexed, and only one of them can work at a time.

NOTE

The combo port automatically selects the working mode as follows:

- If the optical port has no optical module installed and the electrical port has no network cable connected, the port type depends on which port is connected first. If the electrical port is connected by a network cable first, the electrical port is used for data switching. If the optical port has an optical module installed first, the optical port is used for data switching.
- If the electrical port has a network cable connected and is in Up state, the electrical port is still used for data switching when the optical port has an optical module installed.
- If the optical port has an optical module installed and is in Up state, the optical port is still used for data switching when the electrical port has a network cable connected.
- If the optical port has an optical module and optical fiber installed and the electrical port has a network cable connected, the optical port is used for data switching after the switch restarts.

The combo electrical port uses a Category 5 or higher category network cable. **Table 4-32** describes the attributes of the combo electrical port.

Table 4-32 Attributes of the combo electrical port

Attribute	Description
Connector type	RJ45

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Attribute	Description
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

The combo optical port uses a 100M or GE optical module and matching optical fibers. A 100M optical module can be used only after the switch starts successfully. If a 10GE optical module is installed, the interface can go Up, but the system displays an alarm message, indicating that the interface does not support the optical module. If a GE copper module is installed and the remote interface also has a GE copper module installed, the local interface can go Up but does not support rate configuration. **Table 4-33** describes the attributes of the combo optical port.

Table 4-33 Attributes of the combo optical port

Attribute	Description
Connector type	LC
Standards compliance	IEEE802.3z
Working mode	100/1000 Mbit/s Full-duplex

The CE6856-48T6Q-HI switch has two ETH management ports (combo). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE6856-48T6Q-HI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see "Modify parameters" in the *Basic Configuration Guide - BIOS Menu*.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.

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– If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-34 lists technical specifications of the CE6856-48T6Q-HI switch.

Table 4-34 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 43.6 mm (17.4 in. x 23.6 in. x 1.72 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 12.6 kg (27.78 lb)
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: –40°C to +70°C (–40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 53 dBA • Front-to-back airflow: < 53 dBA
Power specifications	Power source type	AC/DC/high-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz

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Item		Description
	DC power input	• Rated voltage range: –48 V DC to –60 V DC • Maximum voltage range: –38.4 V DC to –72 V DC
	High-voltage DC power input	• Rated voltage of 240 V high-voltage DC power input: 240 V DC • Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC • Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC • Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC
	Rated input current	• 600 W AC&240 V DC power module (PAC-600WB series): 8 A (100 V AC to 240 V AC)/4 A (240 V DC) • 600 W high-voltage DC power module (PHD-600WA series): 4 A (240 V DC to 380 V DC) • 1200 W DC power module (PDC-1K2WA series): 38 A (–48 V DC to –60 V DC)
Chassis power consumption	Maximum power consumption	346 W
	Typical power consumption	219 W (100% throughput, 3 m Ethernet cables on 48 ports and QSFP+ cables on 6 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	1181 BTU/hr
	Typical heat dissipation	747 BTU/hr (100% throughput, 3 m Ethernet cables on 48 ports and QSFP+ cables on 6 ports, double power modules)
Surge protection		Ethernet electrical ports: 2 kV in common mode Power module: • AC: 4 kV in common mode and 2.5 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling

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Item		Description
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules
Reliability and availability	Power module backup	1+1 backup
	Fan module backup	1+1 backup not supported **NOTE** A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	54.48
	Mean time to repair (MTTR)	1.81
	Availability	0.99999620929
Technical specifications	Processor	1.2 GHz, quad-core
	DRAM Memory	4 GB
	NOR Flash	16 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE electrical ports and 40GE optical ports
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

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Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-35 provides the ordering information.

Table 4-35 Ordering information

Part Number	Part Model	Part Description
02351LVC	CE6856-48T6Q-HI	CE6856-48T6Q-HI Switch (48-Port 10GE RJ45, 6-Port 40GE QSFP+, Without Power Module and FAN Box)
02351YPR	CE6856-HI-F-B00	CE6856-48T6Q-HI Switch (48-Port 10GE RJ45, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02351YPQ	CE6856-HI-B-B00	CE6856-48T6Q-HI Switch (48-Port 10GE RJ45, 6-Port 40GE QSFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.4.3 CE6857-48S6CQ-EI

Version Mapping

Table 4-36 lists the mappings between the CE6857-48S6CQ-EI and software versions.

Table 4-36 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE6800	CE6857	CE6857-48S6CQ-EI	CE6857EI	V200R005C10 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

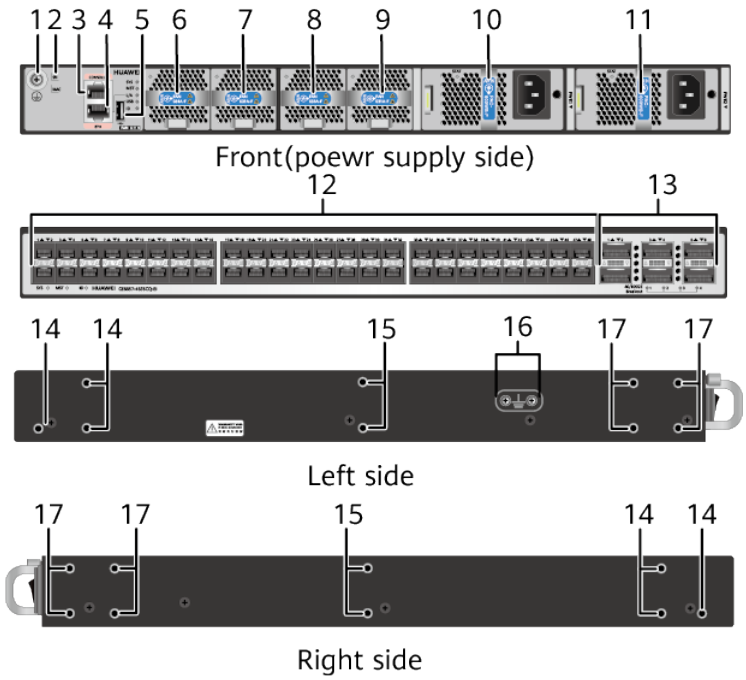
Appearance and Structure

NOTE

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Figure 4-37 CE6857-48S6CQ-EI



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1 Applicable fan modules: • **FAN-031A series fan modules**
7	Fan slot 2 Applicable fan modules: • **FAN-031A series fan modules**	8	Fan slot 3 Applicable fan modules: • **FAN-031A series fan modules**
9	Fan slot 4 Applicable fan modules: • **FAN-031A series fan modules**	10	Power supply slot 1 Applicable power modules: • **5.4 350 W DC Power Module (PDC350S12)** • **5.7 600 W AC Power Module (PAC600S12)**

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11	Power supply slot 2 Applicable power modules: • **5.4 350 W DC Power Module (PDC350S12)** • **5.7 600 W AC Power Module (PAC600S12)**	12	Forty-eight 10GE SFP+ Ethernet optical ports Applicable modules and cables: • **9.7 10GE SFP+ Optical Modules** (OSXD22N00, LE2MXSC80FF0 and SFP-10G-ZDWT-L not supported) • **9.4 GE eSFP Optical Modules**(Auto-negotiation is not supported) • **9.5 GE SFP Copper Modules** (works at 1000 Mbit/s) • **8.9.2 SFP+ to SFP+ AOC Cable** • **8.8.2 SFP+ to SFP+ High-Speed Cable** **NOTE** The 1000base-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.
13	Six 40GE/100GE QSFP28 Ethernet optical ports Applicable modules and cables: • **9.9 40GE QSFP+ Optical Modules** • **9.10 100GE QSFP28 Optical Modules** (QSFP28-100G-4WDM-40 not supported) • **8.9.4 QSFP+ to QSFP+ AOC cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable** • **8.9.6 QSFP28 to QSFP28 AOC Cable** • **8.8.6 QSFP28 to QSFP28 High-Speed Cable**	14	Three port-side mounting holes for mounting brackets

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15	Two middle mounting holes for mounting brackets	16	Equipotential junction Grounding screw used in dual OT scenarios.
17	Four power-supply-side mounting holes for mounting brackets	-	-

Slot Description

Power Slots

Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability.

The CloudEngine 6800 series switches support 1+1 backup of power modules.

- When both power modules are working properly, each of them provides half of the power required for the chassis.
- When one power module fails, the other one provides all power required for the chassis.

All power modules of the devices are hot swappable.

Fan Slots

Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability.

It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.

All fan modules are hot swappable.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

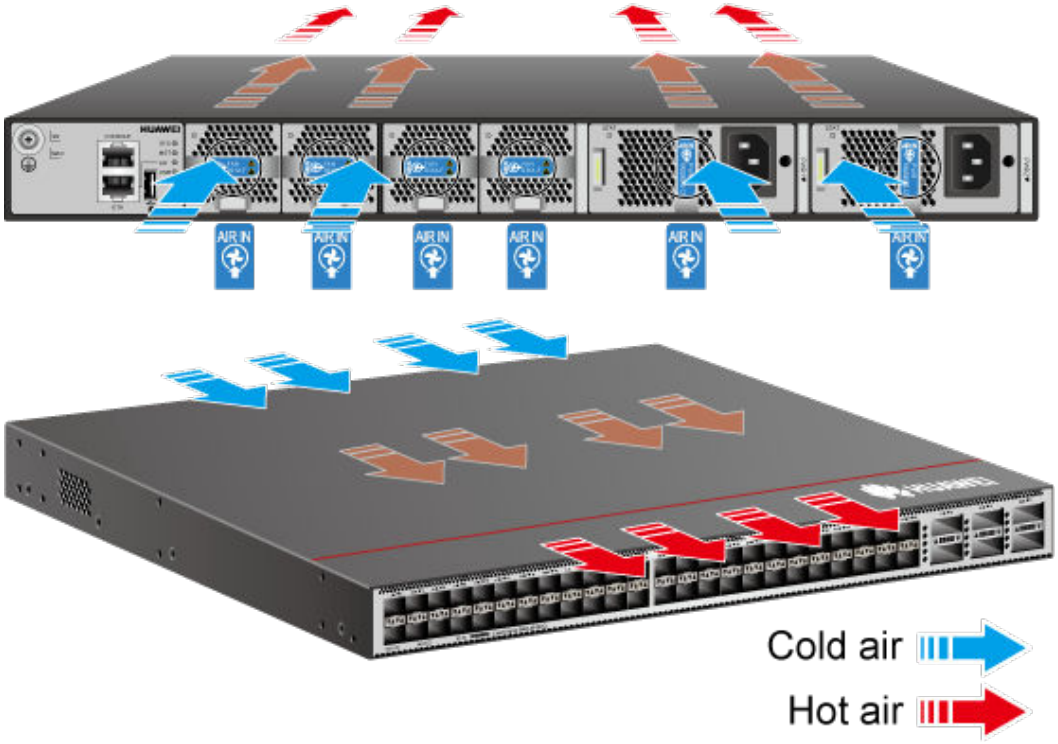
. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-38** (using a CE6863 chassis as an example).

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- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

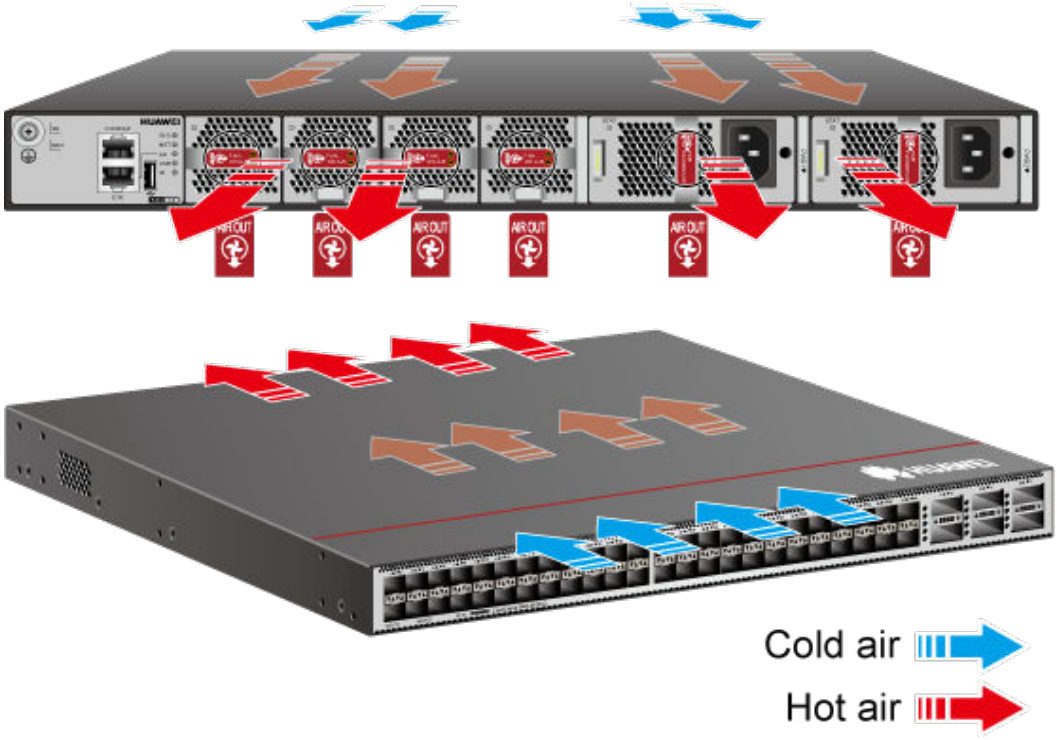
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-39** (using a CE6863 chassis as an example).

Figure 4-38 Front-to-back airflow for port-side exhaust



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Figure 4-39 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Indicators

The CE6857-48S6CQ-EI switch does not have the ETH management port indicator. The service port indicators are 10GE and 40GE/100GE port indicators, and other indicators are the same as those on the CE6865-48S8CQ-EI. The **CE6865-48S8CQ-EI** is used as an example here to describe the indicators.

Ports

10GE SFP+ Ethernet Optical Port

A 10GE SFP+ Ethernet optical port supports auto-sensing to 1 Gbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. **Table 4-37** describes the attributes of a 10GE SFP+ Ethernet optical port.

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Table 4-37 Attributes of a 10GE SFP+ Ethernet optical port

Attribute	Description
Connector type	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex

40GE/100GE QSFP28 Optical Port

Table 4-38 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 4-38 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. Table 4-39 describes the attributes of the console port.

Table 4-39 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

ETH Management Port (RJ45)

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The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-40** describes the attributes of the ETH management port (RJ45).

Table 4-40 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-41 lists technical specifications of the CE6857-48S6CQ-EI switch.

Table 4-41 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm (17.4 in. x 16.5 in. x 1.72 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 7.6 Kg (16.76 lb)
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)

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Item		Description
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 53 dBA • Front-to-back airflow: < 52 dBA
Power specifications	Power source type	AC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	Not supported
	Rated input current	• 350 W DC power (PDC350S12 series): 11 A (-48 V DC to -60 V DC) • 600 W AC power (PAC600S12 series): 9 A (100 V AC to 240 V AC)
Chassis power consumption	Maximum power consumption	287 W
	Typical power consumption	152 W (100% throughput, SFP28 cables on 48 ports and QSFP28 cables on 6 ports, double power modules) 195 W (100% throughput, all optical interfaces on the switch are equipped with the short-distance optical modules, double power modules)
Chassis heat dissipation	Maximum heat dissipation	979 BTU/Hr

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Item		Description
	Typical heat dissipation	519 BTU/Hr (100% throughput, SFP28 cables on 48 ports and QSFP28 cables on 6 ports, double power modules) 665 BTU/Hr (100% throughput, all optical interfaces on the switch are equipped with the short-distance optical modules, double power modules)
Surge protection		Power module: • AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules
Reliability	Power module backup	1+1 backup
	Fan module backup	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	45.3 years
	Mean time to repair (MTTR)	1.68 hours
	Availability	0.99999576002
Technical specifications	Processor	1.4 GHz, four-core
	DRAM Memory	4 GB
	NOR Flash	64 MB
	NAND Flash	2 GB

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Item		Description
Stack	Service port supporting the stack function	10GE optical ports, 40GE optical ports, and 100GE optical ports
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-42 provides the ordering information.

Table 4-42 Ordering information

Part Number	Part Model	Part Description
02352CHS	CE6857-EI-F-B0B	CE6857-48S6CQ-EI switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)
02352CHR	CE6857-EI-B-B0B	CE6857-48S6CQ-EI switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)
02352CHQ	CE6857-48S6CQ-EI	CE6857-48S6CQ-EI switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)

4.4.4 CE6857E-48S6CQ

4.4.4.1 CE6857E-48S6CQ (02353VWU)

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Overview

Table 4-43 Basic information about the CE6857E-48S6CQ

Item	Details
Description	CE6857E-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02353VWU
Model	CE6857E-48S6CQ
First supported version	V200R020C10
Other part numbers	02353VWW (CE6857E-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353VWX (CE6857E-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6857E

Appearance

Figure 4-40 Appearance of the CE6857E-48S6CQ



Front (power supply side)



Rear (port side)

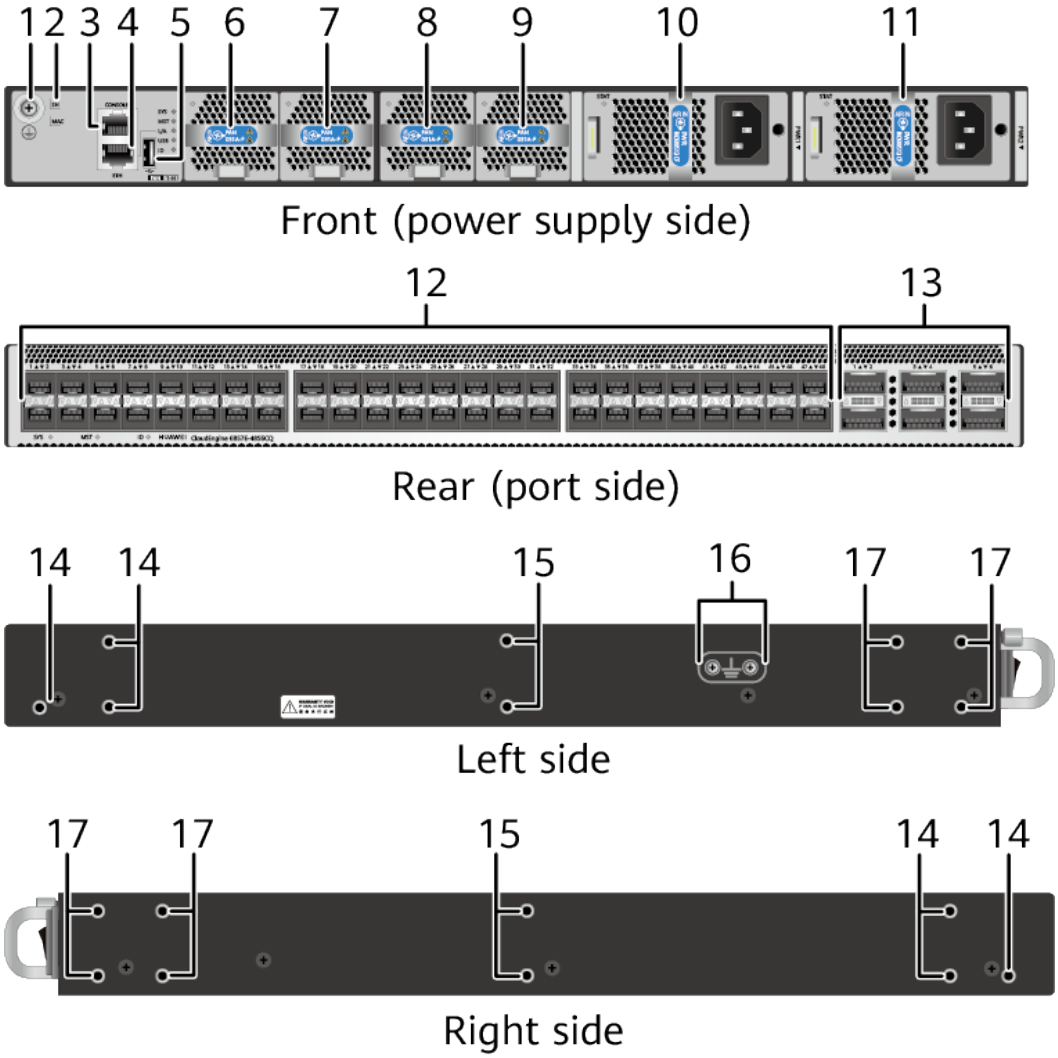
NOTE

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Components

Figure 4-41 Components of the CE6857E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-44 Slots on the CE6857E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 6800 series switches support 1+1 backup of power modules. When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-42 Indicators on the CE6857E-48S6CQ 1

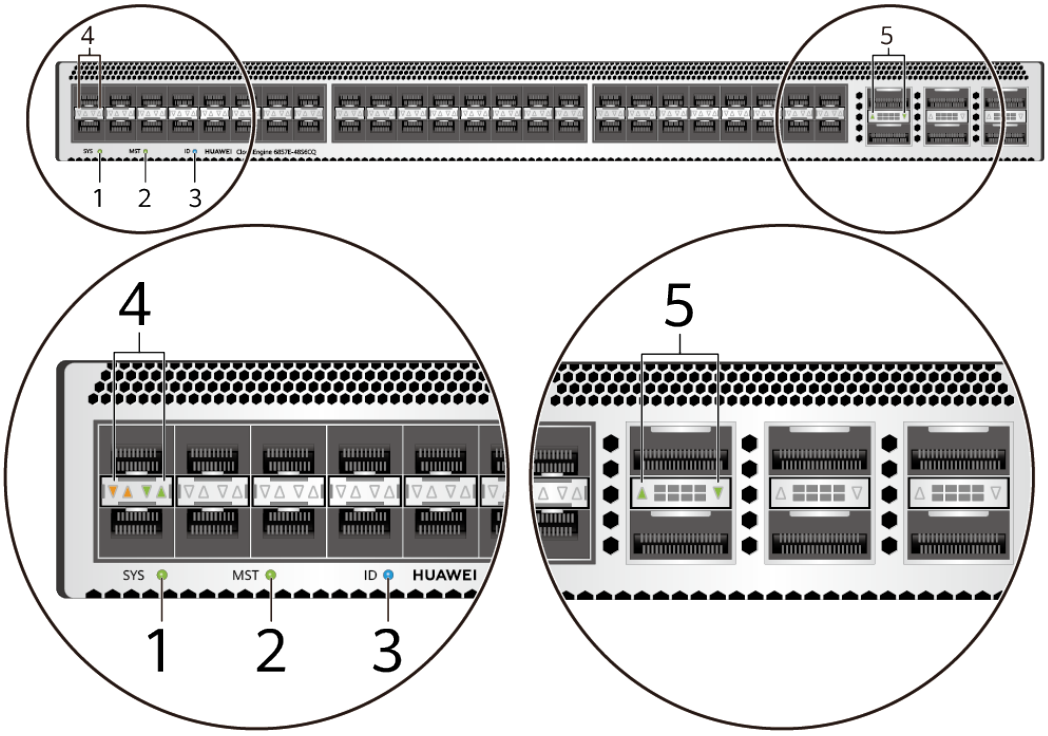
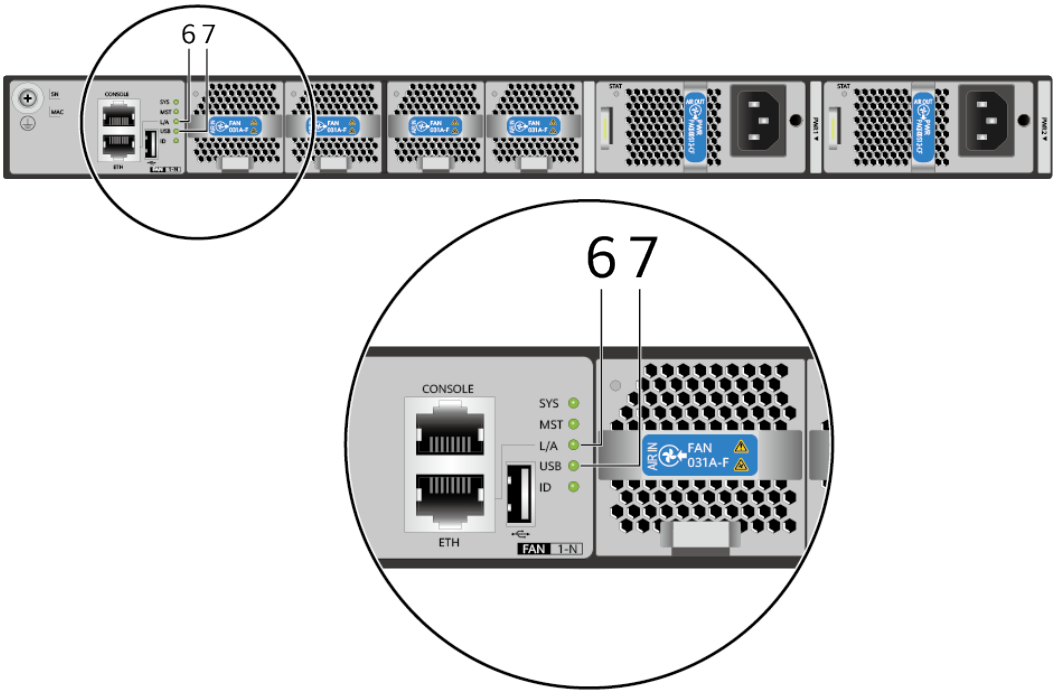


Figure 4-43 Indicators on the CE6857E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE SFP+ Ethernet optical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-45 Indicators on the CE6857E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running properly.
		Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
MST	Stack master/ slave indicator	Green	Off	The switch is not a master switch in the stack.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. • After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a master switch in the stack or a standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Yellow	Off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	ETH management port indicator	Green	Off	No link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment has failed.

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Ports

Table 4-46 Ports on the CE6857E-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ Ethernet Optical Port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. - Optical attributes: depending on the module or cable in use	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 2. 10GE optical interfaces installed with GE copper modules support only the rate of 1000 Mbit/s. 3. 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	Depending on the optical module	A 40GE/100GE QSFP28 optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • A 40GE/100GE QSFP28 optical port cannot be split. • Optical attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **NOTE** The QSFP-100G-4WDM-40 optical module is not supported.

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Port	Connector Type	Description	Available Components
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	Console cable
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable

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Port	Connector Type	Description	Available Components
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-44 Front-to-back airflow for port-side exhaust

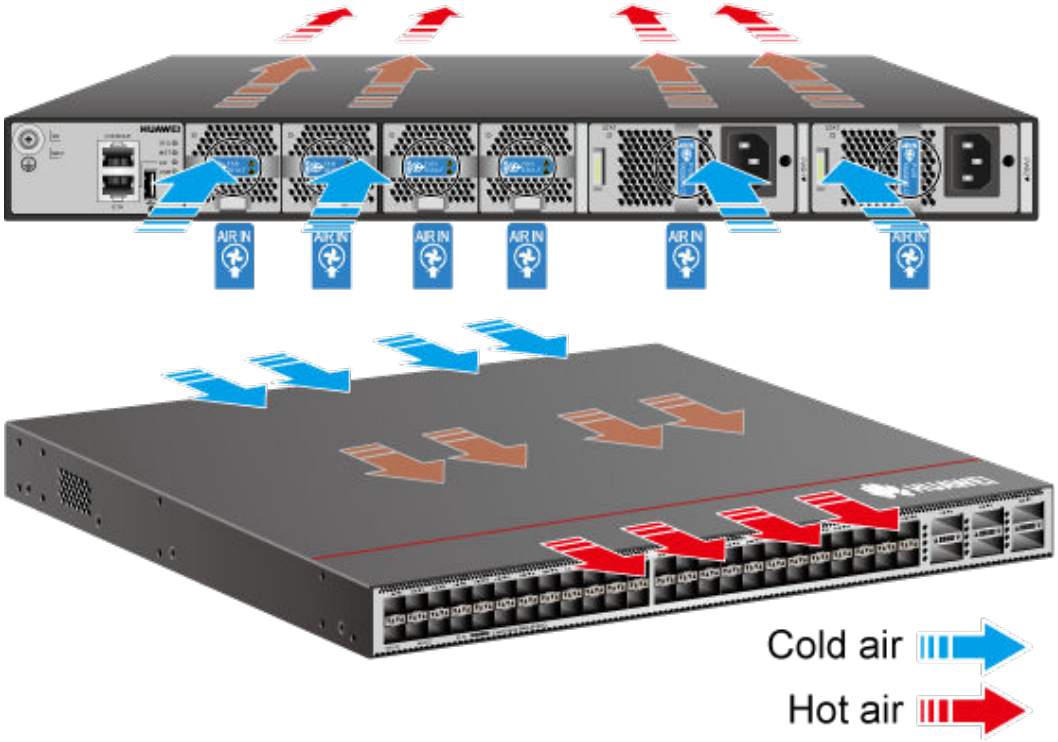
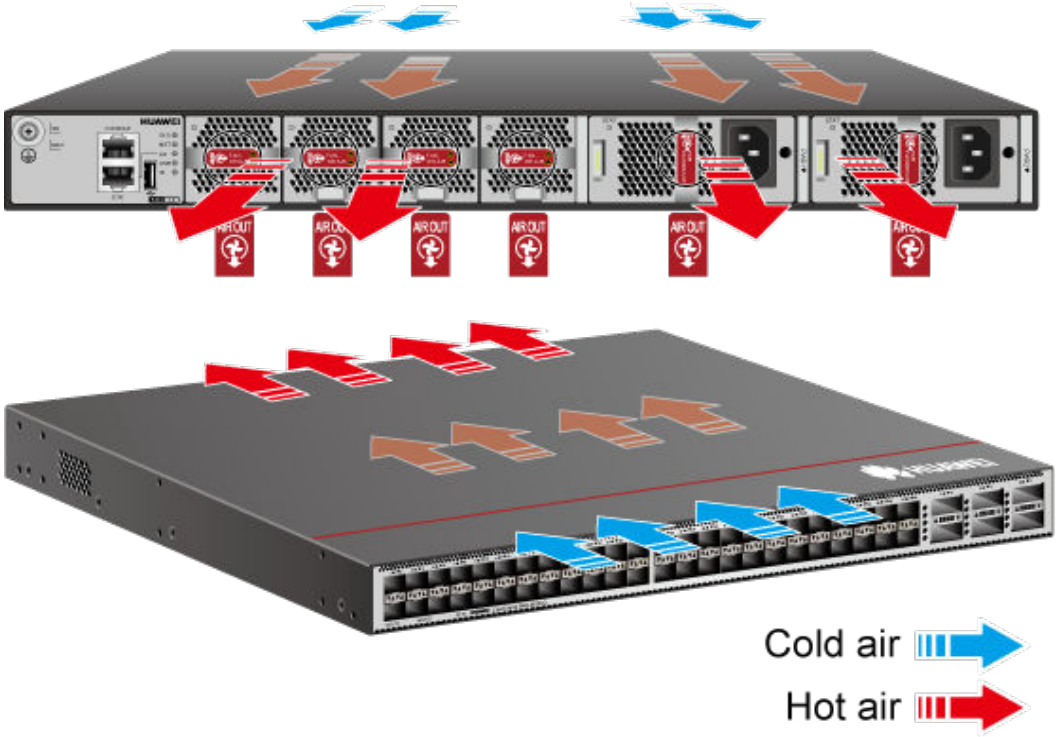


Figure 4-45 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-47 Technical specifications of the CE6857E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.5 kg (12.1 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.75 kg (17.1 lb) (including AC power modules and fan modules, excluding optical modules)
Weight with packaging [kg (lb)]	8.75 kg (19.3 lb)
Weight with packaging (full configuration) [kg (lb)]	11 kg (24.3 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.6 GHz
Memory	DRAM: 4 GB
NOR Flash	128 MB
SSD Flash	8 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE SFP+ (10GE LRM/80 km linear optical modules are not supported. In addition, the 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.)
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100GE QSFP28 port can be used as a 40GE port. 2. A 100GE QSFP28 port cannot be split into 4x25GE and 4x10GE ports.)
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 148 W (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 185 W (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 505 BTU/hour (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 631 BTU/hour (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Static power consumption [W]	106 W
Static heat dissipation [BTU/hour]	362 BTU/hour
Maximum power consumption [W]	318 W

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Item	Specification
Maximum heat dissipation	1085 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48V DC to -60V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Port-side intake or exhaust, depending on the fan modules and power modules.
Availability	0.9999961836
MTBF [year]	49.35 years
MTTR [hour]	1.65 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.4.2 CE6857E-48S6CQ (02353VWU-001)

Overview

Table 4-48 Basic information about the CE6857E-48S6CQ

Item	Details
Description	CE6857E-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02353VWU-001
Model	CE6857E-48S6CQ
First supported version	V200R022C00
Other part numbers	02353VWW-001 (CE6857E-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353VWX-001 (CE6857E-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6857E

Appearance

Figure 4-46 Appearance of the CE6857E-48S6CQ



Front (power supply side)



Rear (port side)

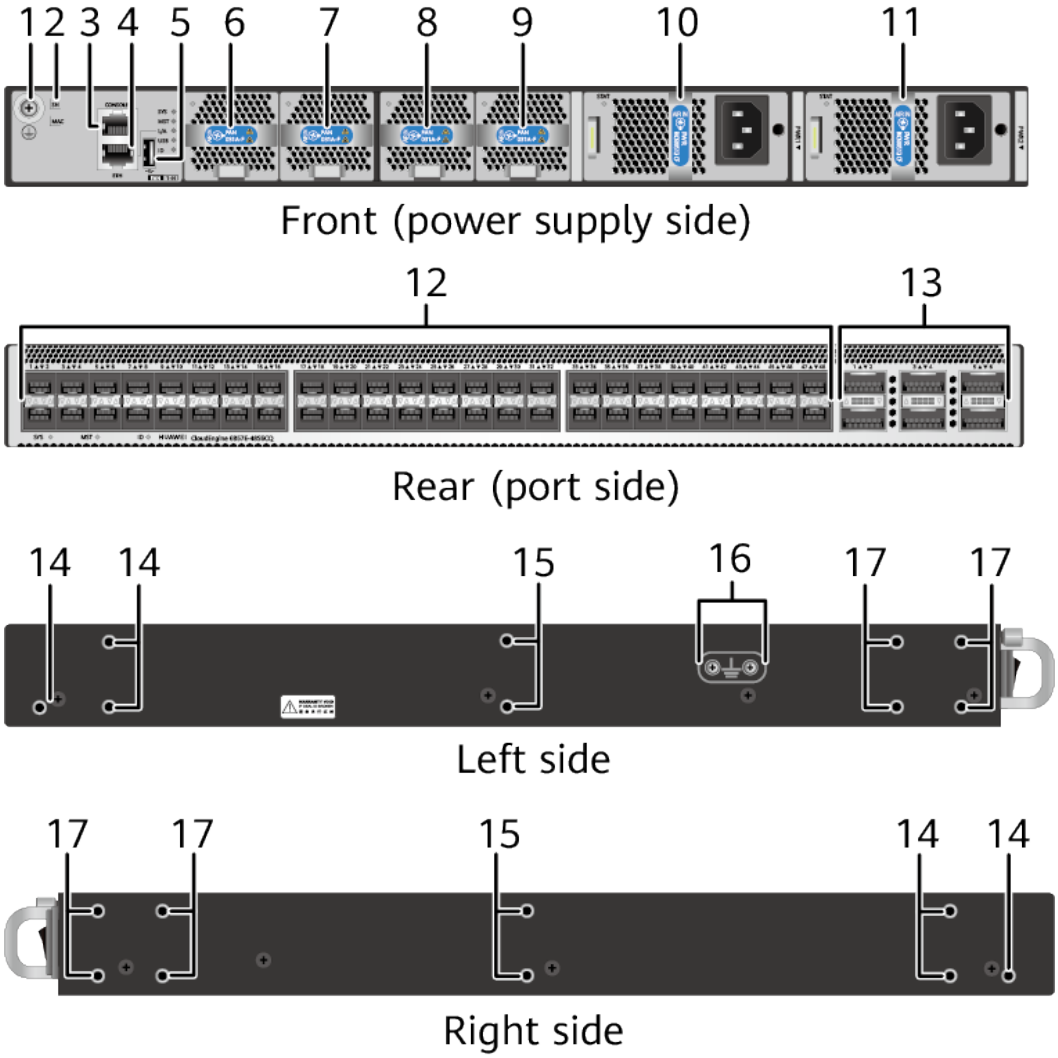
NOTE

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Components

Figure 4-47 Components of the CE6857E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-49 Slots on the CE6857E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-48 Indicators on the CE6857E-48S6CQ 1

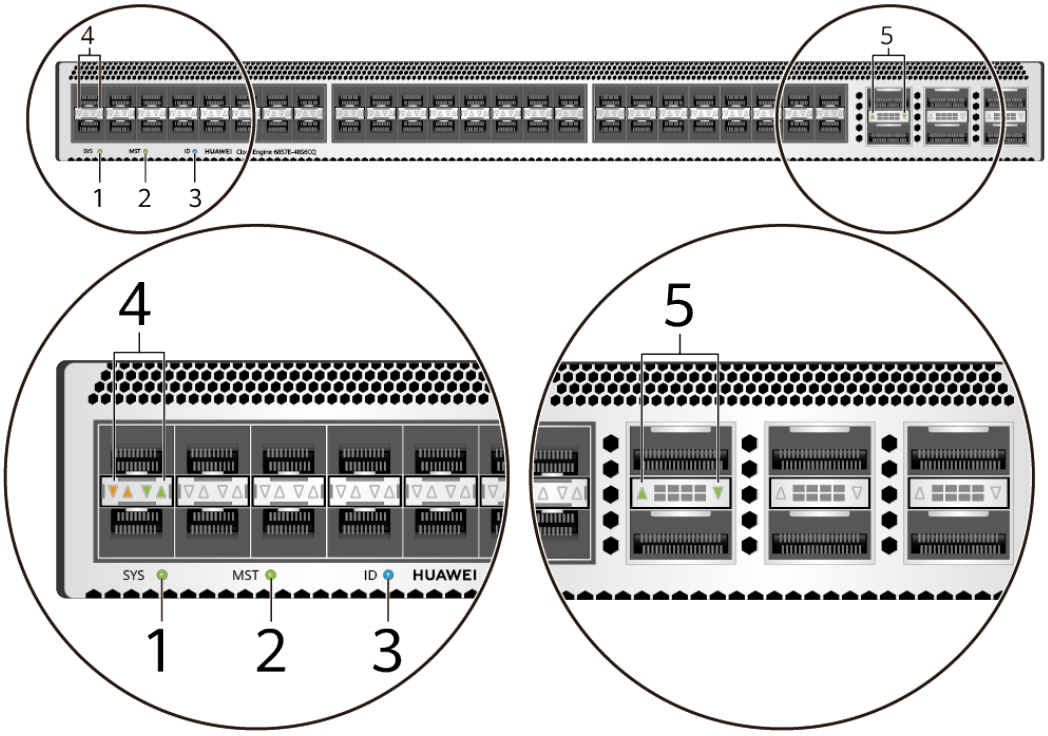
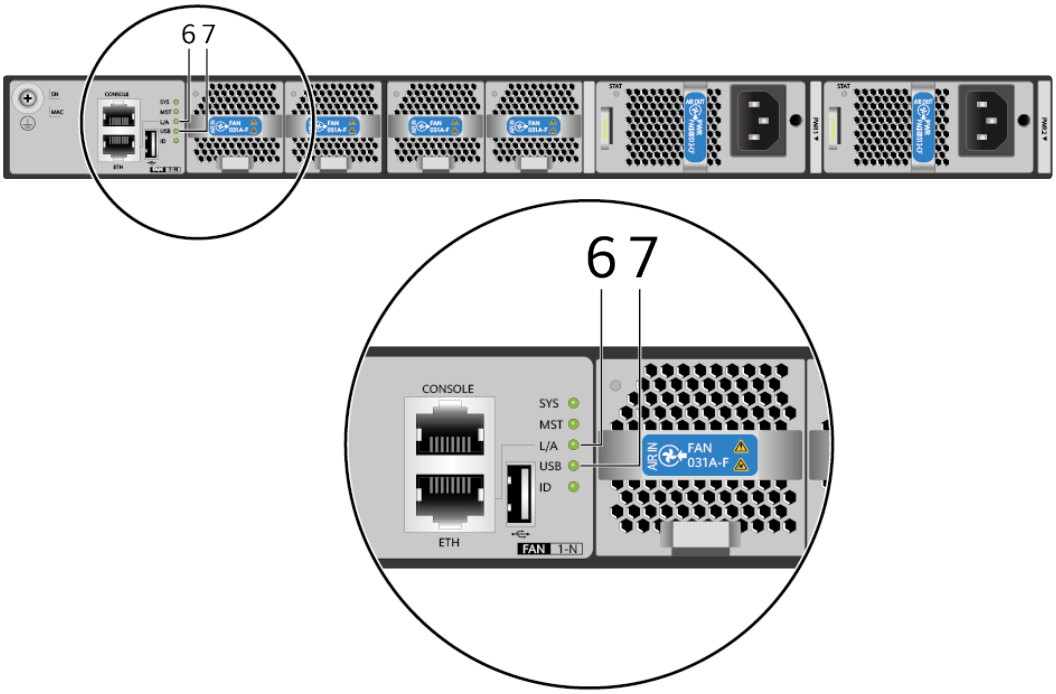


Figure 4-49 Indicators on the CE6857E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE SFP+ Ethernet optical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-50 Indicators on the CE6857E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-51 Ports on the CE6857E-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. - Optical attributes: depending on the module or cable in use	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 2. 10GE optical interfaces installed with GE copper modules support only the rate of 1000 Mbit/s. 3. 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **NOTE** The QSFP-100G-4WDM-40 optical module is not supported.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-50 Front-to-back airflow for port-side exhaust

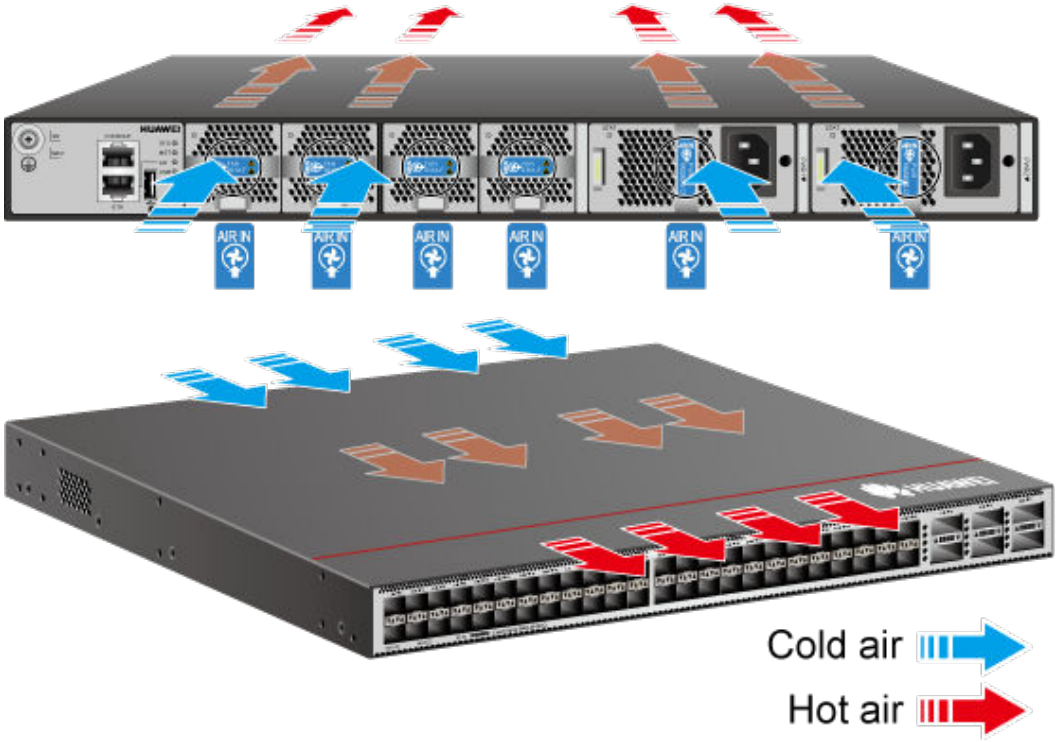
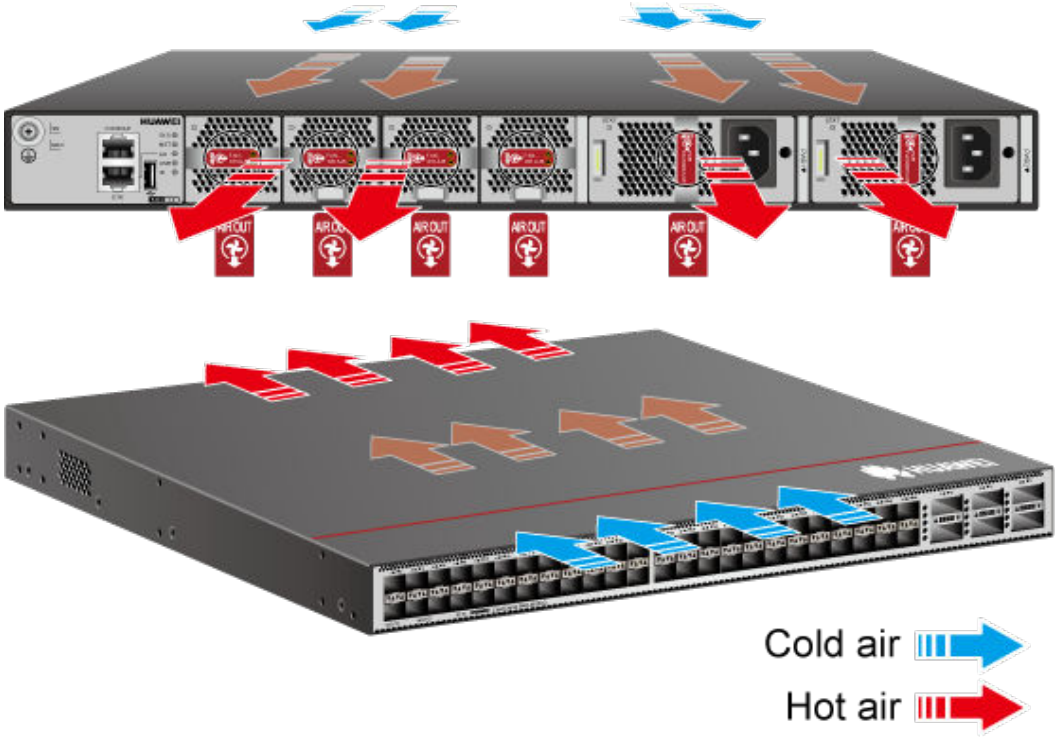


Figure 4-51 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-52 Technical specifications of the CE6857E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.5 kg (12.1 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.75 kg (17.1 lb) (including AC power modules and fan modules, excluding optical modules)
Weight with packaging [kg (lb)]	8.75 kg (19.3 lb)
Weight with packaging (full configuration) [kg (lb)]	11 kg (24.3 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.6 GHz
Memory	DRAM: 4 GB
NOR Flash	128 MB
SSD Flash	8 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE SFP+ (10GE LRM/80 km linear optical modules are not supported. In addition, the 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.)
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100GE QSFP28 port can be used as a 40GE port. 2. A 100GE QSFP28 port cannot be split into 4x25GE and 4x10GE ports.)
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 148 W (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 185 W (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 505 BTU/hour (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 631 BTU/hour (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Static power consumption [W]	106 W
Static heat dissipation [BTU/hour]	362 BTU/hour
Maximum power consumption [W]	318 W

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Item	Specification
Maximum heat dissipation	1085 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48V DC to -60V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Port-side intake or exhaust, depending on the fan modules and power modules.
Availability	0.9999961836
MTBF [year]	49.35 years
MTTR [hour]	1.65 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.5 CE6857E-48T6CQ (02353VWQ)

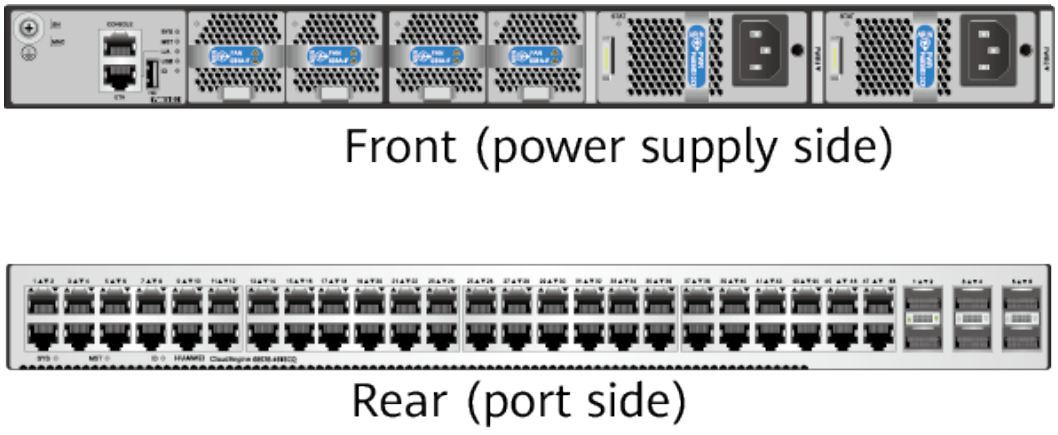
Overview

Table 4-53 Basic information about the CE6857E-48T6CQ

Item	Details
Description	CE6857E-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353VWQ
Model	CE6857E-48T6CQ
First supported version	V200R020C10
Other part numbers	02353VWR (CE6857E-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353VWT (CE6857E-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6857E

Appearance

Figure 4-52 Appearance of the CE6857E-48T6CQ



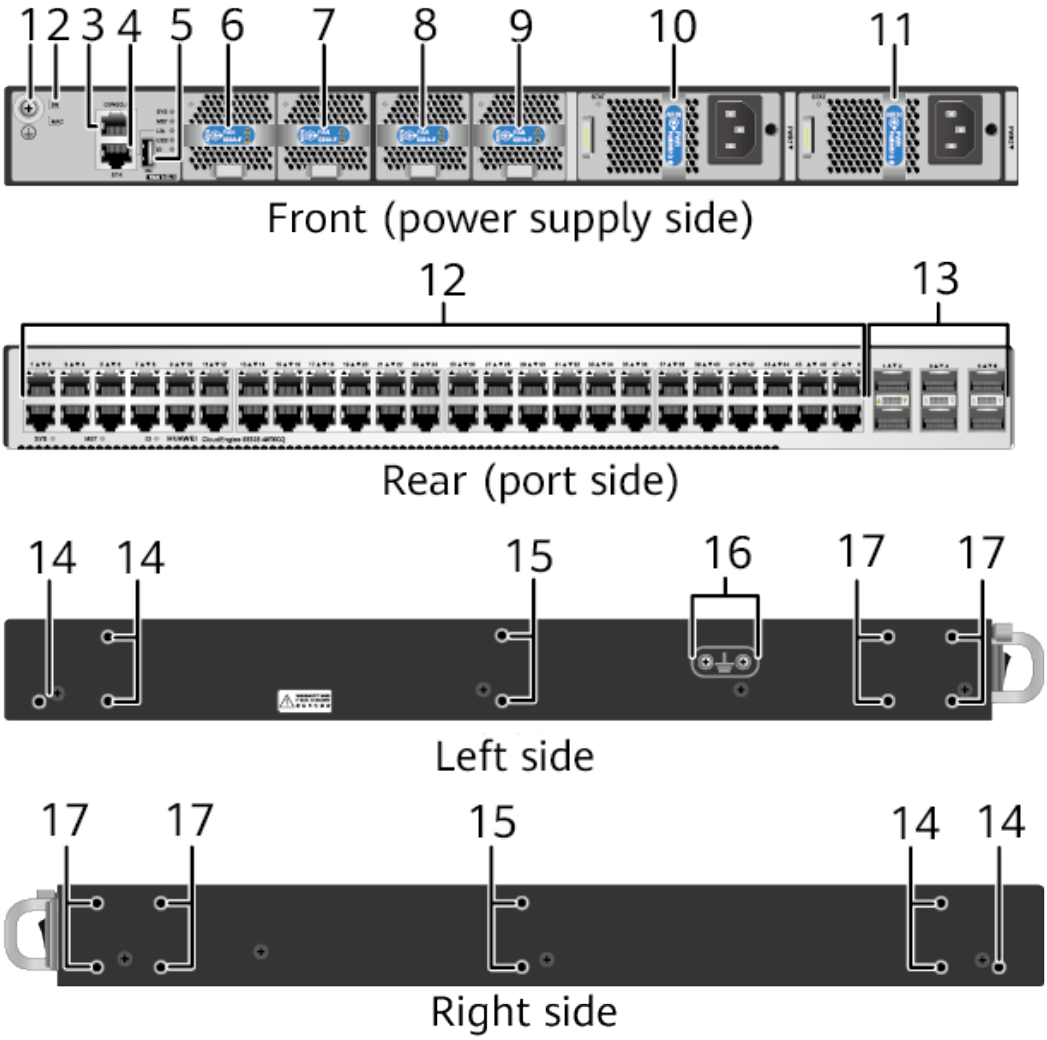
NOTE

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Components

Figure 4-53 Components of the CE6857E-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-54 Slots on the CE6857E-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 6800 series switches support 1+1 backup of power modules: When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-54 Indicators on the CE6857E-48T6CQ 1

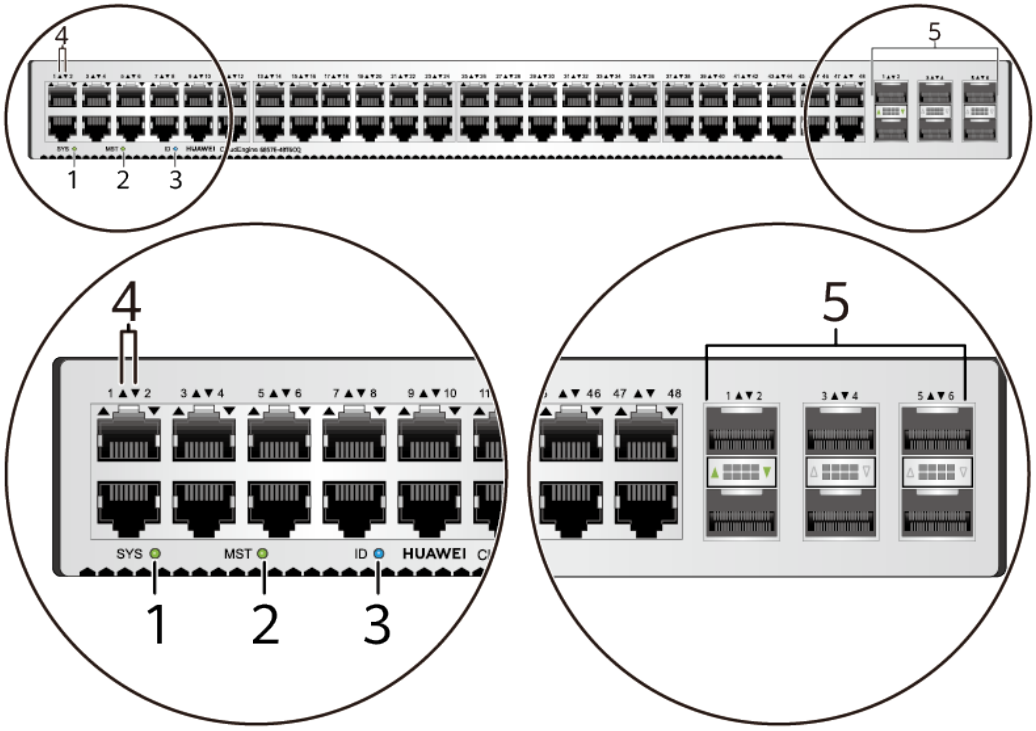
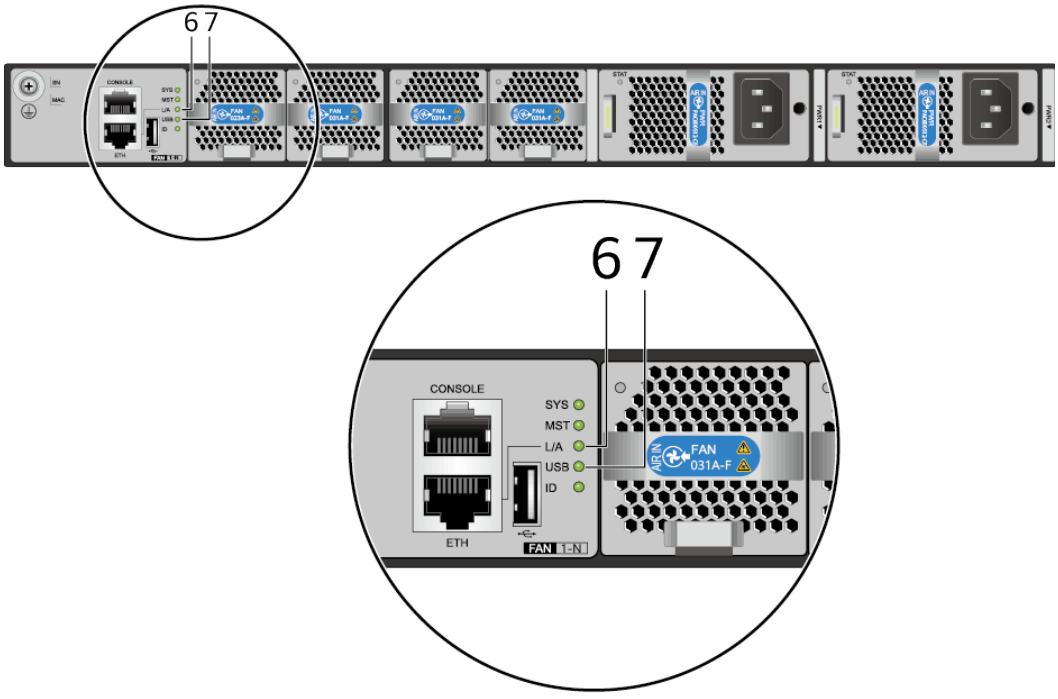


Figure 4-55 Indicators on the CE6857E-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T Ethernet electrical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-55 Indicators on the CE6857E-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running properly.
		Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
MST	Stack master/ slave indicator	Green	Off	The switch is not a master switch in the stack.

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Silkscreen	Name	Color	Status	Description
	NOTE In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a master switch in the stack or a standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
L/A	ETH management port indicator	Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-56 Ports on the CE6857E-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet Electrical Port	RJ45	A 10GBASE-T Ethernet port receives and sends service traffic at a rate of 1000 Mbit/s or 10 Gbit/s. The port can work at the rate of 1000 Mbit/s through auto-sensing. It must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Standards compliance: IEEE 802.3an and IEEE 802.3az • Applicable cable: straight-through cable and crossover cable • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Straight-through cable and crossover cable

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	Depending on the optical module	A 40GE/100GE QSFP28 optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex	• **40GE QSFP+ optical modules** • **100GE QSFP28 optical modules** • **40GE QSFP+ to 40GE QSFP + AOC cable** • **100GE QSFP28 to 100GE QSFP28 AOC cable** • **40GE QSFP+ to 40GE QSFP + high-speed cable** • **100GE QSFP28 to 100GE QSFP28 high-speed cable** In V2R21C00 and later versions, only 40G/100G uplink ports 3 and 4 can be configured to work in 4x25G or 4x10G mode, and they support the following cables: • **40GE QSFP+ to 4*10GE SFP + high-speed cable** • **40GE QSFP+ to 4* 10GE SFP + AOC cable** • **100GE QSFP28 to 4*25GE SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE The QSFP-100G-4WDM-40 optical module is not supported.
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	**Console cable**

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Port	Connector Type	Description	Available Components
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

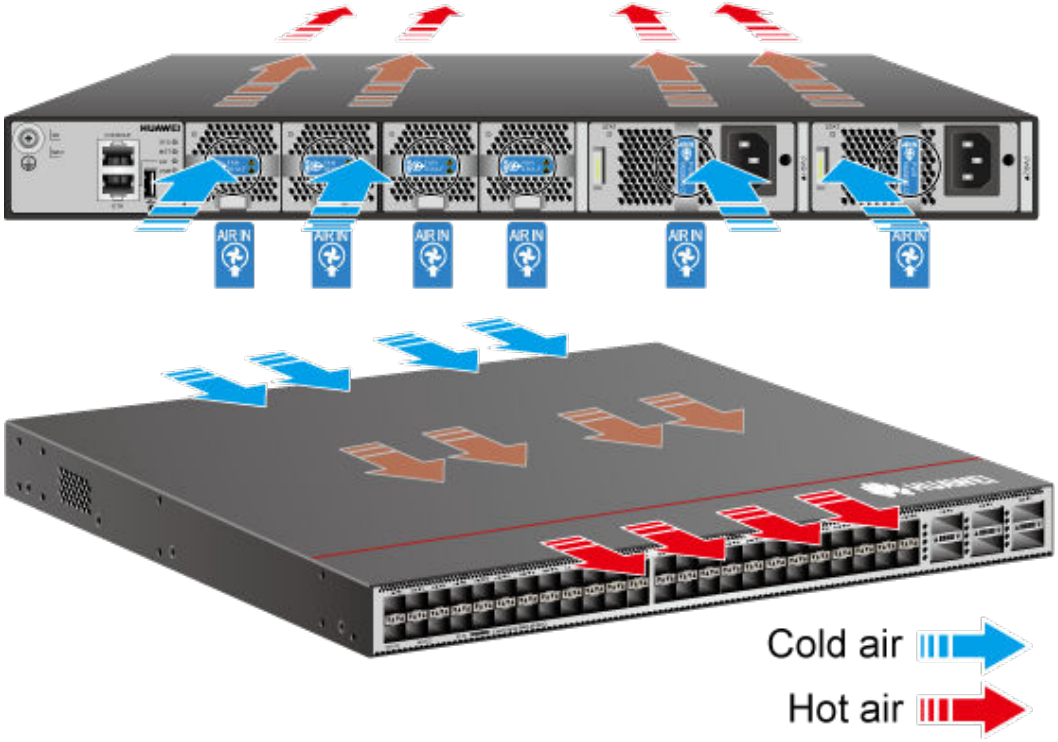
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

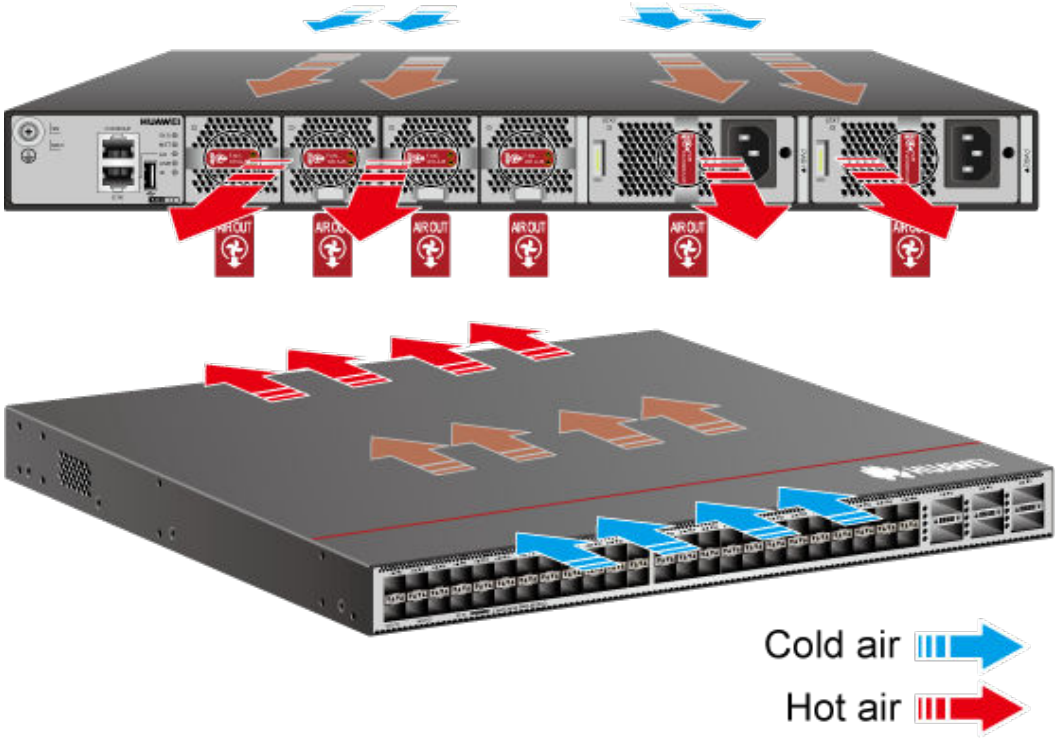
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-56 Front-to-back airflow for port-side exhaust



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Figure 4-57 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-57 Technical specifications of the CE6857E-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.75 kg (12.7 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.05kg (17.7 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.15 kg (20.2 lb)
Weight with packaging (full configuration) [kg (lb)]	11.4 kg (25.1 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.6 GHz
Memory	DRAM: 4 GB
NOR Flash	128 MB
SSD Flash	8 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (10GE interfaces are compatible with GE but do not support 100M/10M electrical interfaces. They only support full-duplex, not half-duplex.)

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Item	Specification
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100G QSFP28 port can be configured to work at 40 Gbit/s. 2. In V2R20C10, 40G/100G uplink ports cannot be split. In V2R21C00 and later versions, 40G/100G uplink ports 3 and 4 can be split into 4x25G and 4x10G ports, and the other 40G/100G uplink ports cannot be split.
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 252 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 270 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Typical heat dissipation [BTU/hour]	• 860 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 921 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	136 W
Static heat dissipation [BTU/hour]	464 BTU/hr
Maximum power consumption [W]	363 W
Maximum heat dissipation	1239 BTU/hr
Number of power modules	2
Redundant power supply	1+1 backup

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Item	Specification
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48V DC to -60V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode. • DC: 4 kV in common mode and 2 kV in differential mode. • HVDC: 4 kV in common mode and 2 kV in differential mode.
Types of fans	Pluggable
Number of fans	4

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Item	Specification
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.999996178
MTBF [year]	46.59 years
MTTR [hour]	1.56 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.6 CE6857F-48S6CQ

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4.4.6.1 CE6857F-48S6CQ (02354HPX)

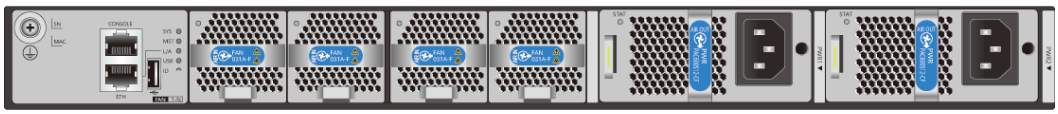
Overview

Table 4-58 Basic information about the CE6857F-48S6CQ

Item	Details
Description	CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02354HPX
Model	CE6857F-48S6CQ
First supported version	V200R021C00
Other part numbers	02354HPY (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354HQA (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6857F

Appearance

Figure 4-58 Appearance of the CE6857F-48S6CQ



Front (power supply side)



Rear (port side)

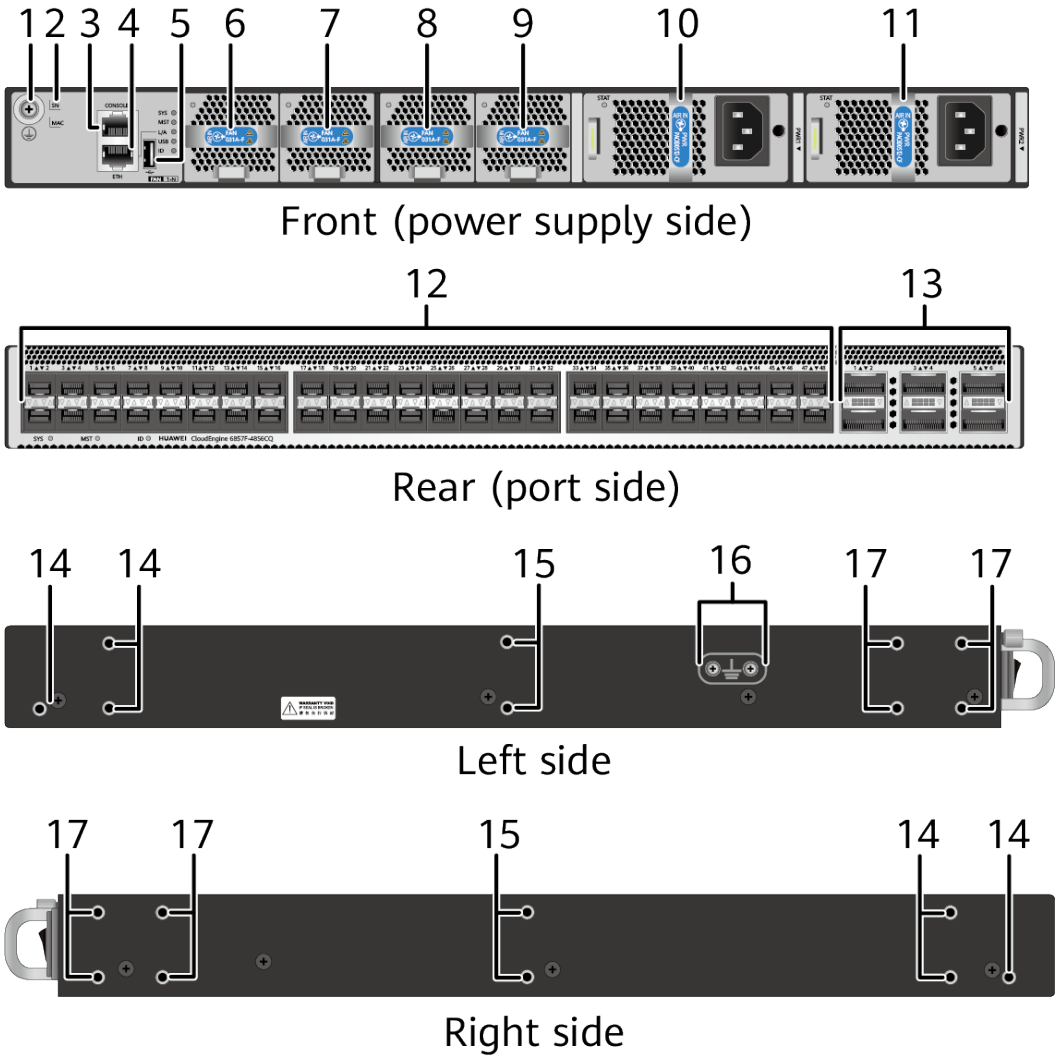
NOTE

The figures in this document are for reference only.

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Components

Figure 4-59 Components of the CE6857F-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-59 Slots on the CE6857F-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 6800 series switches support 1+1 backup of power modules. When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-60 Indicators on the CE6857F-48S6CQ 1

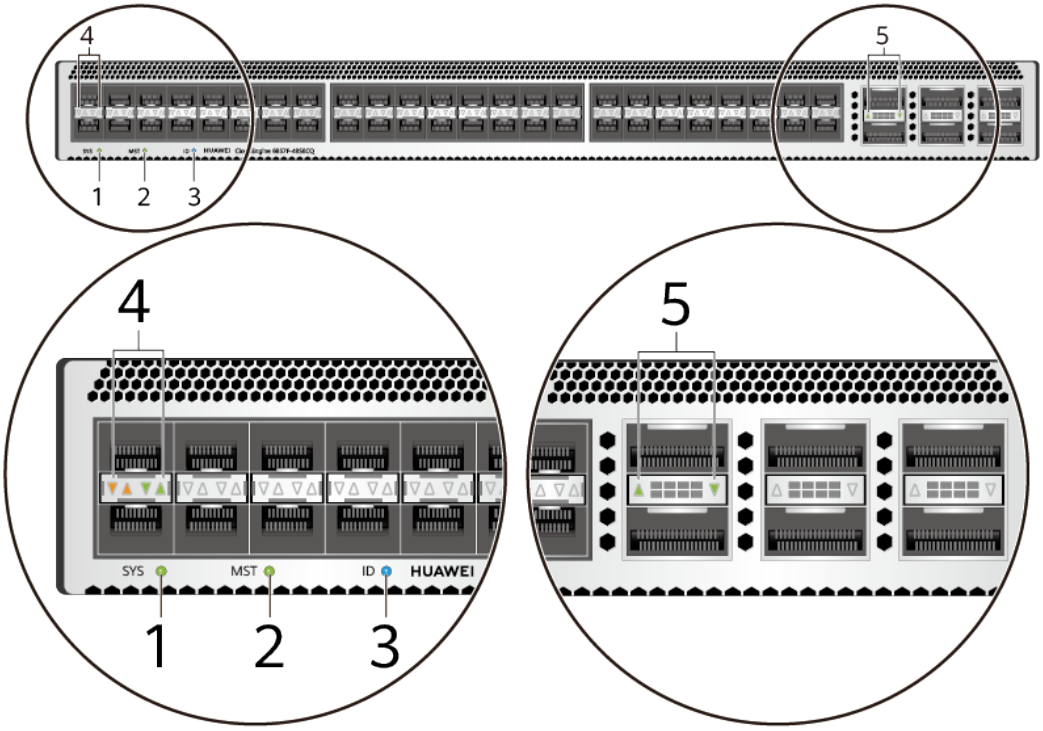
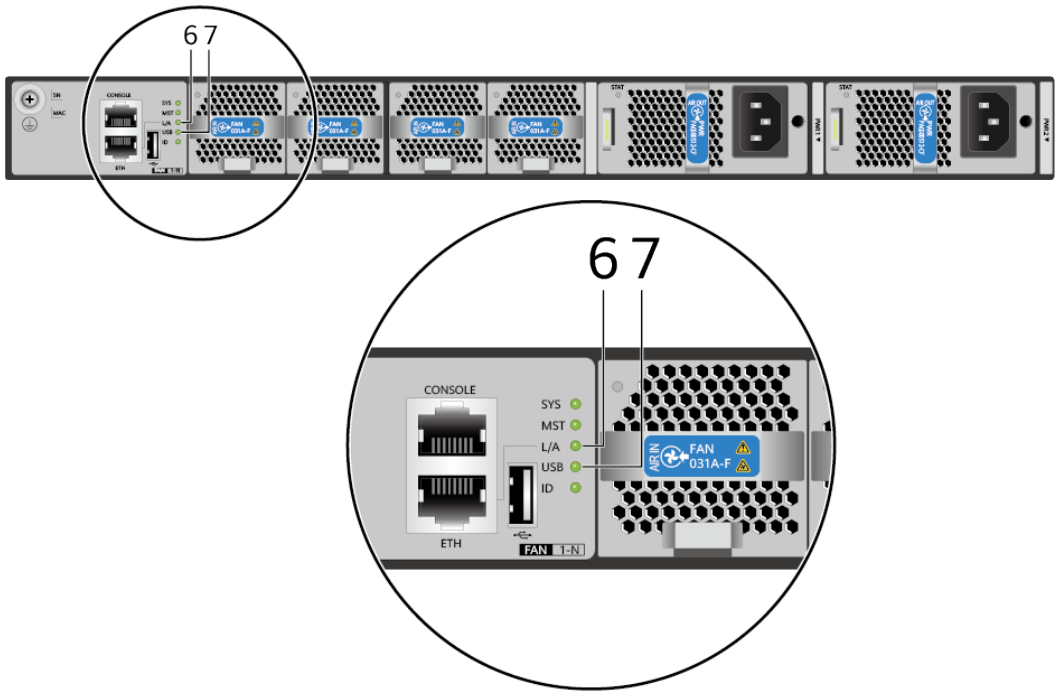


Figure 4-61 Indicators on the CE6857F-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE SFP+ Ethernet optical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-60 Indicators on the CE6857F-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running properly.
		Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
MST	Stack master/ slave indicator	Green	Off	The switch is not a master switch in the stack.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. • After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a master switch in the stack or a standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Yellow	Off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	ETH management port indicator	Green	Off	No link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment has failed.

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Ports

Table 4-61 Ports on the CE6857F-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ Ethernet Optical Port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. - Optical attributes: depending on the module or cable in use	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 2. 10GE optical interfaces installed with GE copper modules support only the rate of 1000 Mbit/s. 3. 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	Depending on the optical module	A 40GE/100GE QSFP28 optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • A 40GE/100GE QSFP28 optical port cannot be split. • Optical attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **NOTE** The QSFP-100G-4WDM-40 optical module is not supported.

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Port	Connector Type	Description	Available Components
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	Console cable
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable

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Port	Connector Type	Description	Available Components
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-62 Front-to-back airflow for port-side exhaust

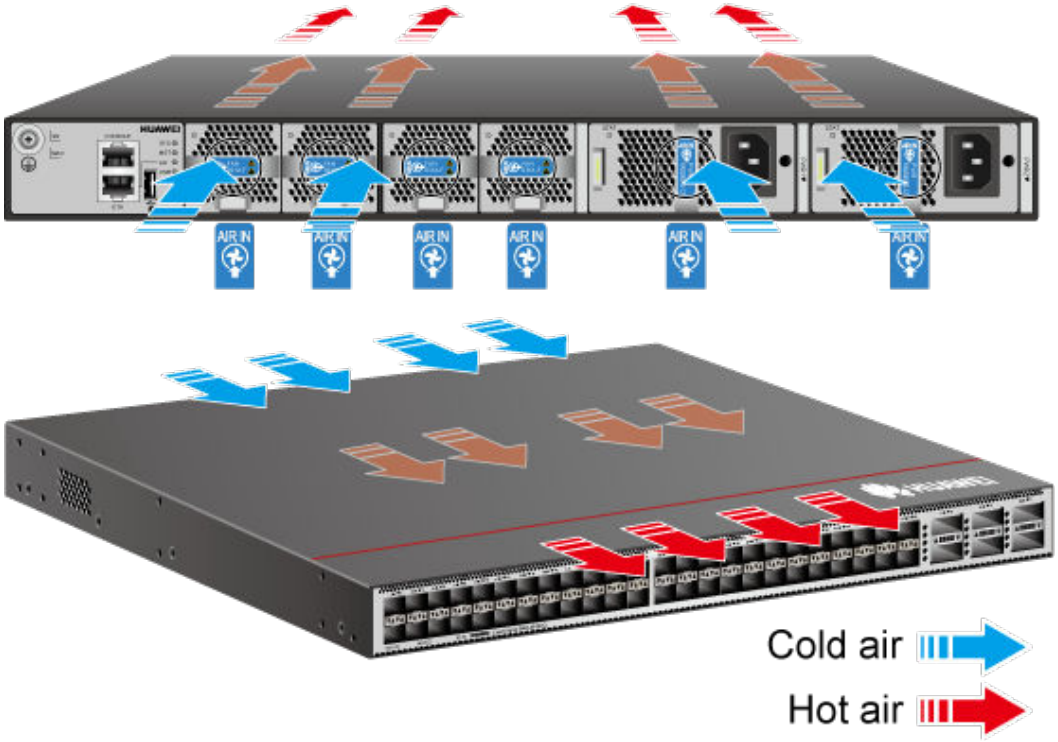
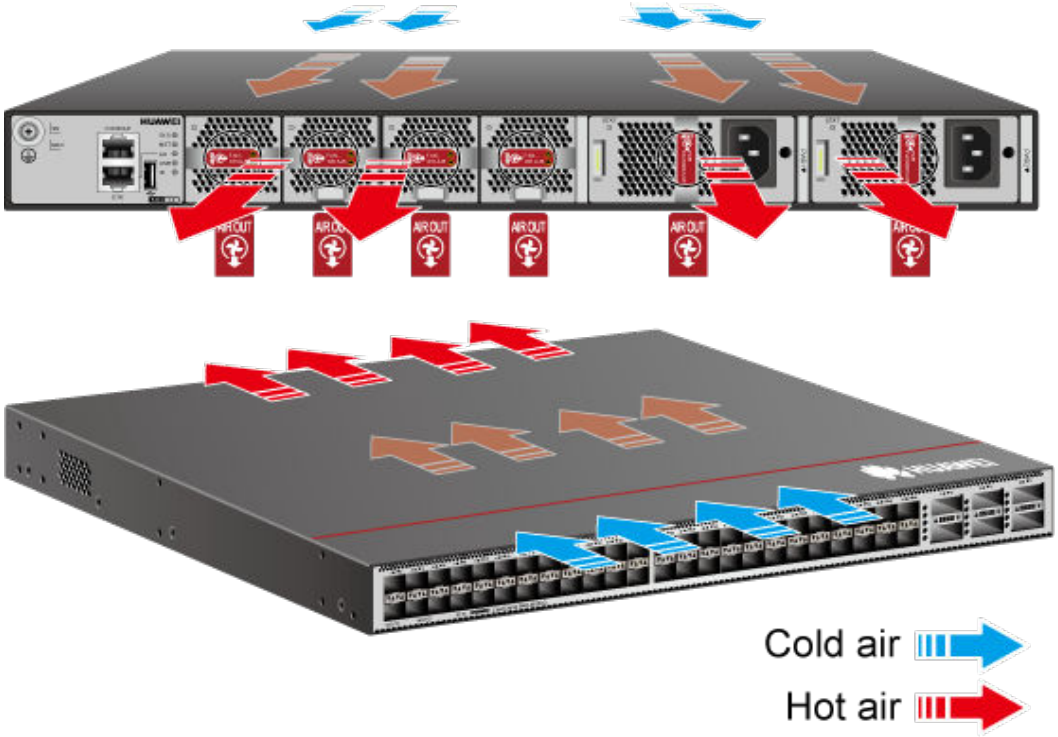


Figure 4-63 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-62 Technical specifications of the CE6857F-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.5 kg (12.1 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.75 kg (17.1 lb) (including AC power modules and fan modules, excluding optical modules)
Weight with packaging [kg (lb)]	8.75 kg (19.3 lb)
Weight with packaging (full configuration) [kg (lb)]	11 kg (24.3 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE SFP+ (10GE LRM/80 km linear optical modules are not supported. In addition, the 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.)
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100GE QSFP28 port can be used as a 40GE port. 2. A 100GE QSFP28 port cannot be split into 4x25GE and 4x10GE ports.)
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 148 W (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 185 W (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 505 BTU/hour (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 631 BTU/hour (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Static power consumption [W]	106 W
Static heat dissipation [BTU/hour]	362 BTU/hour
Maximum power consumption [W]	318 W

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Item	Specification
Maximum heat dissipation	1085 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48V DC to -60V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Port-side intake or exhaust, depending on the fan modules and power modules.
Availability	0.9999961836
MTBF [year]	49.35 years
MTTR [hour]	1.65 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.6.2 CE6857F-48S6CQ (02354HPX-001)

Overview

Table 4-63 Basic information about the CE6857F-48S6CQ

Item	Details
Description	CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02354HPX-001
Model	CE6857F-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02354HPY-001 (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354HQA-001 (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)) 02355MSS (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)) 02355MST (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02355MSU (CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6857F

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Appearance

Figure 4-64 Appearance of the CE6857F-48S6CQ



Front (power supply side)



Rear (port side)

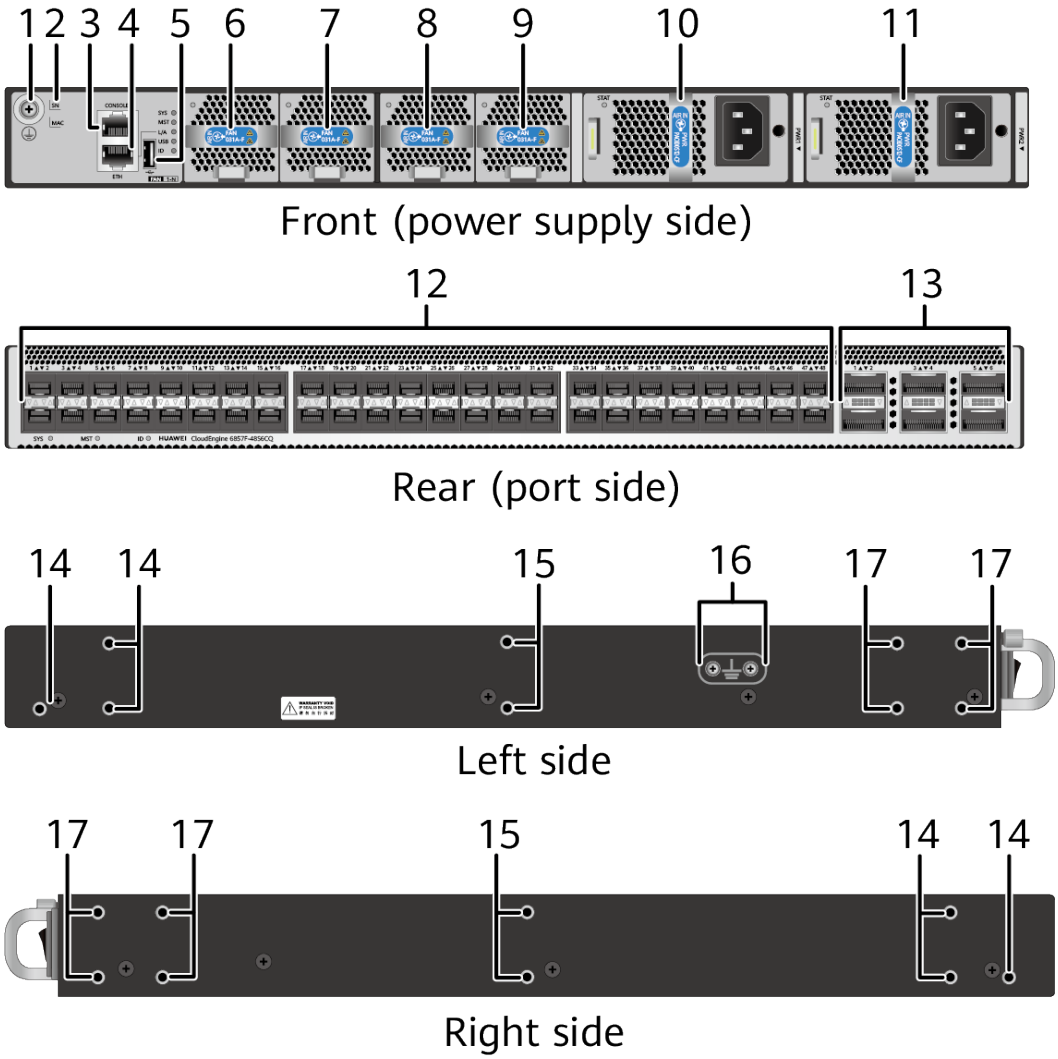
NOTE

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Components

Figure 4-65 Components of the CE6857F-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-64 Slots on the CE6857F-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-66 Indicators on the CE6857F-48S6CQ 1

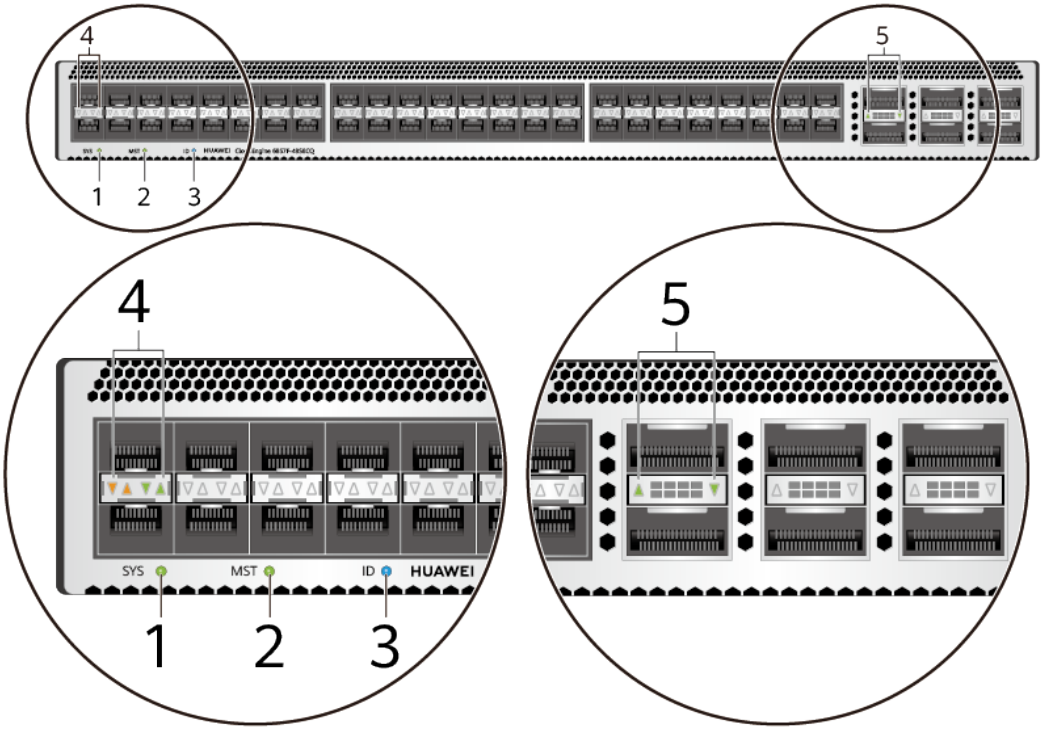
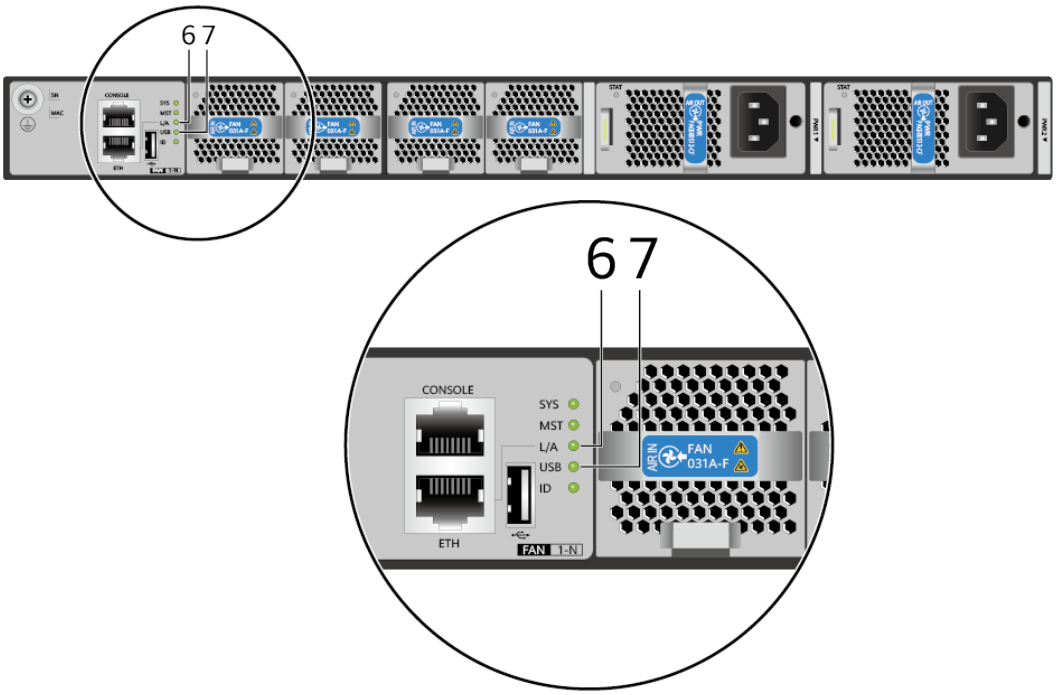


Figure 4-67 Indicators on the CE6857F-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE SFP+ Ethernet optical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-65 Indicators on the CE6857F-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-66 Ports on the CE6857F-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. - Optical attributes: depending on the module or cable in use	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 2. 10GE optical interfaces installed with GE copper modules support only the rate of 1000 Mbit/s. 3. 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **NOTE** The QSFP-100G-4WDM-40 optical module is not supported.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-68 Front-to-back airflow for port-side exhaust

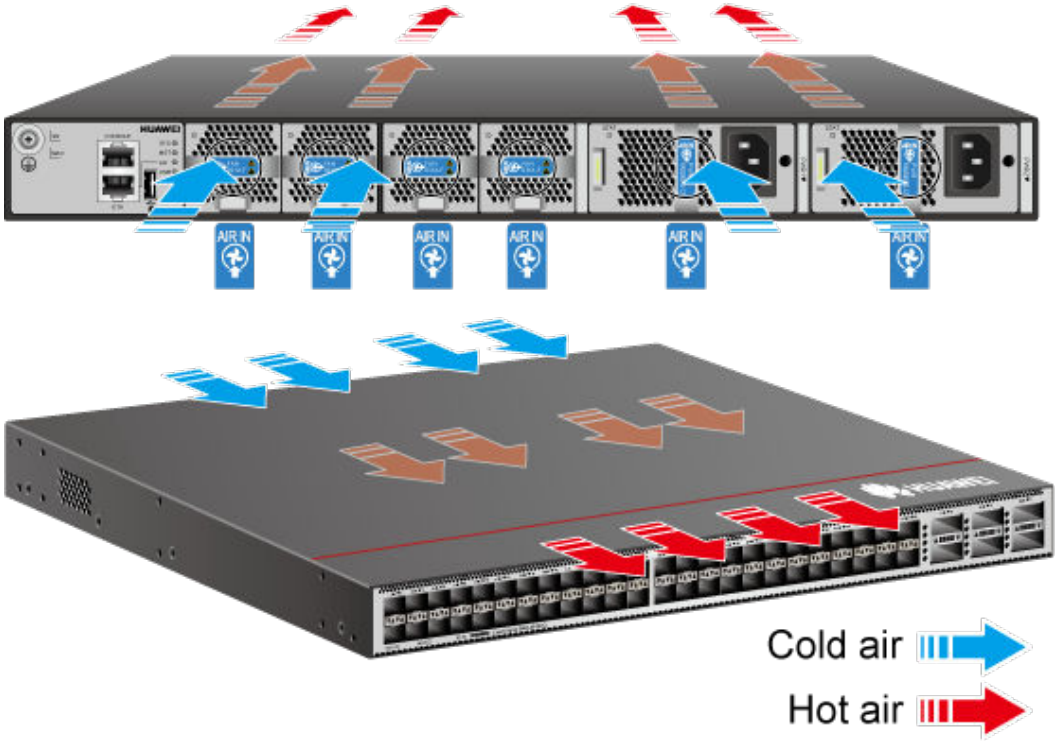
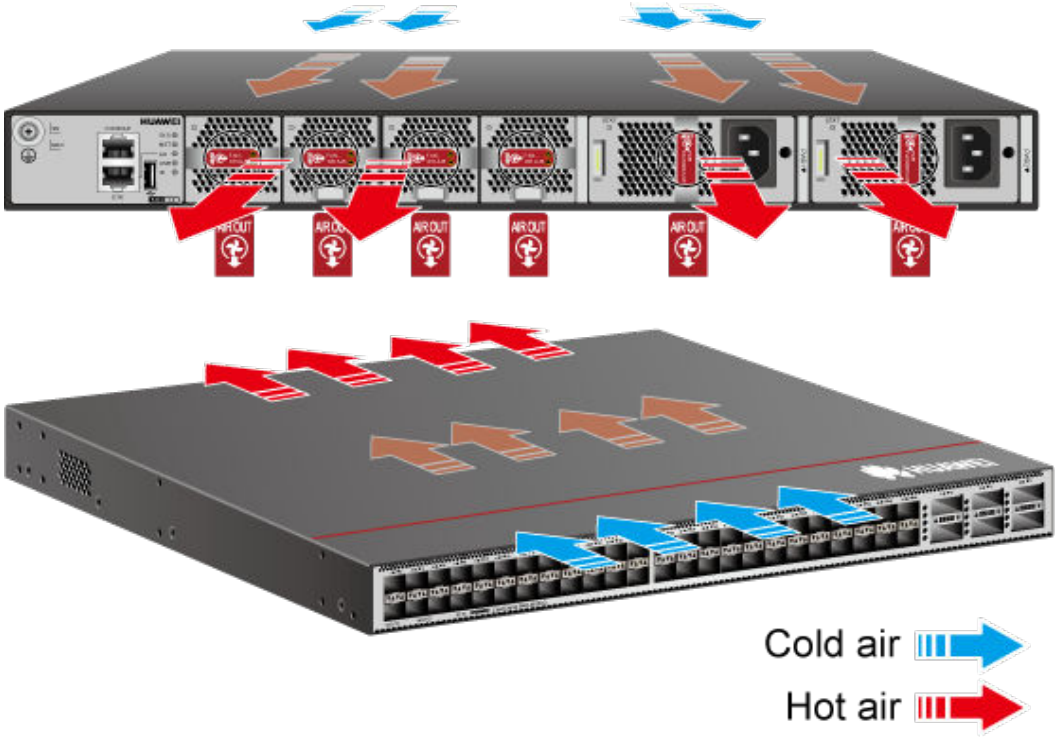


Figure 4-69 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-67 Technical specifications of the CE6857F-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.5 kg (12.1 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.75 kg (17.1 lb) (including AC power modules and fan modules, excluding optical modules)
Weight with packaging [kg (lb)]	8.75 kg (19.3 lb)
Weight with packaging (full configuration) [kg (lb)]	11 kg (24.3 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE SFP+ (10GE LRM/80 km linear optical modules are not supported. In addition, the 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.)
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100GE QSFP28 port can be used as a 40GE port. 2. A 100GE QSFP28 port cannot be split into 4x25GE and 4x10GE ports.)
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 148 W (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 185 W (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 505 BTU/hour (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 631 BTU/hour (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Static power consumption [W]	106 W
Static heat dissipation [BTU/hour]	362 BTU/hour
Maximum power consumption [W]	318 W

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Item	Specification
Maximum heat dissipation	1085 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48V DC to -60V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Port-side intake or exhaust, depending on the fan modules and power modules.
Availability	0.9999961836
MTBF [year]	49.35 years
MTTR [hour]	1.65 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.6.3 CE6857F-48S6CQ (02354HPX-002)

Overview

Table 4-68 Basic information about the CE6857F-48S6CQ

Item	Details
Description	CE6857F-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02354HPX-002
Model	CE6857F-48S6CQ
First supported version	V200R021C10SPC600
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6857F

Appearance

Figure 4-70 Appearance of the CE6857F-48S6CQ



Front (power supply side)



Rear (port side)

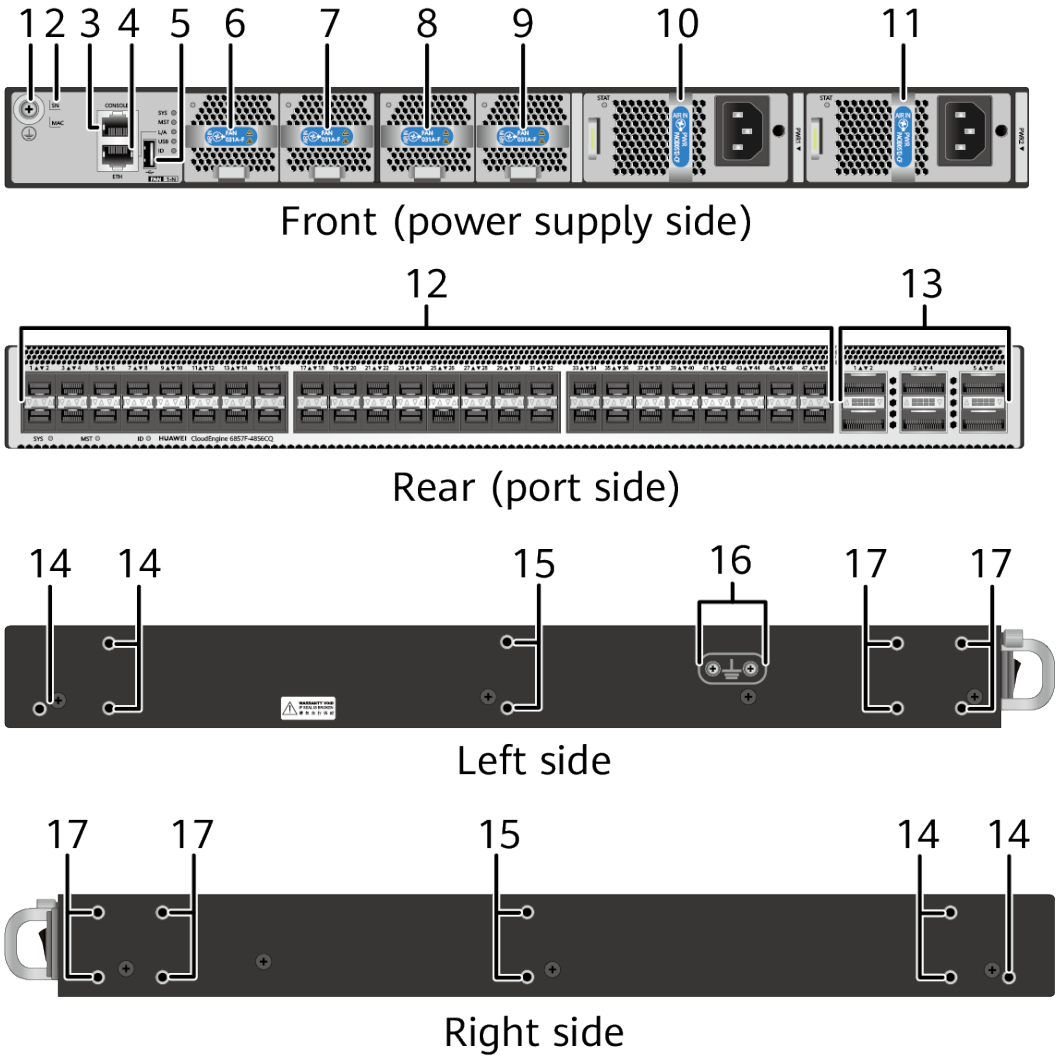
NOTE

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Components

Figure 4-71 Components of the CE6857F-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-69 Slots on the CE6857F-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-72 Indicators on the CE6857F-48S6CQ 1

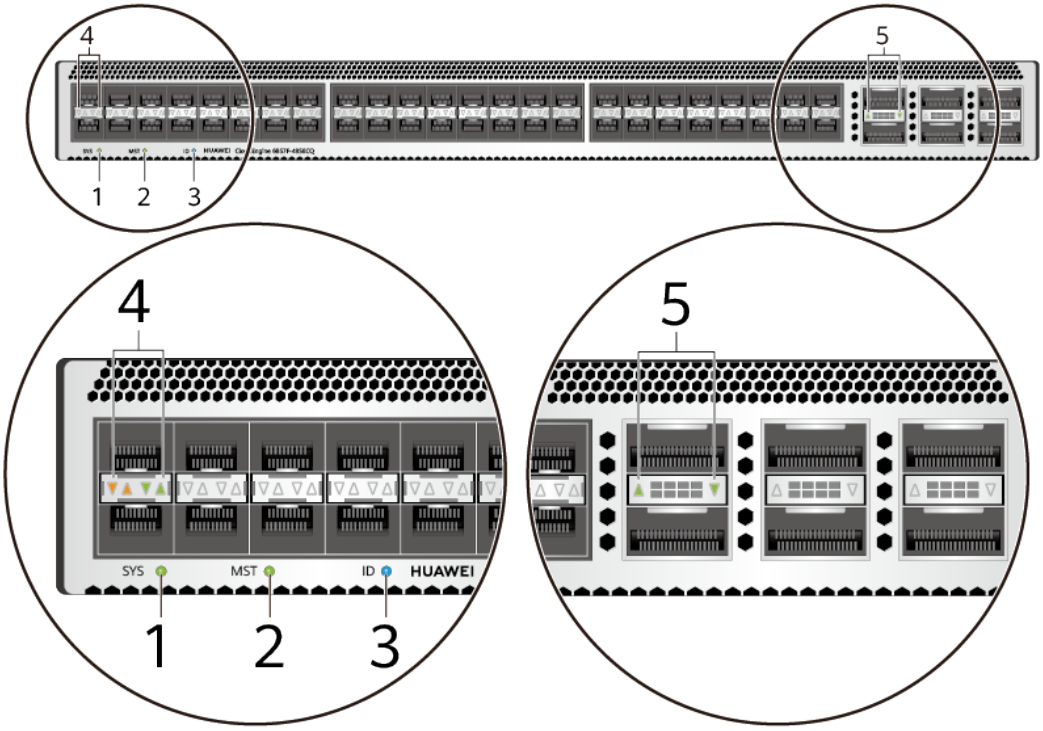
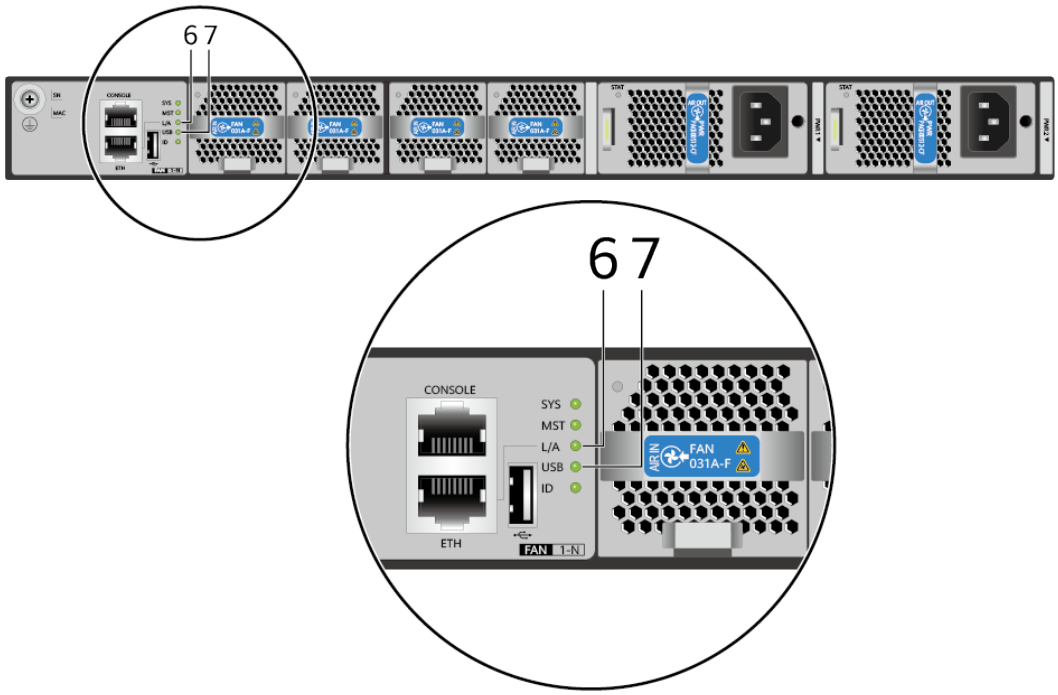


Figure 4-73 Indicators on the CE6857F-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE SFP+ Ethernet optical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-70 Indicators on the CE6857F-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). • Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-71 Ports on the CE6857F-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	SFP+	A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. - Optical attributes: depending on the module or cable in use	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 2. 10GE optical interfaces installed with GE copper modules support only the rate of 1000 Mbit/s. 3. 10GE optical interfaces do not support the OSXD22N00, LE2MXSC80FF0, or SFP-10G-ZDWT-L optical module.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **NOTE** The QSFP-100G-4WDM-40 optical module is not supported.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-74 Front-to-back airflow for port-side exhaust

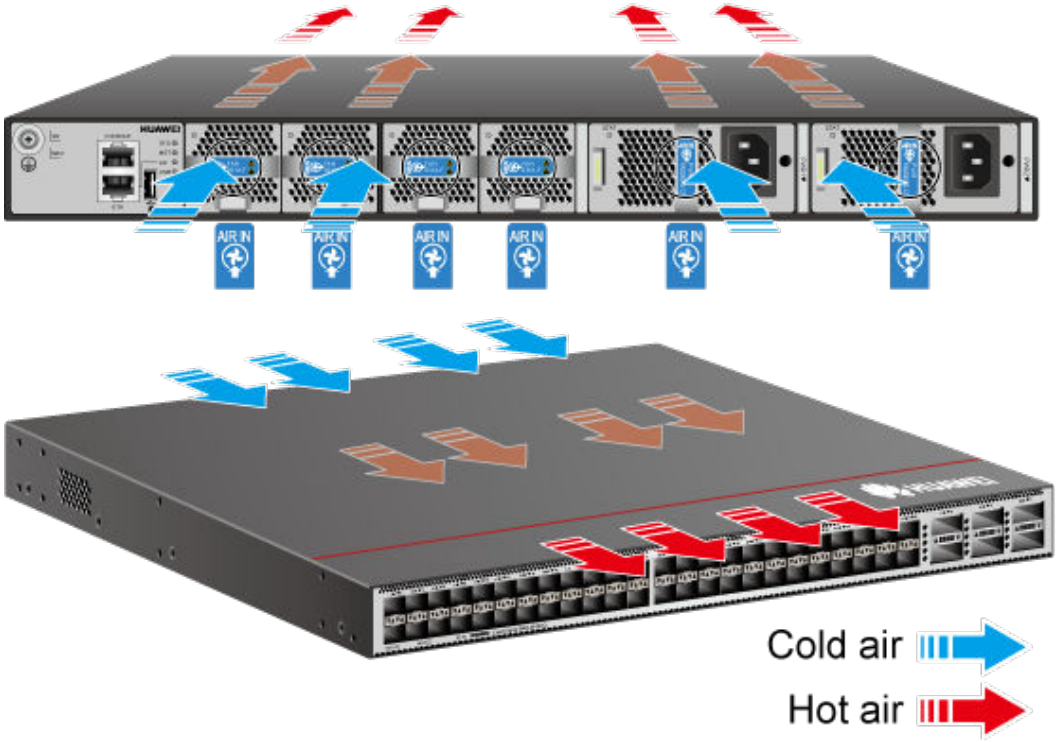
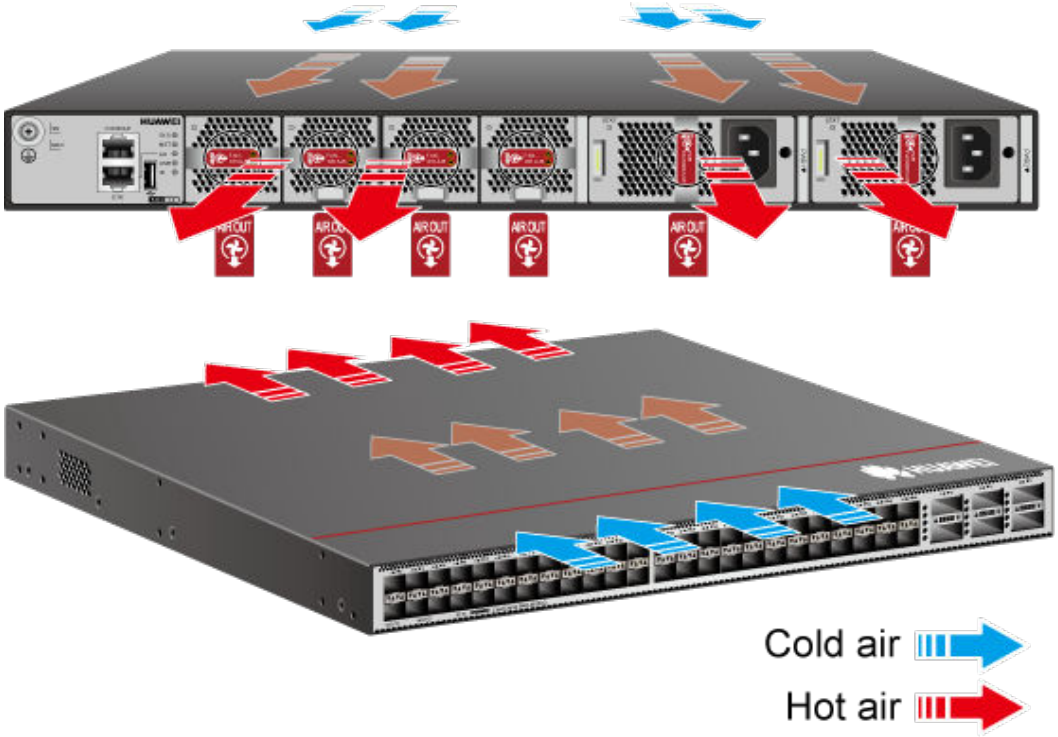


Figure 4-75 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-72 Technical specifications of the CE6857F-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.5 kg (12.1 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.75 kg (17.1 lb) (including AC power modules and fan modules, excluding optical modules)
Weight with packaging [kg (lb)]	8.75 kg (19.3 lb)
Weight with packaging (full configuration) [kg (lb)]	11 kg (24.3 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE SFP+ (10GE LRM/80 km linear optical modules are not supported. In addition, the 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.)
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100GE QSFP28 port can be used as a 40GE port. 2. A 100GE QSFP28 port cannot be split into 4x25GE and 4x10GE ports.)
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 148 W (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 185 W (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 505 BTU/hour (50% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 631 BTU/hour (50% throughput, short-distance optical modules on all optical ports, dual power modules)
Static power consumption [W]	106 W
Static heat dissipation [BTU/hour]	362 BTU/hour
Maximum power consumption [W]	318 W

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Item	Specification
Maximum heat dissipation	1085 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48V DC to -60V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Port-side intake or exhaust, depending on the fan modules and power modules.
Availability	0.9999961836
MTBF [year]	49.35 years
MTTR [hour]	1.65 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0 to 1800 m (0 to 5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.7 CE6857F-48T6CQ

4.4.7.1 CE6857F-48T6CQ (02354HPW)

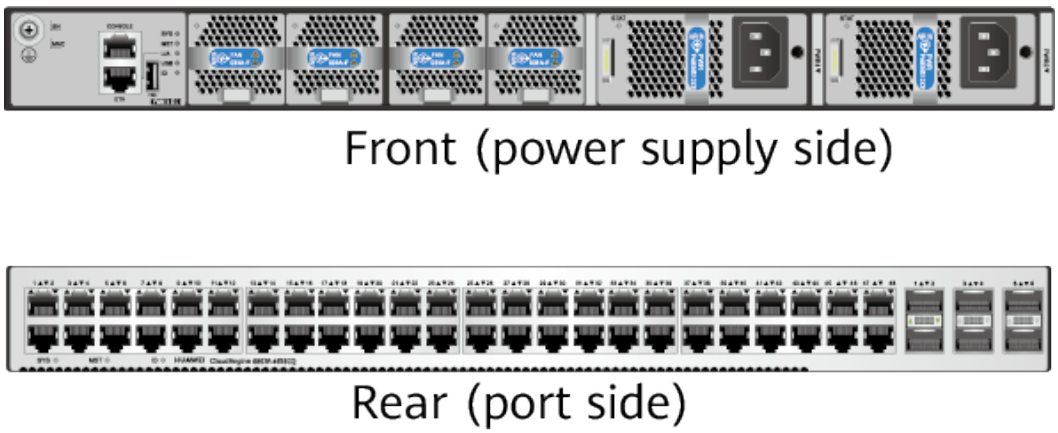
Overview

Table 4-73 Basic information about the CE6857F-48T6CQ

Item	Details
Description	CE6857F-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02354HPW
Model	CE6857F-48T6CQ
First supported version	V200R021C00
Other part numbers	02354HPU (CE6857F-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354HPV (CE6857F-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6857F

Appearance

Figure 4-76 Appearance of the CE6857F-48T6CQ



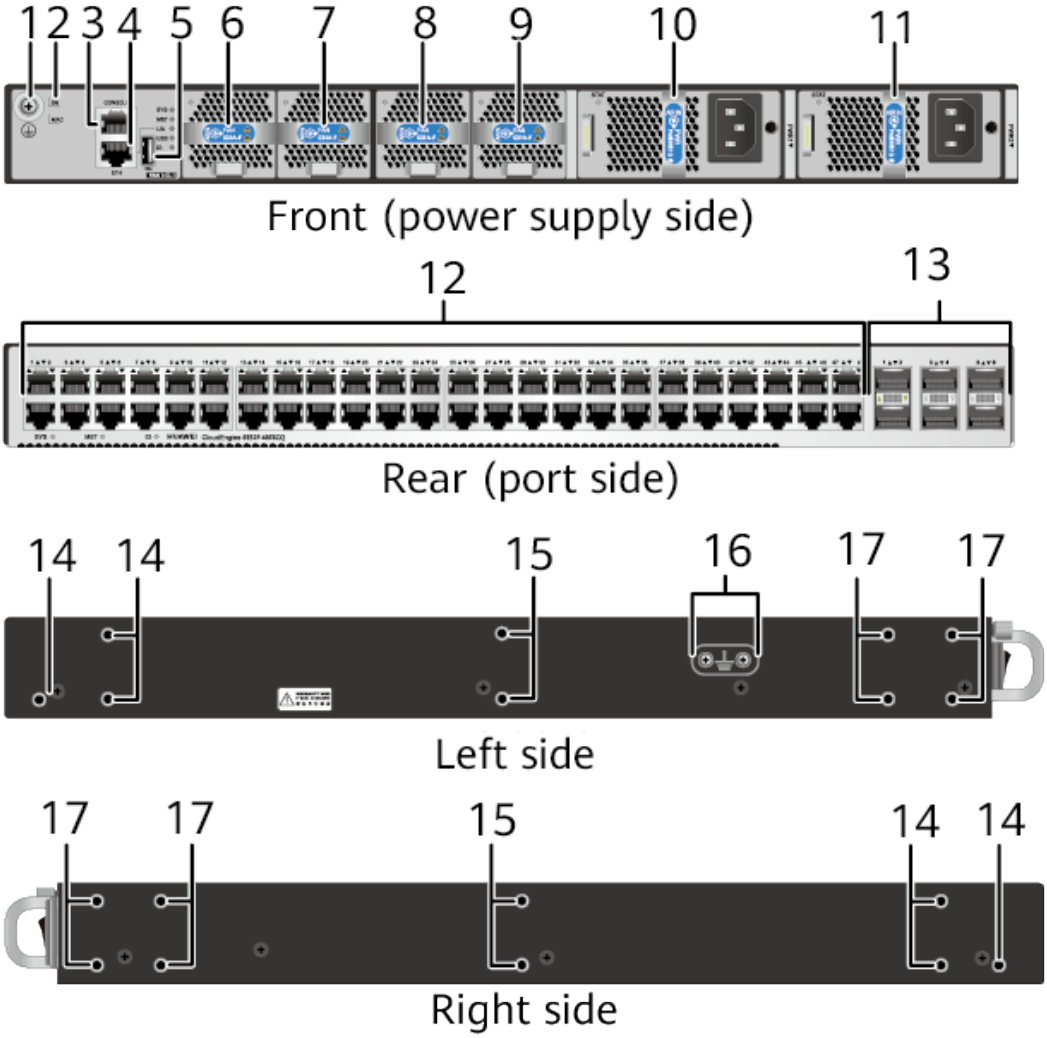
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NOTE

The figures in this document are for reference only.

Components

Figure 4-77 Components of the CE6857F-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3

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9	Fan slot 4	10	Power supply slot 1
11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-74 Slots on the CE6857F-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. 2) The CloudEngine 6800 series switches support 1+1 backup of power modules: When both power modules are working properly, each of them provides half of the power required for the chassis. When one power module fails, the other one provides all power required for the chassis. 3) All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	1) Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. 2) It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-78 Indicators on the CE6857F-48T6CQ 1

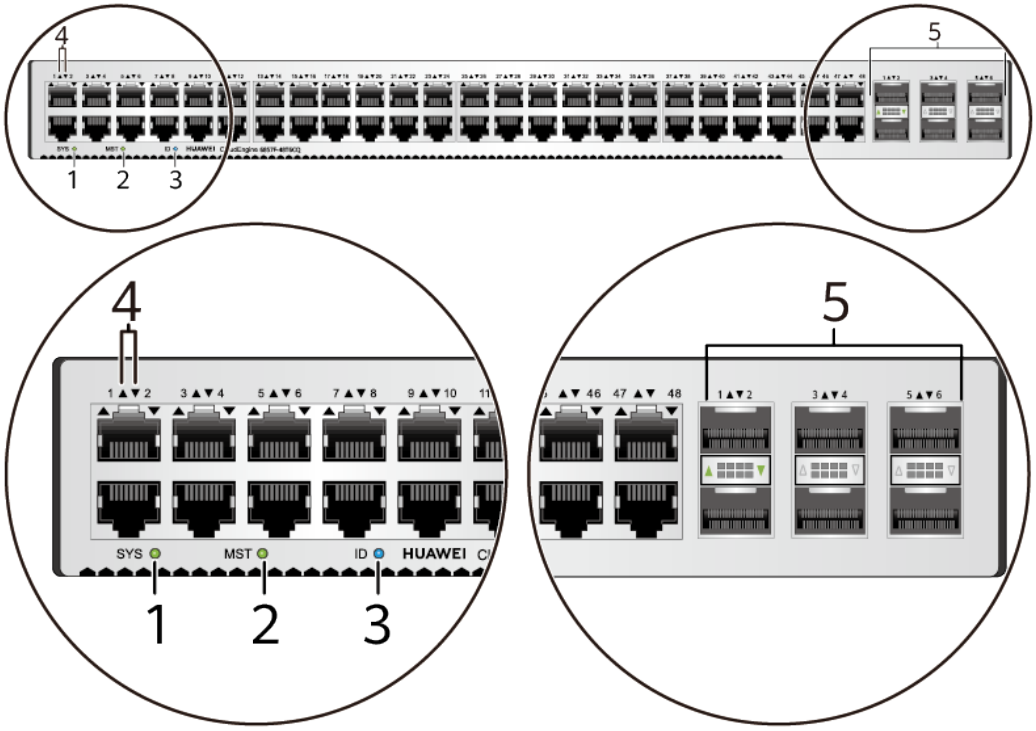
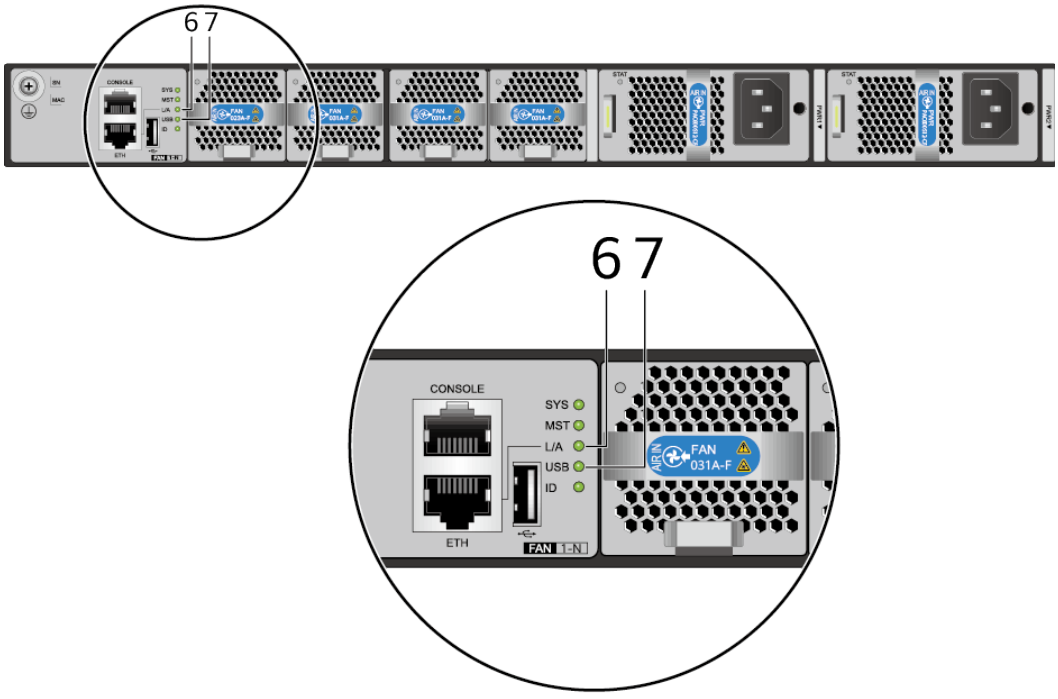


Figure 4-79 Indicators on the CE6857F-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T Ethernet electrical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-75 Indicators on the CE6857F-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running properly.
		Red	Steady on	• The system fails to start. • At least one power module does not work properly. • At least one fan module does not work properly.
MST	Stack master/ slave indicator	Green	Off	The switch is not a master switch in the stack.

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Silkscreen	Name	Color	Status	Description
	NOTE In V200R003C00 and later versions, you can use the dfs-master led enable command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Steady on	The switch is a master switch in the stack or a standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
L/A	ETH management port indicator	Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-76 Ports on the CE6857F-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet Electrical Port	RJ45	A 10GBASE-T Ethernet port receives and sends service traffic at a rate of 1000 Mbit/s or 10 Gbit/s. The port can work at the rate of 1000 Mbit/s through auto-sensing. It must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Standards compliance: IEEE 802.3an and IEEE 802.3az • Applicable cable: straight-through cable and crossover cable • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Straight-through cable and crossover cable

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	Depending on the optical module	A 40GE/100GE QSFP28 optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex	• **40GE QSFP+ optical modules** • **100GE QSFP28 optical modules** • **40GE QSFP+ to 40GE QSFP + AOC cable** • **100GE QSFP28 to 100GE QSFP28 AOC cable** • **40GE QSFP+ to 40GE QSFP + high-speed cable** • **100GE QSFP28 to 100GE QSFP28 high-speed cable** In V2R21C00 and later versions, only 40G/100G uplink ports 3 and 4 can be configured to work in 4x25G or 4x10G mode, and they support the following cables: • **40GE QSFP+ to 4*10GE SFP + high-speed cable** • **40GE QSFP+ to 4* 10GE SFP + AOC cable** • **100GE QSFP28 to 4*25GE SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE The QSFP-100G-4WDM-40 optical module is not supported.
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	**Console cable**

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Port	Connector Type	Description	Available Components
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

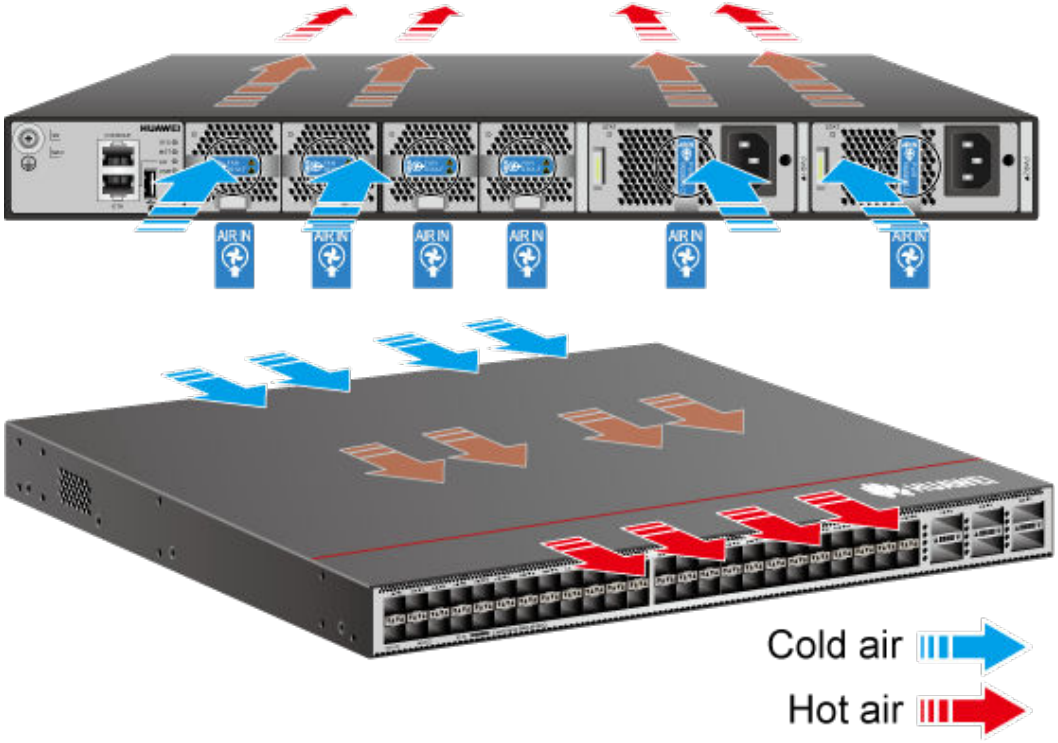
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

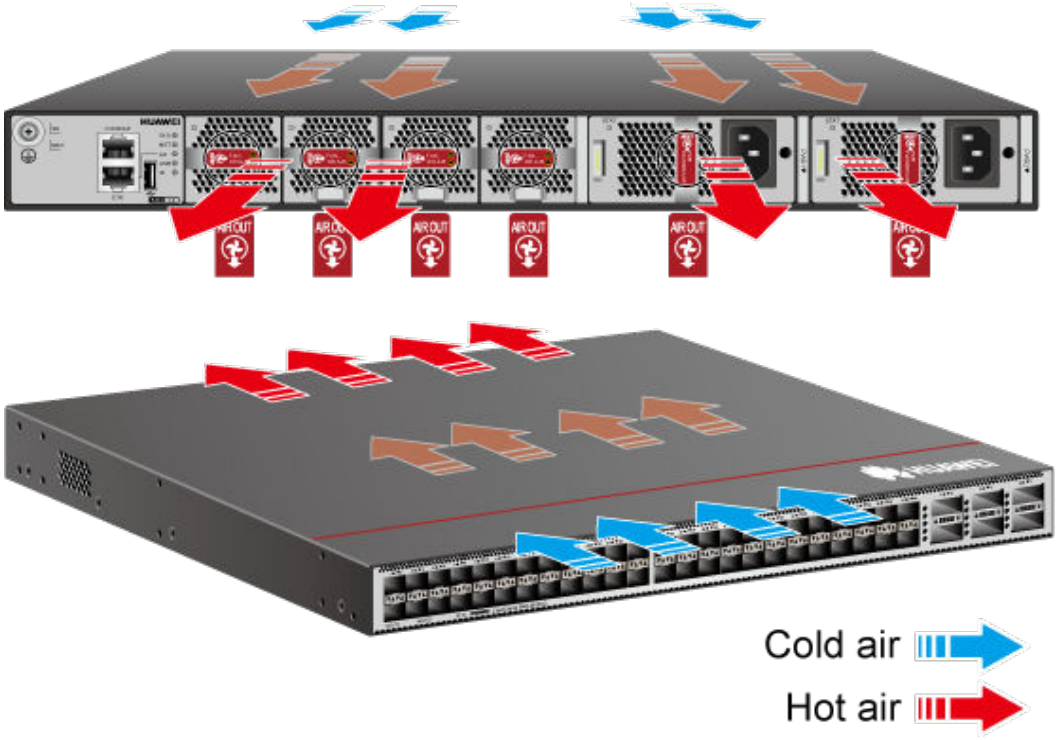
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 6** (using a CE6863 chassis as an example).

Figure 4-80 Front-to-back airflow for port-side exhaust



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Figure 4-81 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-77 Technical specifications of the CE6857F-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.75 kg (12.7 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.05kg (17.7 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.15 kg (20.2 lb)
Weight with packaging (full configuration) [kg (lb)]	11.4 kg (25.1 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (10GE interfaces are compatible with GE but do not support 100M/10M electrical interfaces. They only support full-duplex, not half-duplex.)

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Item	Specification
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100G QSFP28 port can be used as a 40GE port. 2. 40GE/100GE uplink ports 3 and 4 can be split into 4x25G and 4x10G ports. Other 40GE/100GE uplink ports cannot be split.)
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 252 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 270 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Typical heat dissipation [BTU/hour]	• 860 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 921 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	136 W
Static heat dissipation [BTU/hour]	464 BTU/hr
Maximum power consumption [W]	363 W
Maximum heat dissipation	1239 BTU/hr
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48 V DC to -60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC

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Item	Specification
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode. • DC: 4 kV in common mode and 2 kV in differential mode. • HVDC: 4 kV in common mode and 2 kV in differential mode.
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling

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Item	Specification
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.999996178
MTBF [year]	46.59 years
MTTR [hour]	1.56 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.7.2 CE6857F-48T6CQ (02354HPW-001)

Overview

Table 4-78 Basic information about the CE6857F-48T6CQ

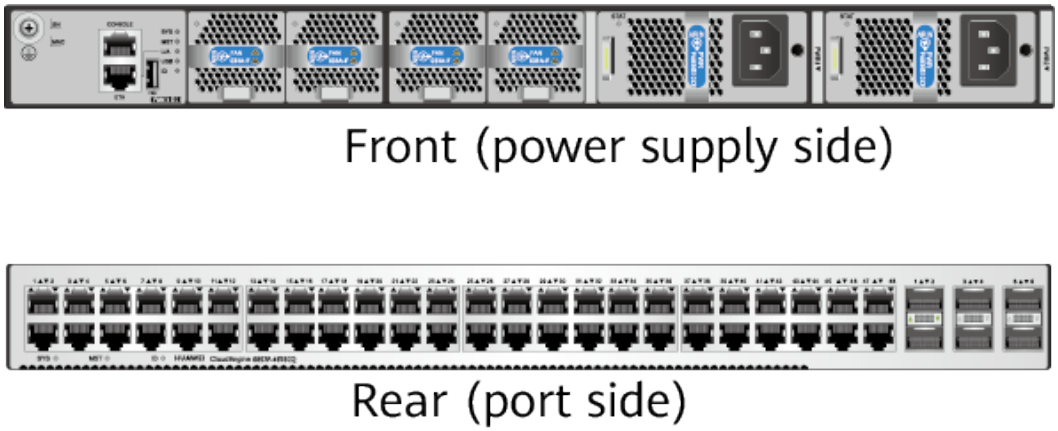
Item	Details
Description	CE6857F-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)

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Item	Details
Part Number	02354HPW-001
Model	CE6857F-48T6CQ
First supported version	V200R021C10SPC600
Other part numbers	02354HPU-001 (CE6857F-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354HPV-001 (CE6857F-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6857F

Appearance

Figure 4-82 Appearance of the CE6857F-48T6CQ



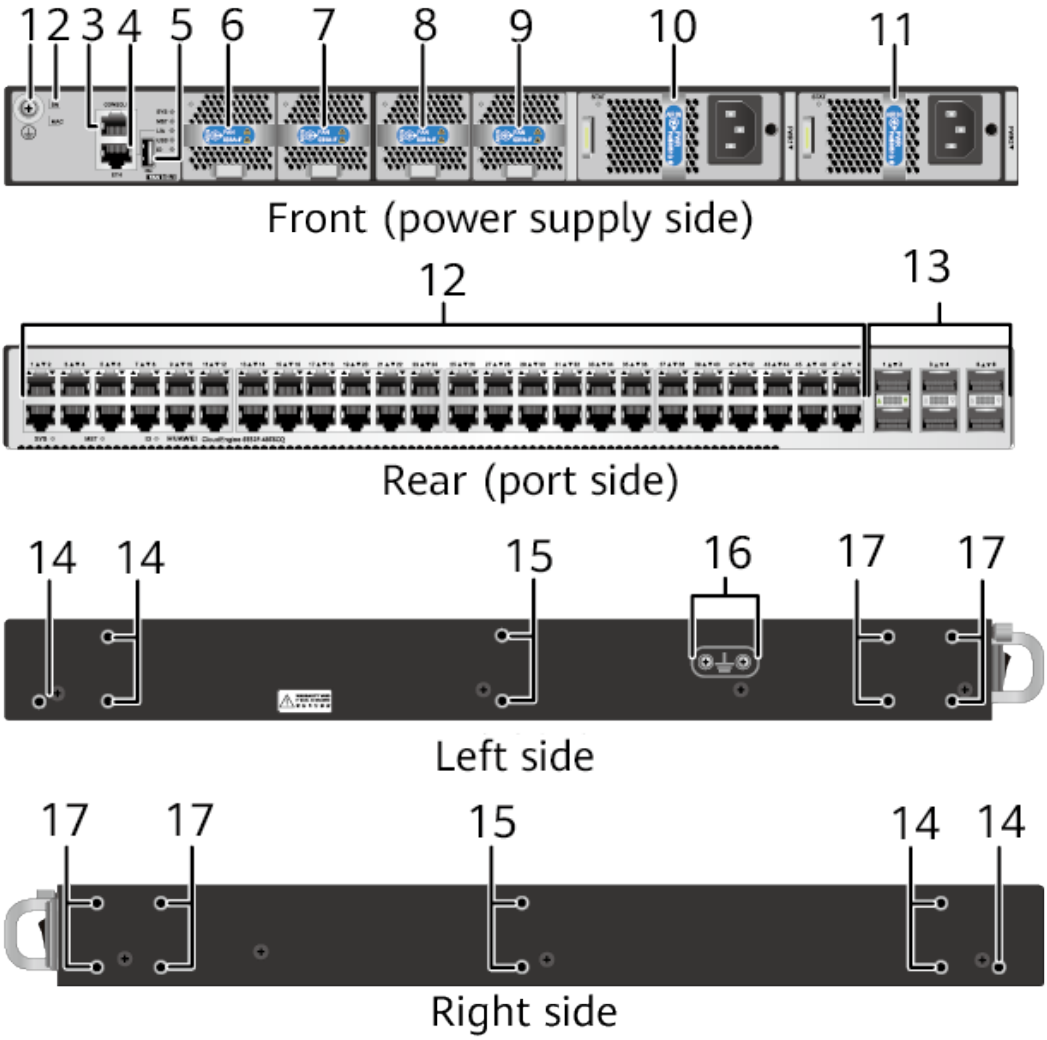
NOTE

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Components

Figure 4-83 Components of the CE6857F-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-79 Slots on the CE6857F-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-84 Indicators on the CE6857F-48T6CQ 1

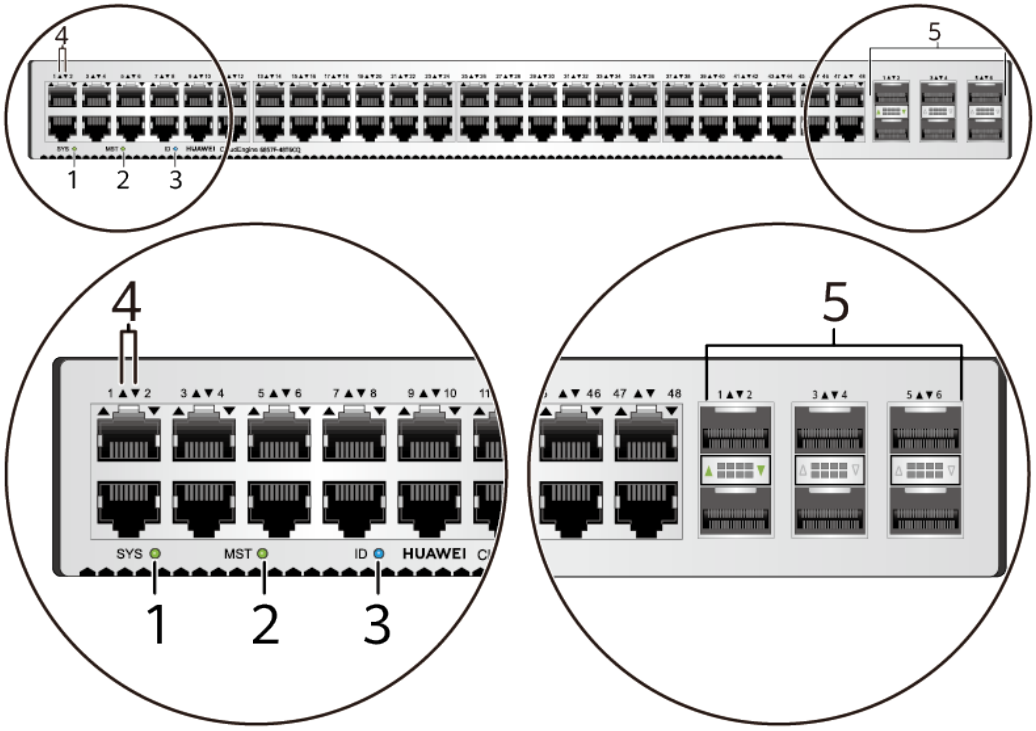
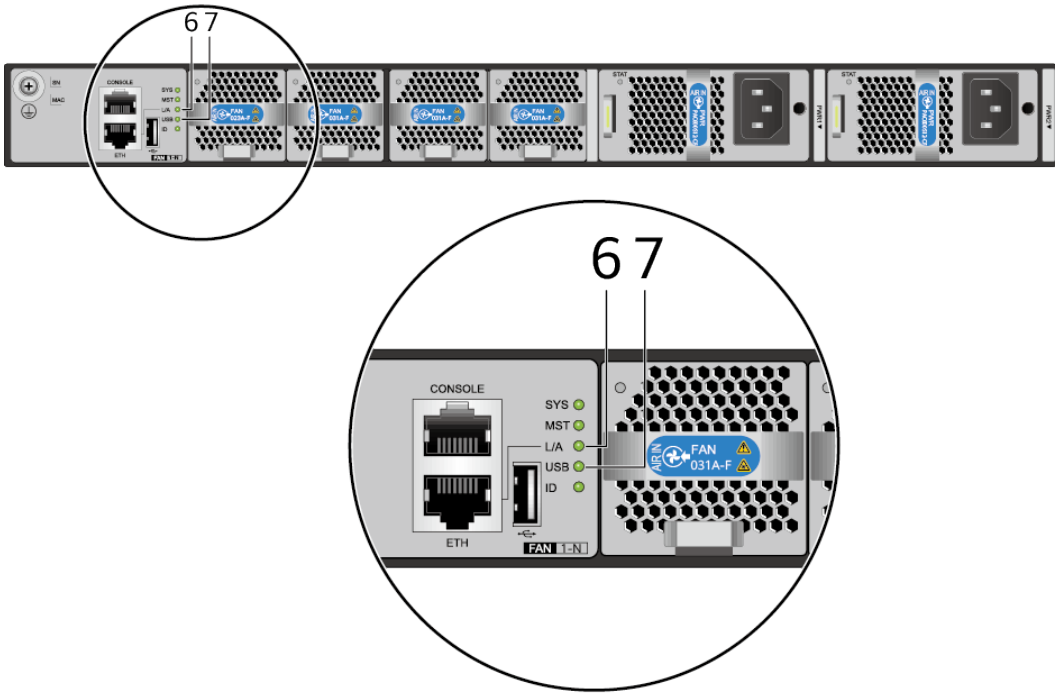


Figure 4-85 Indicators on the CE6857F-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T Ethernet electrical port)	5. Service port indicator (40GE/100GE QSFP28 Ethernet optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-80 Indicators on the CE6857F-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-81 Ports on the CE6857F-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet port receives and sends service traffic at a rate of 1000 Mbit/s or 10 Gbit/s. The port can work at the rate of 1000 Mbit/s through auto-sensing. It must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Standards compliance: IEEE 802.3an and IEEE 802.3az • Applicable cable: straight-through cable and crossover cable • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	• **40GE QSFP+ optical modules** • **100GE QSFP28 optical modules** • **40GE QSFP+ to 40GE QSFP + AOC cable** • **100GE QSFP28 to 100GE QSFP28 AOC cable** • **40GE QSFP+ to 40GE QSFP + high-speed cable** • **100GE QSFP28 to 100GE QSFP28 high-speed cable** In V2R21C00 and later versions, only 40G/100G uplink ports 3 and 4 can be configured to work in 4x25G or 4x10G mode, and they support the following cables: • **40GE QSFP+ to 4*10GE SFP + high-speed cable** • **40GE QSFP+ to 4* 10GE SFP + AOC cable** • **100GE QSFP28 to 4*25GE SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE The QSFP-100G-4WDM-40 optical module is not supported.
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	**Console cable**

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power

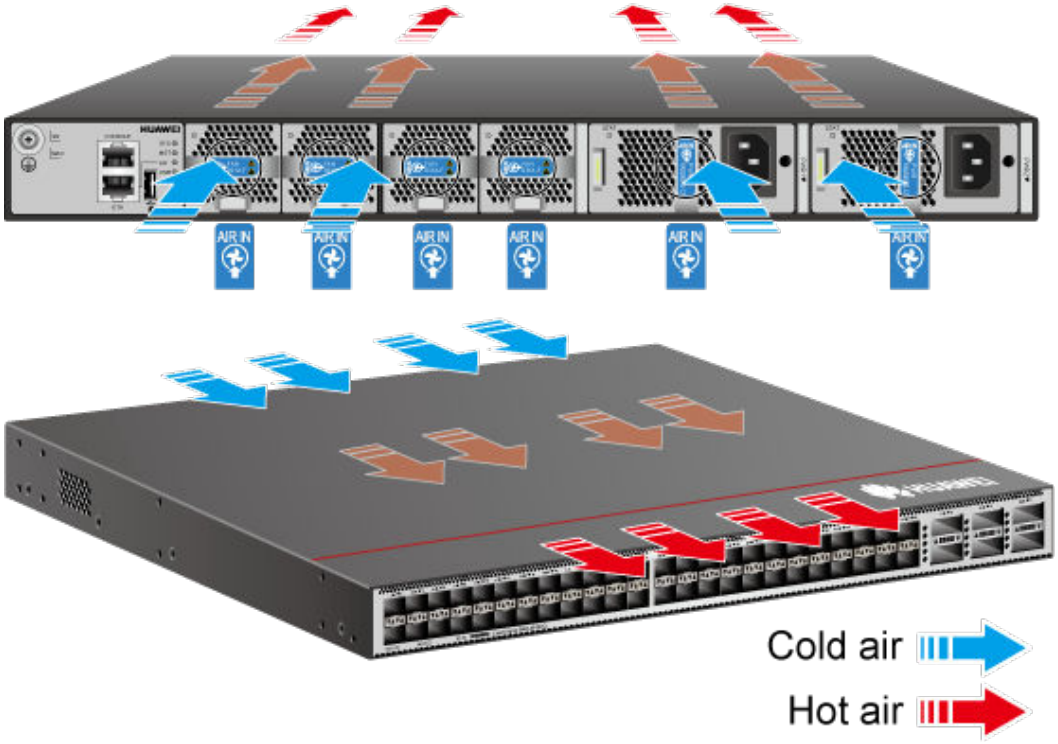
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supply side and is exhausted from the port side, as shown in **Figure 5** (using a CE6863 chassis as an example).

- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

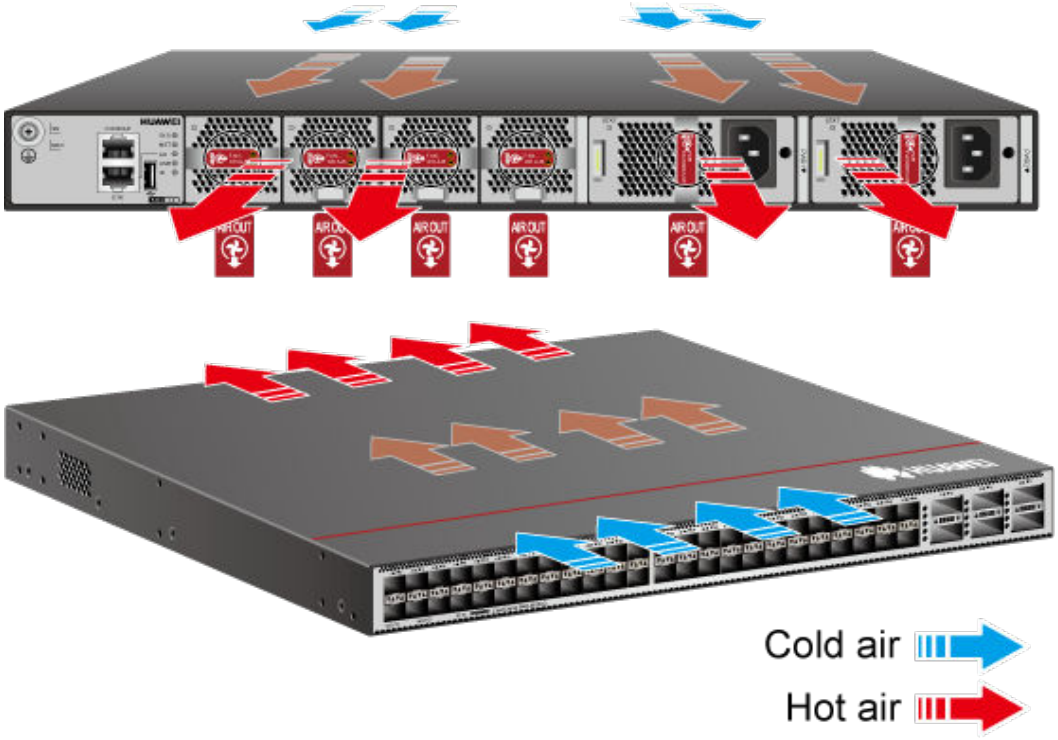
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 6** (using a CE6863 chassis as an example).

Figure 4-86 Front-to-back airflow for port-side exhaust



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Figure 4-87 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-82 Technical specifications of the CE6857F-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.7 in. x 17.4 in. x 16.5 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the handle on the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.7 in. x 17.4 in. x 17.6 in.)
Weight without packaging [kg (lb)]	5.75 kg (12.7 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.05kg (17.7 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.15 kg (20.2 lb)
Weight with packaging (full configuration) [kg (lb)]	11.4 kg (25.1 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (10GE interfaces are compatible with GE but do not support 100M/10M electrical interfaces. They only support full-duplex, not half-duplex.)

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Item	Specification
Uplink Service interface	6*100GE QSFP28 (Note: 1. Each 100G QSFP28 port can be used as a 40GE port. 2. 40GE/100GE uplink ports 3 and 4 can be split into 4x25G and 4x10G ports. Other 40GE/100GE uplink ports cannot be split.)
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 252 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 270 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Typical heat dissipation [BTU/hour]	• 860 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 921 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	136 W
Static heat dissipation [BTU/hour]	464 BTU/hr
Maximum power consumption [W]	363 W
Maximum heat dissipation	1239 BTU/hr
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module : AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module : -48 V DC to -60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380V DC

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Item	Specification
Input voltage range [V]	• 600 W AC&240 V DC power module : AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module : -38.4 V DC to -72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module : 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module : 30 A (-48 V DC to -60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module : 600 W • 1000 W DC power module : 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode. • DC: 4 kV in common mode and 2 kV in differential mode. • HVDC: 4 kV in common mode and 2 kV in differential mode.
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling

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Item	Specification
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.999996178
MTBF [year]	46.59 years
MTTR [hour]	1.56 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 50 dBA (maximum: 54 dBA) • Back-to-front airflow: average 53 dBA (maximum: 57 dBA)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: average 69 dBA (maximum: 73 dBA) • Back-to-front airflow: average 72 dBA (maximum: 77 dBA)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is between 1800 m and 5000 m (5906 ft. and 16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.8 CE6863-48S6CQ

4.4.8.1 CE6863-48S6CQ (02352NUN)

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Overview

Table 4-83 Basic information about the CE6863-48S6CQ

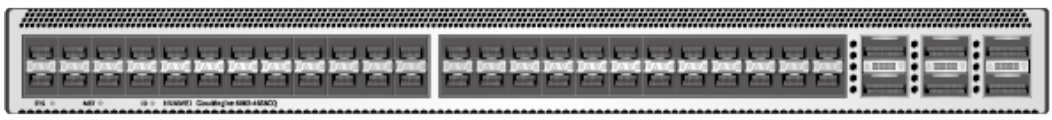
Item	Details
Description	CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, without fan and power modules)
Part Number	02352NUN
Model	CE6863-48S6CQ
First supported version	V200R005C20
Other part numbers	02352NUP (CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02352NUQ (CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)) 02353KXU (2*CE6863-48S6CQ-B switch [48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake], 8*QSFP-100G-SR4) 02353KXV (2*CE6863-48S6CQ-F switch [48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust],8*QSFP-100G-SR4)

Appearance

Figure 4-88 Appearance of the CE6863-48S6CQ



Front (power supply side)



Rear (port side)

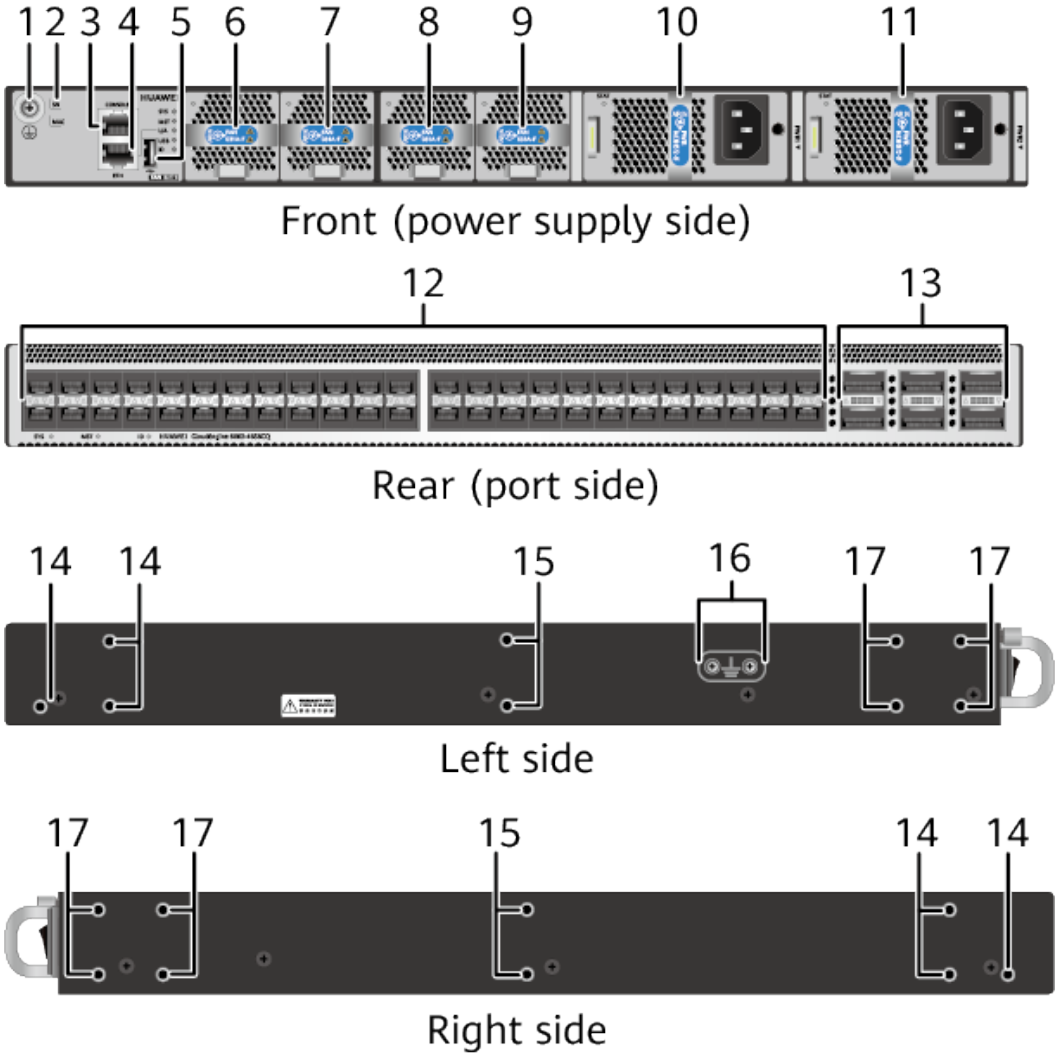
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NOTE

The figures in this document are for reference only.

Components

Figure 4-89 Components of the CE6863-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1

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7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1
11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-84 Slots on the CE6863-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-90 Indicators on the CE6863-48S6CQ 1

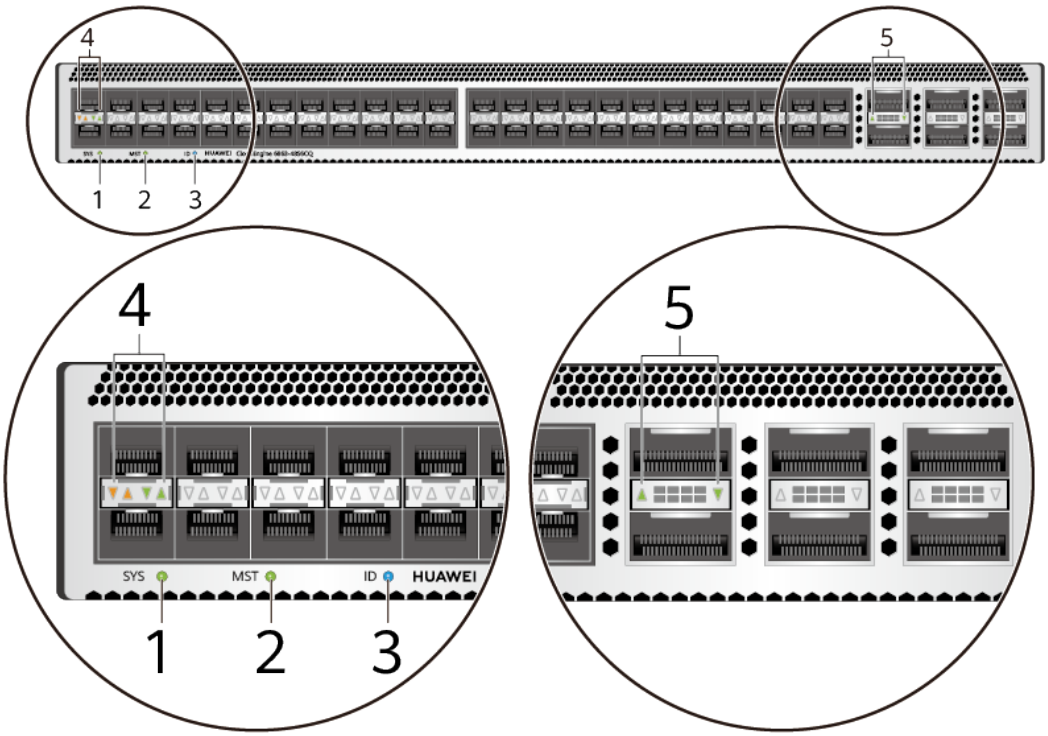
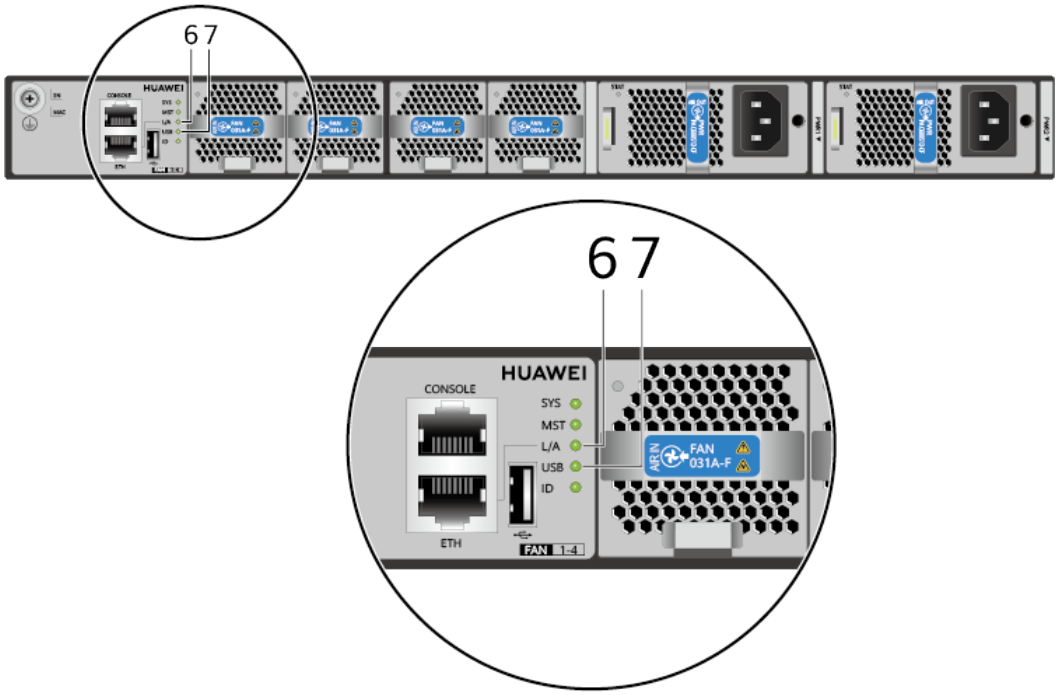


Figure 4-91 Indicators on the CE6863-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-85 Indicators on the CE6863-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-86 Ports on the CE6863-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-92 Front-to-back airflow for port-side exhaust

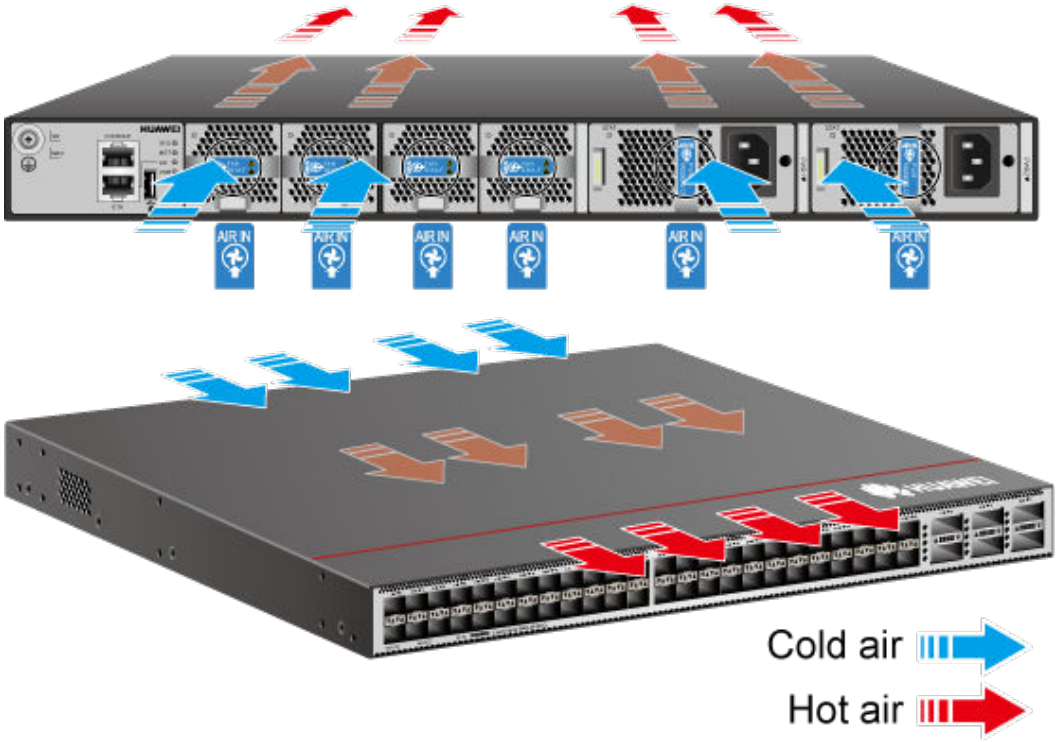
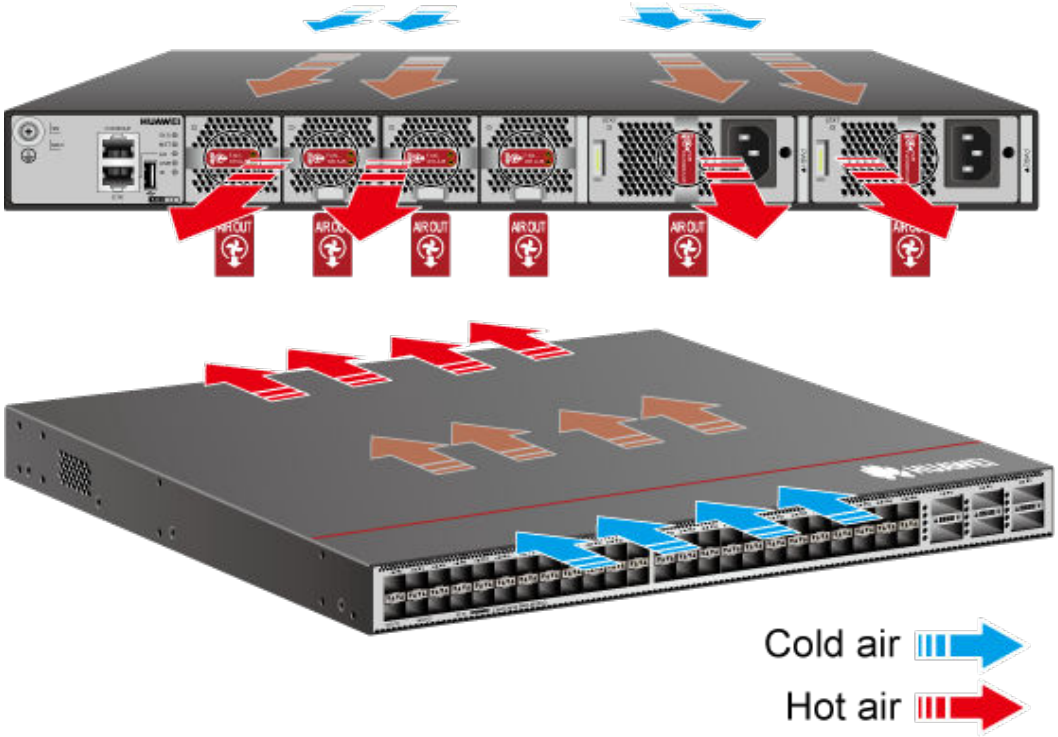


Figure 4-93 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-87 Technical specifications of the CE6863-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be configured to work at 10 Gbit/s or 1 Gbit/s. Every four downlink 25GE ports form a group, and can be configured to work at 10 Gbit/s or 1 Gbit/s through the command; 2. 10GE LRM/80KM linear optical modules are not supported; 3. 1 m 25GE copper cables and 1 m/3 m/5 m 10GE copper cables are supported, and auto-negotiation of copper cables is not supported; 4. 25GE copper cables can only be used on stack ports and M-LAG peer-link ports.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W

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Item	Specification
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V DC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.

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Item	Specification
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999962836
MTBF [year]	47.81 year
MTTR [hour]	1.95 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.8.2 CE6863-48S6CQ (02352NUN-001)

Overview

Table 4-88 Basic information about the CE6863-48S6CQ

Item	Details
Description	CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, without fan and power modules)
Part Number	02352NUN-001
Model	CE6863-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02352NUP-001 (CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02352NUQ-001 (CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6863

Appearance

Figure 4-94 Appearance of the CE6863-48S6CQ



Front (power supply side)



Rear (port side)

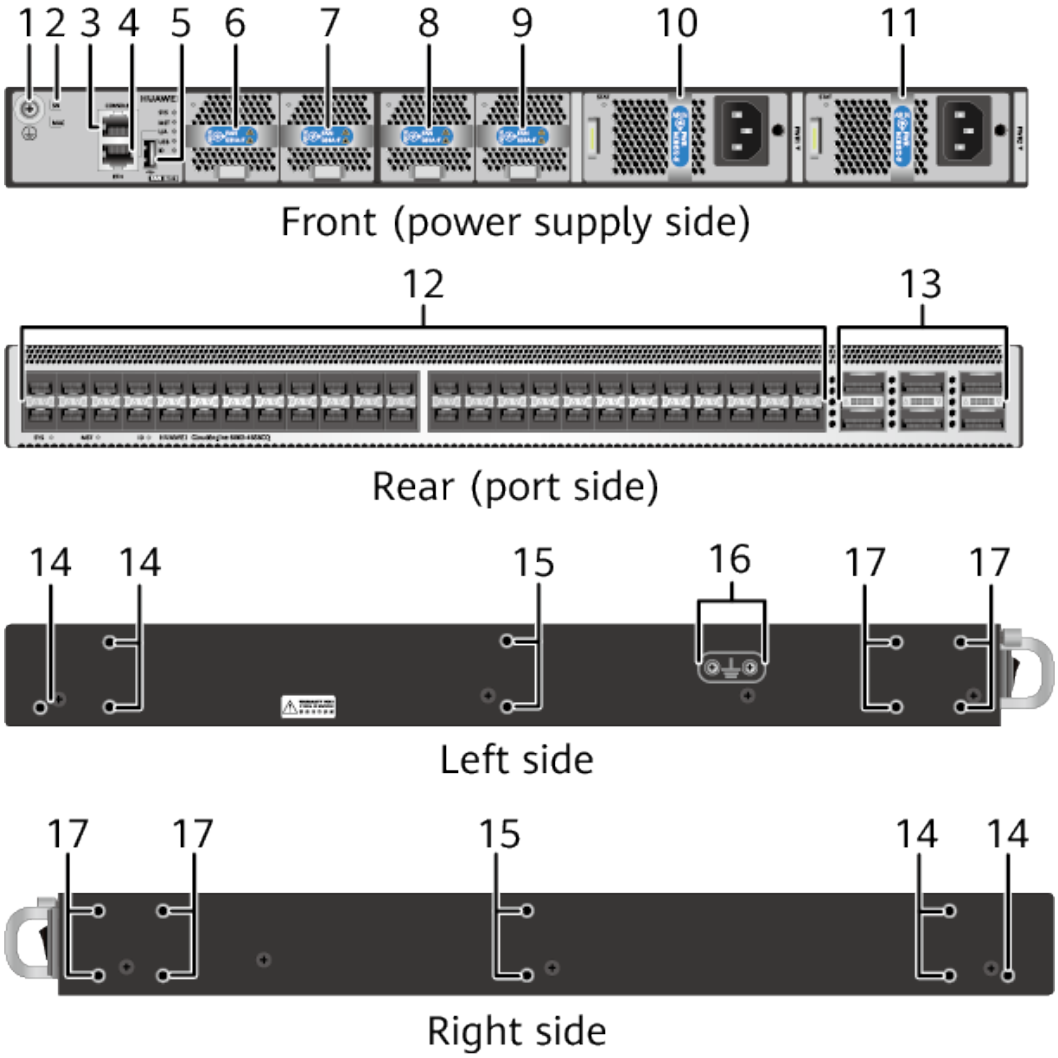
NOTE

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Components

Figure 4-95 Components of the CE6863-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-89 Slots on the CE6863-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-96 Indicators on the CE6863-48S6CQ 1

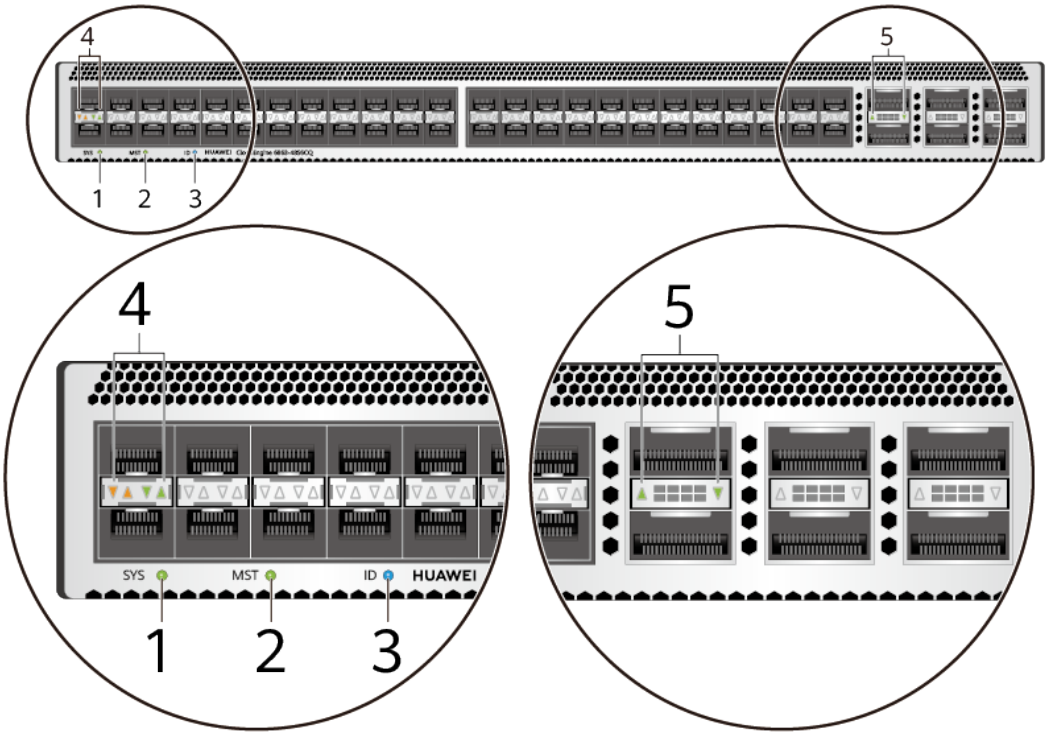
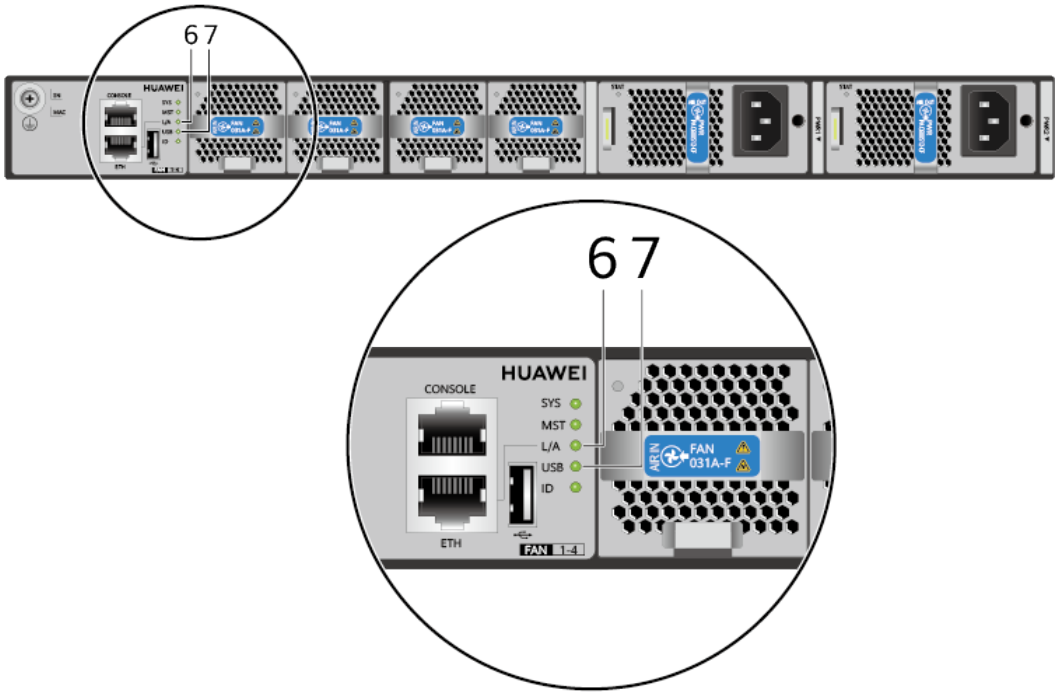


Figure 4-97 Indicators on the CE6863-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-90 Indicators on the CE6863-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-91 Ports on the CE6863-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-98 Front-to-back airflow for port-side exhaust

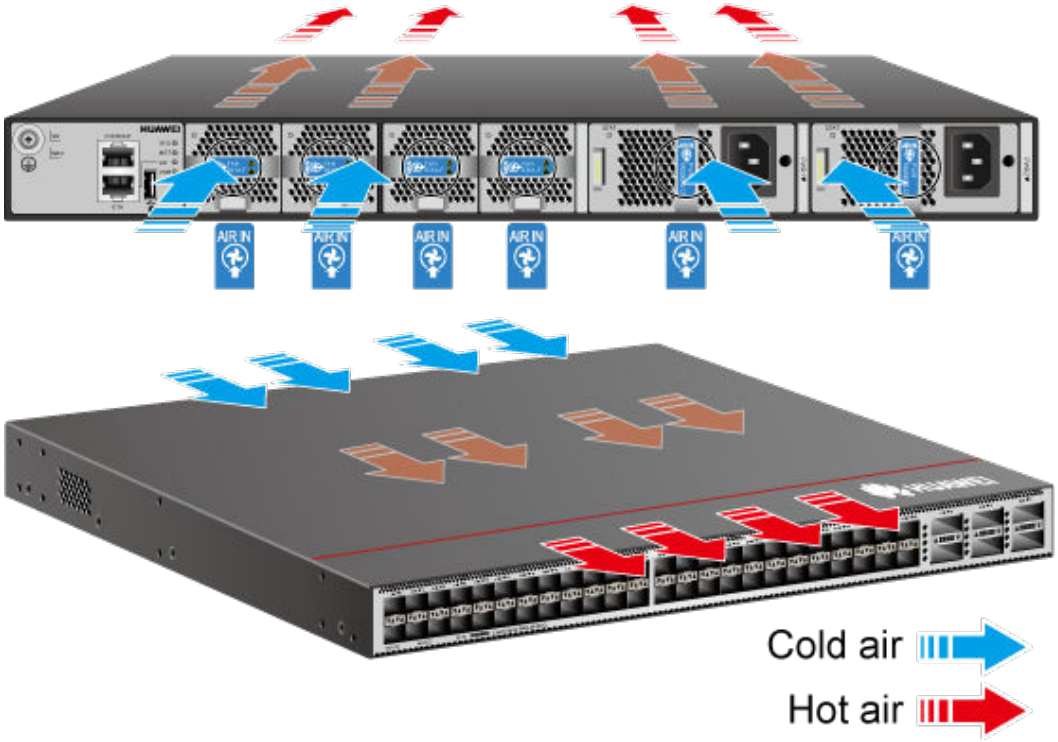
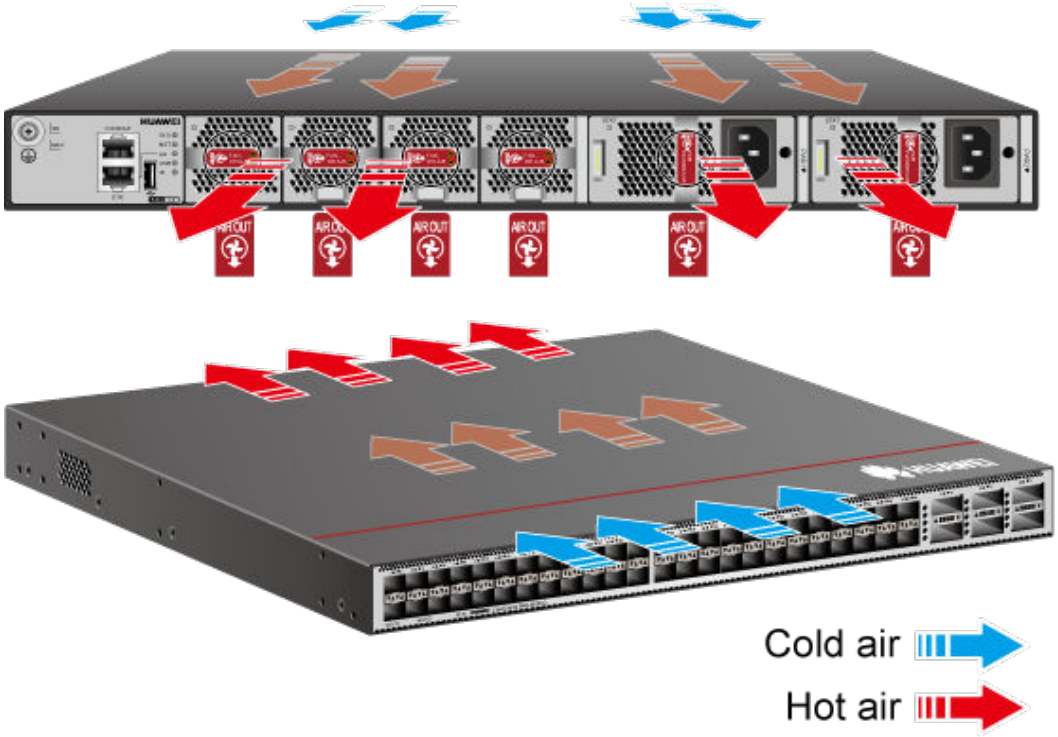


Figure 4-99 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-92 Technical specifications of the CE6863-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	8.95 kg
Weight with packaging (full configuration) [kg (lb)]	11.05 kg (24.36 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be used as 10GE and GE ports. Every four downlink 25GE ports form one group and can be configured to work at 10 Gbit/s or 1 Gbit/s using commands. 2. 10GE LRM/80KM linear optical modules are not supported. 3. 25GE 1 m copper cables and 10GE 1 m/3 m/5 m copper cables are supported, and auto-negotiation of copper cables is not supported. 4. 25GE copper cables can only be used on stack interfaces and M-LAG peer-link interfaces.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	Rated AC input voltage range: 100 V AC to 240 V AC; 50/60 Hz Rated –48 V DC input voltage range: –48 V DC to –60 V DC Rated input voltage range for 600 W AC & 240 V DC: 240 V DC Rated input voltage range for 1200 W HVDC: 240 V DC to 380 V DC
Input voltage range [V]	Maximum AC input voltage range: 90 V AC to 290 V AC; 45 Hz to 65 Hz Maximum –48 V DC input voltage range: –38.4 V DC to –72 V DC Maximum input voltage range for 600 W AC & 240 V DC: 190 V DC to 290 V DC Maximum input voltage range for 1200 W HVDC: 190 V DC to 400 V DC
Maximum input current [A]	600 W AC&240 V DC power module (PAC600S12 series): · 8 A (100 V AC to 240 V DC) · 4 A (240 V DC) 1000 W DC power module (PDC1000S12 series): 30 A (–48 V DC to –60 V DC) 1200 W high-voltage DC power module (PHD1K2S12 series): 8 A

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Item	Specification
Rated output power [W]	600 W (AC&240 V HVDC) 1000 W (–48 V DC) 1200 W (380 V HVDC)
Certification	· Compliance with safety standards · Compliance with EMC standards · Compliance with environment and environmental protection standards
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999962836
MTBF [year]	47.81 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40ºC to +70ºC (-40°F to +158°F)

4.4.8.3 CE6863-48S6CQ (02352NUN-002)

Overview

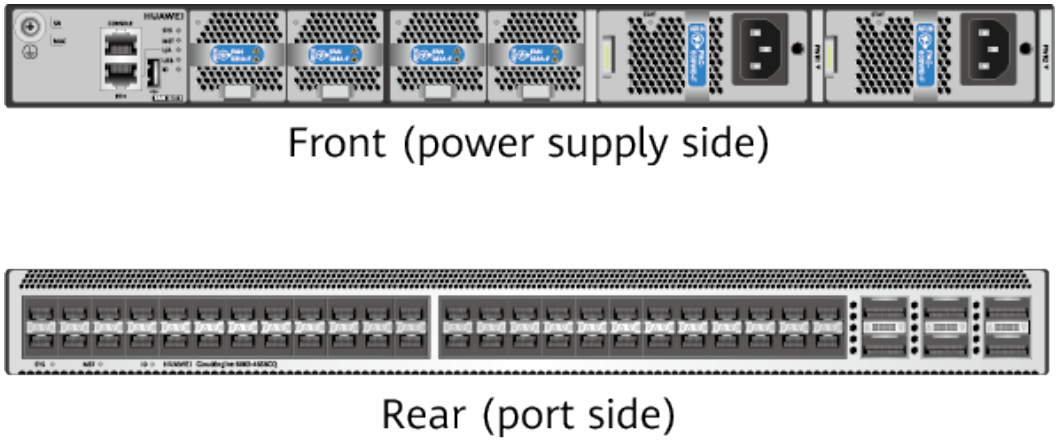
Table 4-93 Basic information about the CE6863-48S6CQ

Item	Details
Description	CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, without fan and power modules)
Part Number	02352NUN-002
Model	CE6863-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02352NUP-002 (CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02352NUQ-002 (CE6863-48S6CQ switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6863

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Appearance

Figure 4-100 Appearance of the CE6863-48S6CQ



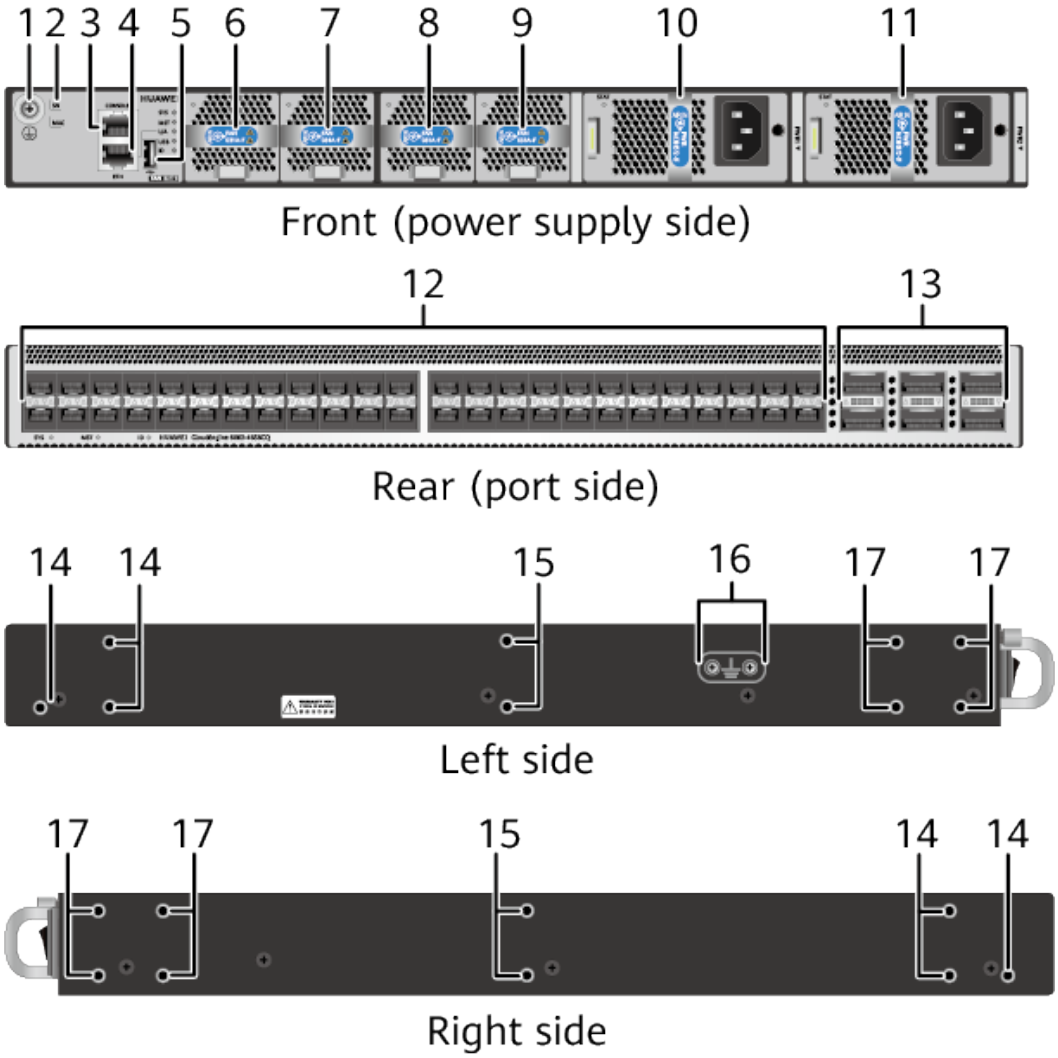
NOTE

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Components

Figure 4-101 Components of the CE6863-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-94 Slots on the CE6863-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-102 Indicators on the CE6863-48S6CQ 1

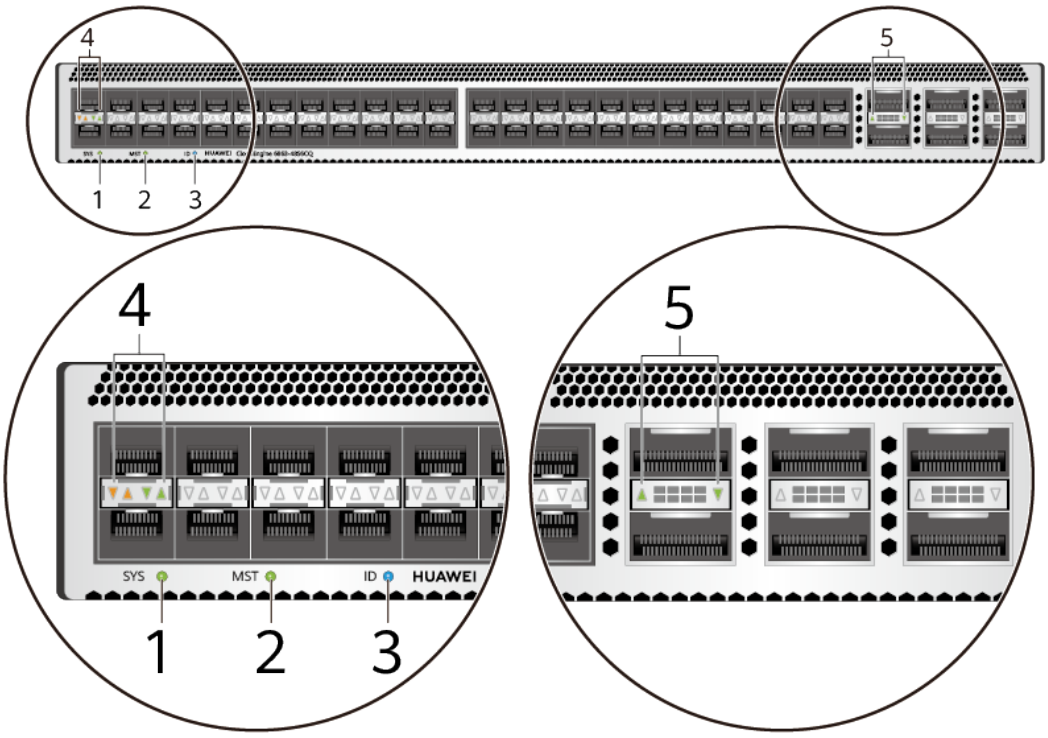
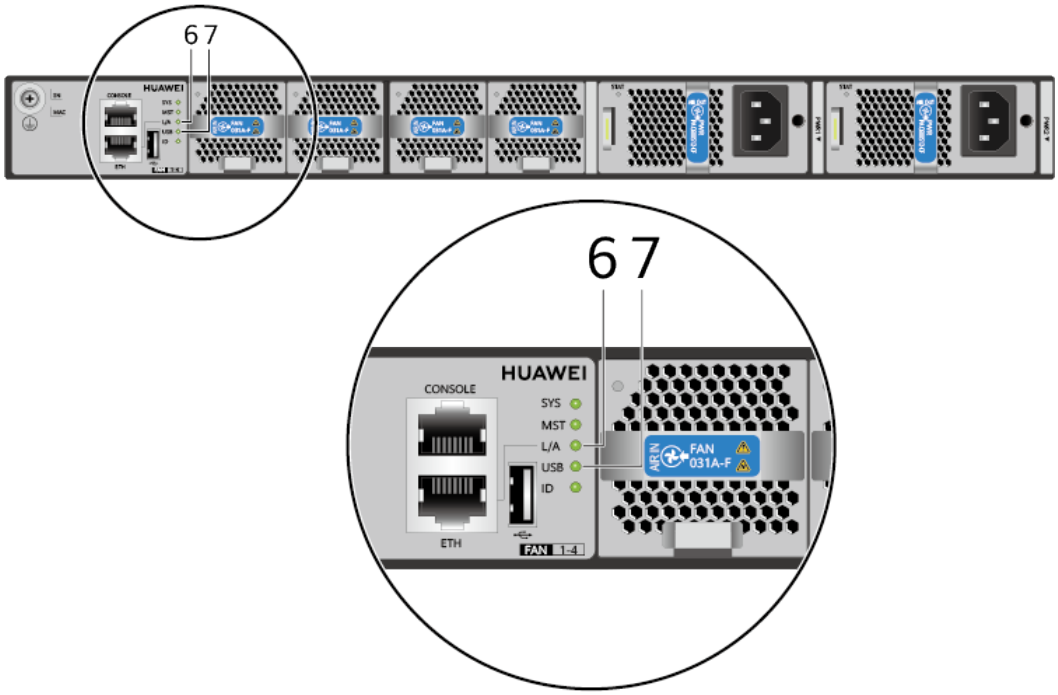


Figure 4-103 Indicators on the CE6863-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-95 Indicators on the CE6863-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-96 Ports on the CE6863-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-104 Front-to-back airflow for port-side exhaust

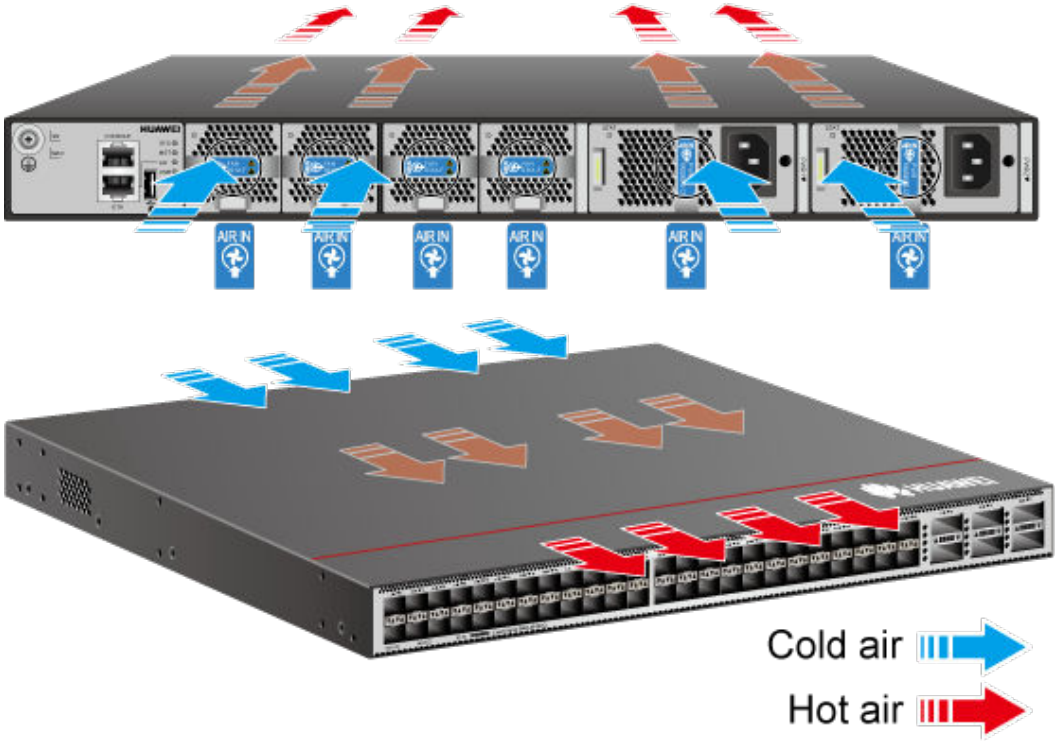
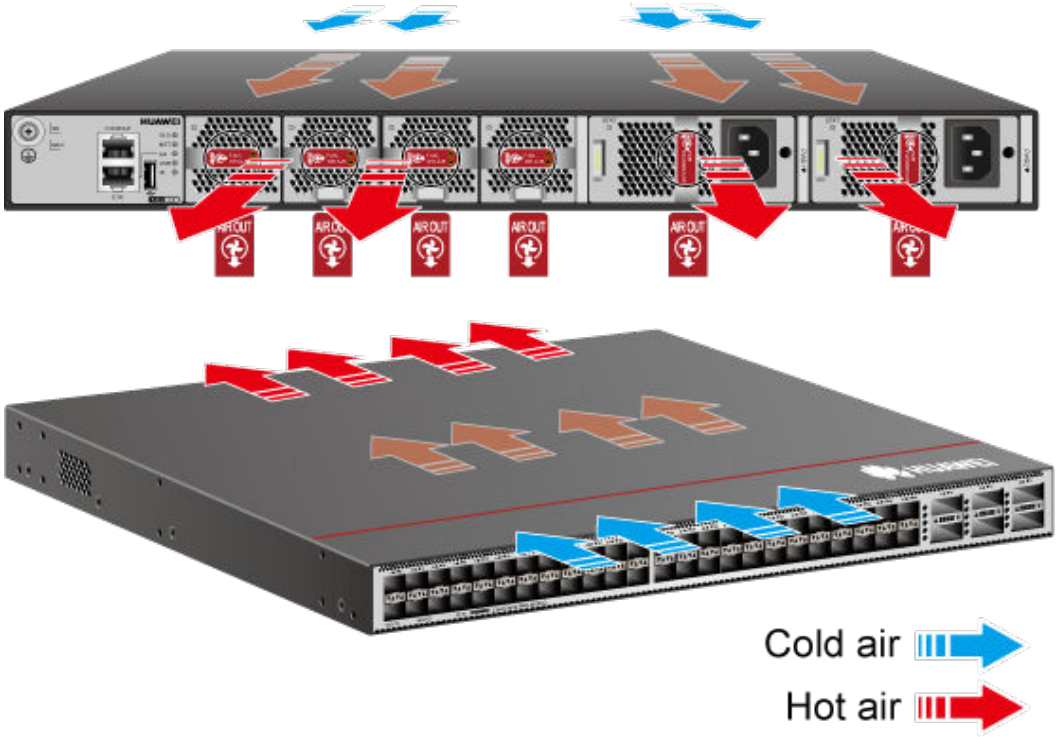


Figure 4-105 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-97 Technical specifications of the CE6863-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	8.95 kg
Weight with packaging (full configuration) [kg (lb)]	11.05 kg (24.36 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be used as 10GE and GE ports. Every four downlink 25GE ports form one group and can be configured to work at 10 Gbit/s or 1 Gbit/s using commands. 2. 10GE LRM/80KM linear optical modules are not supported. 3. 25GE 1 m copper cables and 10GE 1 m/3 m/5 m copper cables are supported, and auto-negotiation of copper cables is not supported. 4. 25GE copper cables can only be used on stack interfaces and M-LAG peer-link interfaces.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	Rated AC input voltage range: 100 V AC to 240 V AC; 50/60 Hz Rated –48 V DC input voltage range: –48 V DC to –60 V DC Rated input voltage range for 600 W AC & 240 V DC: 240 V DC Rated input voltage range for 1200 W HVDC: 240 V DC to 380 V DC
Input voltage range [V]	Maximum AC input voltage range: 90 V AC to 290 V AC; 45 Hz to 65 Hz Maximum –48 V DC input voltage range: –38.4 V DC to –72 V DC Maximum input voltage range for 600 W AC & 240 V DC: 190 V DC to 290 V DC Maximum input voltage range for 1200 W HVDC: 190 V DC to 400 V DC
Maximum input current [A]	600 W AC&240 V DC power module (PAC600S12 series): · 8 A (100 V AC to 240 V DC) · 4 A (240 V DC) 1000 W DC power module (PDC1000S12 series): 30 A (–48 V DC to –60 V DC) 1200 W high-voltage DC power module (PHD1K2S12 series): 8 A

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Item	Specification
Rated output power [W]	600 W (AC&240 V HVDC) 1000 W (–48 V DC) 1200 W (380 V HVDC)
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999962836
MTBF [year]	47.81 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.4.9 CE6863-48S6CQ-K

4.4.9.1 CE6863-48S6CQ-K (02353JAG)

Overview

Table 4-98 Basic information about the CE6863-48S6CQ-K

Item	Details
Description	CE6863-48S6CQ-K switch (48*25G SFP28, 6*100G QSFP28, without fan and power modules)
Part Number	02353JAG
Model	CE6863-48S6CQ-K
First supported version	V200R019C10
Other part numbers	02353JAK (CE6863-48S6CQ-K switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake))

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Appearance

Figure 4-106 Appearance of the CE6863-48S6CQ-K



Front (power supply side)



Rear (port side)

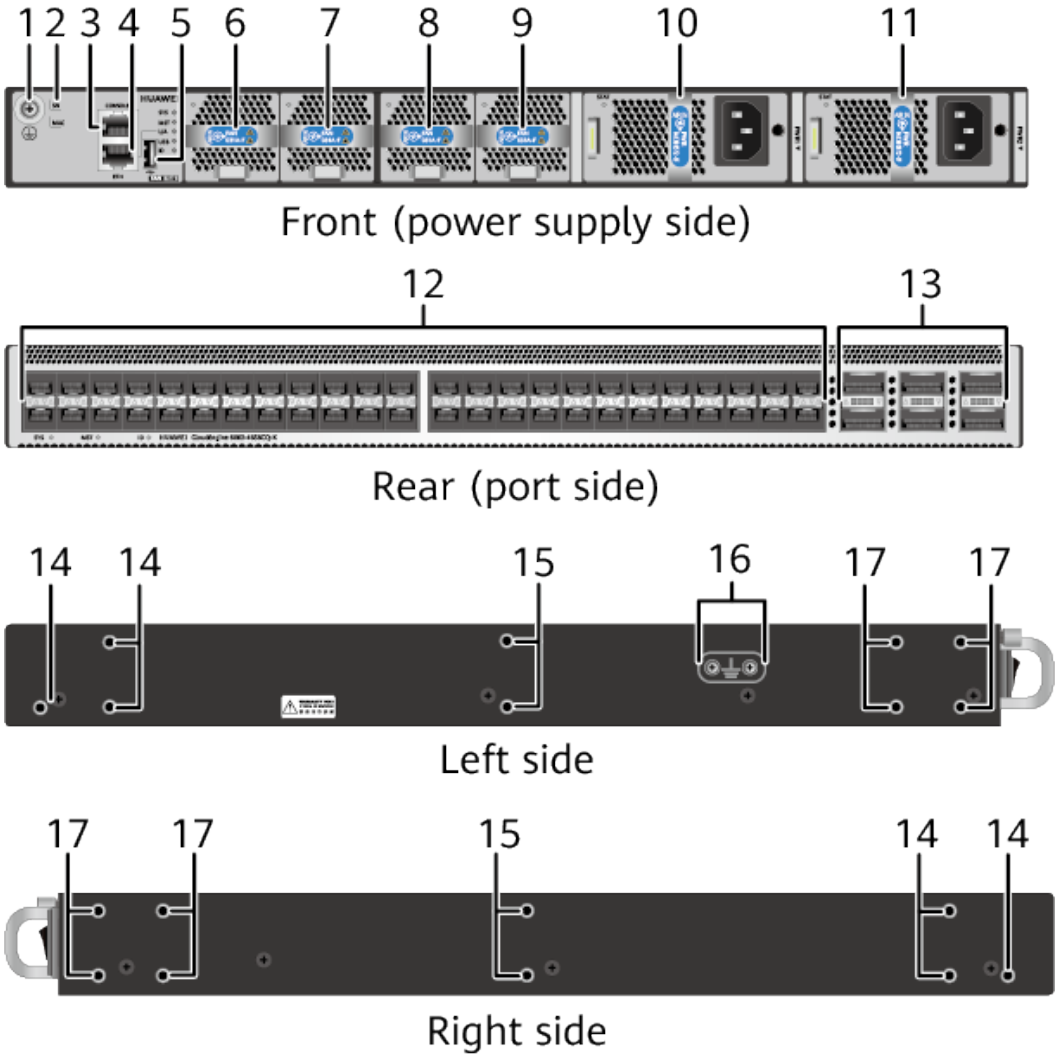
NOTE

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Components

Figure 4-107 Components of the CE6863-48S6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-99 Slots on the CE6863-48S6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-108 Indicators on the CE6863-48S6CQ-K 1

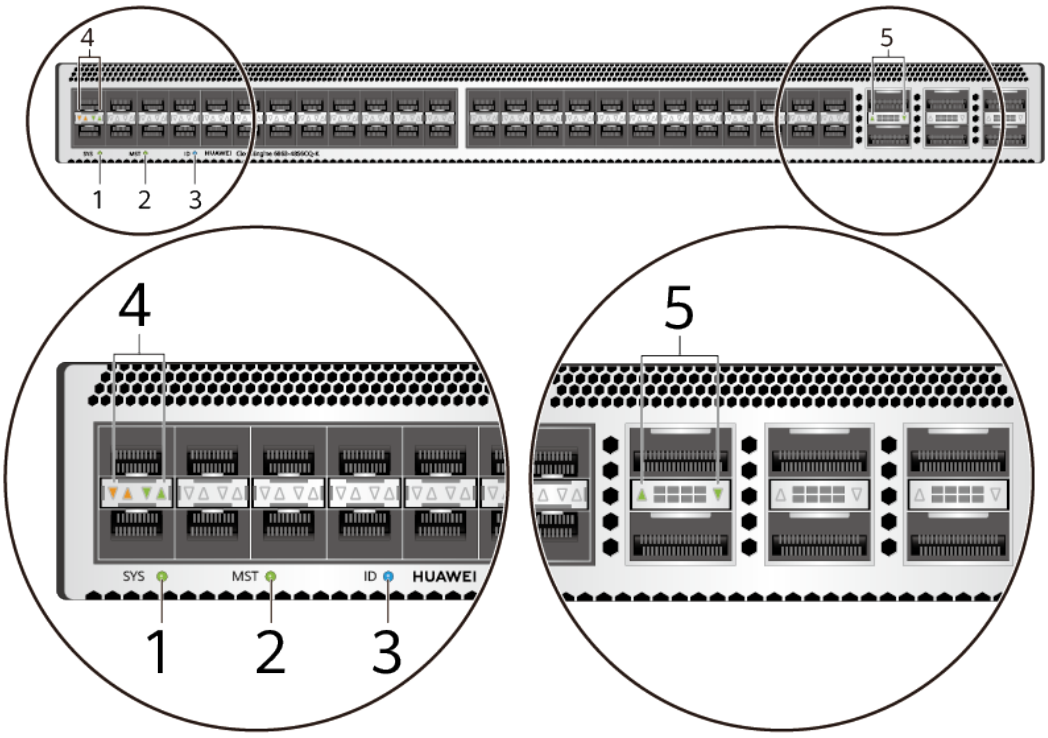
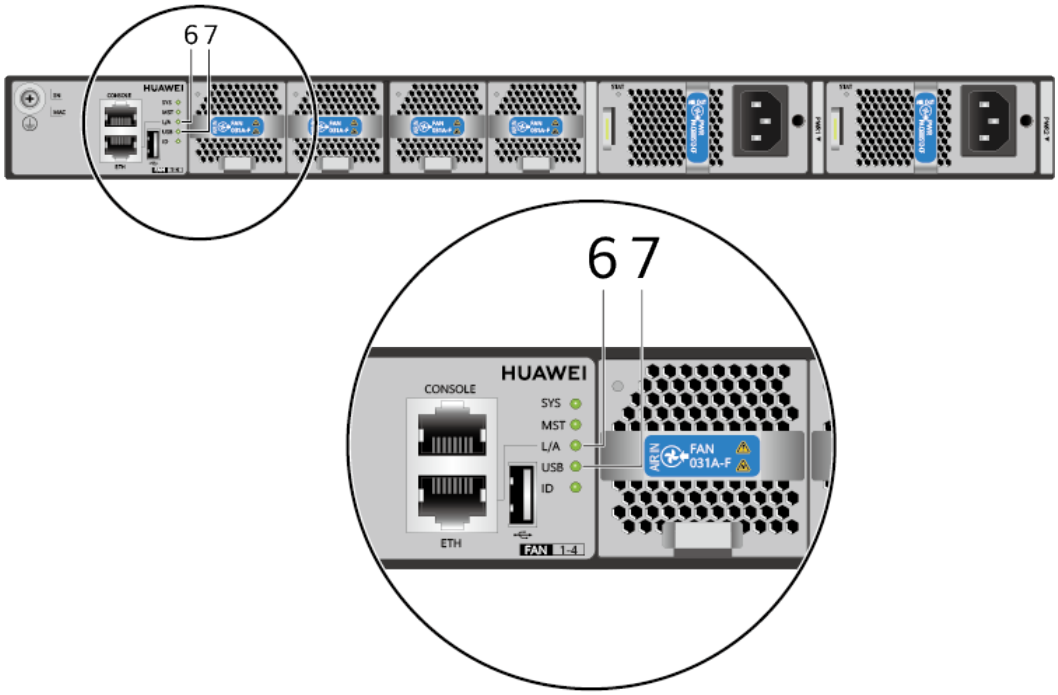


Figure 4-109 Indicators on the CE6863-48S6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-100 Indicators on the CE6863-48S6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-101 Ports on the CE6863-48S6CQ-K

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-110** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-111** (using a CE6863 chassis as an example).

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Figure 4-110 Front-to-back airflow for port-side exhaust

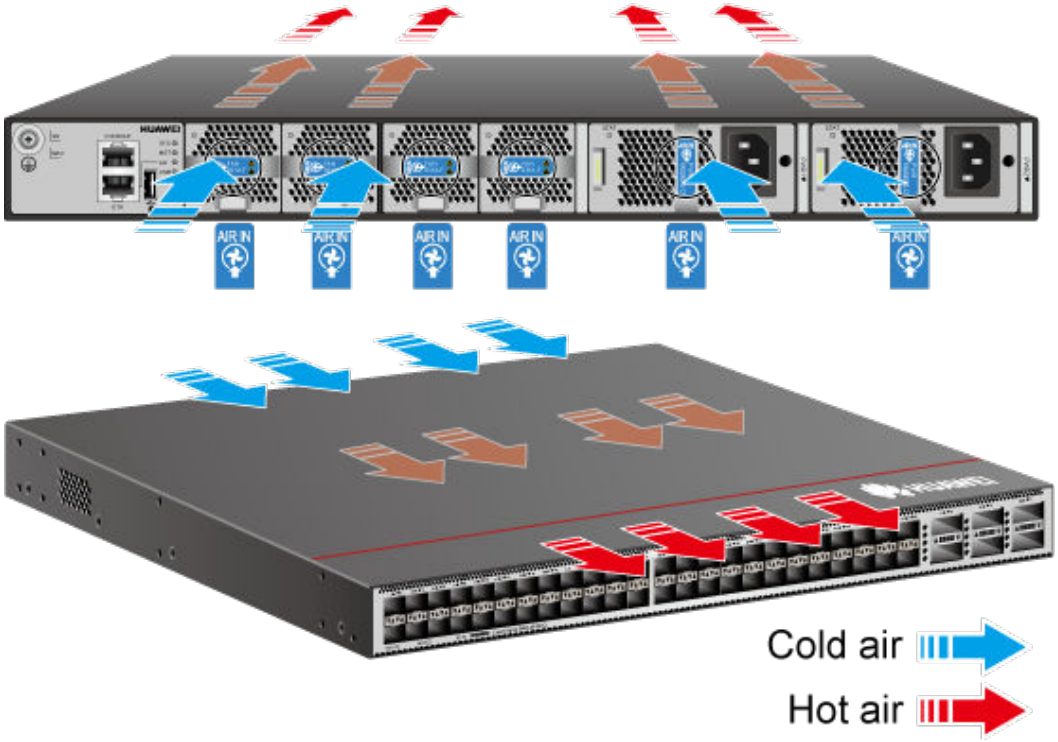
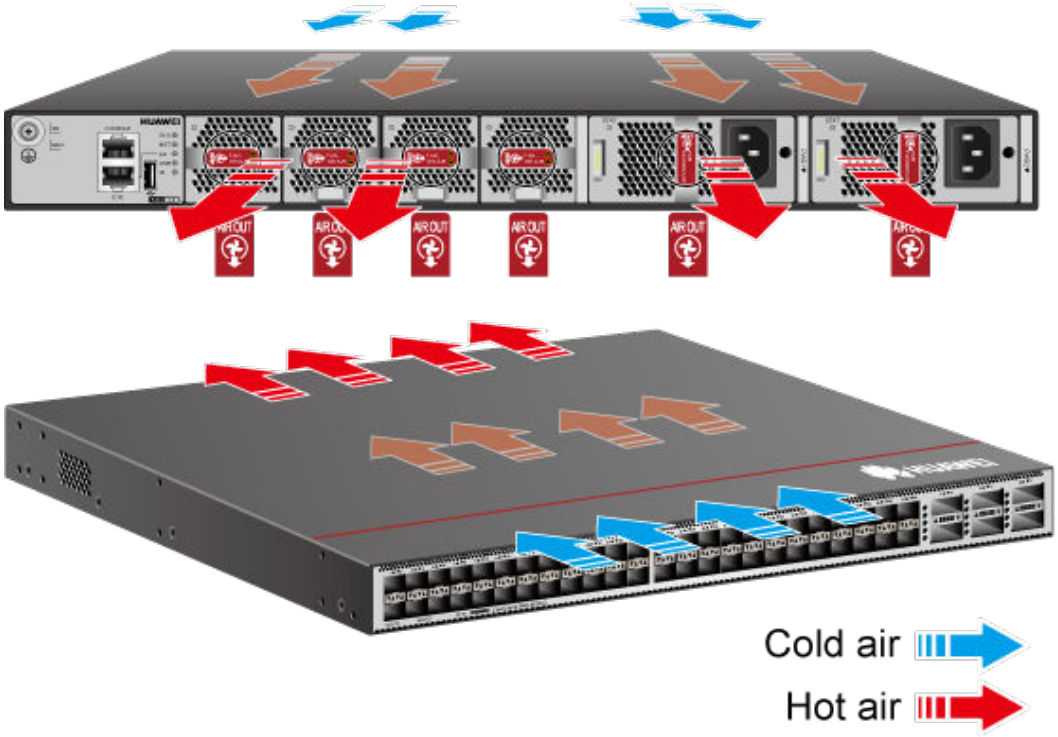


Figure 4-111 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-102 Technical specifications of the CE6863-48S6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be configured to work at 10 Gbit/s or 1 Gbit/s. Every four downlink 25GE ports form a group, and can be configured to work at 10 Gbit/s or 1 Gbit/s through the command; 2. 10GE LRM/80KM linear optical modules are not supported; 3. 1 m 25GE copper cables and 1 m/3 m/5 m 10GE copper cables are supported, and auto-negotiation of copper cables is not supported; 4. 25GE copper cables can only be used on stack ports and M-LAG peer-link ports.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W

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Item	Specification
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V DC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.

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Item	Specification
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999962836
MTBF [year]	47.81 year
MTTR [hour]	1.95 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.9.2 CE6863-48S6CQ-K (02353JAG-001)

Overview

Table 4-103 Basic information about the CE6863-48S6CQ-K

Item	Details
Description	CE6863-48S6CQ-K switch (48*25G SFP28, 6*100G QSFP28, without fan and power modules)
Part Number	02353JAG-001
Model	CE6863-48S6CQ-K
First supported version	V200R021C10SPC600
Other part numbers	02353JAK-001 (CE6863-48S6CQ-K switch (48*25G SFP28, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354TDR-001 (CE6863-48S6CQ-K switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))

Appearance

Figure 4-112 Appearance of the CE6863-48S6CQ-K



Front (power supply side)



Rear (port side)

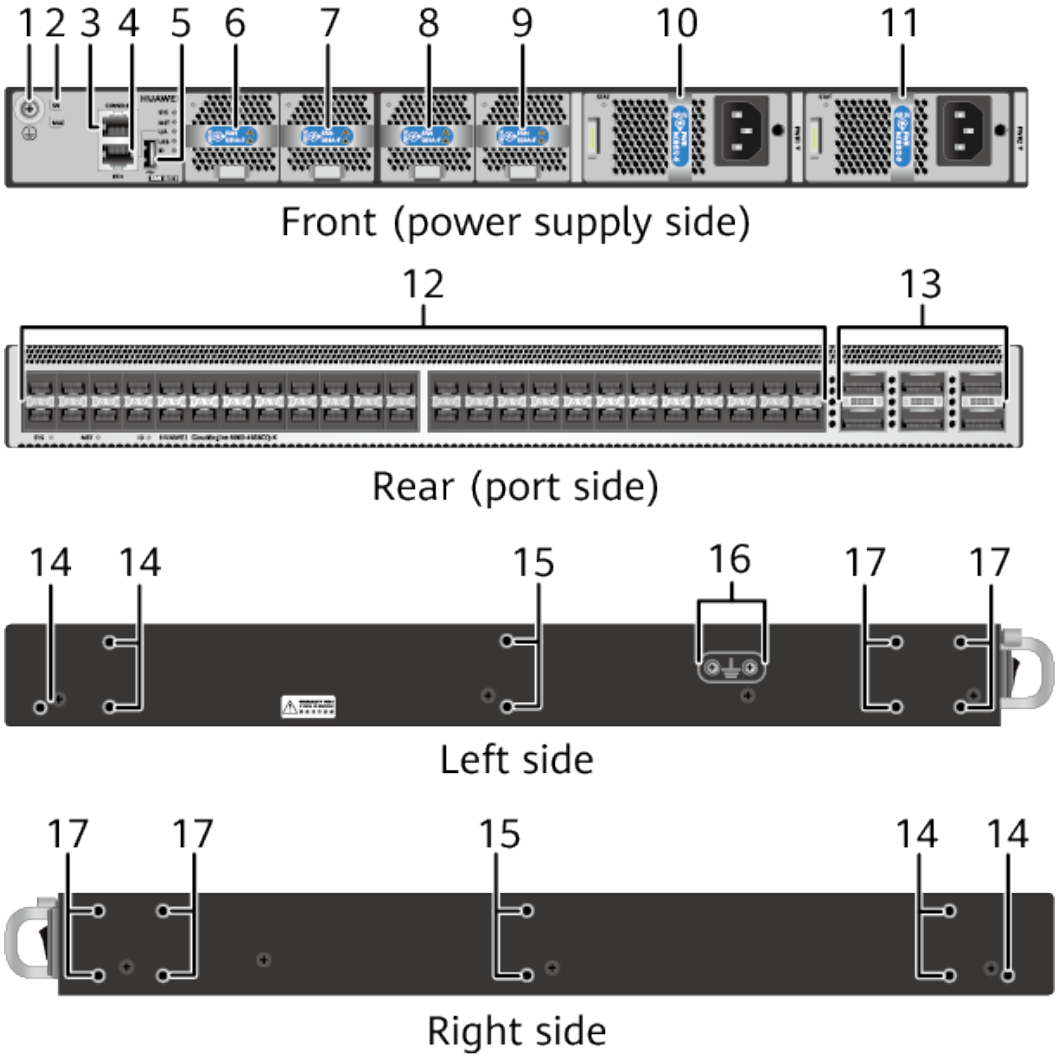
NOTE

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Components

Figure 4-113 Components of the CE6863-48S6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-104 Slots on the CE6863-48S6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-114 Indicators on the CE6863-48S6CQ-K 1

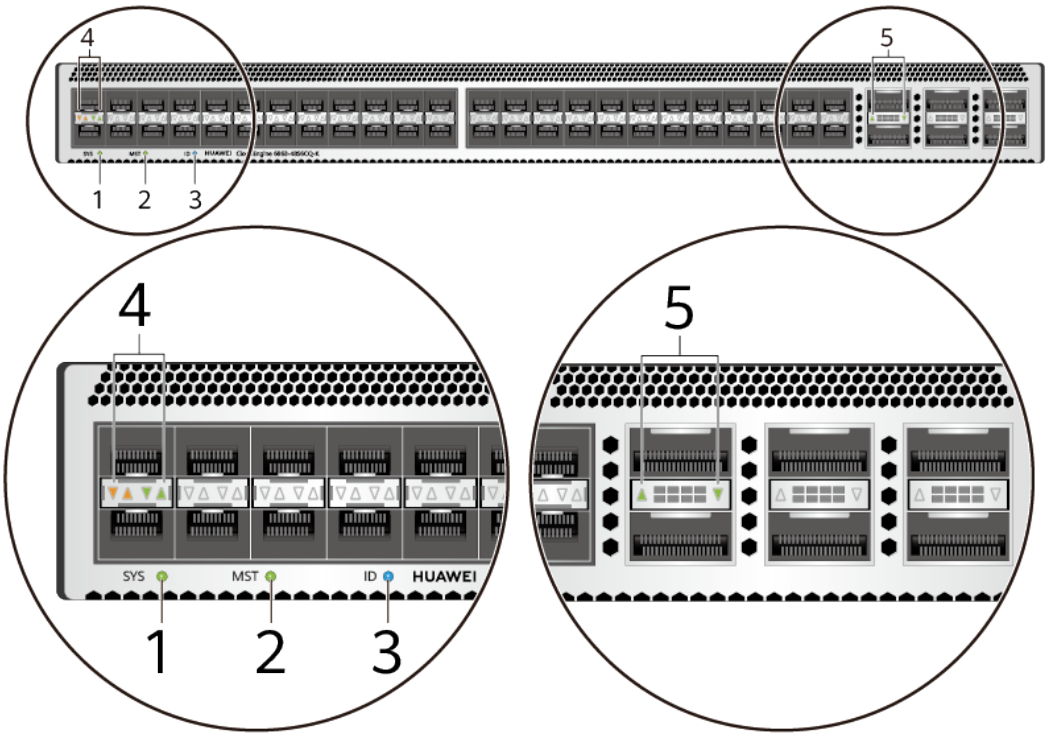
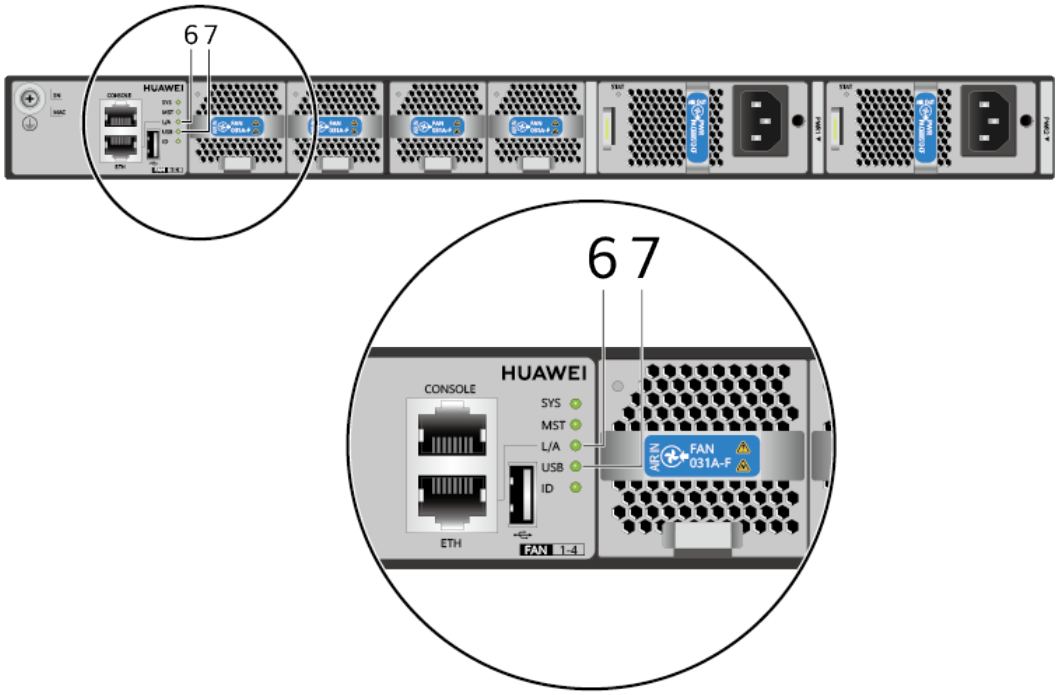


Figure 4-115 Indicators on the CE6863-48S6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-105 Indicators on the CE6863-48S6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-106 Ports on the CE6863-48S6CQ-K

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-116 Front-to-back airflow for port-side exhaust

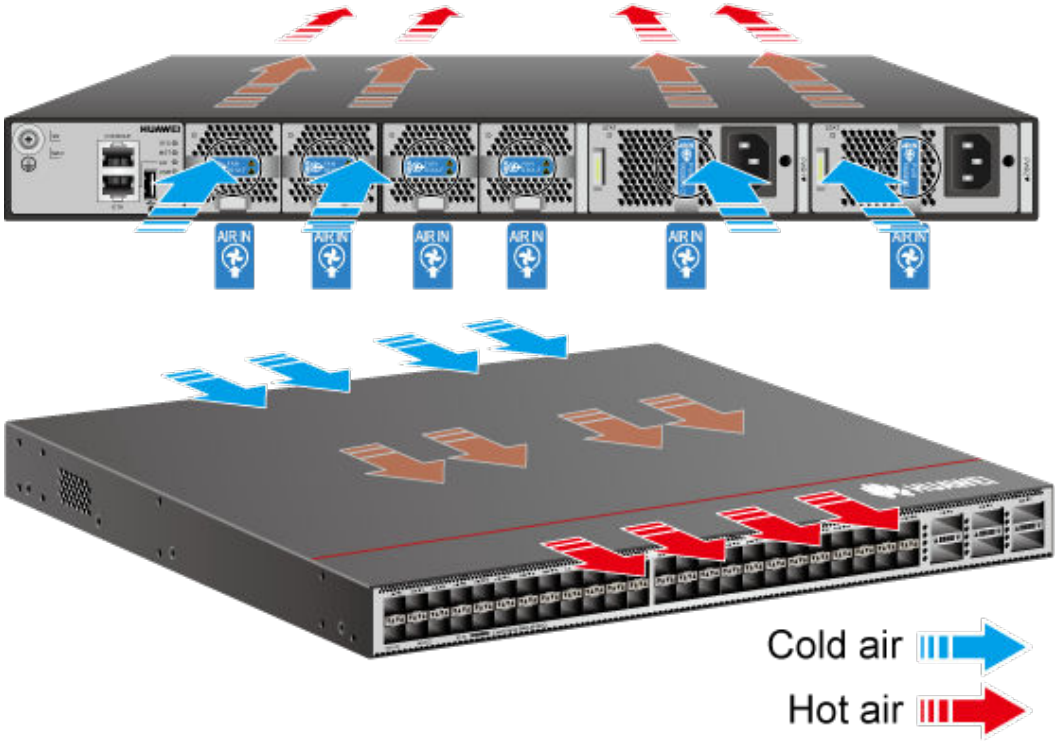
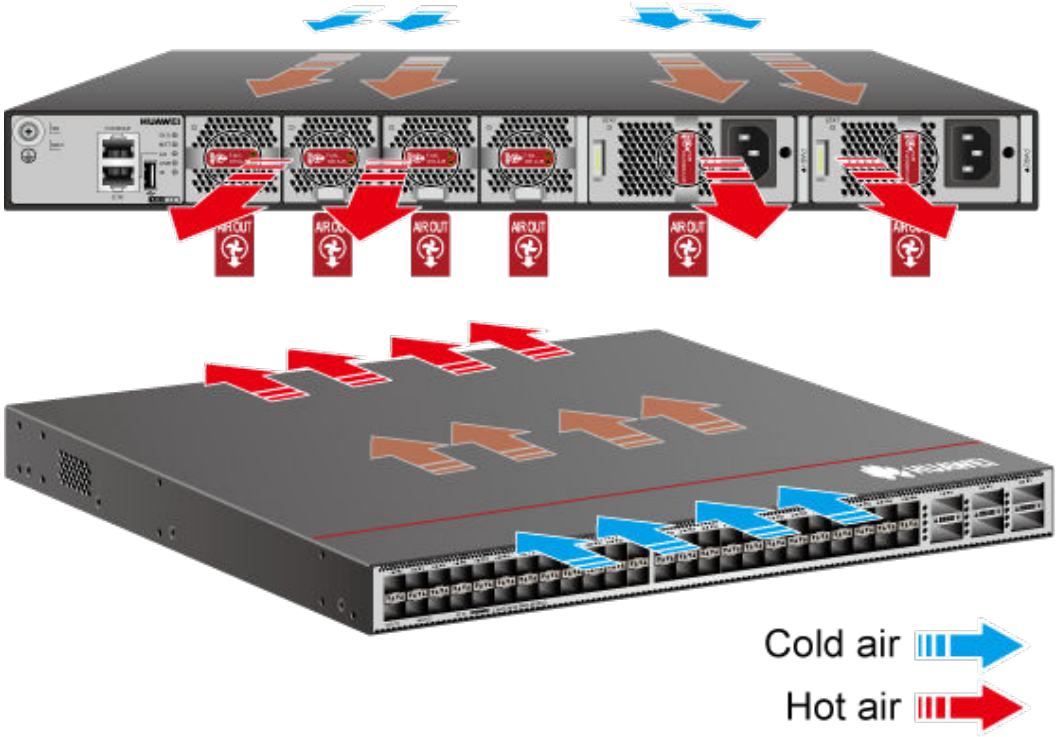


Figure 4-117 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-107 Technical specifications of the CE6863-48S6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be used as 10GE and GE ports. Every four downlink 25GE ports form one group and can be configured to work at 10 Gbit/s or 1 Gbit/s using commands. 2. 10GE LRM/80KM linear optical modules are not supported. 3. 25GE 1 m copper cables and 10GE 1 m/3 m/5 m copper cables are supported, and auto-negotiation of copper cables is not supported. 4. 25GE copper cables can only be used on stack interfaces and M-LAG peer-link interfaces.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W

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Item	Specification
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC PSU: 8 A (100 V AC to 240 V DC); 4 A (240 V DC) • 1000 W DC PSU: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999962836
MTBF [year]	47.81 year
MTTR [hour]	1.95 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.4.10 CE6863E-48S6CQ

4.4.10.1 CE6863E-48S6CQ (02354GCT)

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Overview

Table 4-108 Basic information about the CE6863E-48S6CQ

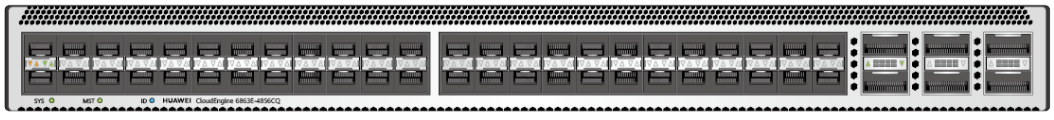
Item	Details
Description	CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, without fan and power modules)
Part Number	02354GCT
Model	CE6863E-48S6CQ
First supported version	V200R021C00
Other part numbers	02354GCW (CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354GCX (CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6863E

Appearance

Figure 4-118 Appearance of the CE6863E-48S6CQ



Front (power supply side)



Rear (port side)

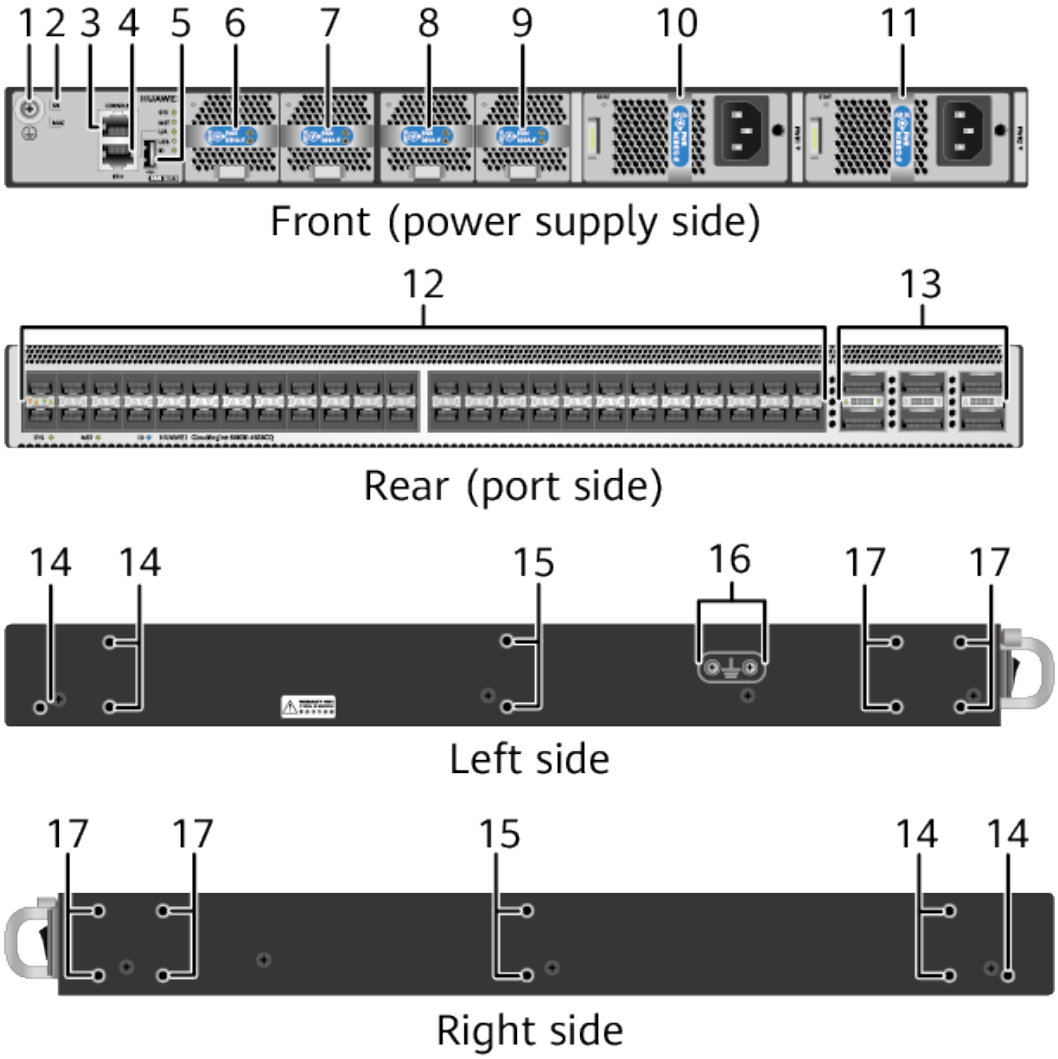
NOTE

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Components

Figure 4-119 Components of the CE6863E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-109 Slots on the CE6863E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-120 Indicators on the CE6863E-48S6CQ 1

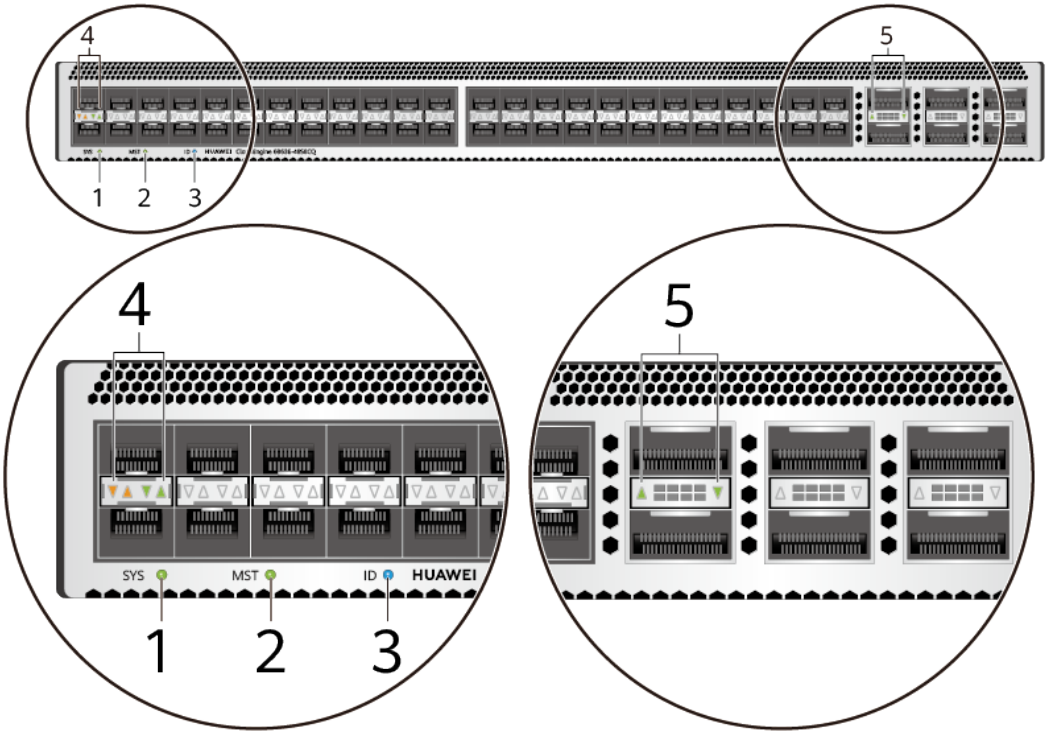
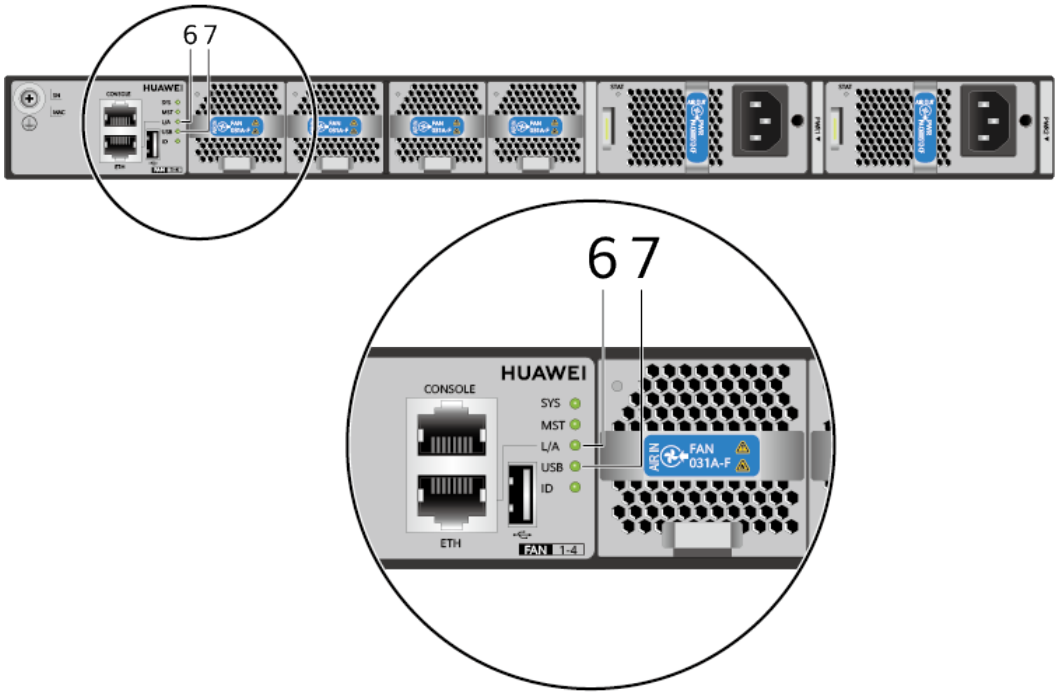


Figure 4-121 Indicators on the CE6863E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-110 Indicators on the CE6863E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-111 Ports on the CE6863E-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-122 Front-to-back airflow for port-side exhaust

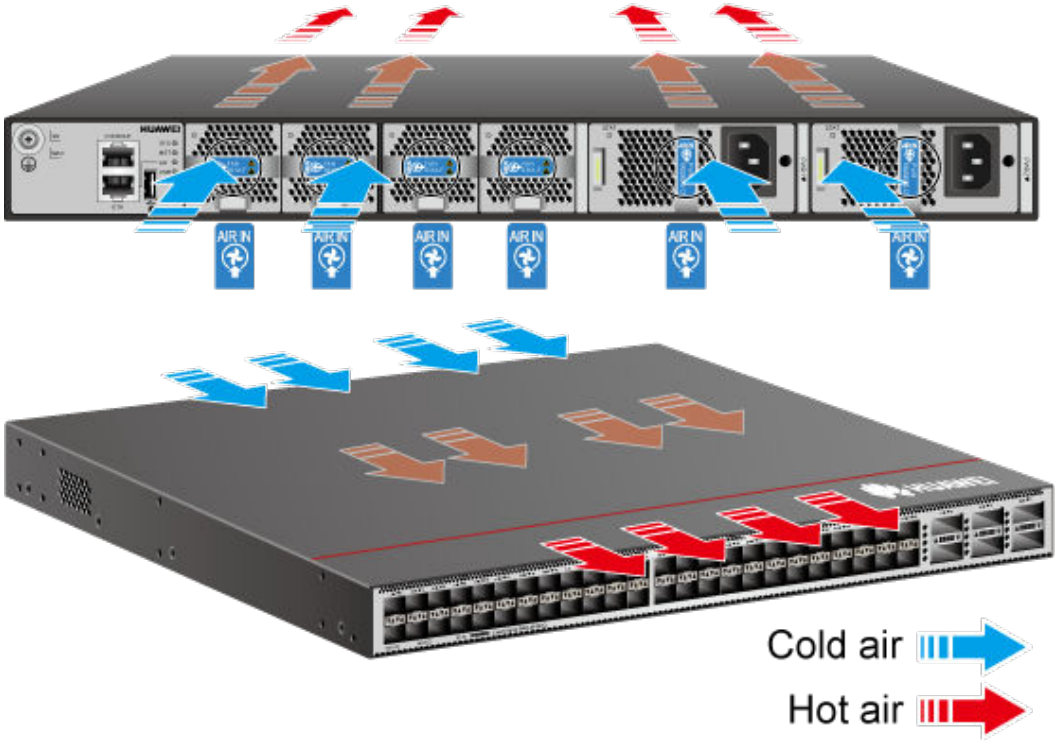
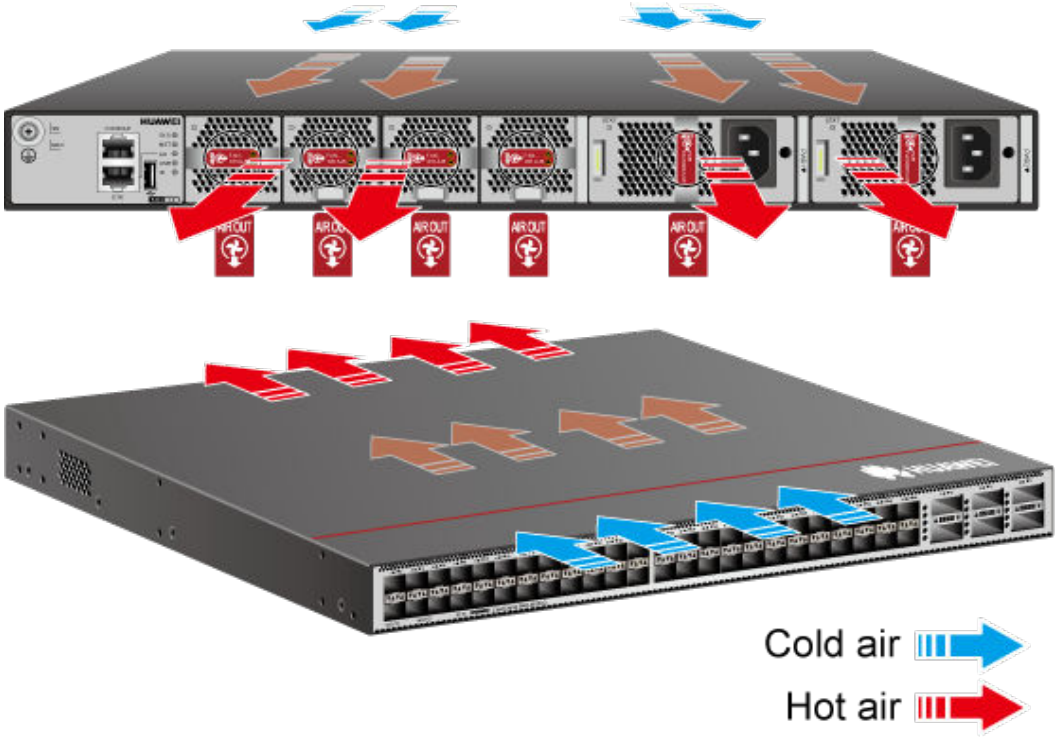


Figure 4-123 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-112 Technical specifications of the CE6863E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	8.95 kg
Weight with packaging (full configuration) [kg (lb)]	11.05kg
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be configured to work at 10 Gbit/s or 1 Gbit/s. Every four downlink 25GE ports form a group, and can be configured to work at 10 Gbit/s or 1 Gbit/s through the command; 2. 10GE LRM/80KM linear optical modules are not supported; 3. 1 m 25GE copper cables and 1 m/3 m/5 m 10GE copper cables are supported, and auto-negotiation of copper cables is not supported; 4. 25GE copper cables can only be used on stack ports and M-LAG peer-link ports.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	Rated AC input voltage range: 100 V AC to 240 V AC; 50/60 Hz Rated –48 V DC input voltage range: –48 V DC to –60 V DC Rated input voltage range for 600 W AC & 240 V DC: 240 V DC Rated input voltage range for 1200 W HVDC: 240 V DC to 380 V DC
Input voltage range [V]	Maximum AC input voltage range: 90 V AC to 290 V AC; 45 Hz to 65 Hz Maximum –48 V DC input voltage range: –38.4 V DC to –72 V DC Maximum input voltage range for 600 W AC & 240 V DC: 190 V DC to 290 V DC Maximum input voltage range for 1200 W HVDC: 190 V DC to 400 V DC
Maximum input current [A]	600 W AC&240 V DC power module (PAC600S12 series): · 8 A (100 V AC to 240 V DC) · 4 A (240 V DC) 1000 W DC power module (PDC1000S12 series): 30 A (–48 V DC to –60 V DC) 1200 W high-voltage DC power module (PHD1K2S12 series): 8 A

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Item	Specification
Rated output power [W]	600 W (AC&240 V HVDC) 1000 W (–48 V DC) 1200 W (380 V HVDC)
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999962836
MTBF [year]	47.81 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.4.10.2 CE6863E-48S6CQ (02354GCT-001)

Overview

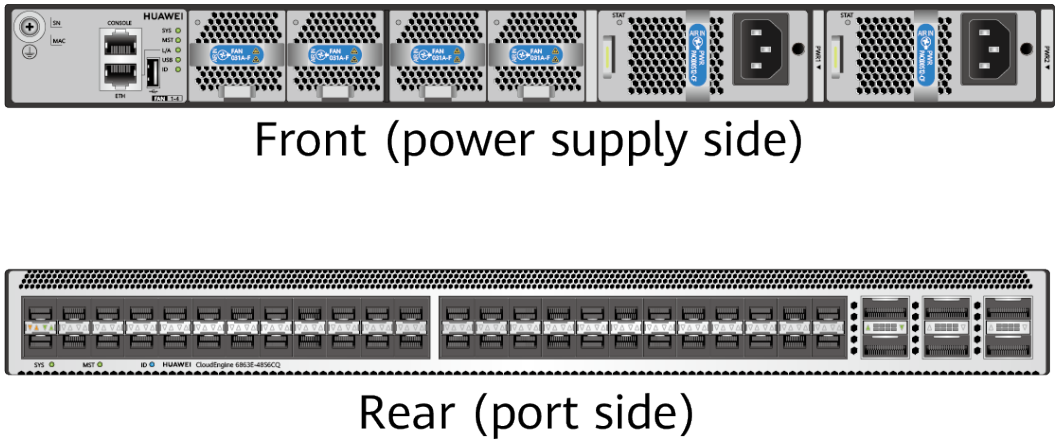
Table 4-113 Basic information about the CE6863E-48S6CQ

Item	Details
Description	CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, without fan and power modules)
Part Number	02354GCT-001
Model	CE6863E-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02354GCW-001 (CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354GCX-001 (CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH010 or a later version.
Short Name	CE6863E

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Appearance

Figure 4-124 Appearance of the CE6863E-48S6CQ



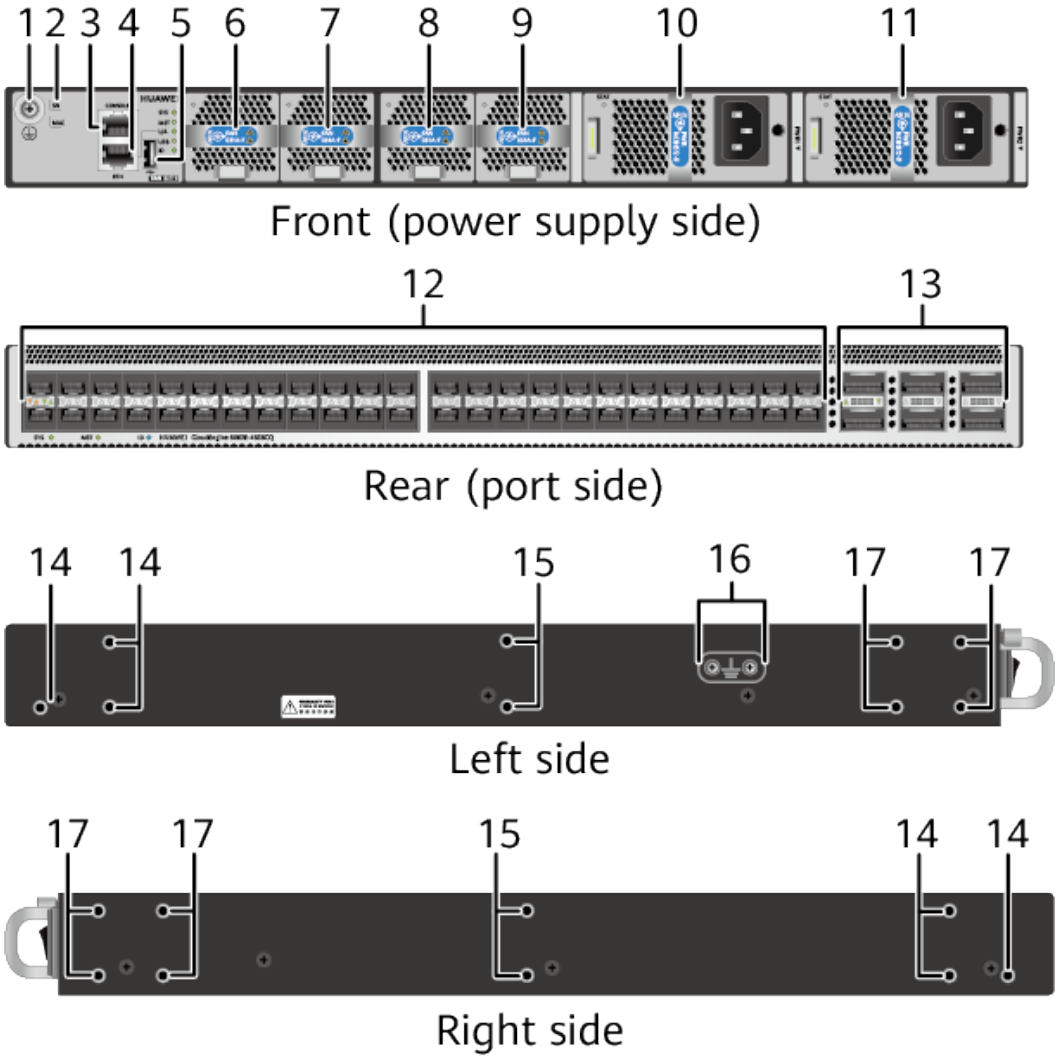
NOTE

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Components

Figure 4-125 Components of the CE6863E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-114 Slots on the CE6863E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-126 Indicators on the CE6863E-48S6CQ 1

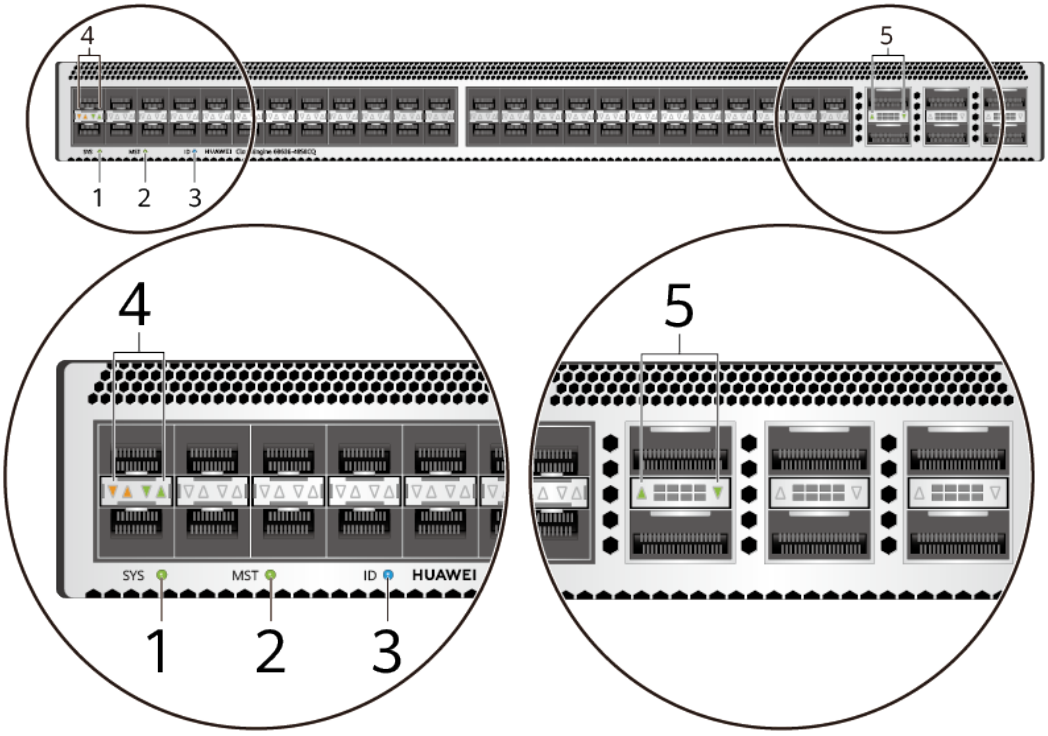
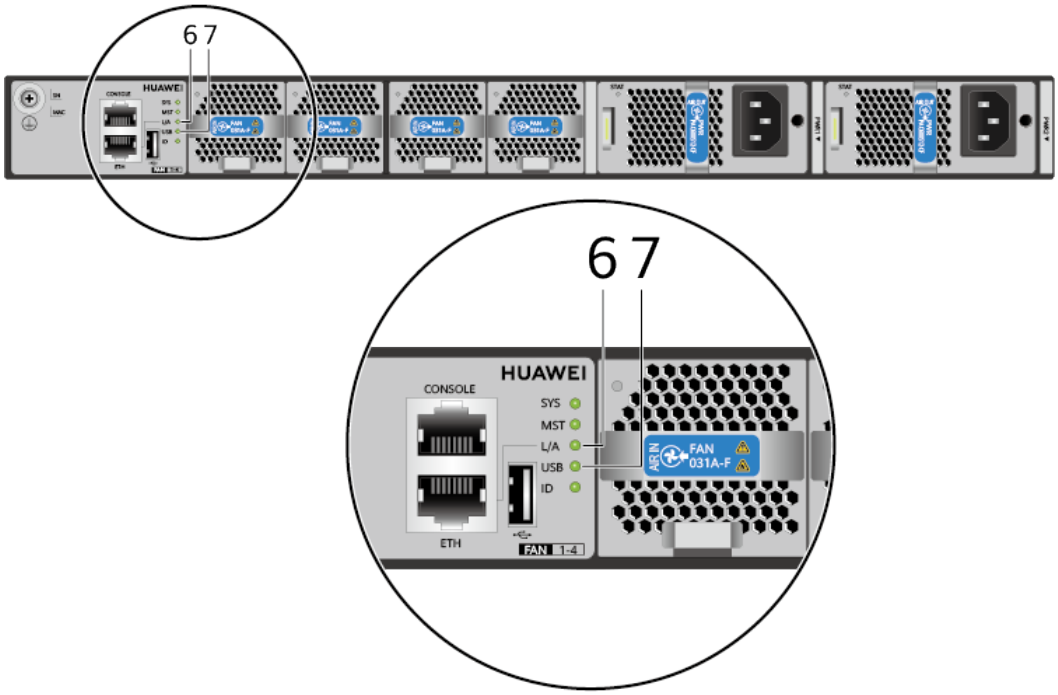


Figure 4-127 Indicators on the CE6863E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-115 Indicators on the CE6863E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-116 Ports on the CE6863E-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-128 Front-to-back airflow for port-side exhaust

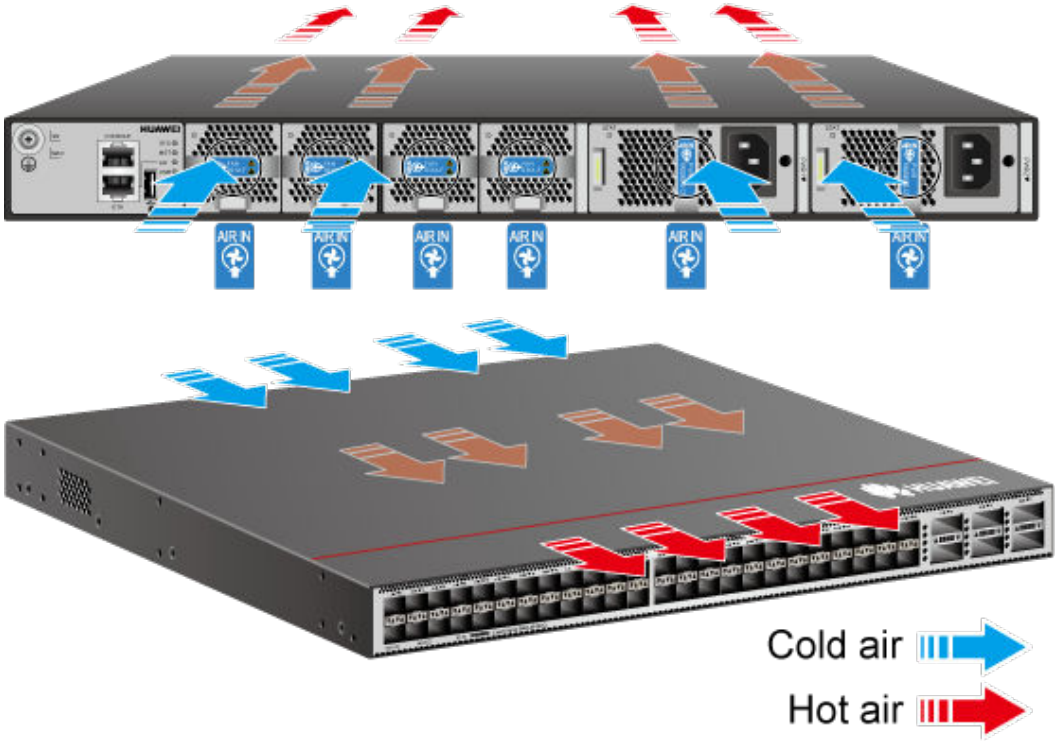
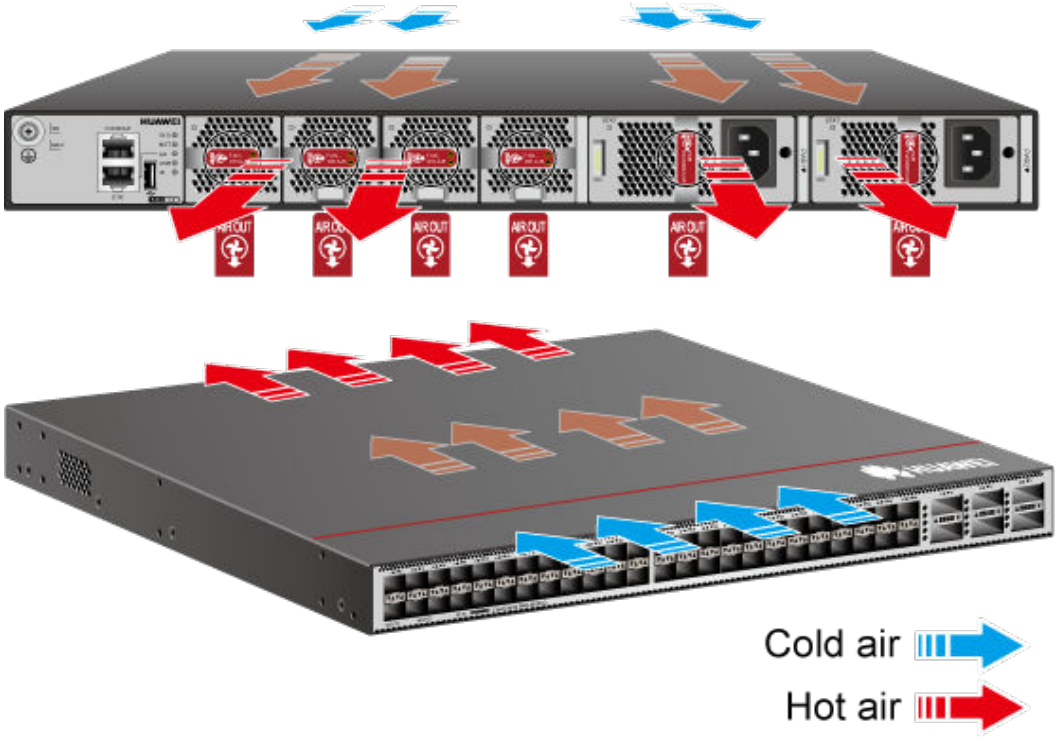


Figure 4-129 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-117 Technical specifications of the CE6863E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	8.95 kg
Weight with packaging (full configuration) [kg (lb)]	11.05 kg (24.36 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be used as 10GE and GE ports. Every four downlink 25GE ports form one group and can be configured to work at 10 Gbit/s or 1 Gbit/s using commands. 2. 10GE LRM/80KM linear optical modules are not supported. 3. 25GE 1 m copper cables and 10GE 1 m/3 m/5 m copper cables are supported, and auto-negotiation of copper cables is not supported. 4. 25GE copper cables can only be used on stack interfaces and M-LAG peer-link interfaces.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	Rated AC input voltage range: 100 V AC to 240 V AC; 50/60 Hz Rated –48 V DC input voltage range: –48 V DC to –60 V DC Rated input voltage range for 600 W AC & 240 V DC: 240 V DC Rated input voltage range for 1200 W HVDC: 240 V DC to 380 V DC
Input voltage range [V]	Maximum AC input voltage range: 90 V AC to 290 V AC; 45 Hz to 65 Hz Maximum –48 V DC input voltage range: –38.4 V DC to –72 V DC Maximum input voltage range for 600 W AC & 240 V DC: 190 V DC to 290 V DC Maximum input voltage range for 1200 W HVDC: 190 V DC to 400 V DC
Maximum input current [A]	600 W AC&240 V DC power module (PAC600S12 series): · 8 A (100 V AC to 240 V DC) · 4 A (240 V DC) 1000 W DC power module (PDC1000S12 series): 30 A (–48 V DC to –60 V DC) 1200 W high-voltage DC power module (PHD1K2S12 series): 8 A

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Item	Specification
Rated output power [W]	600 W (AC&240 V HVDC) 1000 W (–48 V DC) 1200 W (380 V HVDC)
Certification	· Compliance with safety standards · Compliance with EMC standards · Compliance with environment and environmental protection standards
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999962836
MTBF [year]	47.81 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40ºC to +70ºC (-40°F to +158°F)

4.4.10.3 CE6863E-48S6CQ (02354GCT-002)

Overview

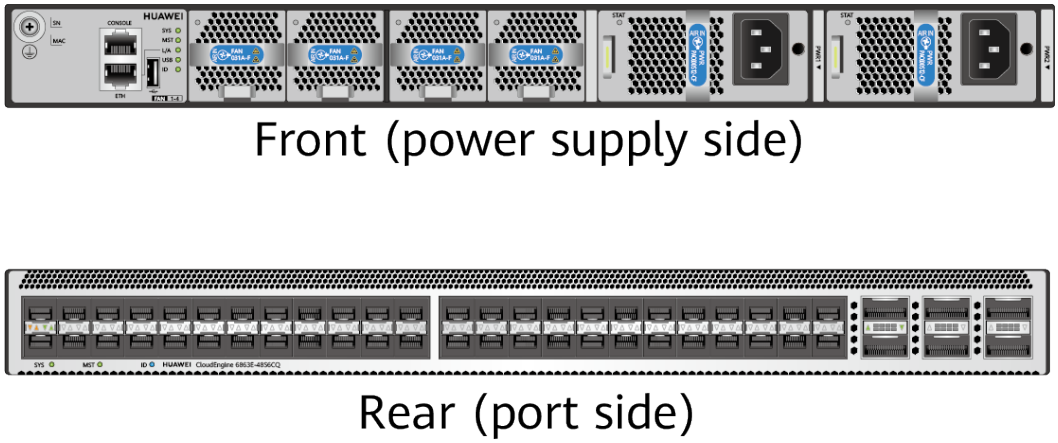
Table 4-118 Basic information about the CE6863E-48S6CQ

Item	Details
Description	CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, without fan and power modules)
Part Number	02354GCT-002
Model	CE6863E-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02354GCW-002 (CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354GCX-002 (CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6863E

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Appearance

Figure 4-130 Appearance of the CE6863E-48S6CQ



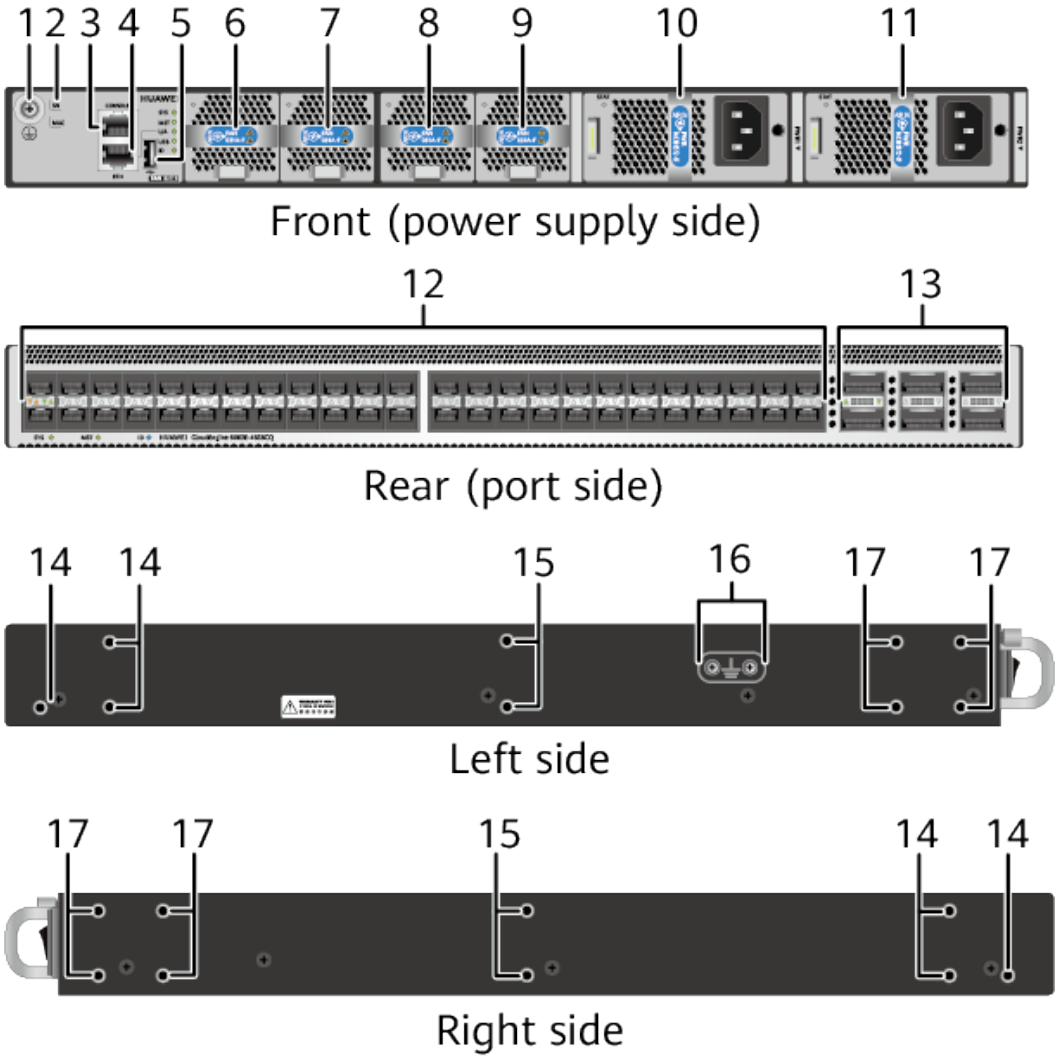
NOTE

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Components

Figure 4-131 Components of the CE6863E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-119 Slots on the CE6863E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-132 Indicators on the CE6863E-48S6CQ 1

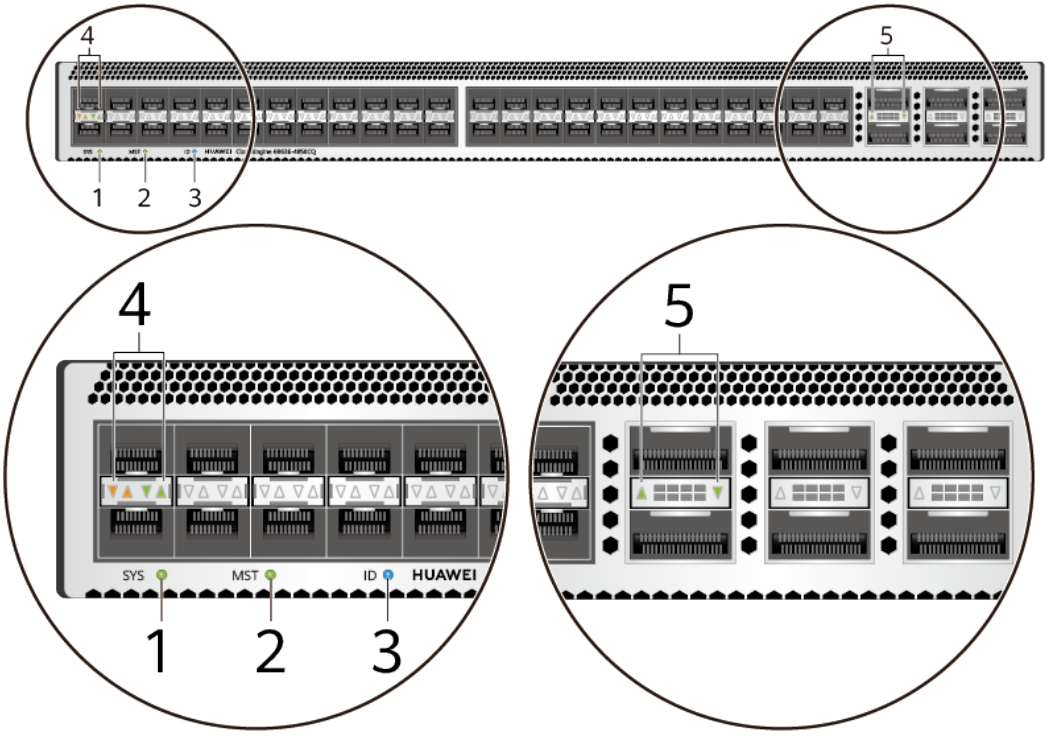
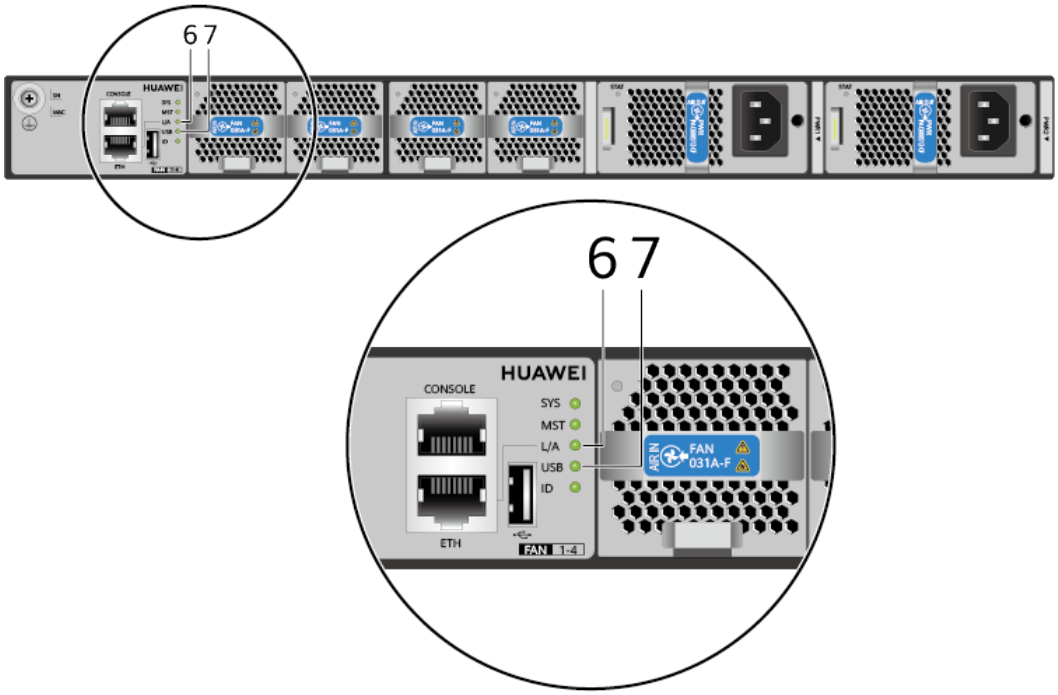


Figure 4-133 Indicators on the CE6863E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-120 Indicators on the CE6863E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-121 Ports on the CE6863E-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-134 Front-to-back airflow for port-side exhaust

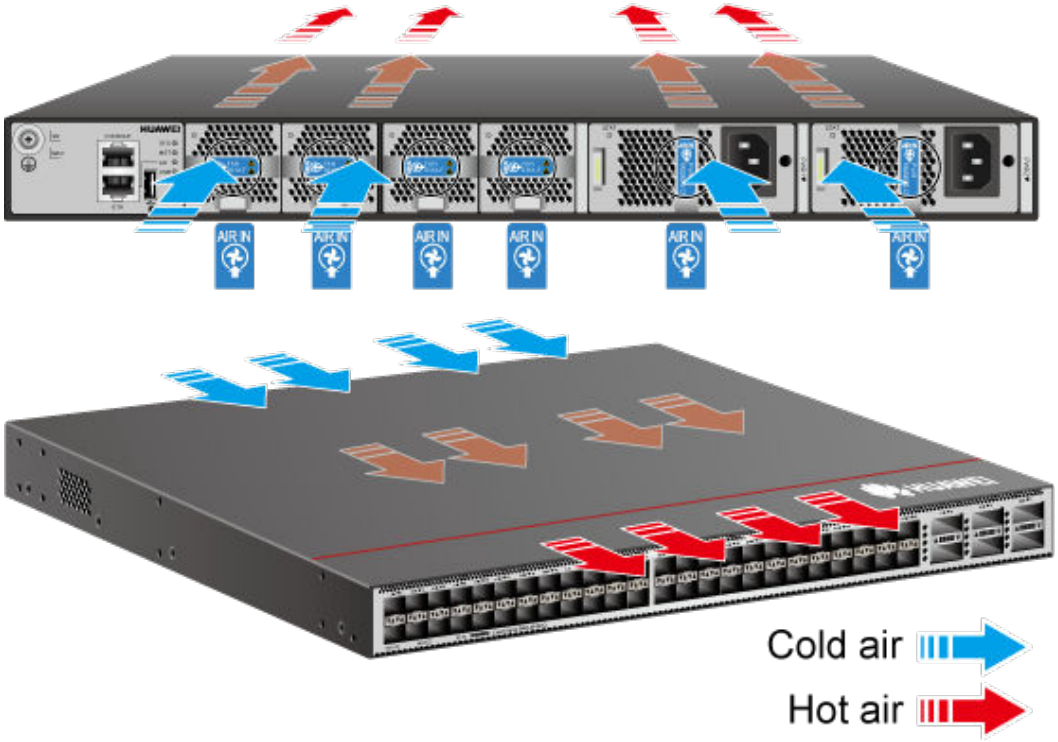
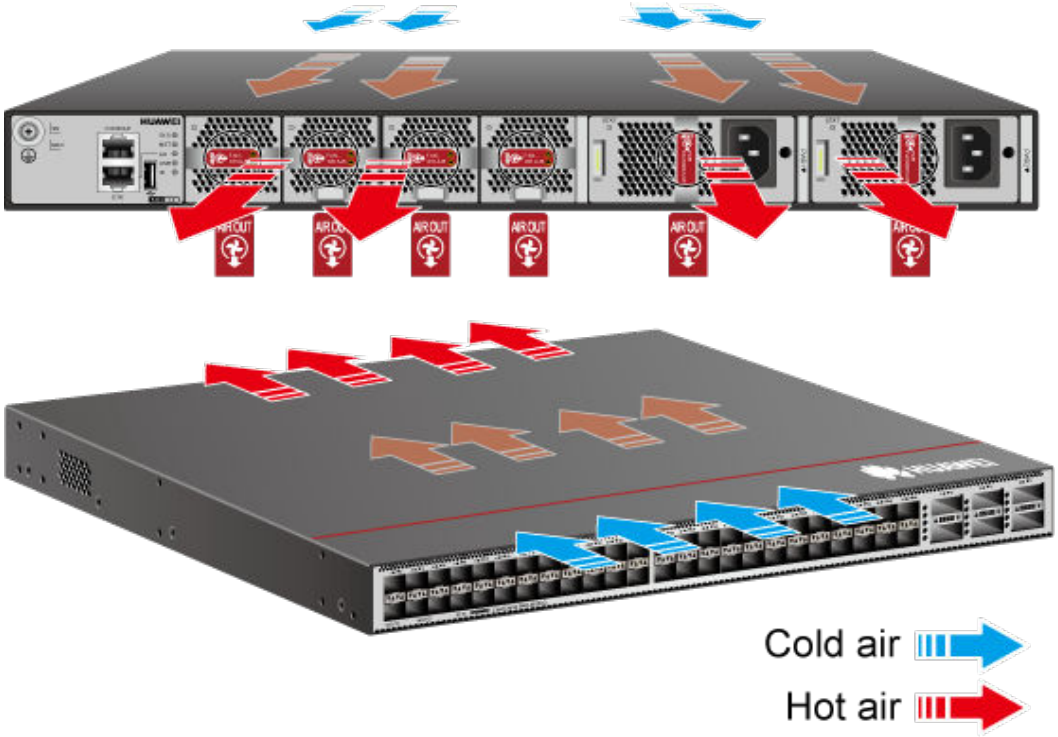


Figure 4-135 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-122 Technical specifications of the CE6863E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	8.95 kg
Weight with packaging (full configuration) [kg (lb)]	11.05 kg (24.36 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be used as 10GE and GE ports. Every four downlink 25GE ports form one group and can be configured to work at 10 Gbit/s or 1 Gbit/s using commands. 2. 10GE LRM/80KM linear optical modules are not supported. 3. 25GE 1 m copper cables and 10GE 1 m/3 m/5 m copper cables are supported, and auto-negotiation of copper cables is not supported. 4. 25GE copper cables can only be used on stack interfaces and M-LAG peer-link interfaces.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE optical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	Rated AC input voltage range: 100 V AC to 240 V AC; 50/60 Hz Rated –48 V DC input voltage range: –48 V DC to –60 V DC Rated input voltage range for 600 W AC & 240 V DC: 240 V DC Rated input voltage range for 1200 W HVDC: 240 V DC to 380 V DC
Input voltage range [V]	Maximum AC input voltage range: 90 V AC to 290 V AC; 45 Hz to 65 Hz Maximum –48 V DC input voltage range: –38.4 V DC to –72 V DC Maximum input voltage range for 600 W AC & 240 V DC: 190 V DC to 290 V DC Maximum input voltage range for 1200 W HVDC: 190 V DC to 400 V DC
Maximum input current [A]	600 W AC&240 V DC power module (PAC600S12 series): · 8 A (100 V AC to 240 V DC) · 4 A (240 V DC) 1000 W DC power module (PDC1000S12 series): 30 A (–48 V DC to –60 V DC) 1200 W high-voltage DC power module (PHD1K2S12 series): 8 A

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Item	Specification
Rated output power [W]	600 W (AC&240 V HVDC) 1000 W (–48 V DC) 1200 W (380 V HVDC)
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999962836
MTBF [year]	47.81 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.4.10.4 CE6863E-48S6CQ (02354GCT-004)

Overview

Table 4-123 Basic information about the CE6863E-48S6CQ

Item	Details
Description	CE6863E-48S6CQ switch (48*25GE SFP28, 6*100GE QSFP28, without fan and power modules)
Part Number	02354GCT-004
Model	CE6863E-48S6CQ
First supported version	V200R021C10SPC600

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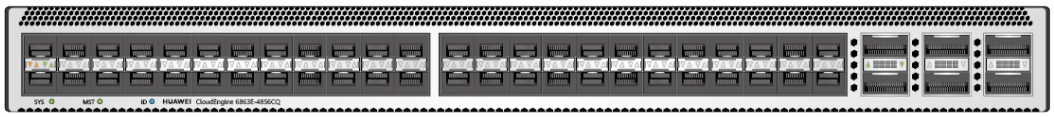
Item	Details
Other part numbers	02354GCW-004 (CE6863E-48S6CQ Switch, 48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake) 02354GCX-004 (CE6863E-48S6CQ Switch, 48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust) 02355MCQ(CE6863E-48S6CQ switch, 48*25GE SFP28, 6*100GE QSFP28, without fan and power modules) 02355MCR(CE6863E-48S6CQ switch, 48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake) 02355MCS(CE6863E-48S6CQ switch, 48*25GE SFP28, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6863E

Appearance

Figure 4-136 Appearance of the CE6863E-48S6CQ



Front (power supply side)



Rear (port side)

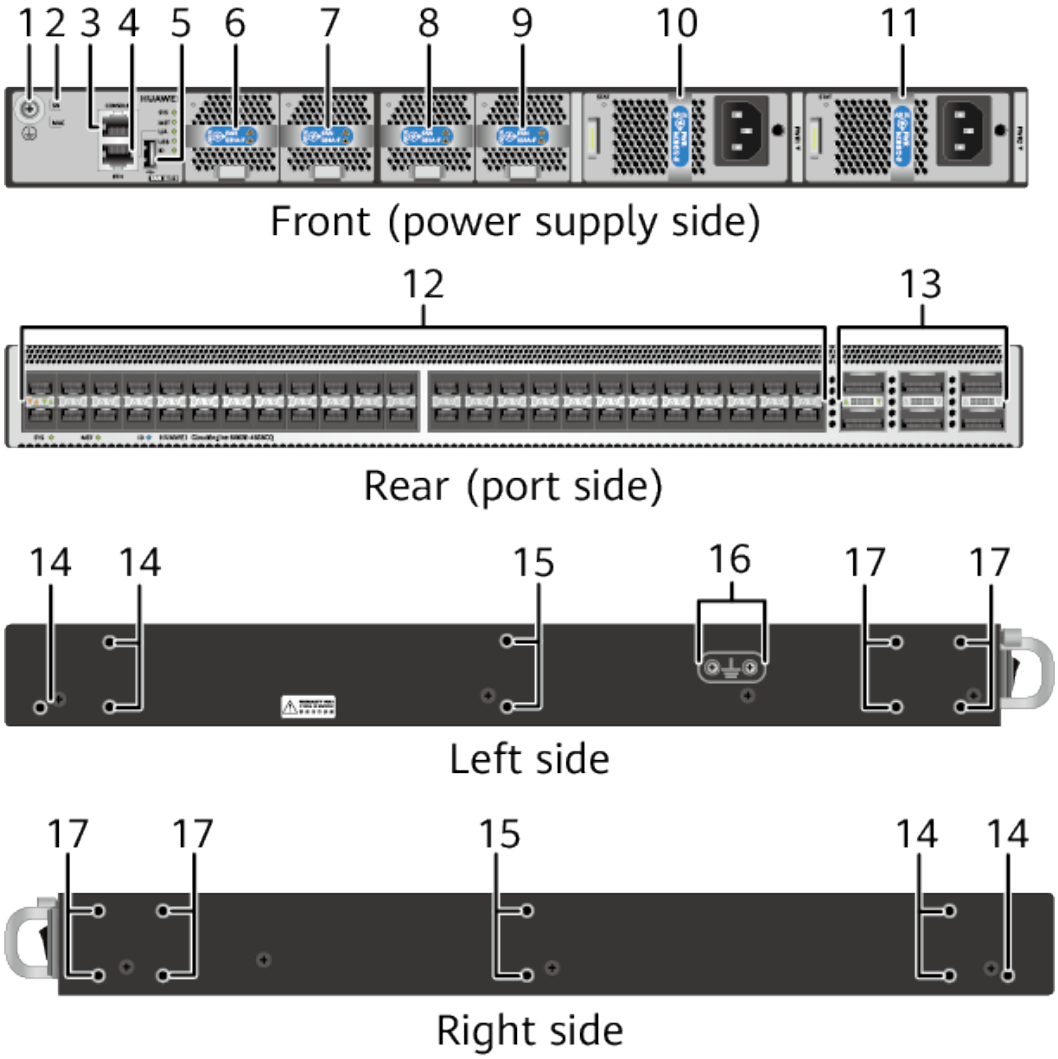
NOTE

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Components

Figure 4-137 Components of the CE6863E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-124 Slots on the CE6863E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-138 Indicators on the CE6863E-48S6CQ 1

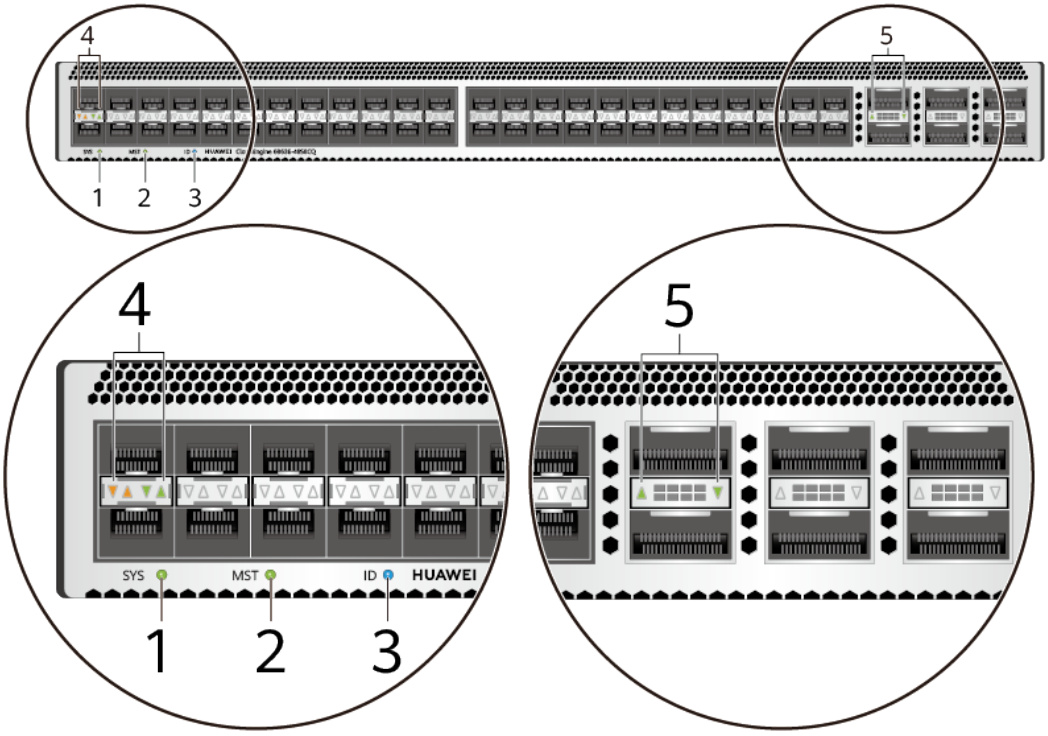
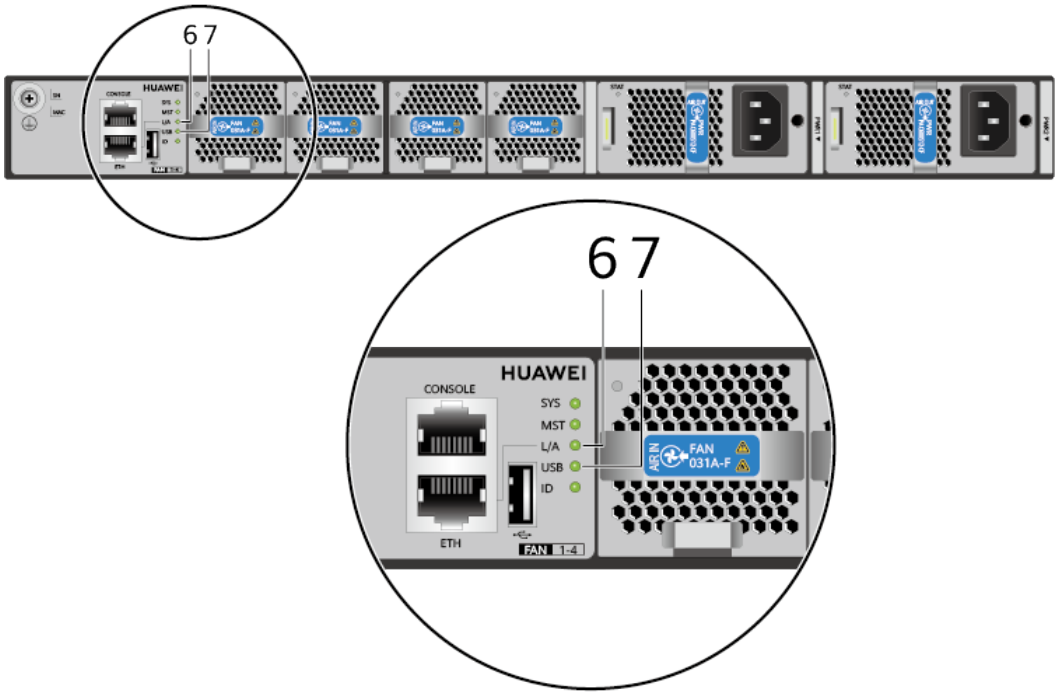


Figure 4-139 Indicators on the CE6863E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-125 Indicators on the CE6863E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-126 Ports on the CE6863E-48S6CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s,	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		they support only 25GE media and will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. ● Complied standard: IEEE 802.3by ● Working mode: full-duplex	**NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-140 Front-to-back airflow for port-side exhaust

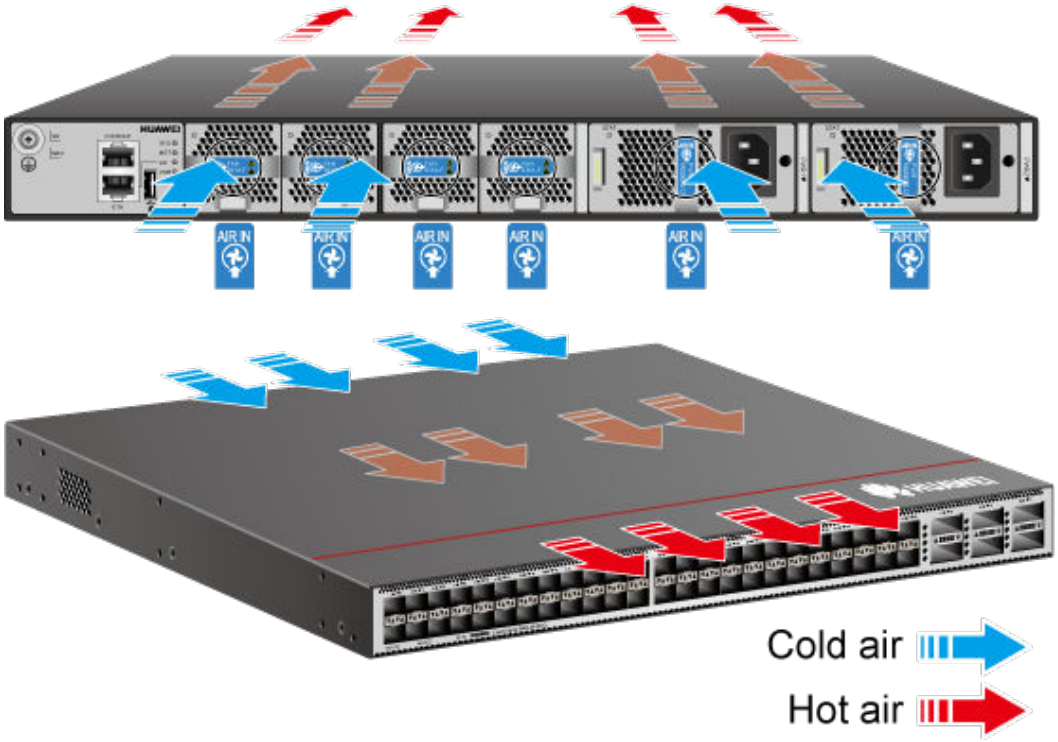
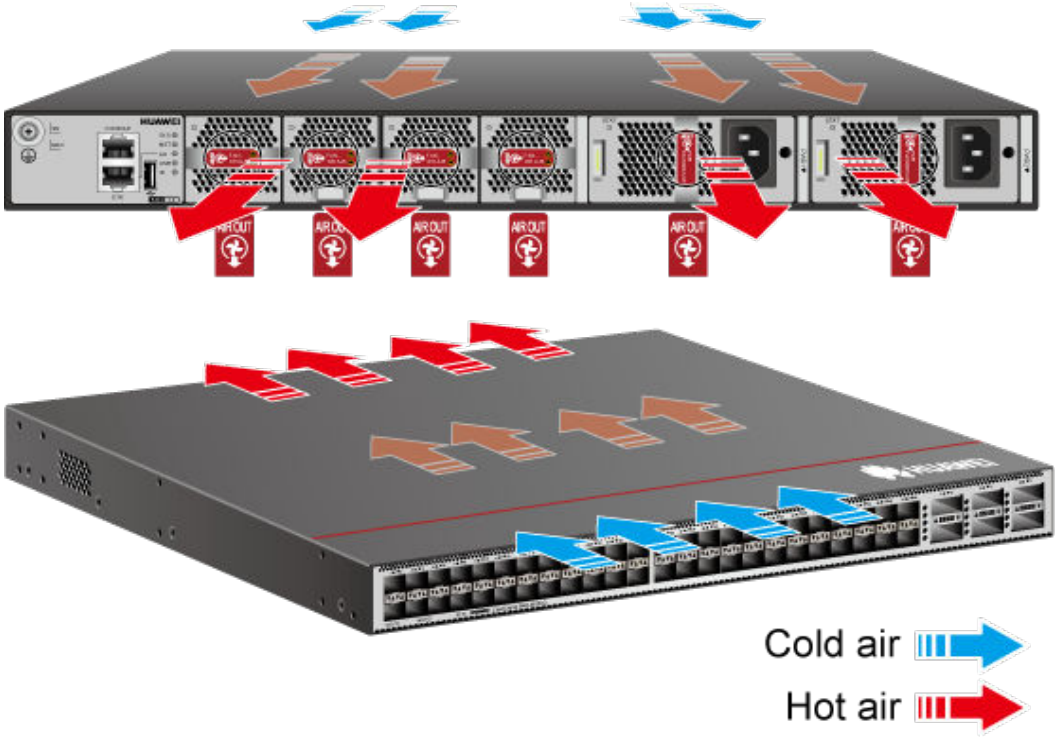


Figure 4-141 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-127 Technical specifications of the CE6863E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	8.95 kg
Weight with packaging (full configuration) [kg (lb)]	11.05 kg (24.36 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 (Note: 1. 25GE ports can be configured to work at 10 Gbit/s or 1 Gbit/s. Every four downlink 25GE ports form a group, and can be configured to work at 10 Gbit/s or 1 Gbit/s through the command. 2. 10GE LRM/80KM linear optical modules are not supported. 3. 1 m 25GE copper cables and 1 m/3 m/5 m 10GE copper cables are supported, and auto-negotiation of copper cables is not supported. 4. 25GE copper cables can be used only on stack ports and M-LAG peer-link ports.)
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	25GE and 100GE optical ports
RTC	Supported
Typical power consumption [W]	226 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 261 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	771 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 891 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	167 W
Static heat dissipation [BTU/hour]	570 BTU/hour
Maximum power consumption [W]	384 W
Maximum heat dissipation	1310 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	Rated AC input voltage range: 100 V AC to 240 V AC; 50/60 Hz Rated –48 V DC input voltage range: –48 V DC to –60 V DC Rated input voltage range for 600 W AC & 240 V DC: 240 V DC Rated input voltage range for 1200 W HVDC: 240 V DC to 380 V DC
Input voltage range [V]	Maximum AC input voltage range: 90 V AC to 290 V AC; 45 Hz to 65 Hz Maximum –48 V DC input voltage range: –38.4 V DC to –72 V DC Maximum input voltage range for 600 W AC & 240 V DC: 190 V DC to 290 V DC Maximum input voltage range for 1200 W HVDC: 190 V DC to 400 V DC
Maximum input current [A]	600 W AC&240 V DC power module (PAC600S12 series): · 8 A (100 V AC to 240 V DC) · 4 A (240 V DC) 1000 W DC power module (PDC1000S12 series): 30 A (–48 V DC to –60 V DC) 1200 W high-voltage DC power module (PHD1K2S12 series): 8 A

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Item	Specification
Rated output power [W]	600 W (AC&240 V HVDC) 1000 W (–48 V DC) 1200 W (380 V HVDC)
Certification	· Compliance with safety standards · Compliance with EMC standards · Compliance with environment and environmental protection standards
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999962836
MTBF [year]	47.81 years
MTTR [hour]	1.95 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.11 CE6865-48S8CQ-EI

Version Mapping

Table 4-128 lists the mappings between the CE6865-48S8CQ-EI and software versions.

Table 4-128 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE6800	CE6865	CE6865-48S8CQ-EI	CE6865EI	V200R005C00 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

Appearance and Structure

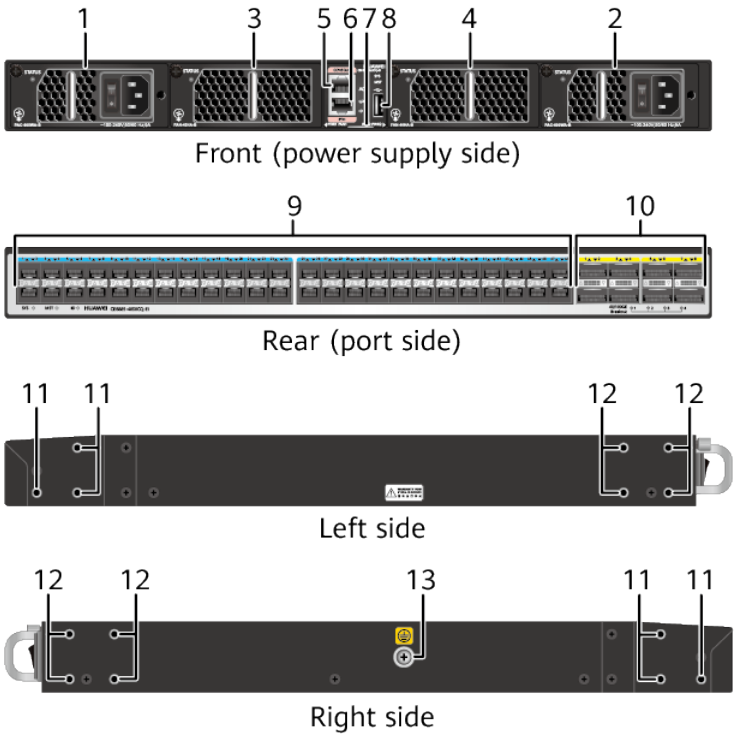
NOTE

The appearances of devices and modules are subject to actually delivered products. The figures in this document are for reference only.

CE6865-48S8CQ-EI appearance

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Figure 4-142 CE6865-48S8CQ-EI



1	Power supply slot 1 Applicable power modules: • **5.3 350 W DC Power Module (PDC-350WA)** • **5.5 600 W AC Power Module (PAC-600WA)** • **5.13 600 W DC Power Module (PDC600S12)** **NOTE** At the ambient temperature of 0°C to 40°C, the 350 W DC module can be used only when all optical interfaces on the switch are equipped with the following short-distance optical modules: 25GBase-SR (power consumption ≤ 1 W) and 100GE optical modules (transmission distance ≤ 2 km; power consumption ≤ 3.5 W) such as 100GBase-SR4, 100GBase-CWDM4, 100GBase-CLR4, and 100GBase-PSM4.	2	Power supply slot 2 Applicable power modules: • **5.3 350 W DC Power Module (PDC-350WA)** • **5.5 600 W AC Power Module (PAC-600WA)** • **5.13 600 W DC Power Module (PDC600S12)** **NOTE** At the ambient temperature of 0°C to 40°C, the 350 W DC module can be used only when all optical interfaces on the switch are equipped with the following short-distance optical modules: 25GBase-SR (power consumption ≤ 1 W) and 100GE optical modules (transmission distance ≤ 2 km; power consumption ≤ 3.5 W) such as 100GBase-SR4, 100GBase-CWDM4, 100GBase-CLR4, and 100GBase-PSM4.
3	Fan slot 1 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**	4	Fan slot 2 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**

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5	Console port	6	ETH management port (RJ45)
7	Barcode label **NOTE** This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port
9	Forty-eight 10GE/25GE SFP28 Ethernet optical ports Applicable modules and cables: • **9.7 10GE SFP+ Optical Modules** (OSXD22N00, LE2MXSC80FF0 and SFP-10G-ZDWT-L not supported) • **GE SFP Copper Modules** (supported from V200R005C00 version and only works at 1000 Mbit/s) • **9.4 GE eSFP Optical Modules** (supported from V200R005C00 version) • **9.8 25GE SFP28 Optical Modules** (only supports SFP-25G-SR) • **8.9.2 SFP+ to SFP+ AOC Cable** • **8.9.3 SFP28 to SFP28 AOC Cable** • **8.8.2 SFP+ to SFP+ High-Speed Cable** • **8.8.3 SFP28 to SFP28 High-Speed Cable** **NOTE** The 1000base-X auto-negotiation function is not supported when a GE optical module is installed into a 25GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down.	10	Eight 40GE/100GE QSFP28 Ethernet optical ports **NOTE** A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. Applicable modules and cables: • **9.9 40GE QSFP+ Optical Modules** • **9.10 100GE QSFP28 Optical Modules** • **8.9.4 QSFP+ to QSFP+ AOC cable** • **8.9.5 QSFP+ to 4*SFP+ AOC cable** • **8.8.5 QSFP+ to 4*SFP+ High-Speed Cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable** • **8.9.6 QSFP28 to QSFP28 AOC Cable** • **8.8.6 QSFP28 to QSFP28 High-Speed Cable** • **QSFP28 to 4*SFP28 High-Speed Cable**
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets

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13	Ground screw	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

  – When both power modules are working properly, they equally provide power for a chassis.
  – When one power module fails, the other one provides all power required for a chassis.

  All power modules are hot swappable.

- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

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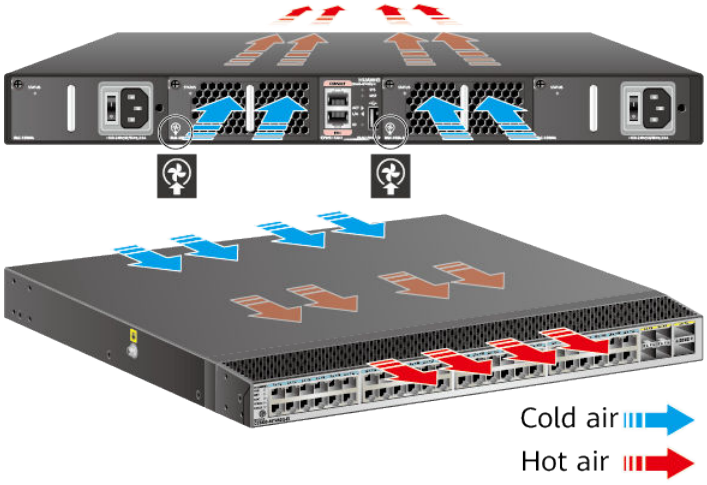
NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-143** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

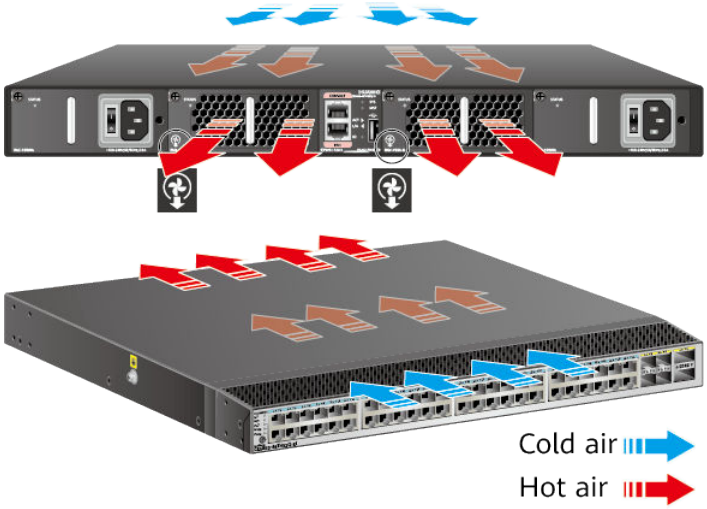
. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 4-143 Front-to-back airflow (air flows out from the port side)



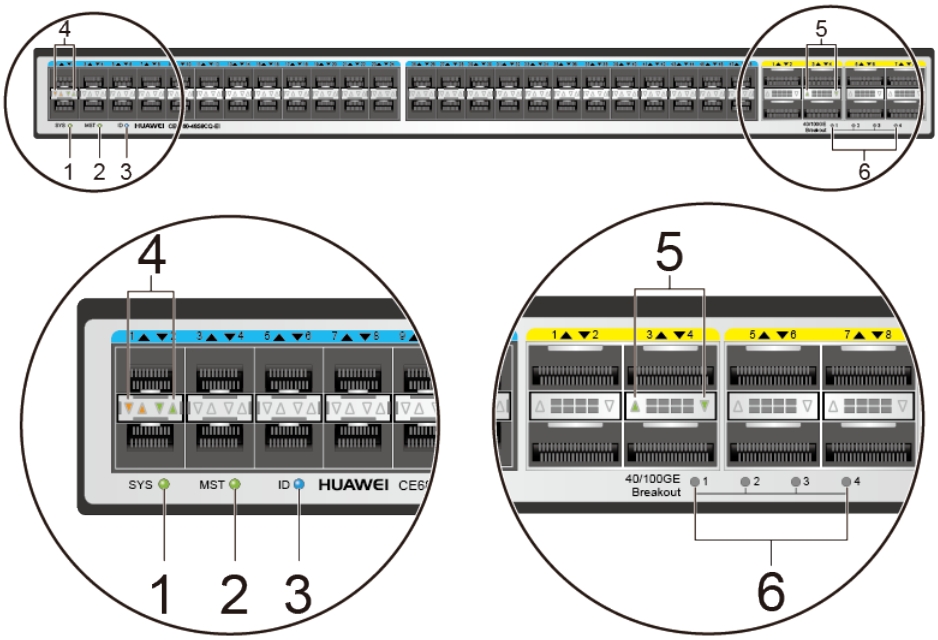
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Figure 4-144 Back-to-front airflow (air flows in from the port side)



Indicators

Figure 4-145 Indicators on the CE6865-48S8CQ-EI rear panel



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Figure 4-146 Indicators on the CE6865-48S8CQ-EI front panel

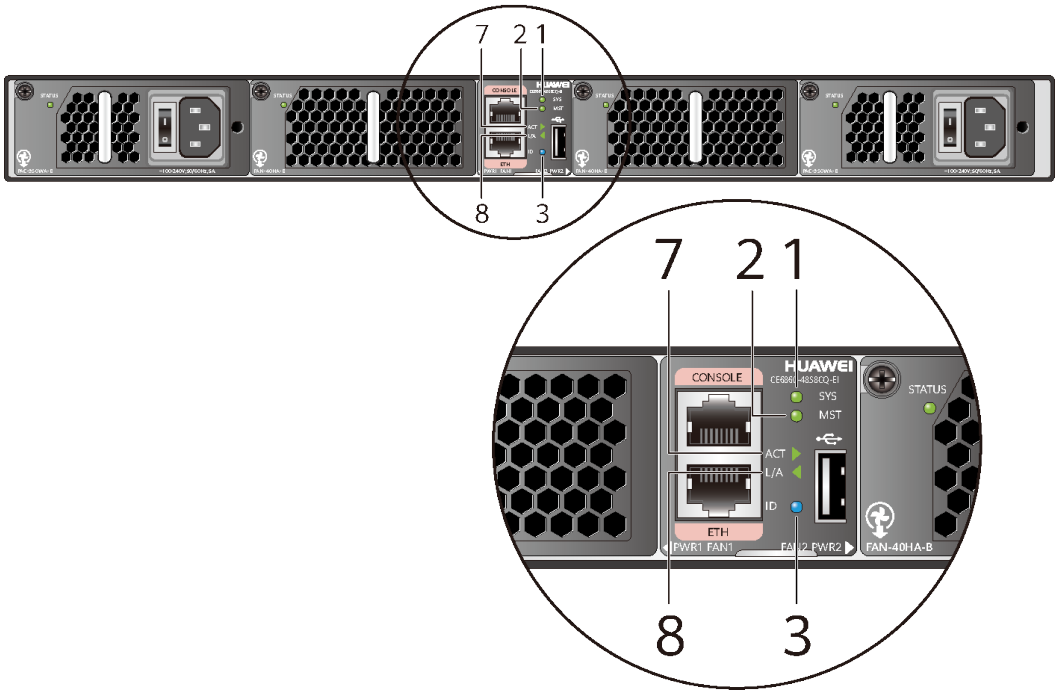


Table 4-129 Indicator description

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running normally.
			Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.
2	MST	Stack master/ slave indicator	Green	Off	The switch is not a stack master.

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No.	Indicator	Name	Color	Status	Description
		NOTE In V200R003C00 and later versions, you can use the **dfs-master led enable** command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.		Steady on	The switch is a stack master or standalone switch.
3	ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
				Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
4	-	Service port indicator (10GE/25GE optical port)	Green	Off	No link has been established on the port or the port has been shut down.
				Steady on	A link is established on the port.
			Yellow	Off	The port is not sending or receiving data.

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No.	Indicator	Name	Color	Status	Description
		NOTE Each 10GE/25GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.		Blinking	The port is sending or receiving data.
5	-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
				Steady on	A link is established on the port.
				Blinking	The port is sending or receiving data.
			When a 40GE/100GE port is configured as four 10GE ports or four 25GE ports, this indicator shows the status of a 10GE/25GE port. The sequence number of the indicated port is identified by indicators 40G/100G Breakout 1/2/3/4 on the lower right corner of the panel. **NOTE** Each 40GE/100GE port has a single-color indicator, which shows the status of the 40GE/100GE port by default.		
6	-	40G/100G Breakout 1/2/3/4 (sequence number indicators of	Green	Off	40GE/100GE ports are working in 40GE or 100GE mode and not split into four 10GE ports or four 25GE ports.

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No.	Indicator	Name	Color	Status	Description
		10GE/25GE ports converted from a 40GE/100GE port) **NOTE** Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.		Steady on	At least one 40GE/100GE port has been split into four 10GE ports or four 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators identify the sequence numbers of the 10GE/25GE ports. A port indicator (5 in **Figure 4-145**) shows the status of a 10GE/25GE port converted from the corresponding 40GE/100GE port: • When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 2 is on, each port indicator shows the status of the second 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.
7	ACT	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment has been completed.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment has failed.
8	L/A	ETH management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.

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No.	Indicator	Name	Color	Status	Description
				Blinking	The port is sending or receiving data.

Ports

10GE/25GE SFP28 Optical Port

10GE/25GE SFP28 optical ports cannot work at the rate of 100 Mbit/s. **Table 4-130** shows the attributes of a 10GE/25GE SFP28 optical port.

Table 4-130 Attributes of a 10GE/25GE SFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Port use constraints	The 48 10GE/25GE SFP28 optical ports of a CE6865EI switch work at the rate of 25 Gbit/s by default and do not support GE/10GE auto-sensing. You can set the port rate to 10 Gbit/s or 1 Gbit/s using the **port mode 10g** or **port mode ge** command, respectively. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12...45-48). • If the rate of any port in a port group is set to 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, all the other ports in this group also work at the rate of 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s. • When the ports in a port group work at the rate of 25 Gbit/s, they support only 25GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 10 Gbit/s, they support only 10GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 1 Gbit/s, they support only GE modules or cables and will go Down if other types of modules or cables are used.
Standards compliance	IEEE802.3by

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Attribute	Description
Working mode	Full-duplex

40GE/100GE QSFP28 Optical Port

Table 4-131 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 4-131 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. Table 4-132 describes the attributes of the console port.

Table 4-132 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. Table 4-133 describes the attributes of the ETH management port (RJ45).

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Table 4-133 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-134 lists technical specifications of the CE6865-48S8CQ-EI switch.

Table 4-134 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm (17.4 in. x 16.5 in. x 1.72 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.8 kg (19.40 lb)
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 65 dBA • Front-to-back airflow: < 65 dBA

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Item		Description
Power specifications	Power source type	AC/DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	Not supported
	Rated input current	• 350 W DC power (PDC-350WA series): 11 A (-48 V DC to -60 V DC) • 600 W AC power (PAC-600WA series): 9 A (100 V AC to 240 V AC) • 600 W DC power (PDC600S12 series): 20 A (-48 V DC to -60 V DC)
Chassis power consumption	Maximum power consumption	420W
	Typical power consumption	259 W (100% throughput, SFP28 cables on 48 ports and QSFP28 cables on 8 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	1433 BTU/hr
	Typical heat dissipation	884 BTU/hr (100% throughput, SFP28 cables on 48 ports and QSFP28 cables on 8 ports, double power modules)
Surge protection		Power module: • AC: 6 kV in common mode and 6 kV in differential mode • DC: 2 kV in common mode and 1 kV in differential mode

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Item		Description
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules
Reliability and availability	Power module backup	1+1 backup
	Fan module backup	1+1 backup not supported **NOTE** A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	38.85
	Mean time to repair (MTTR)	1.48
	Availability	0.999997178
Technical specifications	Processor	1.5 GHz, 8-core
	DRAM Memory	4 GB
	NOR Flash	32 MB
	NAND Flash	2 GB
Stack	Service port supporting the stack function	25GE optical ports and 100GE optical ports
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

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Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-135 provides the ordering information.

Table 4-135 Ordering information

Part Number	Part Model	Part Description
02351RFC	CE6865-48S8CQ-EI	CE6865-48S8CQ-EI Switch (48-Port 25GE SFP28, 8*100GE QSFP28, Without Fan and Power Module)
02351RFE	CE6865-EI-F-B0B	CE6865-48S8CQ-EI Switch (48-Port 25GE SFP28, 8*100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02351RFD	CE6865-EI-B-B0B	CE6865-48S8CQ-EI Switch (48-Port 25GE SFP28, 8*100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.4.12 CE6865E-48S8CQ

4.4.12.1 CE6865E-48S8CQ (02354CPT)

Overview

Table 4-136 Basic information about the CE6865E-48S8CQ

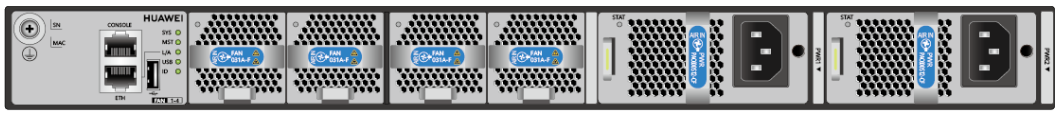
Item	Details
Description	CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, without fan and power modules)
Part Number	02354CPT
Model	CE6865E-48S8CQ
First supported version	V200R021C00

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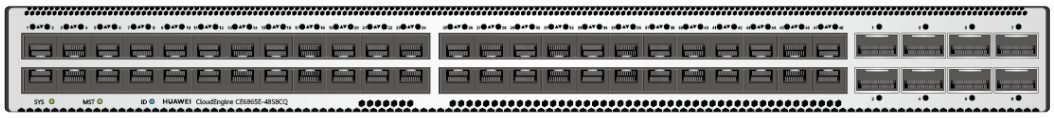
Item	Details
Other part numbers	02354CPN (CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354CPV (CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6865E

Appearance

Figure 4-147 Appearance of the CE6865E-48S8CQ



Front (power supply side)



Rear (port side)

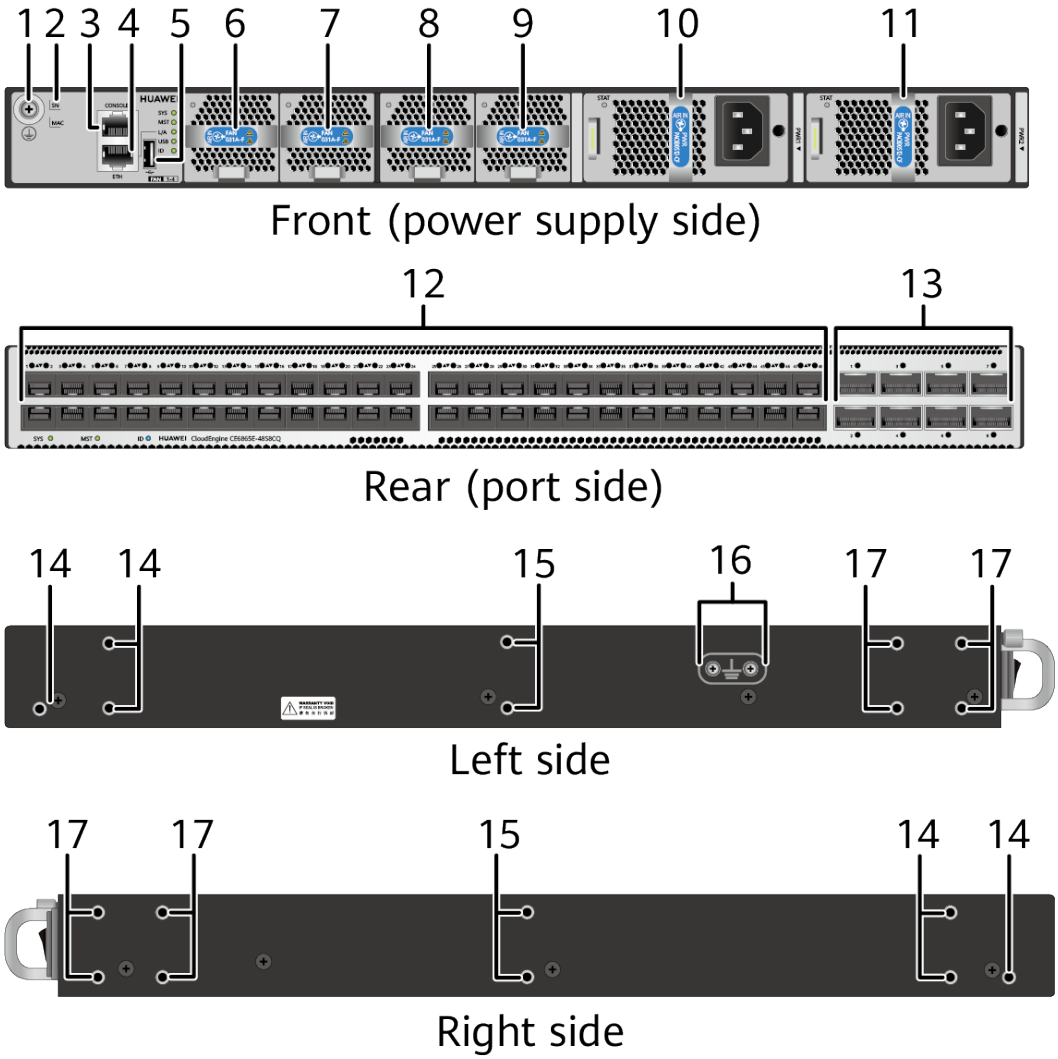
NOTE

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Components

Figure 4-148 Components of the CE6865E-48S8CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Eight 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-137 Slots on the CE6865E-48S8CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Slots	-	Horizontal	Each of the CloudEngine 6800 series switches has two power module slots and supports pluggable power modules. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support 1+1 backup of power modules.When both power modules are working properly, each of them provides half of the power required for the chassis.When one power module fails, the other one provides all power required for the chassis. All power modules of the devices are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal	Each of the CloudEngine 6800 series switches has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-149 Indicators on the CE6865E-48S8CQ 1

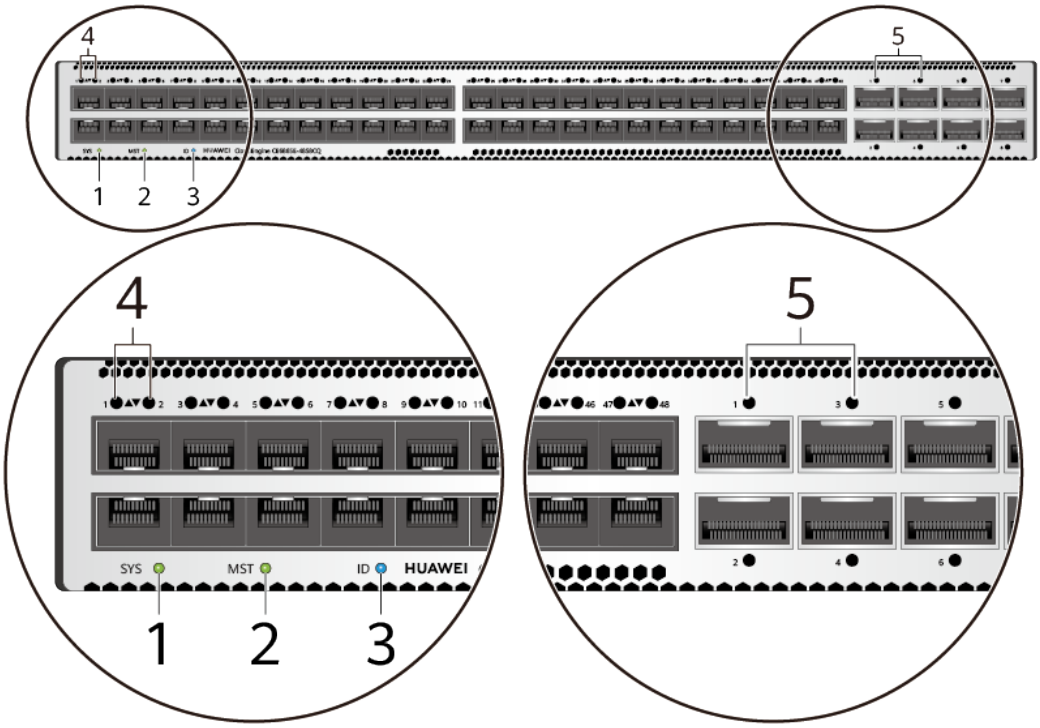
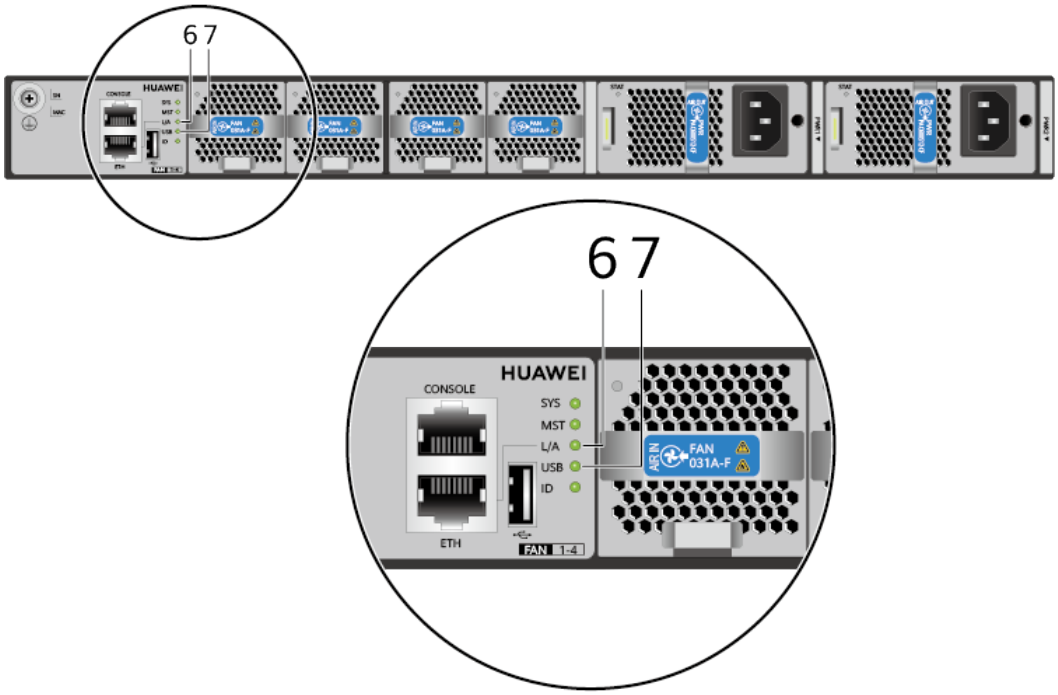


Figure 4-150 Indicators on the CE6865E-48S8CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-138 Indicators on the CE6865E-48S8CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Off	The switch is not a stack master.
		Green	Steady on	The switch is a stack master or standalone switch.
ID	ID indicator	Blue	Off	The ID indicator is not used (default state).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Off	No link has been established on the port or the port has been shut down.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
L/A	ETH management port indicator	Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-139 Ports on the CE6865E-48S8CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 Optical Port	Depending on the optical module	• Optical attributes: depending on the module or cable in use • Limitation: A 10GE/25GE SFP28 optical port works at the rate of 25 Gbit/s by default and does not support GE/10GE auto-sensing. You can set the port rate to 10 Gbit/s or 1 Gbit/s using the port mode 10g or port mode ge command, respectively. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). • If the rate of any port in a port group is set to 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, all the other ports in this group also work at the rate of 1 Gbit/s, 10	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		Gbit/s, or 25 Gbit/s. • When the ports in a port group work at the rate of 25 Gbit/s, they support only 25GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 10 Gbit/s, they support only 10GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 1 Gbit/s, they support only GE modules or cables and will go Down if other types of modules or cables are used. • 10GE LRM/80 km linear optical modules are not supported.	**NOTE** 1. A 10GE optical port with a GE copper module installed can only work at 1000 Mbit/s. GE copper modules cannot be installed in ports directly above or below another GE copper module. 2. 10GE optical ports do not support OSXD22N00 and LE2MXSC80FF0. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 3. When working at 25 Gbit/s, the port supports 1 m, 3 m, and 5 m SFP28 high-speed cables. When a non-1 m copper cable is used, the RS-FEC function must be enabled. Otherwise, the port will be in Down (Transceiver type mismatch) state. 4. When a 25GE port is configured to work at 10 Gbit/s using the port mode 10g command, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
		• Standards compliance: IEEE 802.3by • Working mode: full-duplex	
40GE/100GE QSFP28 Optical Port	Depending on the optical module	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
Console Port	RJ45	The console port is connected to a console for onsite configuration. • Standards compliance: RS232 • Working mode: duplex Universal Asynchronous Receiver/ Transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s; default value: 9600 bit/s	Console cable
ETH Management Port	RJ45	The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. • Standards compliance: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher category cable

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Port	Connector Type	Description	Available Components
USB Port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB 2.0-compliant USB flash drive

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-151 Front-to-back airflow for port-side exhaust

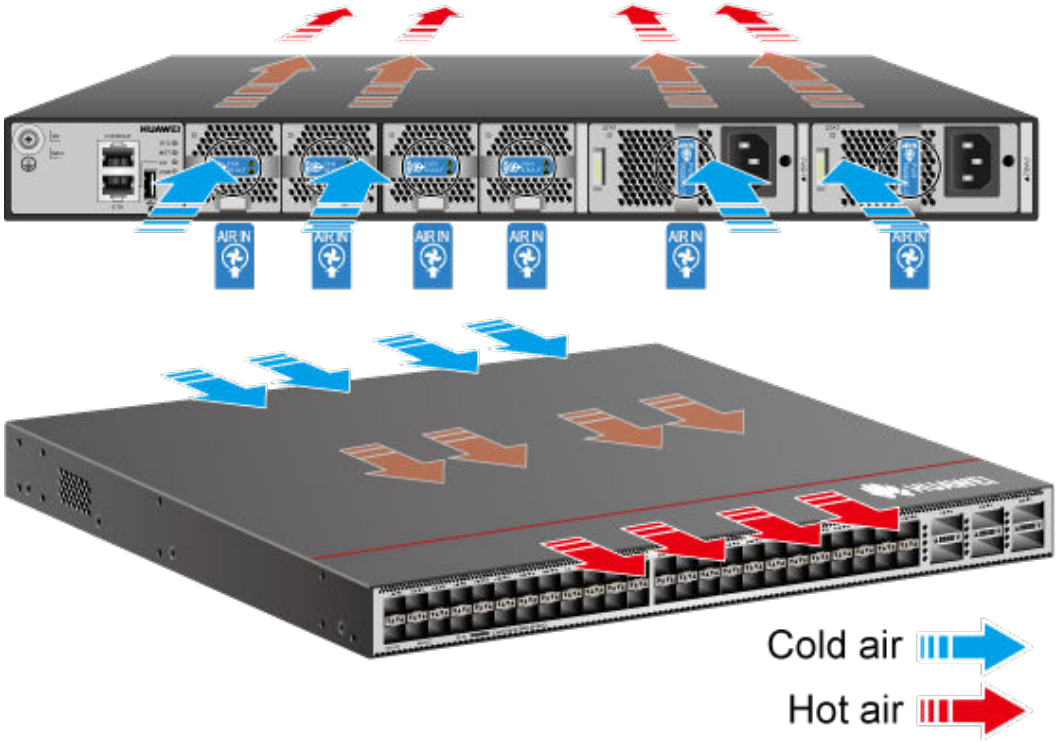
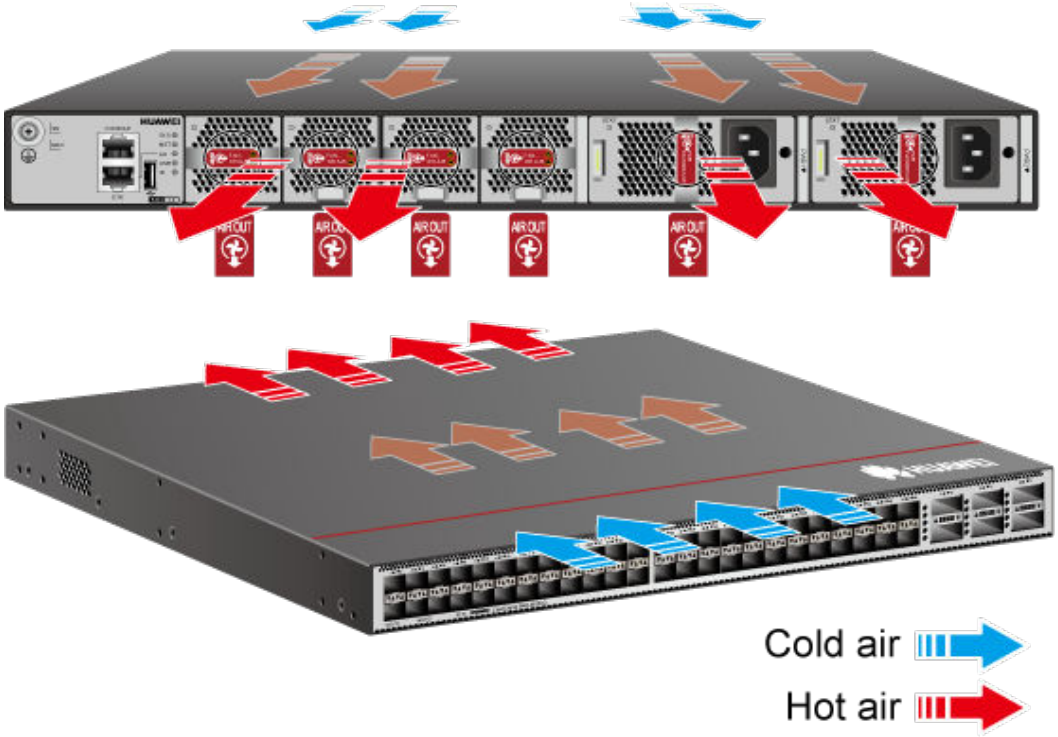


Figure 4-152 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-140 Technical specifications of the CE6865E-48S8CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.58 in.)
Weight without packaging [kg (lb)]	6.2kg (13.67 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.8 kg (19.40 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.45 kg (20.83 lb)
Weight with packaging (full configuration) [kg (lb)]	11.75 kg (25.9 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 **NOTE** 1. A 25GE port works at 25 Gbit/s by default and cannot work at 1 Gbit/s or 10 Gbit/s through auto-sensing, but can be configured to work at 10 Gbit/s or 1 Gbit/s through commands. When a 25GE port is configured to work at 10 Gbit/s or 1 Gbit/s, the rate of the other three ports in the same group also needs to be switched. The rate of a single port cannot be switched independently. 2. 10GE LRM/80 km linear optical modules are not supported. 3. The 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 4. GE copper modules cannot be installed in ports directly above or below another GE copper module.
Uplink Service interface	8*100GE QSFP28 (Note: Each 100G QSFP28 port can be configured to work at 40 Gbit/s, and can be split into four 10GE or 25GE ports. After split, they cannot be used as GE ports.)
Service port supporting the stack function	25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 179 W (50% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 232 W (50% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 610 BTU/hour (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 791 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	133 W
Static heat dissipation [BTU/hour]	453 BTU/hour
Maximum power consumption [W]	378 W
Maximum heat dissipation	1290 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W

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Item	Specification
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999966836
MTBF [year]	36.9 year
MTTR [hour]	1.85 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 49.8 dB(A) on average (maximum: 53.6 dB(A)) Back-to-front airflow: 47.8 dB(A) on average (maximum: 51.2 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 67.6 dB(A) on average (maximum: 73.4 dB(A)) Back-to-front airflow: 68 dB(A) on average (maximum: 75.4 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.12.2 CE6865E-48S8CQ (02354CPT-003)

Overview

Table 4-141 Basic information about the CE6865E-48S8CQ

Item	Details
Description	CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, without fan and power modules)
Part Number	02354CPT-003
Model	CE6865E-48S8CQ
First supported version	V200R021C10SPC600

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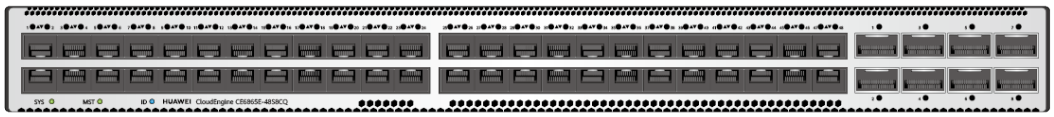
Item	Details
Other part numbers	02354CPN-003 (CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354CPV-003 (CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)) 02355MSB(CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, without fan and power modules)) 02355MSC(CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02355MSD(CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6865E

Appearance

Figure 4-153 Appearance of the CE6865E-48S8CQ



Front (power supply side)



Rear (port side)

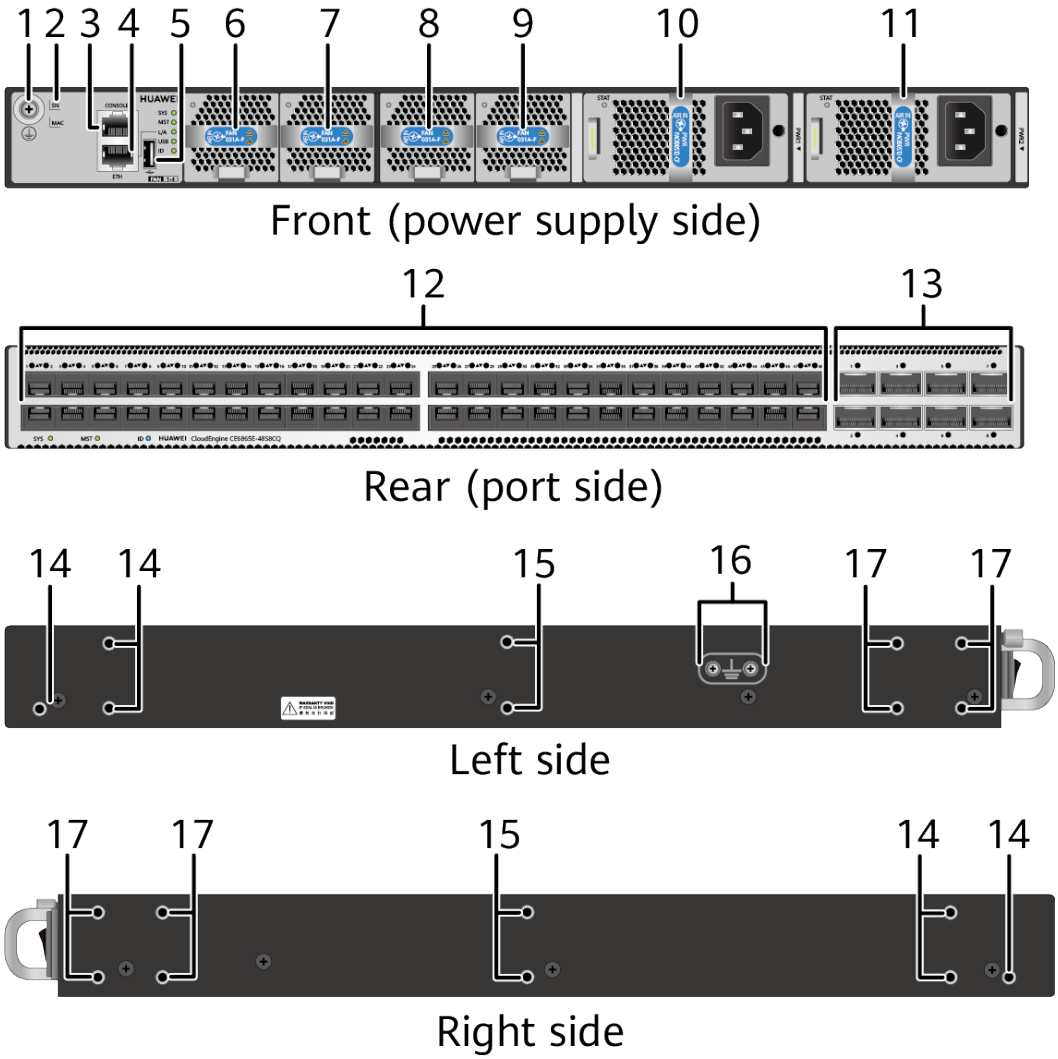
NOTE

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Components

Figure 4-154 Components of the CE6865E-48S8CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Eight 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-142 Slots on the CE6865E-48S8CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The switch has two power supply slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The switch supports dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	The switch has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-155 Indicators on the CE6865E-48S8CQ 1

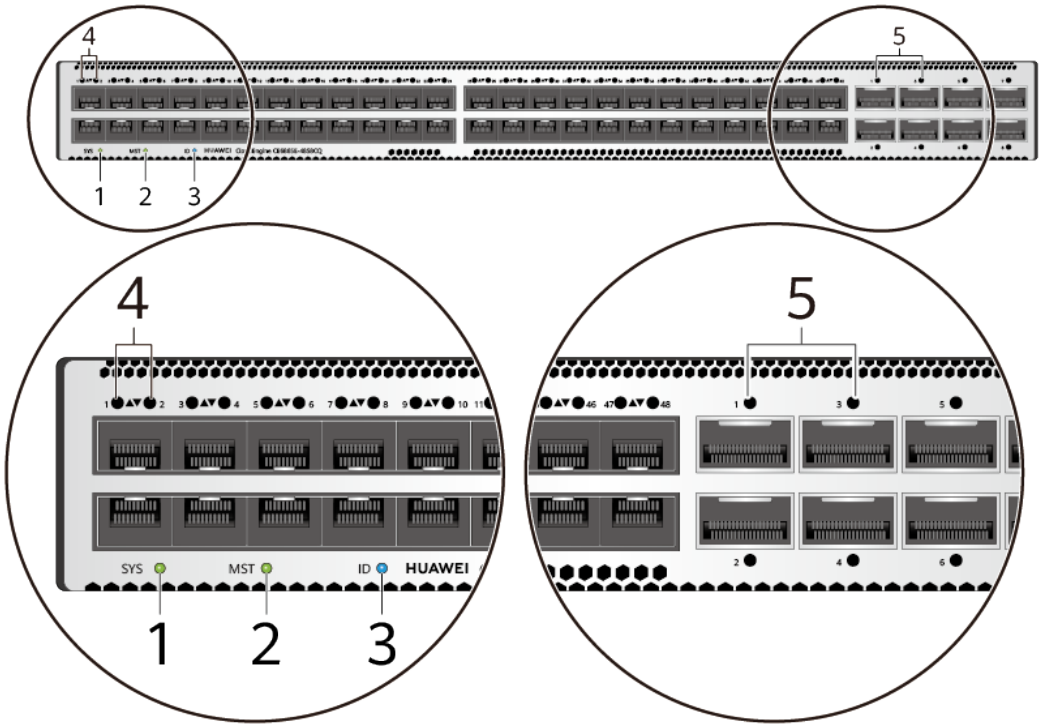
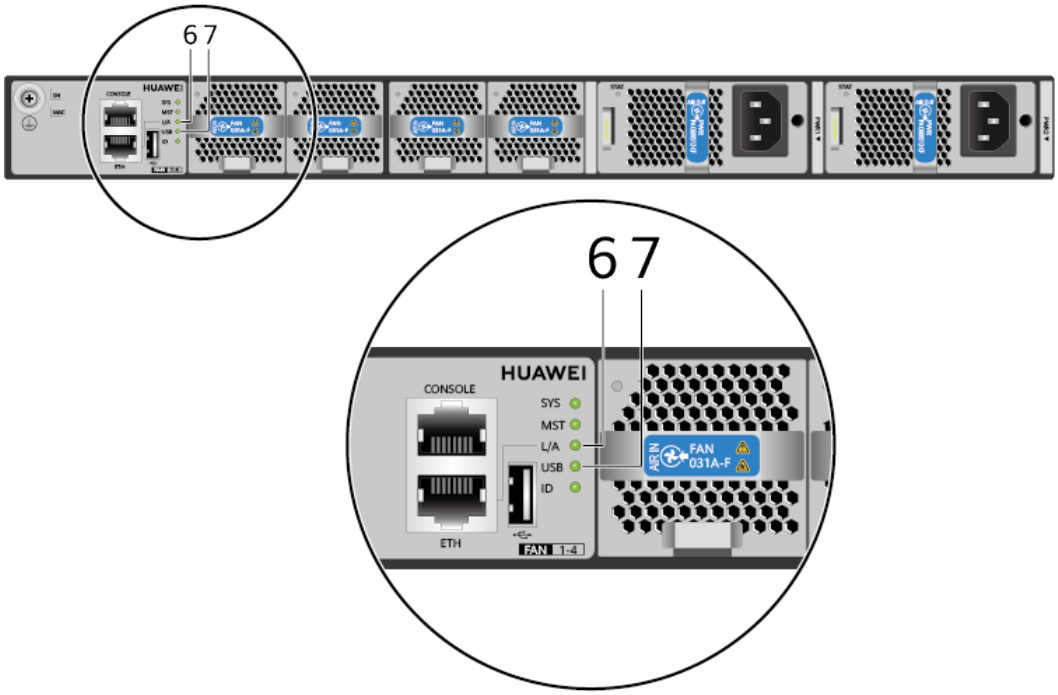


Figure 4-156 Indicators on the CE6865E-48S8CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-143 Indicators on the CE6865E-48S8CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-144 Ports on the CE6865E-48S8CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical attributes: depending on the module or cable in use • Limitation: A 10GE/25GE SFP28 optical port works at the rate of 25 Gbit/s by default and does not support GE/10GE auto-sensing. You can set the port rate to 10 Gbit/s or 1 Gbit/s using the port mode 10g or port mode ge command, respectively. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). • If the rate of any port in a port group is set to 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, all the other ports in this group also work at the rate of 1 Gbit/s, 10	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		Gbit/s, or 25 Gbit/s. • When the ports in a port group work at the rate of 25 Gbit/s, they support only 25GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 10 Gbit/s, they support only 10GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 1 Gbit/s, they support only GE modules or cables and will go Down if other types of modules or cables are used. • 10GE LRM/80 km linear optical modules are not supported.	**NOTE** 1. A 10GE optical port with a GE copper module installed can only work at 1000 Mbit/s. GE copper modules cannot be installed in ports directly above or below another GE copper module. 2. 10GE optical ports do not support OSXD22N00 and LE2MXSC80FF0. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 3. When working at 25 Gbit/s, the port supports 1 m, 3 m, and 5 m SFP28 high-speed cables. When a non-1 m copper cable is used, the RS-FEC function must be enabled. Otherwise, the port will be in Down (Transceiver type mismatch) state. 4. When a 25GE port is configured to work at 10 Gbit/s using the port mode 10g command, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
		• Standards compliance: IEEE 802.3by • Working mode: full-duplex	
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-157 Front-to-back airflow for port-side exhaust

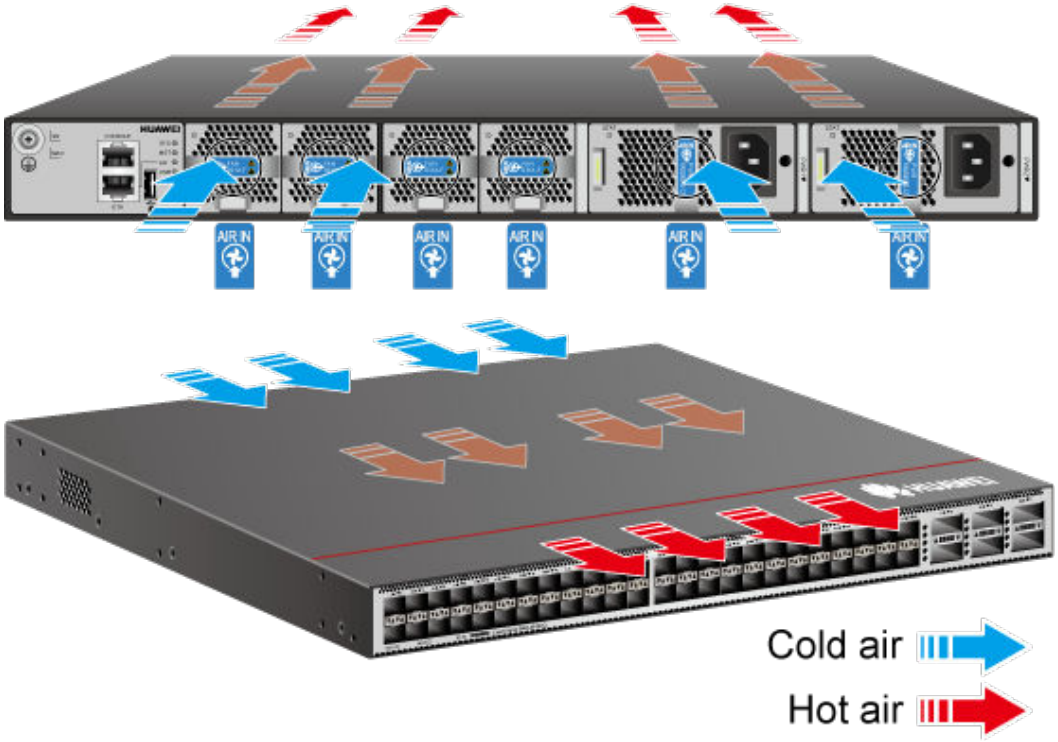
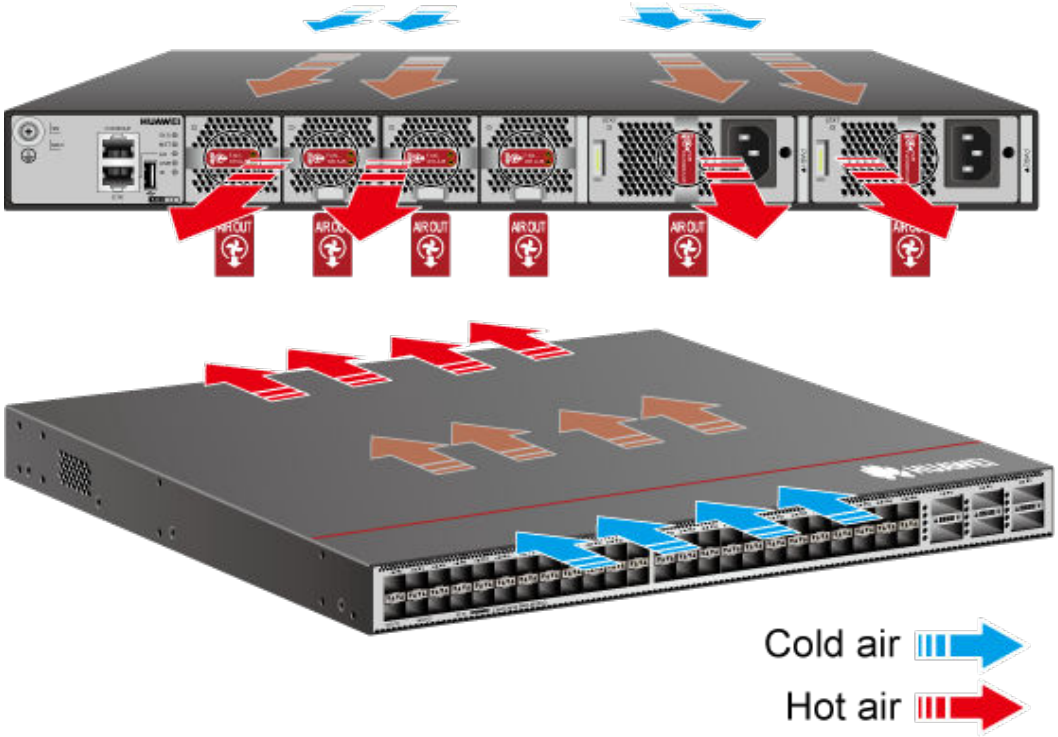


Figure 4-158 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-145 Technical specifications of the CE6865E-48S8CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.58 in.)
Weight without packaging [kg (lb)]	6.2kg (13.67 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.8 kg (19.40 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.45 kg (20.83 lb)
Weight with packaging (full configuration) [kg (lb)]	11.75 kg (25.9 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 **NOTE** 1. A 25GE port works at 25 Gbit/s by default and cannot work at 1 Gbit/s or 10 Gbit/s through auto-sensing, but can be configured to work at 10 Gbit/s or 1 Gbit/s through commands. When a 25GE port is configured to work at 10 Gbit/s or 1 Gbit/s, the rate of the other three ports in the same group also needs to be switched. The rate of a single port cannot be switched independently. 2. 10GE LRM/80 km linear optical modules are not supported. 3. The 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 4. GE copper modules cannot be installed in ports directly above or below another GE copper module.
Uplink Service interface	8*100GE QSFP28 (Note: Each 100G QSFP28 port can be configured to work at 40 Gbit/s, and can be split into four 10GE or 25GE ports. After split, they cannot be used as GE ports.)
Service port supporting the stack function	25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 179 W (50% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 232 W (50% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 610 BTU/hour (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 791 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	133 W
Static heat dissipation [BTU/hour]	453 BTU/hour
Maximum power consumption [W]	378 W
Maximum heat dissipation	1290 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W

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Item	Specification
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999966836
MTBF [year]	36.9 year
MTTR [hour]	1.85 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 49.8 dB(A) on average (maximum: 53.6 dB(A)) Back-to-front airflow: 47.8 dB(A) on average (maximum: 51.2 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 67.6 dB(A) on average (maximum: 73.4 dB(A)) Back-to-front airflow: 68 dB(A) on average (maximum: 75.4 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.12.3 CE6865E-48S8CQ (02354CPT-006)

Overview

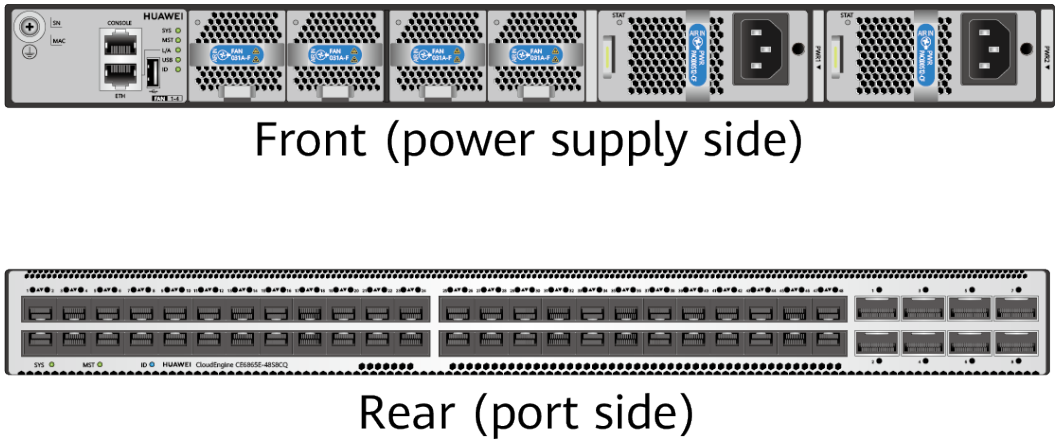
Table 4-146 Basic information about the CE6865E-48S8CQ

Item	Details
Description	CE6865E-48S8CQ switch (48*25G SFP28, 8*100G QSFP28, without fan and power modules)
Part Number	02354CPT-006
Model	CE6865E-48S8CQ
First supported version	V200R021C10SPC600
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6865E

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Appearance

Figure 4-159 Appearance of the CE6865E-48S8CQ



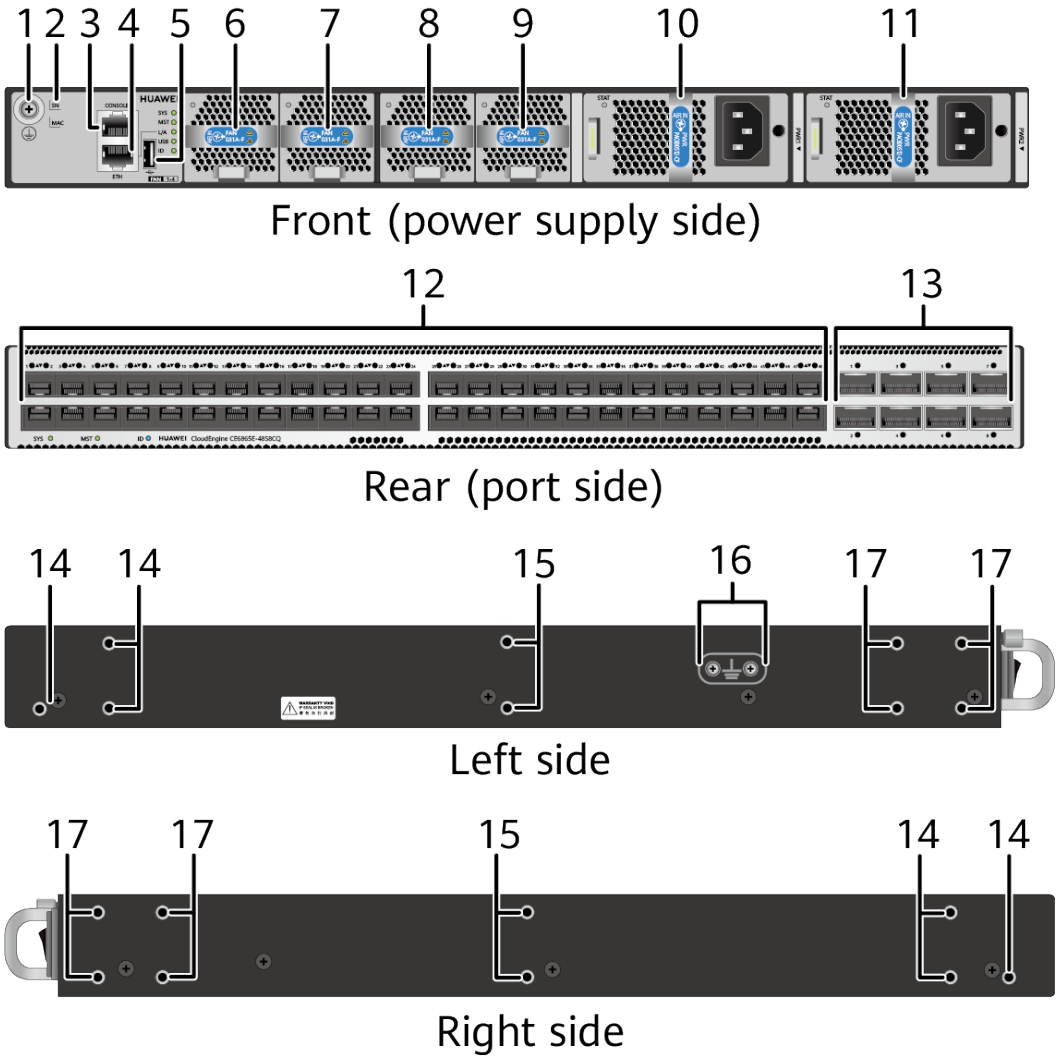
NOTE

The figures in this document are for reference only.

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Components

Figure 4-160 Components of the CE6865E-48S8CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE/25GE SFP28 Ethernet optical ports
13	Eight 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-147 Slots on the CE6865E-48S8CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-161 Indicators on the CE6865E-48S8CQ 1

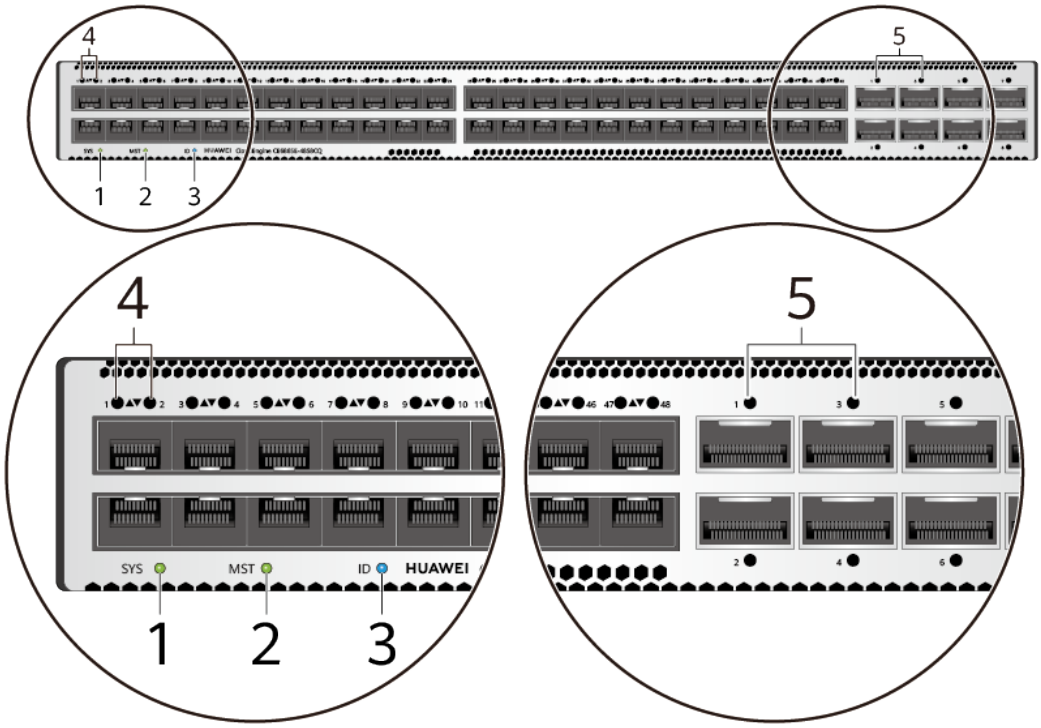
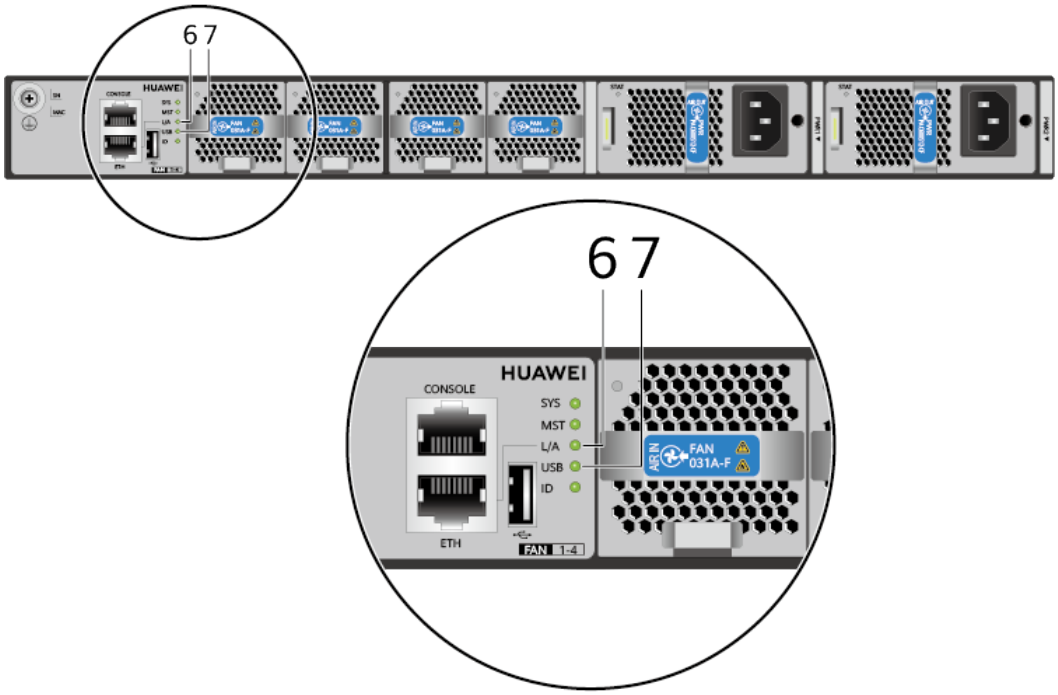


Figure 4-162 Indicators on the CE6865E-48S8CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-148 Indicators on the CE6865E-48S8CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-149 Ports on the CE6865E-48S8CQ

Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical attributes: depending on the module or cable in use • Limitation: A 10GE/25GE SFP28 optical port works at the rate of 25 Gbit/s by default and does not support GE/10GE auto-sensing. You can set the port rate to 10 Gbit/s or 1 Gbit/s using the port mode 10g or port mode ge command, respectively. The 48 10GE/25GE SFP28 optical ports are divided into 12 port groups, with four ports in each group (1-4, 5-8, 9-12, ..., 45-48). • If the rate of any port in a port group is set to 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, all the other ports in this group also work at the rate of 1 Gbit/s, 10	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		Gbit/s, or 25 Gbit/s. • When the ports in a port group work at the rate of 25 Gbit/s, they support only 25GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 10 Gbit/s, they support only 10GE modules or cables and will go Down if other types of modules or cables are used. When the ports in a port group work at the rate of 1 Gbit/s, they support only GE modules or cables and will go Down if other types of modules or cables are used. • 10GE LRM/80 km linear optical modules are not supported.	**NOTE** 1. A 10GE optical port with a GE copper module installed can only work at 1000 Mbit/s. GE copper modules cannot be installed in ports directly above or below another GE copper module. 2. 10GE optical ports do not support OSXD22N00 and LE2MXSC80FF0. The 1000BASE-X auto-negotiation function is not supported when a GE optical module is installed into a 10GE optical interface. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 3. When working at 25 Gbit/s, the port supports 1 m, 3 m, and 5 m SFP28 high-speed cables. When a non-1 m copper cable is used, the RS-FEC function must be enabled. Otherwise, the port will be in Down (Transceiver type mismatch) state. 4. When a 25GE port is configured to work at 10 Gbit/s using the port mode 10g command, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
		• Standards compliance: IEEE 802.3by • Working mode: full-duplex	
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-163 Front-to-back airflow for port-side exhaust

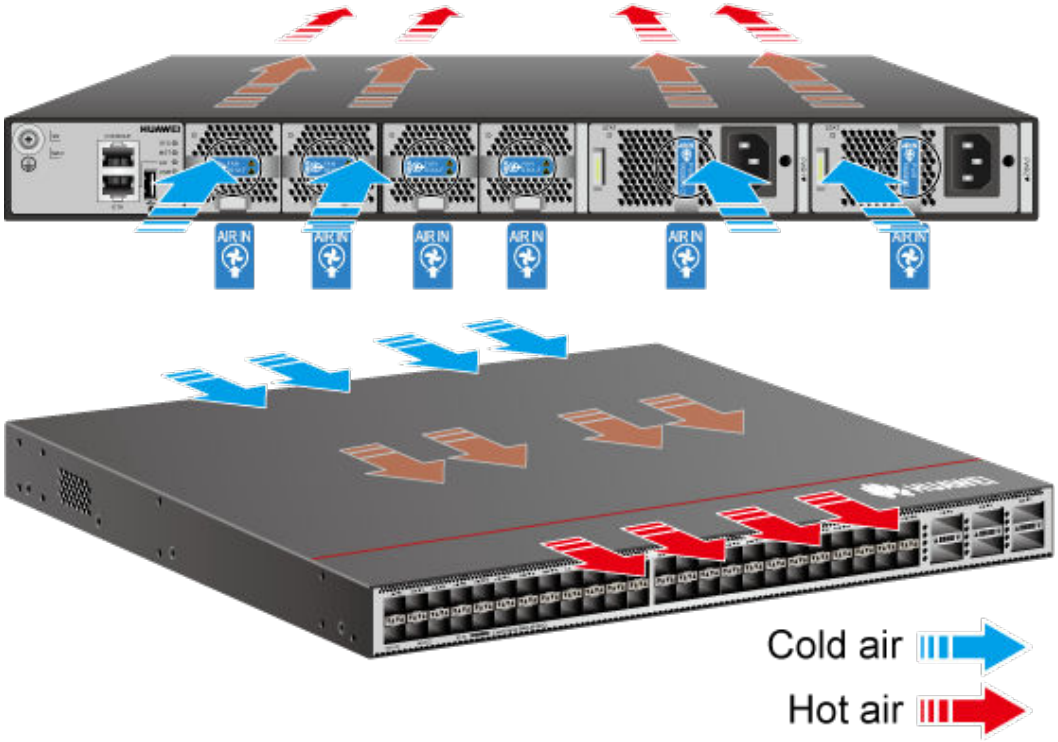
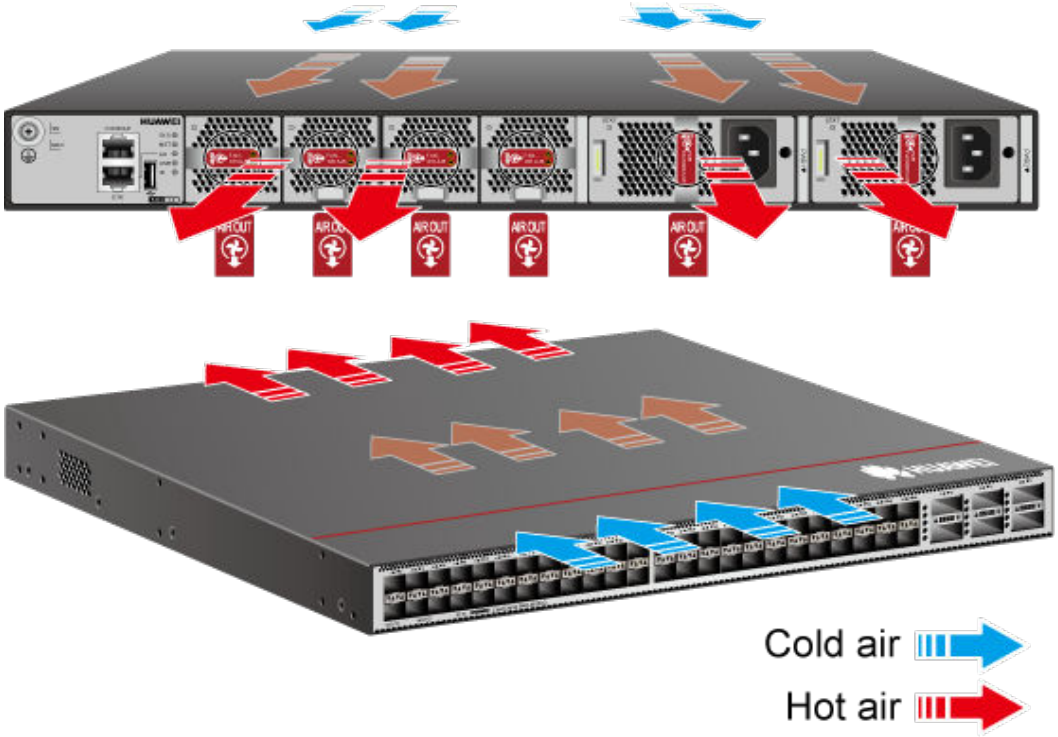


Figure 4-164 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-150 Technical specifications of the CE6865E-48S8CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.58 in.)
Weight without packaging [kg (lb)]	6.2kg (13.67 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.8 kg (19.40 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.45 kg (20.83 lb)
Weight with packaging (full configuration) [kg (lb)]	11.75 kg (25.9 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*25GE SFP28 **NOTE** 1. A 25GE port works at 25 Gbit/s by default and cannot work at 1 Gbit/s or 10 Gbit/s through auto-sensing, but can be configured to work at 10 Gbit/s or 1 Gbit/s through commands. When a 25GE port is configured to work at 10 Gbit/s or 1 Gbit/s, the rate of the other three ports in the same group also needs to be switched. The rate of a single port cannot be switched independently. 2. 10GE LRM/80 km linear optical modules are not supported. 3. The 1000BASE-X auto-negotiation function is not supported. To connect the two interfaces at both ends of a link, disable the auto-negotiation function of the peer interface. After the connection, in some port failure scenarios, the interface on one end may be Up and the interface on the other end may be Down. 4. GE copper modules cannot be installed in ports directly above or below another GE copper module.
Uplink Service interface	8*100GE QSFP28 (Note: Each 100G QSFP28 port can be configured to work at 40 Gbit/s, and can be split into four 10GE or 25GE ports. After split, they cannot be used as GE ports.)
Service port supporting the stack function	25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 179 W (50% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 232 W (50% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 610 BTU/hour (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 791 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	133 W
Static heat dissipation [BTU/hour]	453 BTU/hour
Maximum power consumption [W]	378 W
Maximum heat dissipation	1290 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W

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Item	Specification
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999966836
MTBF [year]	36.9 year
MTTR [hour]	1.85 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 49.8 dB(A) on average (maximum: 53.6 dB(A)) Back-to-front airflow: 47.8 dB(A) on average (maximum: 51.2 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 67.6 dB(A) on average (maximum: 73.4 dB(A)) Back-to-front airflow: 68 dB(A) on average (maximum: 75.4 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.13 CE6870-48S6CQ-EI

Version Mapping

Table 4-151 lists the mappings between the CE6870-48S6CQ-EI and software versions.

Table 4-151 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE6800	CE6870	CE6870-48S6CQ-EI	CE6870EI	V200R001C00 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

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CAUTION

The DDR of the CE6870-48S6CQ-EI has been optimized and upgraded since March 1, 2020. The switches that are manufactured on and after March 1, 2020 can only run V200R019C10SPC800 after the corresponding patch is load, as well as running V200R020C10 or later versions. (The year and month when the switches are manufactured can be determined based on the SN.)

The product SN consists of 20 characters.

- The thirteenth character indicates the year of production. A indicates 2010, B indicates 2011, C indicates 2012, D indicates 2013, E indicates 2014, F indicates 2015, G indicates 2016, H indicates 2017, J indicates 2018, K indicates 2019, and L indicates 2020. The letter I is not used. The letters increase with the year.
- The fourteenth character indicates the month of production. 1 indicates January, 2 indicates February, ..., 9 indicates September, A indicates October, B indicates November, and C indicates December.

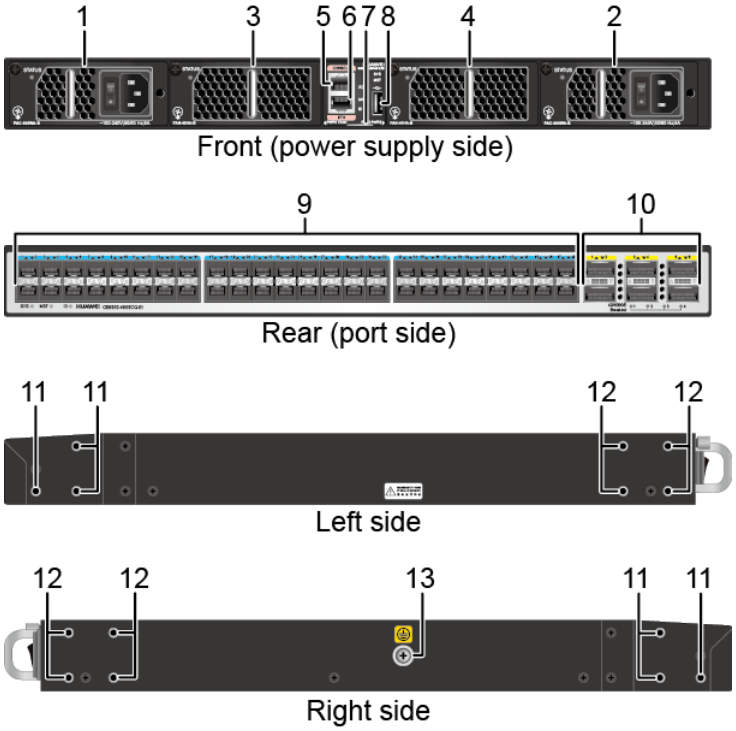
For example, if the SN of a switch is 2102XXXXXX10L3000XXX, the switch is manufactured in March 2020.

Appearance and Structure

NOTE

The figures in this document are for reference only.

Figure 4-165 CE6870-48S6CQ-EI



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1	Power supply slot 1 Applicable power modules: • **5.3 350 W DC Power Module (PDC-350WA)** • **5.5 600 W AC Power Module (PAC-600WA)**	2	Power supply slot 2 Applicable power modules: • **5.3 350 W DC Power Module (PDC-350WA)** • **5.5 600 W AC Power Module (PAC-600WA)**
3	Fan slot 1 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**	4	Fan slot 2 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**
5	Console port	6	ETH management port (RJ45)
7	Barcode label **NOTE** This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port

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9	Forty-eight 10GE SFP+ Ethernet optical ports Applicable modules and cables: • **9.7 10GE SFP+ Optical Modules** (OSXD22N00 and LE2MXSC80FF0 not supported) • **9.4 GE eSFP Optical Modules** • **9.5 GE SFP Copper Modules** (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s) • **8.9.2 SFP+ to SFP+ AOC Cable** • **8.8.2 SFP+ to SFP+ High-Speed Cable**	10	Six 40GE/100GE QSFP28 Ethernet optical ports **NOTE** A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. Applicable modules and cables: • **40GE QSFP+ Optical Modules** • **9.10 100GE QSFP28 Optical Modules** (QSFP28-100G-4WDM-40 not supported) • **8.9.4 QSFP+ to QSFP+ AOC cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable** • **8.9.5 QSFP+ to 4*SFP+ AOC cable** • **8.8.5 QSFP+ to 4*SFP+ High-Speed Cable** • **8.9.6 QSFP28 to QSFP28 AOC Cable** • **8.8.6 QSFP28 to QSFP28 High-Speed Cable** • **8.8.7 QSFP28 to 4*SFP28 High-Speed Cable**
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

  – When both power modules are working properly, they equally provide power for a chassis.

  – When one power module fails, the other one provides all power required for a chassis.

  All power modules are hot swappable.

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- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-166** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

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Figure 4-166 Front-to-back airflow (air flows out from the port side)

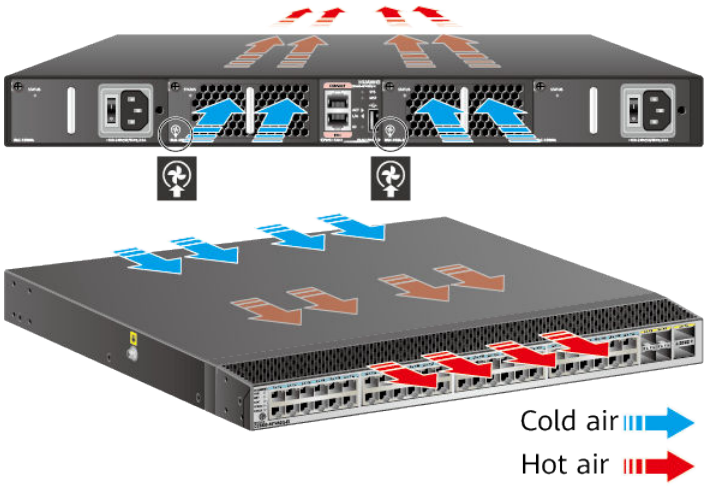
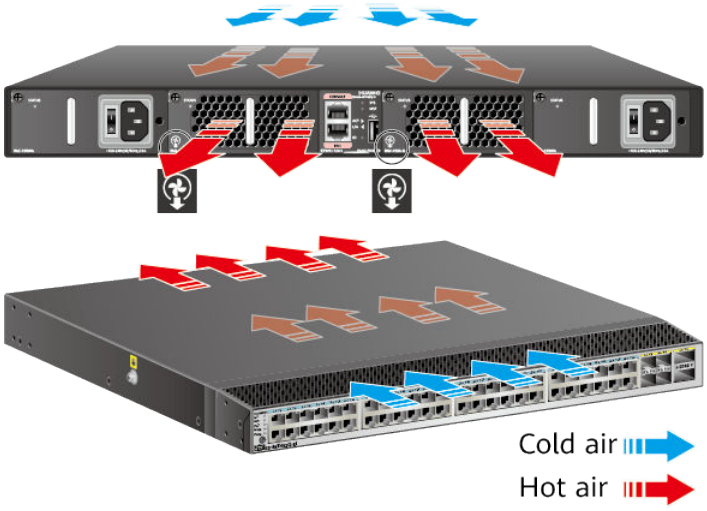


Figure 4-167 Back-to-front airflow (air flows in from the port side)



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Indicators

Figure 4-168 Indicators on the CE6870-48S6CQ-EI rear panel

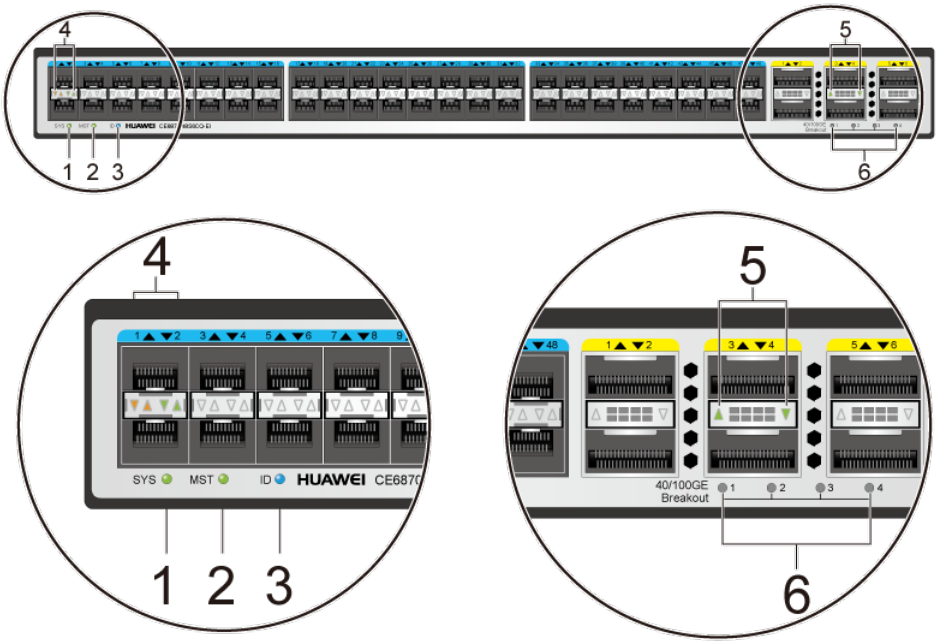
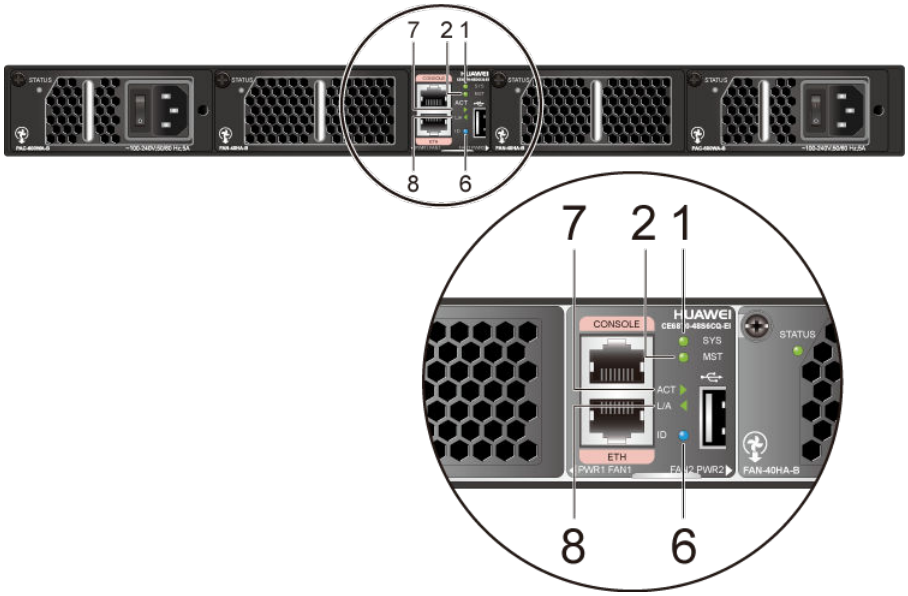


Figure 4-169 Indicators on the CE6870-48S6CQ-EI front panel



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Table 4-152 Indicator description

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running normally.
			Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.
2	MST	Stack master/slave indicator **NOTE** In V200R003C00 and later versions, you can use the **dfs-master led enable** command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Off	The switch is not a stack master.
				Steady on	The switch is a stack master or standalone switch.

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No.	Indicator	Name	Color	Status	Description
3	ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
				Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
4	-	Service port indicator (10GE optical port) **NOTE** Each 10GE/25GE optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green). Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
				Steady on	A link is established on the port.
			Yellow	Off	The port is not sending or receiving data.
				Blinking	The port is sending or receiving data.
5	-	Service port indicator (40GE/100GE optical port)	Green	Off	No link has been established on the port or the port has been shut down.
				Steady on	A link is established on the port.
				Blinking	The port is sending or receiving data.

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No.	Indicator	Name	Color	Status	Description
		NOTE Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	When a 40GE/100GE port is configured as four 10GE ports or four 25GE ports, this indicator shows the status of a 10GE/25GE port. The sequence number of the indicated port is identified by indicators 40G/100G Breakout 1/2/3/4 on the lower right corner of the panel. **NOTE** Each 40GE/100GE port has a single-color indicator, which shows the status of the 40GE/100GE port by default.		
6	-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE port) **NOTE** Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Off	40GE/100GE ports are working in 40GE or 100GE mode and not split into four 10GE ports or four 25GE ports.

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No.	Indicator	Name	Color	Status	Description
				Steady on	At least one 40GE/100GE port has been split into four 10GE ports or four 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators identify the sequence numbers of the 10GE/25GE ports. A port indicator (5 in **Figure 4-168**) shows the status of a 10GE/25GE port converted from the corresponding 40GE/100GE port: • When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 2 is on, each port indicator shows the status of the second 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.
7	ACT	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment has been completed.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment has failed.
8	L/A	ETH management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.

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No.	Indicator	Name	Color	Status	Description
				Blinking	The port is sending or receiving data.

Ports

10GE SFP+ Ethernet Optical Port

A 10GE SFP+ Ethernet optical port supports auto-sensing to 1 Gbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. **Table 4-153** describes the attributes of a 10GE SFP+ Ethernet optical port.

Table 4-153 Attributes of a 10GE SFP+ Ethernet optical port

Attribute	Description
Connector type	LC
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex

NOTE

When a 1GE electrical module is installed on a 10GE optical interface, the 10GE optical interface supports the rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s, but does not support half-duplex.

40GE/100GE QSFP28 Optical Port

Table 4-154 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 4-154 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

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Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 4-155** describes the attributes of the console port.

Table 4-155 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-156** describes the attributes of the ETH management port (RJ45).

Table 4-156 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-157 lists technical specifications of the CE6870-48S6CQ-EI switch.

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Table 4-157 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm (17.4 in. x 16.5 in. x 1.72 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 8.6 kg (18.96 lb)
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 55 dBA • Front-to-back airflow: < 51 dBA
Power specifications	Power source type	AC/DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	Not supported
	Rated input current	• 350 W DC power (PDC-350WA series): 11 A (-48 V DC to -60 V DC) • 600 W AC power (PAC-600WA series): 9 A (100 V AC to 240 V AC)
Chassis power consumption	Maximum power consumption	333 W

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Item		Description
	Typical power consumption	159 W (100% throughput, SFP+ cables on 48 ports and QSFP28 cables on 6 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	1135 BTU/hr
	Typical heat dissipation	543 BTU/hr (100% throughput, SFP+ cables on 48 ports and QSFP28 cables on 6 ports, double power modules)
Surge protection		Power module: • AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules
Reliability and availability	Power module backup	1+1 backup
	Fan module backup	1+1 backup not supported **NOTE** A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	54.28 years
	Mean time to repair (MTTR)	1.66 hours
	Availability	0.99999651887
Technical specifications	Processor	1.5 GHz, quad-core
	DRAM Memory	4 GB

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Item		Description
	NOR Flash	16 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE optical ports and 100GE optical ports
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-158 provides the ordering information.

Table 4-158 Ordering information

Part Number	Part Model	Part Description
02350SRU	CE6870-48S6CQ-EI	CE6870-48S6CQ-EI Switch (48-Port 10GE SFP+, 6-Port 100GE QSFP28, Without Fan and Power Module)
02350RXD	CE6870-EI-F-B0A	CE6870-48S6CQ-EI Switch (48-Port 10GE SFP+, 6-Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350RXE	CE6870-EI-B-B0A	CE6870-48S6CQ-EI Switch (48-Port 10GE SFP+, 6-Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.4.14 CE6870-48T6CQ-EI

Version Mapping

Table 4-159 lists the mappings between the CE6870-48T6CQ-EI and software versions.

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Table 4-159 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE6800	CE6870	CE6870-48T6CQ-EI	CE6870EI	V200R002C50 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

CAUTION

The DDR of the CE6870-48T6CQ-EI has been optimized and upgraded since March 1, 2020. The switches that are manufactured on and after March 1, 2020 can only run V200R019C10SPC800 after the corresponding patch is load, as well as running V200R020C10 or later versions. (The year and month when the switches are manufactured can be determined based on the SN.)

The product SN consists of 20 characters.

- The thirteenth character indicates the year of production. A indicates 2010, B indicates 2011, C indicates 2012, D indicates 2013, E indicates 2014, F indicates 2015, G indicates 2016, H indicates 2017, J indicates 2018, K indicates 2019, and L indicates 2020. The letter I is not used. The letters increase with the year.
- The fourteenth character indicates the month of production. 1 indicates January, 2 indicates February, ..., 9 indicates September, A indicates October, B indicates November, and C indicates December.

For example, if the SN of a switch is 2102XXXXXX10L3000XXX, the switch is manufactured in March 2020.

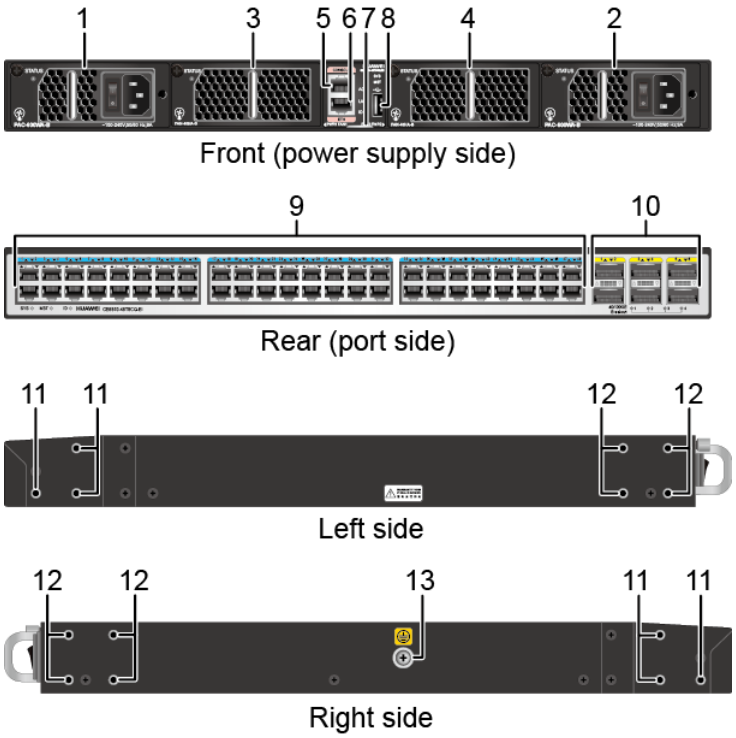
Appearance and Structure

NOTE

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Figure 4-170 CE6870-48T6CQ-EI



1	Power supply slot 1 Applicable power modules: • **5.5 600 W AC Power Module (PAC-600WA)** • **600 W DC Power Module (PDC600S12)**	2	Power supply slot 2 Applicable power modules: • **5.5 600 W AC Power Module (PAC-600WA)** • **600 W DC Power Module (PDC600S12)**
3	Fan slot 1 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**	4	Fan slot 2 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**
5	Console port	6	ETH management port (RJ45)
7	Barcode label **NOTE** This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port

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9	Forty-eight 10GBASE-T Ethernet electrical ports	10	Six 40GE/100GE QSFP28 Ethernet optical ports **NOTE** A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. Applicable modules and cables: • **9.9 40GE QSFP+ Optical Modules** • **9.10 100GE QSFP28 Optical Modules** (QSFP28-100G-4WDM-40 not supported) • **8.9.4 QSFP+ to QSFP+ AOC cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable** • **8.9.5 QSFP+ to 4*SFP+ AOC cable** • **8.8.5 QSFP+ to 4*SFP+ High-Speed Cable** • **8.9.6 QSFP28 to QSFP28 AOC Cable** • **8.8.6 QSFP28 to QSFP28 High-Speed Cable** • **8.8.7 QSFP28 to 4*SFP28 High-Speed Cable**
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

  – When both power modules are working properly, they equally provide power for a chassis.

  – When one power module fails, the other one provides all power required for a chassis.

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All power modules are hot swappable.

- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-171** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

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Figure 4-171 Front-to-back airflow (air flows out from the port side)

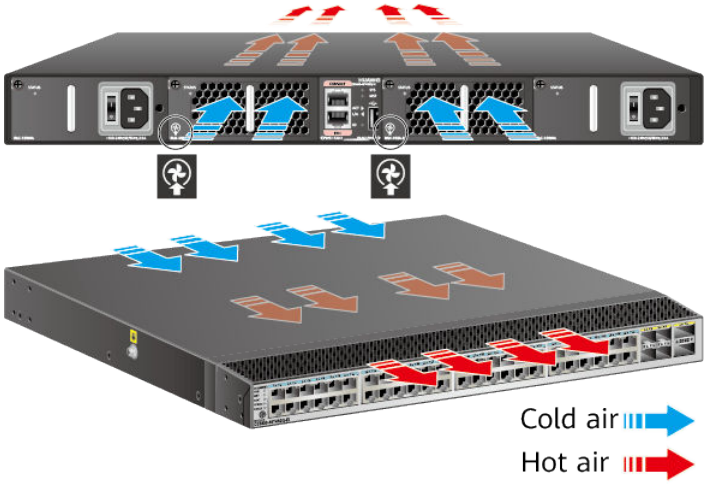
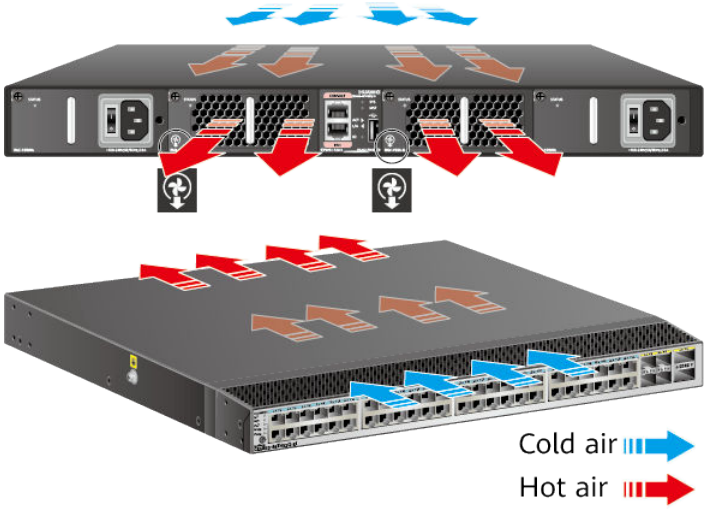


Figure 4-172 Back-to-front airflow (air flows in from the port side)



Indicators

The downlink service port indicators of the CE6870-48T6CQ-EI are 10GE electrical port indicators, and other indicators are the same as those on the CE6870-48S6CQ-EI. The **CE6870-48S6CQ-EI** is used as an example here to describe the indicators.

Ports

10GBASE-T Ethernet Electrical Port

A 10GBASE-T Ethernet electrical port receives and sends service traffic at the rate of 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port can work at the rate of 100 Mbit/s or 1000 Mbit/s through auto-sensing. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. **Table 4-160** shows the attributes of a 10GBASE-T Ethernet electrical port.

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Table 4-160 Attributes of a 10GBASE-T Ethernet electrical port

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3an and IEEE802.3az
Applicable cable	Straight-through cable and crossover cable
Working mode	Supported rate: 100/1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

40GE/100GE QSFP28 Optical Port

Table 4-161 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 4-161 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. Table 4-162 describes the attributes of the console port.

Table 4-162 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

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ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-163** describes the attributes of the ETH management port (RJ45).

Table 4-163 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-164 lists technical specifications of the CE6870-48T6CQ-EI switch.

Table 4-164 Technical specifications

Item	Description
Physical specifications	• Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm (17.4 in. x 16.5 in. x 1.72 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 9.8 kg (21.61 lb)

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Item		Description
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 56 dBA • Front-to-back airflow: < 57 dBA
Power specifications	Power source type	AC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	Not supported
	Rated input current	• 600 W AC power (PAC-600WA series): 9 A (100 V AC to 240 V AC) • 600 W DC power (PDC600S12 series): 20A (-48 V DC to -60 V DC)
Chassis power consumption	Maximum power consumption	405 W
	Typical power consumption	280 W (100% throughput, 3 m Ethernet cables on 48 ports and QSFP+ cables on 6 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	1382 BTU/hr

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Item		Description
	Typical heat dissipation	955 BTU/hr (100% throughput, 3 m Ethernet cables on 48 ports and QSFP+ cables on 6 ports, double power modules)
Surge protection		Power module: • AC: 6 kV in common mode and 6 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules
Reliability	Power module backup	1+1 backup
	Fan module backup	1+1 backup not supported **NOTE** A CE6800 chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	44.44 years
	Mean time to repair (MTTR)	1.76 hours
	Availability	0.99999548998
Technical specifications	Processor	1.5 GHz, eight-core
	DRAM Memory	4 GB
	NOR Flash	32 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE electrical ports and 100GE optical ports

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Item	Description
Certification	• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-165 provides the ordering information.

Table 4-165 Ordering information

Part Number	Part Model	Part Description
02351GCL	CE6870-48T6CQ-EI	CE6870-48T6CQ-EI Switch (48-Port 10G RJ45, 6-Port 100GE QSFP28, Without Fan and Power Module)
02351GCJ	CE6870-EI-F-B00	CE6870-48T6CQ-EI Switch (48-Port 10G RJ45, 6-Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02351GCK	CE6870-EI-B-B00	CE6870-48T6CQ-EI Switch (48-Port 10G RJ45, 6-Port 100GE QSFP28, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.4.15 CE6870-48S6CQ-EI-A

4.4.15.1 CE6870-48S6CQ-EI-A (02354VSH)

Overview

Table 4-166 Basic information about the CE6870-48S6CQ-EI-A

Item	Details
Description	CE6870-48S6CQ-EI-A Switch(48-Port 10GE SFP+,6-Port 100GE QSFP28,Without Fan and Power Module)
Part Number	02354VSH

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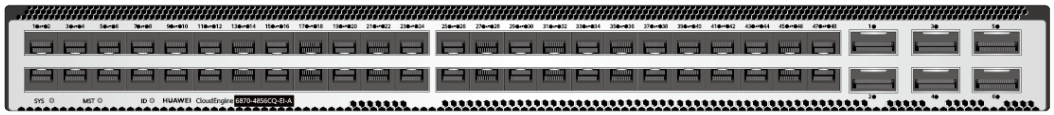
Item	Details
Model	CE6870-48S6CQ-EI-A
First supported version	V200R022C00
Other part numbers	02354VSJ (CE6870-48S6CQ-EI-A Switch(48-Port 10GE SFP+,6-Port 100GE QSFP28,2*AC Power Module, 4*FAN Box,Port-side Intake)) 02354VSK (CE6870-48S6CQ-EI-A Switch(48-Port 10GE SFP+,6-Port 100GE QSFP28,2*AC Power Module, 4*FAN Box,Port-side Exhaust))
Short Name	CE6870EI

Appearance

Figure 4-173 Appearance of the CE6870-48S6CQ-EI-A



Front (power supply side)



Rear (port side)

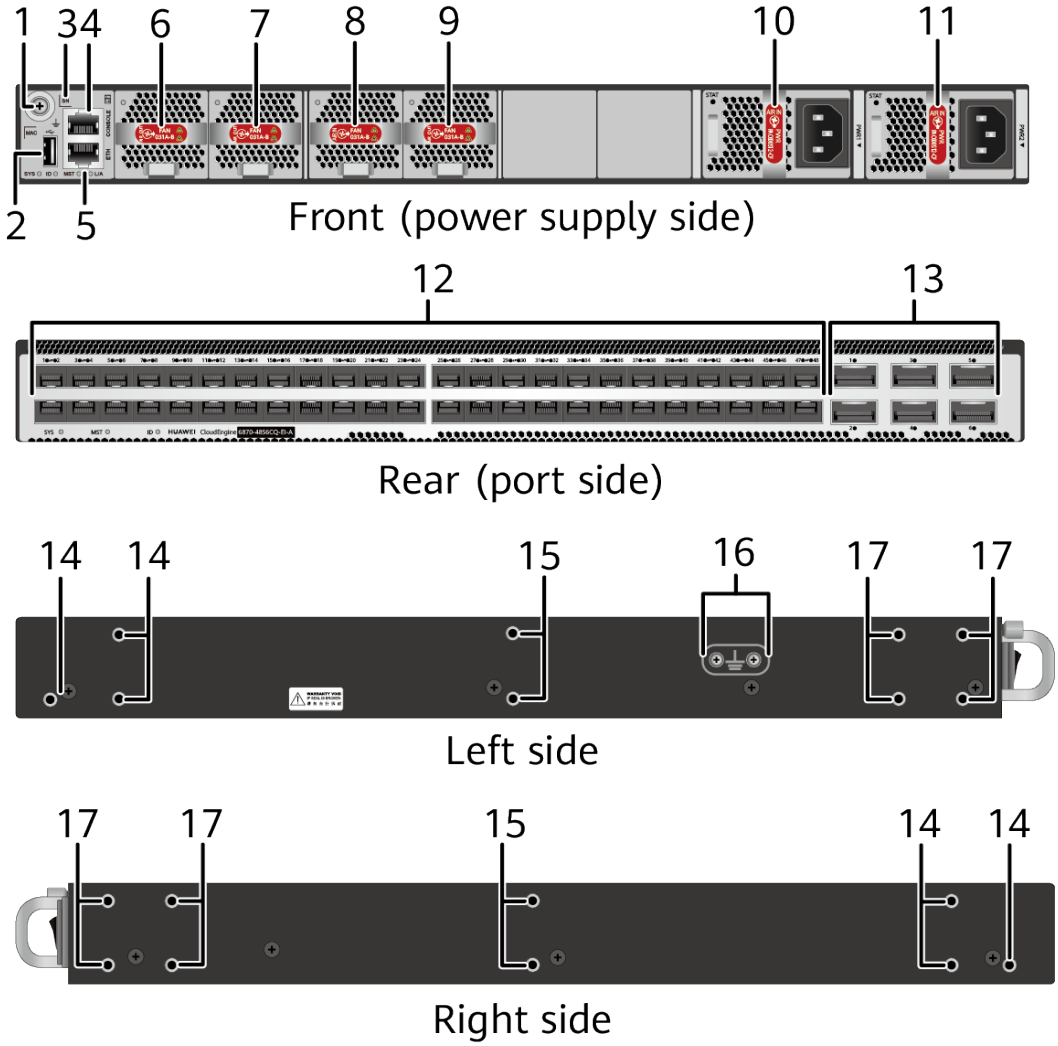
NOTE

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Components

Figure 4-174 Components of the CE6870-48S6CQ-EI-A



1	Ground screw	2	USB port
3	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.	4	Console port
5	ETH management port (RJ45)	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-167 Slots on the CE6870-48S6CQ-EI-A

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	The switch has two power supply slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The switch supports dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	The switch has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-175 Indicators on the CE6870-48S6CQ-EI-A 1

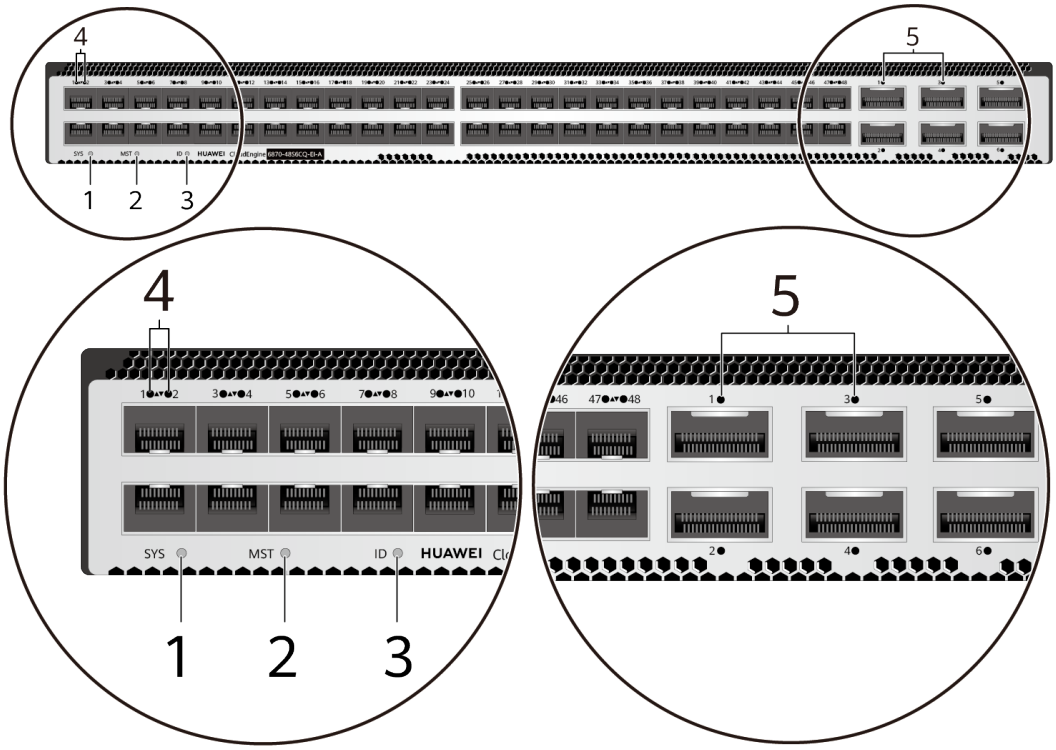
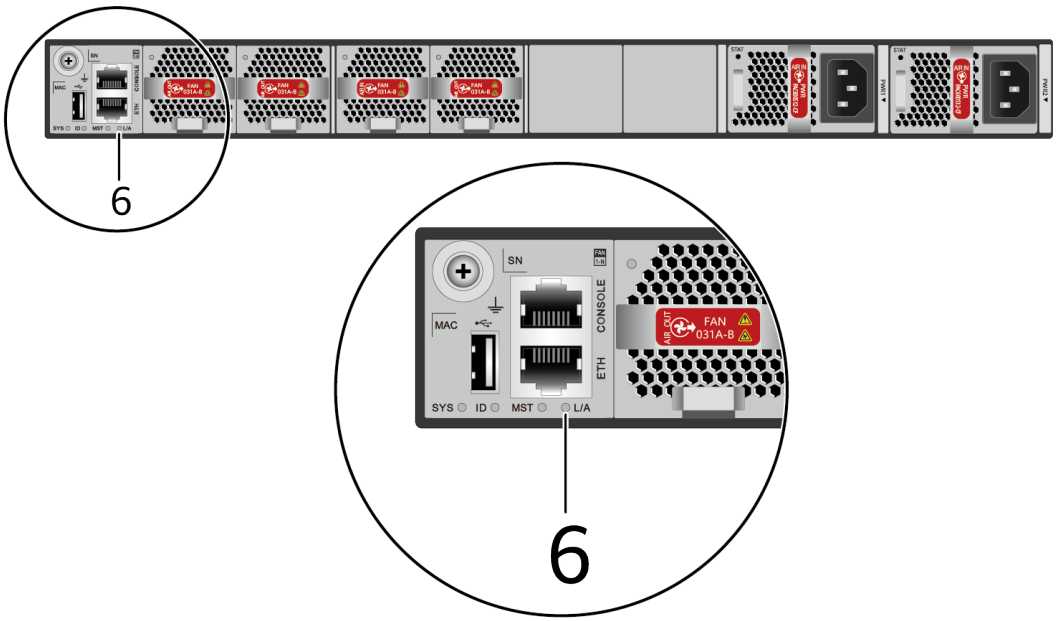


Figure 4-176 Indicators on the CE6870-48S6CQ-EI-A 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	-	-	-	-

Table 4-168 Indicators on the CE6870-48S6CQ-EI-A

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Ports

Table 4-169 Ports on the CE6870-48S6CQ-EI-A

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. 10GE optical ports do not support OSXD22N00 and LE2MXSC80FF0 optical modules. 2. GE copper modules cannot be installed in ports directly above or below another GE copper module. 3. When a 1GE electrical module is installed on a 10GE optical port, the port can work at the rate of 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s, but cannot work in half-duplex mode.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **NOTE** Each 100G QSFP28 port can be configured to work at 40 Gbit/s, and can be split into four 10GE or 25GE ports. After split, they cannot be used as GE ports. Auto-negotiation of 25GE copper cables is not supported.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-177 Front-to-back airflow for port-side exhaust

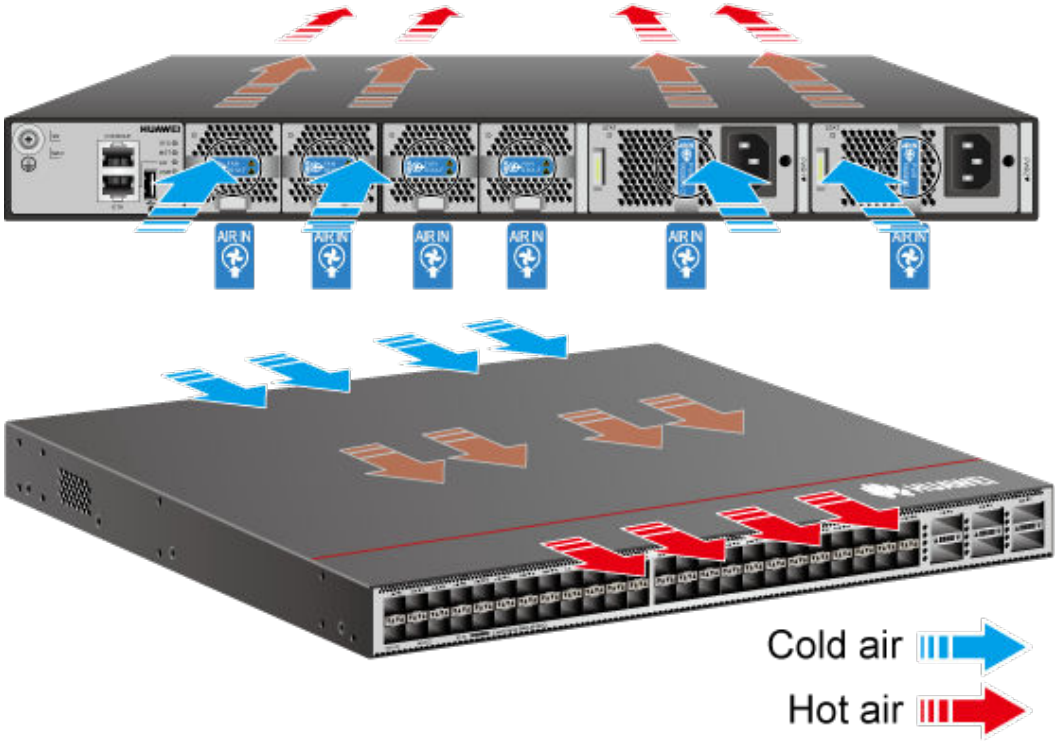
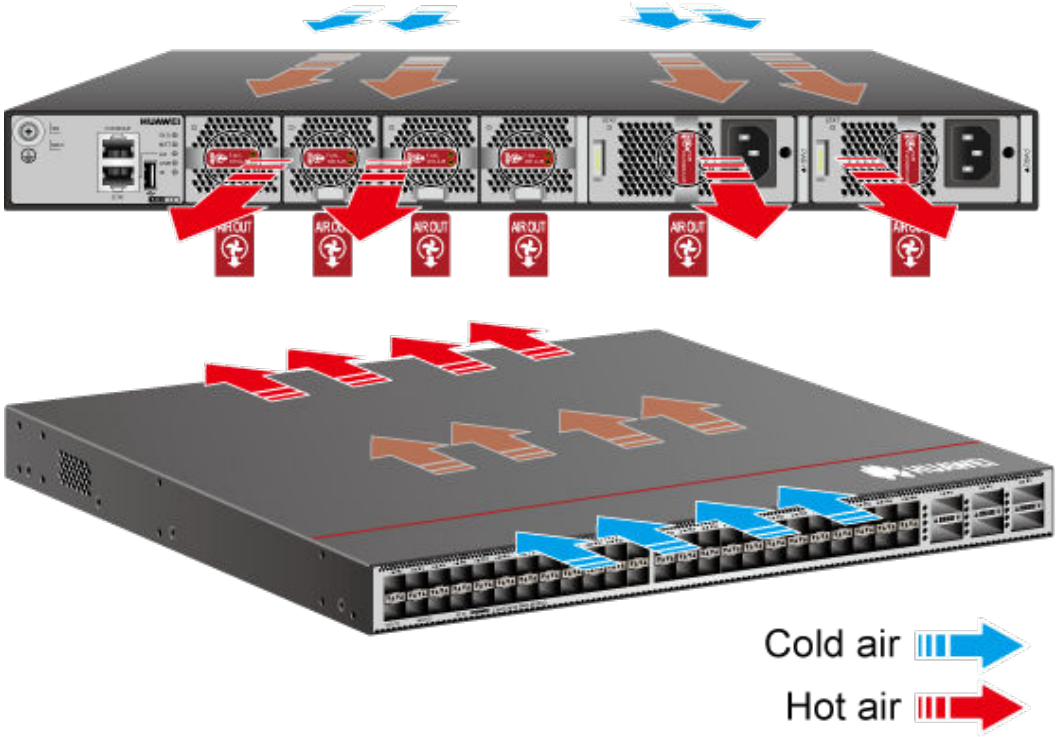


Figure 4-178 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-170 Technical specifications of the CE6870-48S6CQ-EI-A

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.2kg (13.67 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.3 kg (18.30 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	9.1 kg (20.06 lb)
Weight with packaging (full configuration) [kg (lb)]	11.1 kg (24.5 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE SFP+ (Such ports can be used as GE SFP optical/electrical ports, and do not support 10GE LRM/80 km linear optical modules. GE copper modules cannot be installed in ports directly above or below another GE copper module.)
Uplink Service interface	6*100GE QSFP28 (Each 100G QSFP28 port can be configured to work at 40 Gbit/s, and can be split into four 10GE or 25GE ports. After split, they cannot be used as GE ports. Auto-negotiation of 25GE copper cables is not supported.)
Service port supporting the stack function	10GE and 100GE optical ports
RTC	Supported
Typical power consumption [W]	142 W (100% traffic load, copper cables on half of ports, normal temperature, dual AC power modules) 159 W (100% traffic load, short-distance optical modules on half of ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	485 BTU/hour (100% traffic load, copper cables on half of ports, normal temperature, dual AC power modules) 543 BTU/hour (100% traffic load, short-distance optical modules on half of ports, normal temperature, dual AC power modules)
Static power consumption [W]	117 W
Static heat dissipation [BTU/hour]	399 BTU/hour

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Item	Specification
Maximum power consumption [W]	209 W (100% traffic load, short-distance optical modules on all ports, normal temperature, dual AC power modules) 323 W (100% traffic load, long-distance optical modules on all ports, 40°C, dual AC power modules)
Maximum heat dissipation	713 BTU/hour (100% traffic load, short-distance optical modules on all ports, normal temperature, dual AC power modules) 1102 BTU/hour (100% traffic load, long-distance optical modules on all ports, 40°C, dual AC power modules)
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1200 W DC power module: –48 V DC to –60 V DC; +48 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1200 W DC power module: -38.4 V DC to -72 V DC; +40 V DC to +57 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1200 W DC power module: 38 A (-48 V DC to -60 V DC); 38 A (+48 V DC)
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1200 W DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards

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Item	Specification
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front airflow, depending on the selected fan modules and power modules
Availability	0.9999936017
MTBF [year]	34.43 years
MTTR [hour]	1.93 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Port-side air intake: < 50.8 dB(A) Port-side air exhaust: < 50.5 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	Port-side air intake: < 66.8 dB(A) Port-side air exhaust: < 66.7 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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4.4.16 CE6881-48S6CQ

4.4.16.1 CE6881-48S6CQ (02352QGF)

Overview

Table 4-171 Basic information about the CE6881-48S6CQ

Item	Details
Description	CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02352QGF
Model	CE6881-48S6CQ
First supported version	V200R005C20
Other part numbers	02352QGG (CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02352QGH (CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)) 02353KCY (CE6881-48S6CQ discount bundle A (2*CE6881-48S6CQ-B switch [48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake])) 02353KDR (CE6881-48S6CQ discount bundle A (2*CE6881-48S6CQ-F switch [48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust]))
Short Name	CE6881

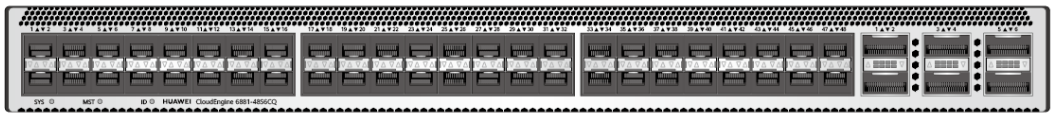
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Appearance

Figure 4-179 Appearance of the CE6881-48S6CQ



Front (power supply side)



Rear (port side)

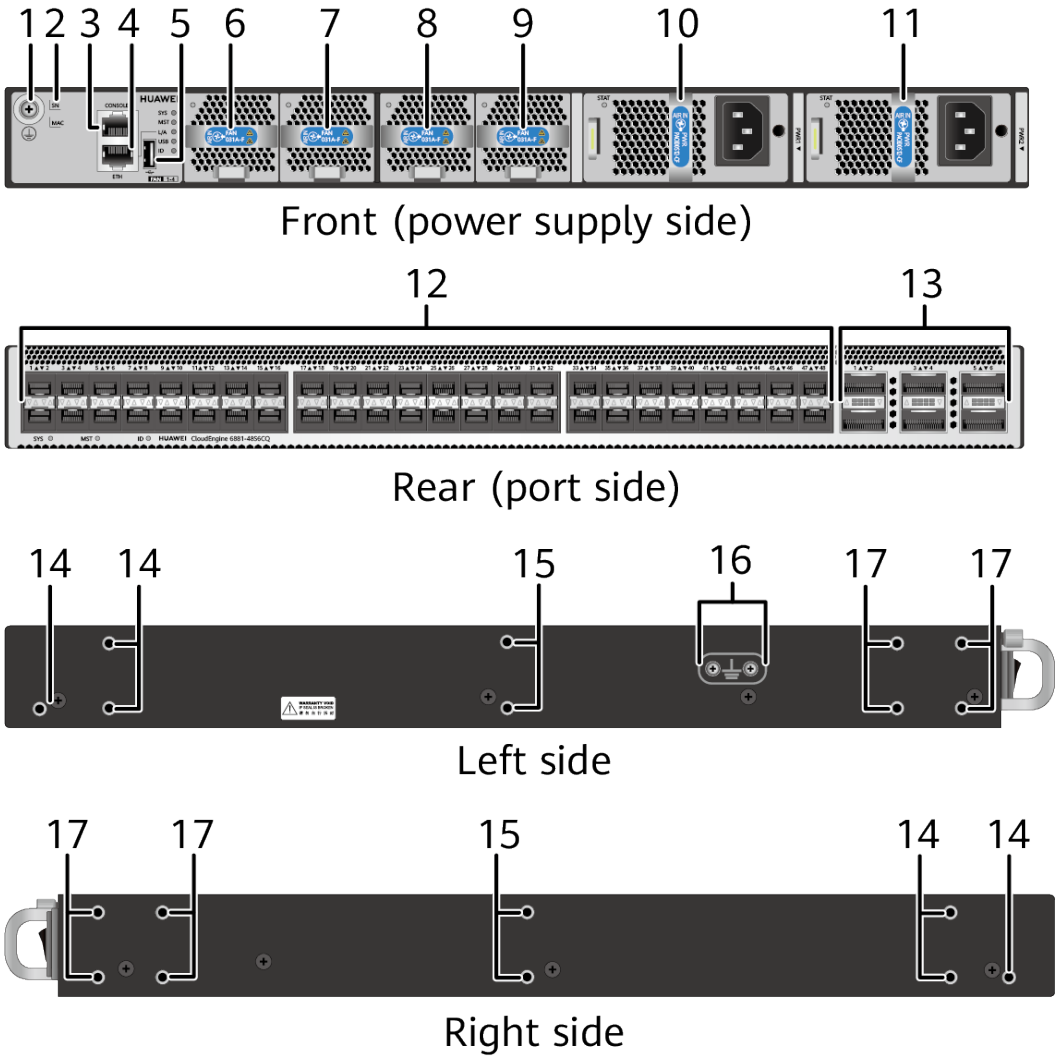
NOTE

The figures in this document are for reference only.

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Components

Figure 4-180 Components of the CE6881-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-172 Slots on the CE6881-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Supply Slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-181 Indicators on the CE6881-48S6CQ 1

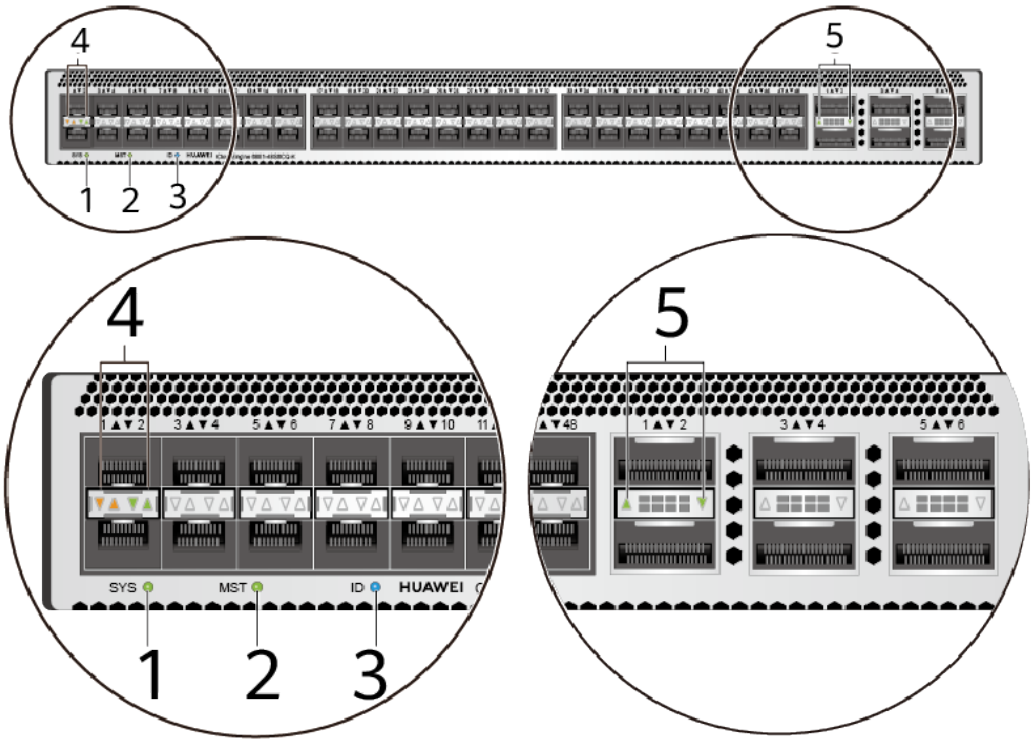
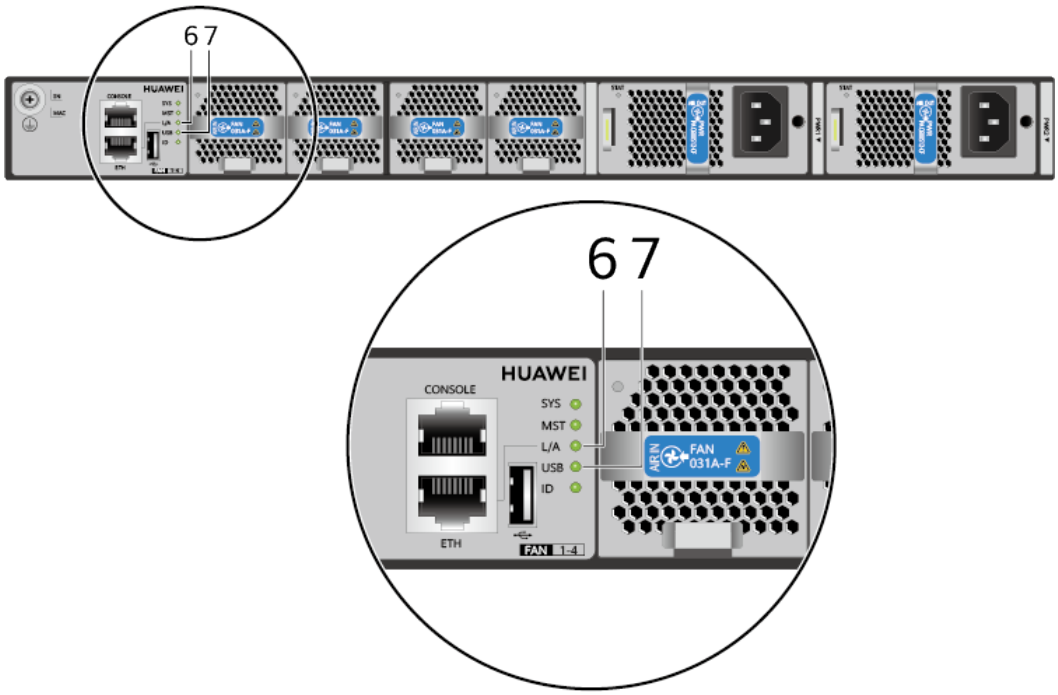


Figure 4-182 Indicators on the CE6881-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-173 Indicators on the CE6881-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power supply is abnormal. • A fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The switch is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. • After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The switch is a stack master or standalone switch.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	No link is established on the port or the port is disabled.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	No link is established on the port or the port is disabled.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-174 Ports on the CE6881-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher network cables must be used.

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Port	Connector Type	Description	Available Components
USB port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB flash drive that complies with USB 2.0

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-183** (using a CE6866-48S8CQ-P chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-184** (using a CE6866-48S8CQ-P chassis as an example).

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Figure 4-183 Front-to-back airflow for port-side exhaust

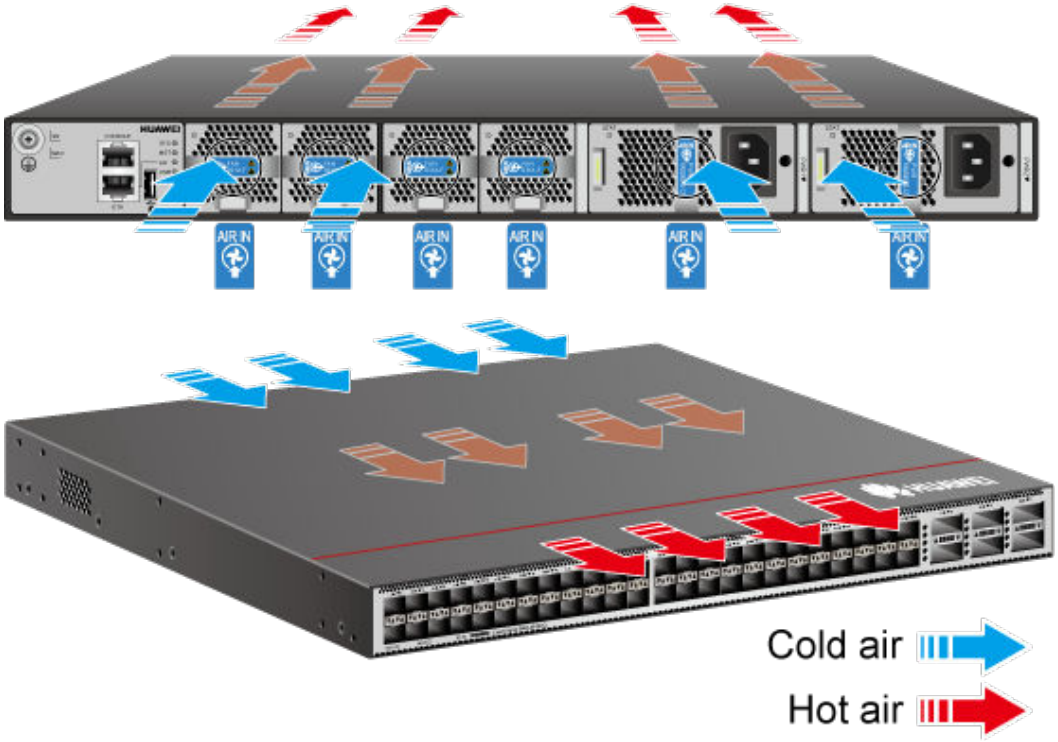
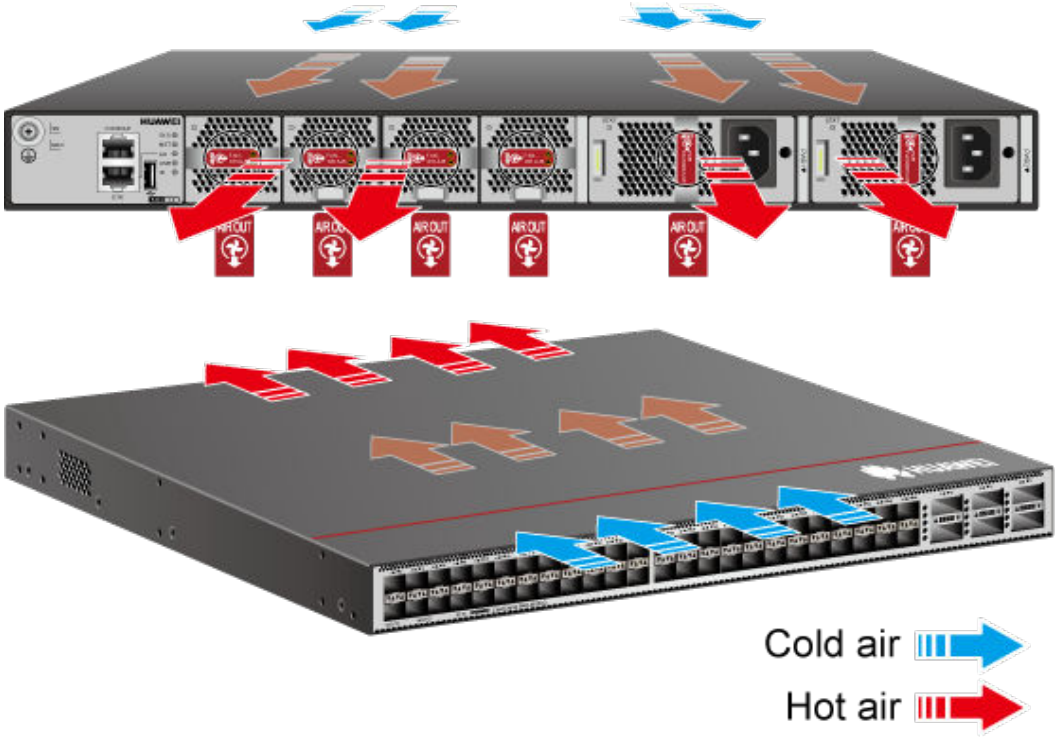


Figure 4-184 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-175 Technical specifications of the CE6881-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.16.2 CE6881-48S6CQ (02352QGF-001)

Overview

Table 4-176 Basic information about the CE6881-48S6CQ

Item	Details
Description	CE6881-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02352QGF-001
Model	CE6881-48S6CQ
First supported version	V200R020C10
Other part numbers	02352QGG-001 (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake) 02352QGH-001 (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)
Supported Patch Version	If the switch runs V200R019C10SPC800, install the patch of V200R019SPH007 or a later version.
Short Name	CE6881

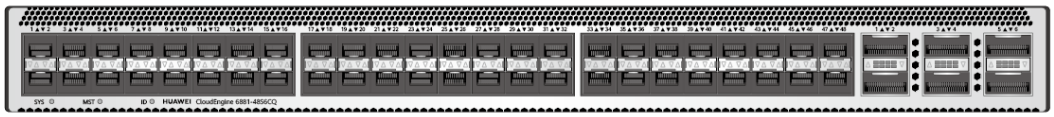
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Appearance

Figure 4-185 Appearance of the CE6881-48S6CQ



Front (power supply side)



Rear (port side)

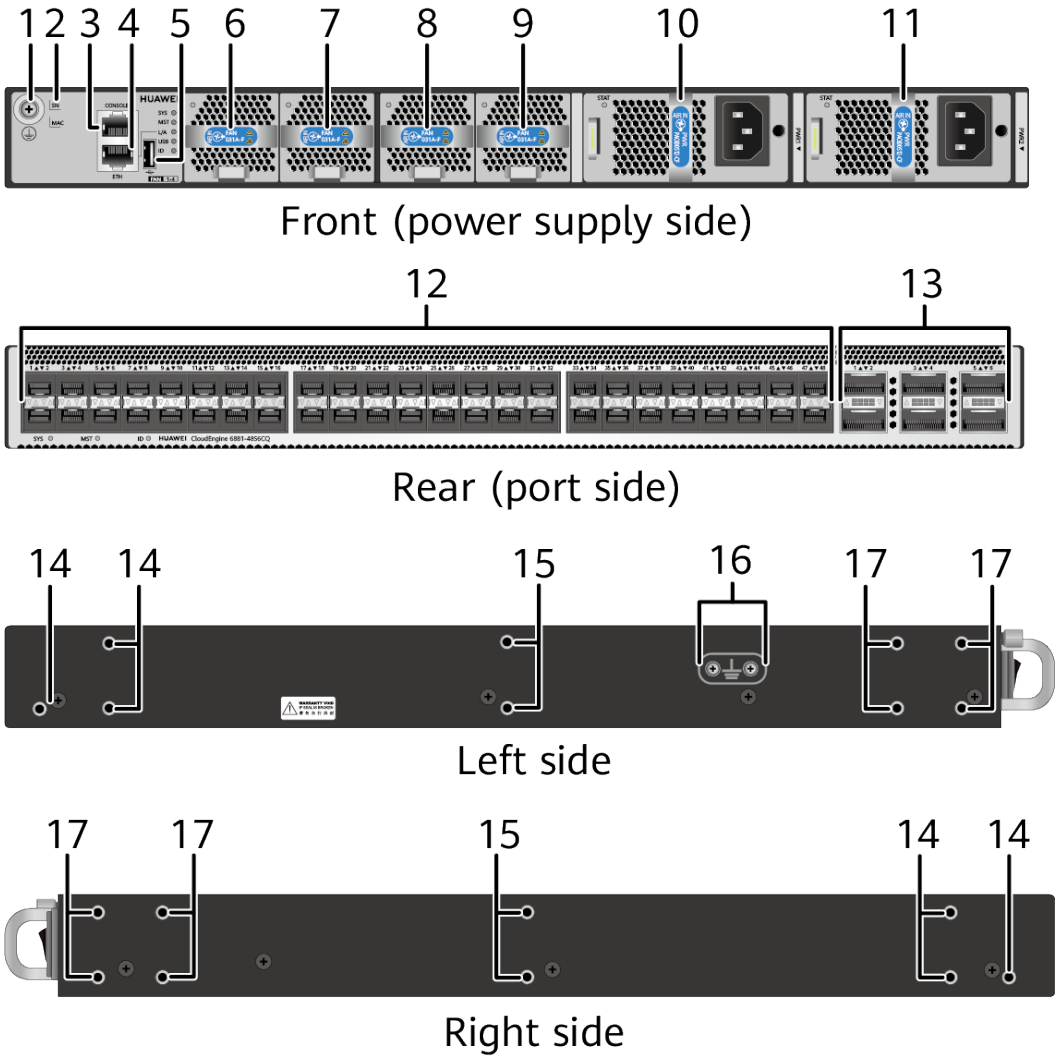
NOTE

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Components

Figure 4-186 Components of the CE6881-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-177 Slots on the CE6881-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power Supply Slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan Slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-187 Indicators on the CE6881-48S6CQ 1

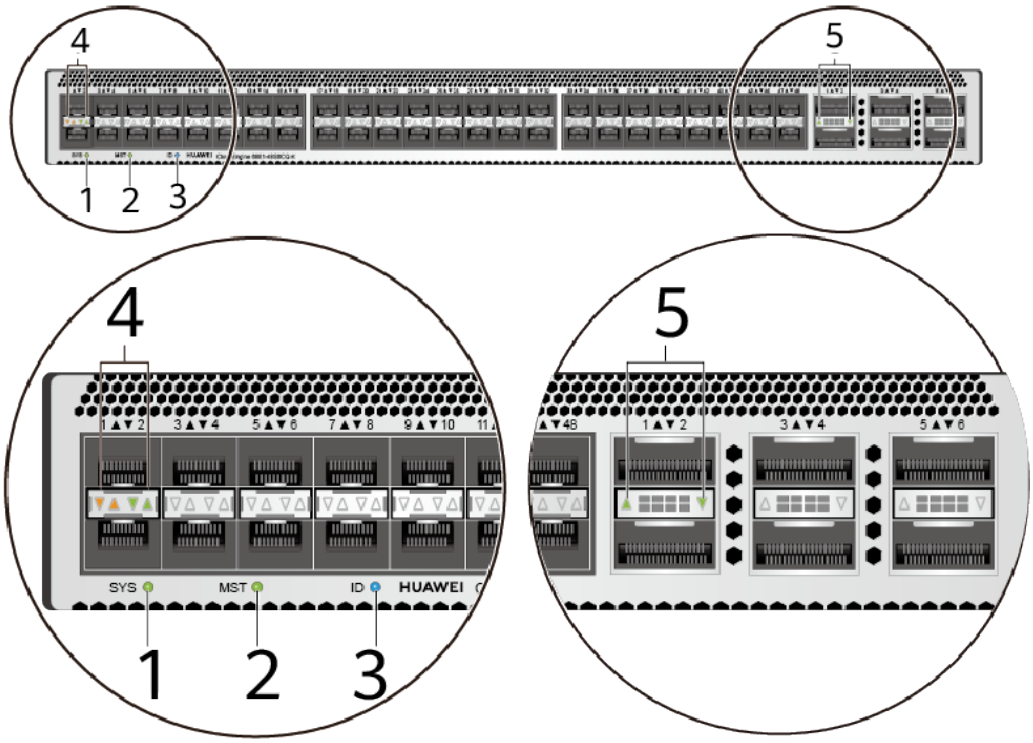
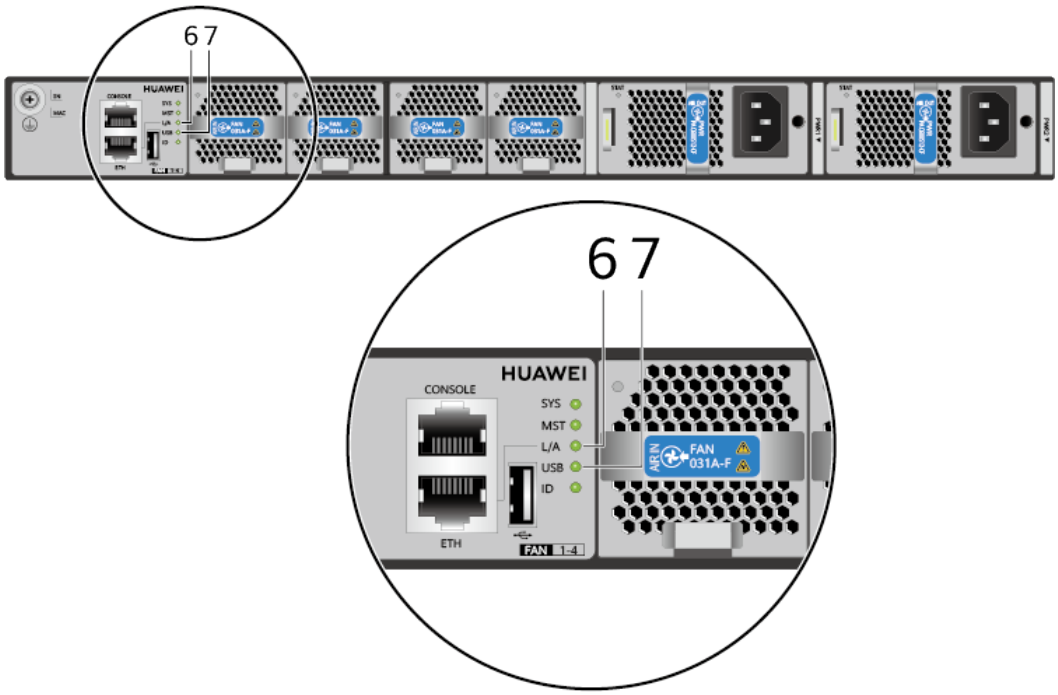


Figure 4-188 Indicators on the CE6881-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-178 Indicators on the CE6881-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power supply is abnormal. • A fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The switch is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE • In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. • After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The switch is a stack master or standalone switch.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	No link is established on the port or the port is disabled.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	No link is established on the port or the port is disabled.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-179 Ports on the CE6881-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 Optical Port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category 5 or higher network cables must be used.

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Port	Connector Type	Description	Available Components
USB port	USB	A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.	USB flash drive that complies with USB 2.0

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-189** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-190** (using a CE6863 chassis as an example).

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Figure 4-189 Front-to-back airflow for port-side exhaust

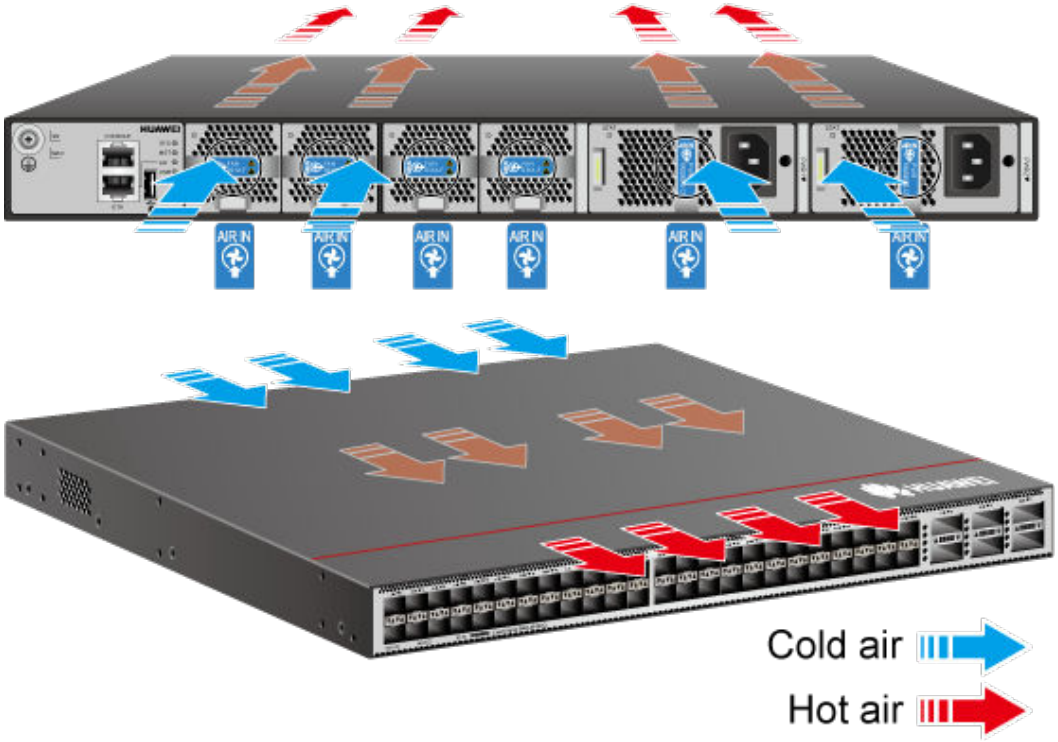
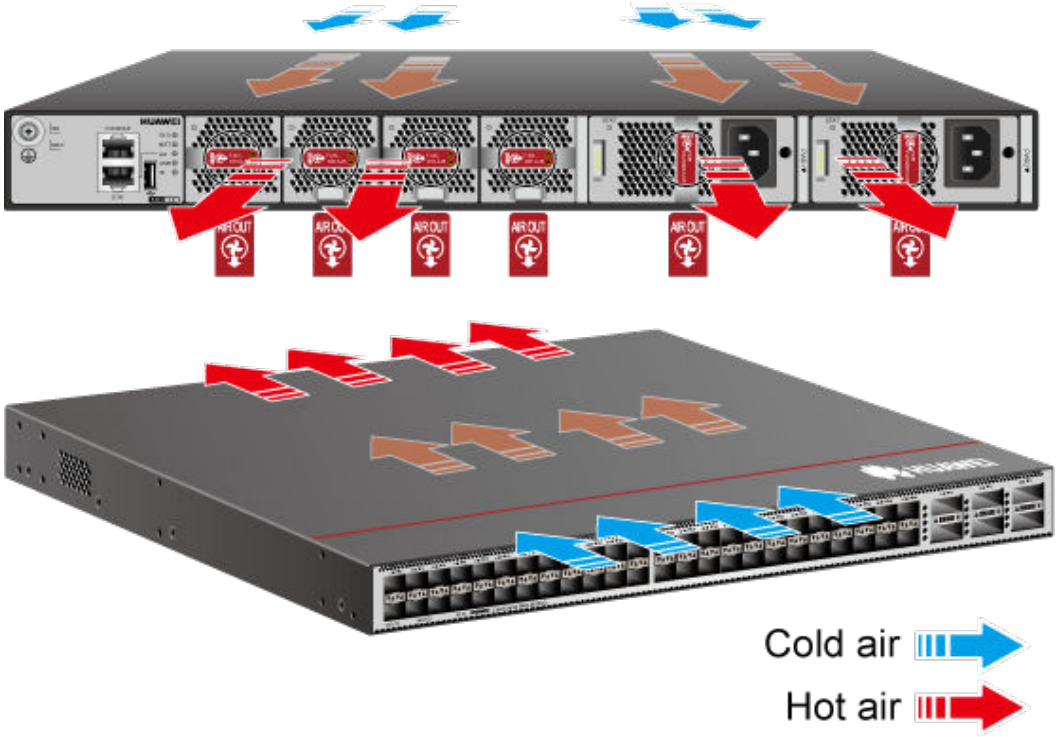


Figure 4-190 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-180 Technical specifications of the CE6881-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, double power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, double power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.16.3 CE6881-48S6CQ (02352QGF-003)

Overview

Table 4-181 Basic information about the CE6881-48S6CQ

Item	Details
Description	CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02352QGF-003
Model	CE6881-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02352QGG-003 (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake) 02352QGH-003 (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)
Supported Patch Version	If the switch runs V200R019C10SPC800, install the patch of V200R019SPH030 or a later version. If the switch runs V200R021C00SPC200, install the patch of V200R021HP0101 or a later version.
Short Name	CE6881

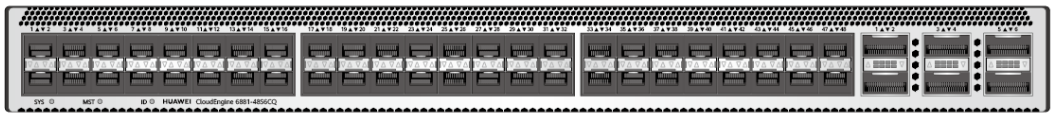
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Appearance

Figure 4-191 Appearance of the CE6881-48S6CQ



Front (power supply side)



Rear (port side)

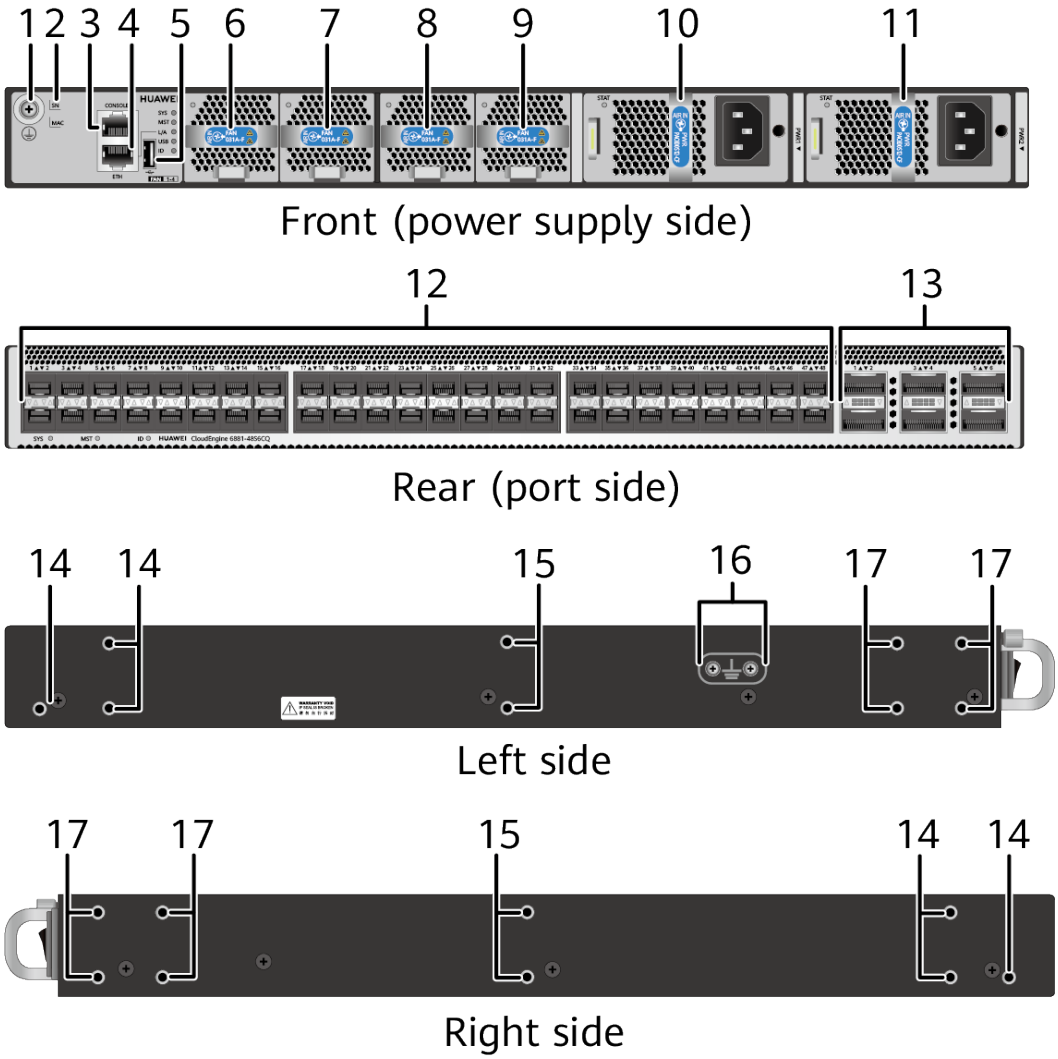
NOTE

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Components

Figure 4-192 Components of the CE6881-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-182 Slots on the CE6881-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-193 Indicators on the CE6881-48S6CQ 1

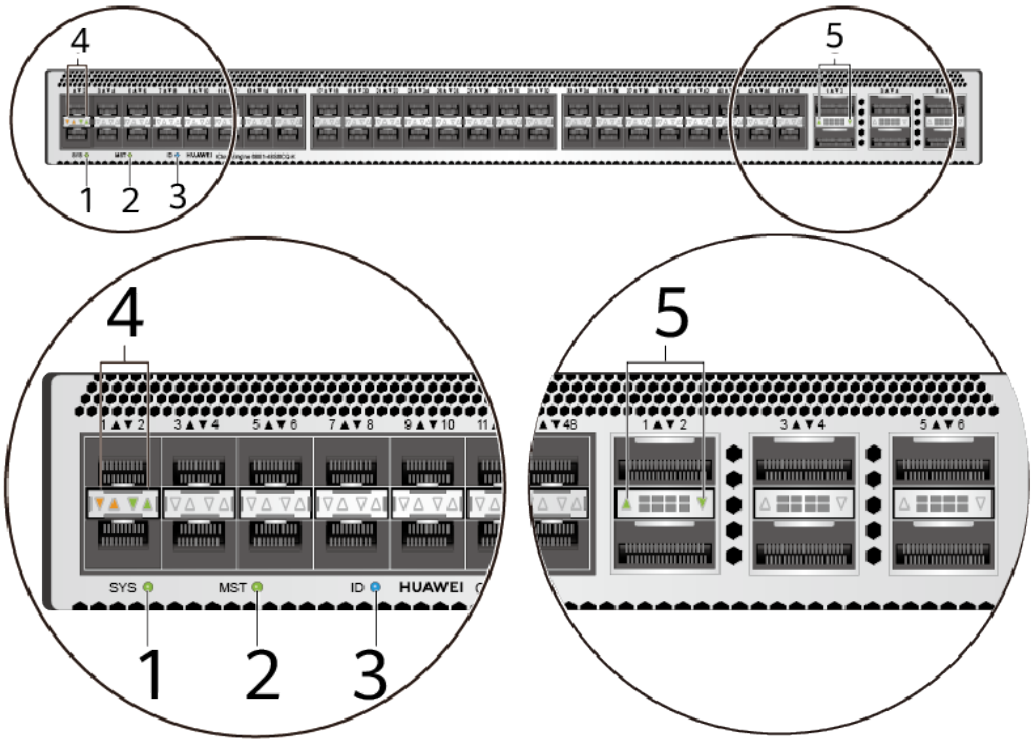
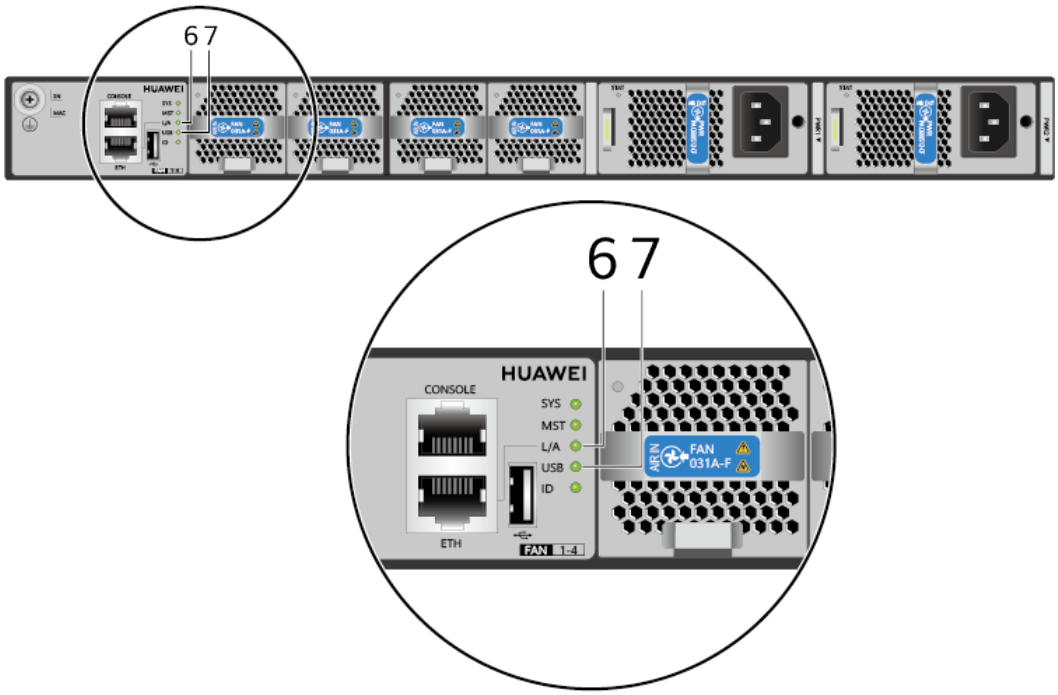


Figure 4-194 Indicators on the CE6881-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-183 Indicators on the CE6881-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-184 Ports on the CE6881-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-195** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-196** (using a CE6863 chassis as an example).

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Figure 4-195 Front-to-back airflow for port-side exhaust

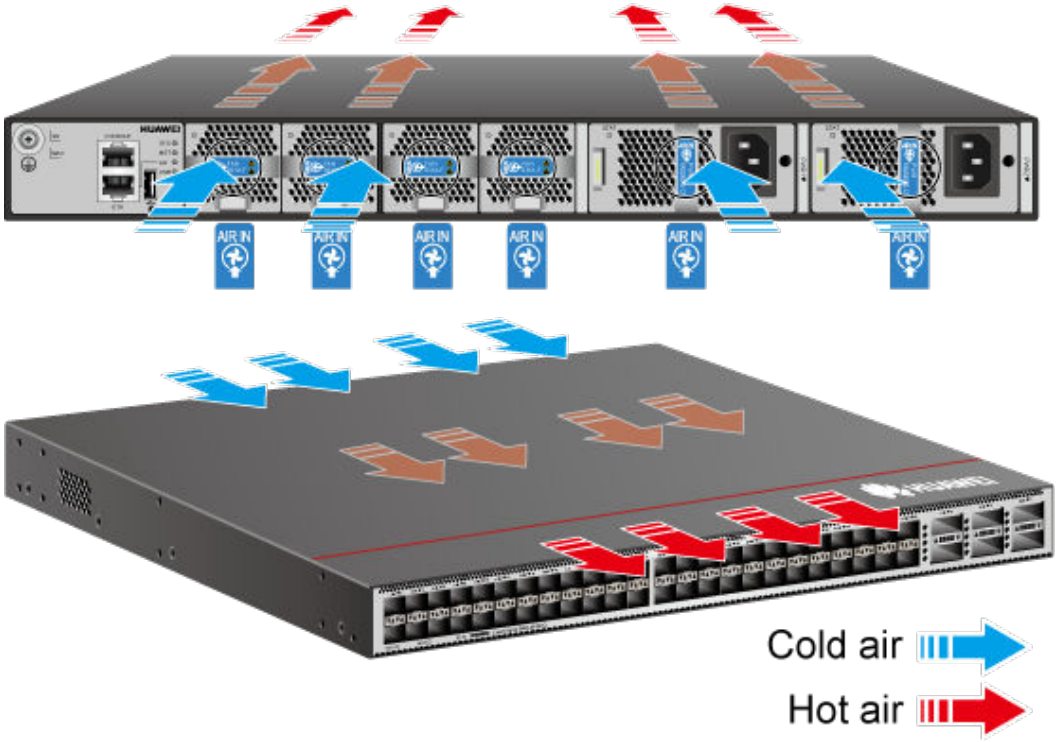
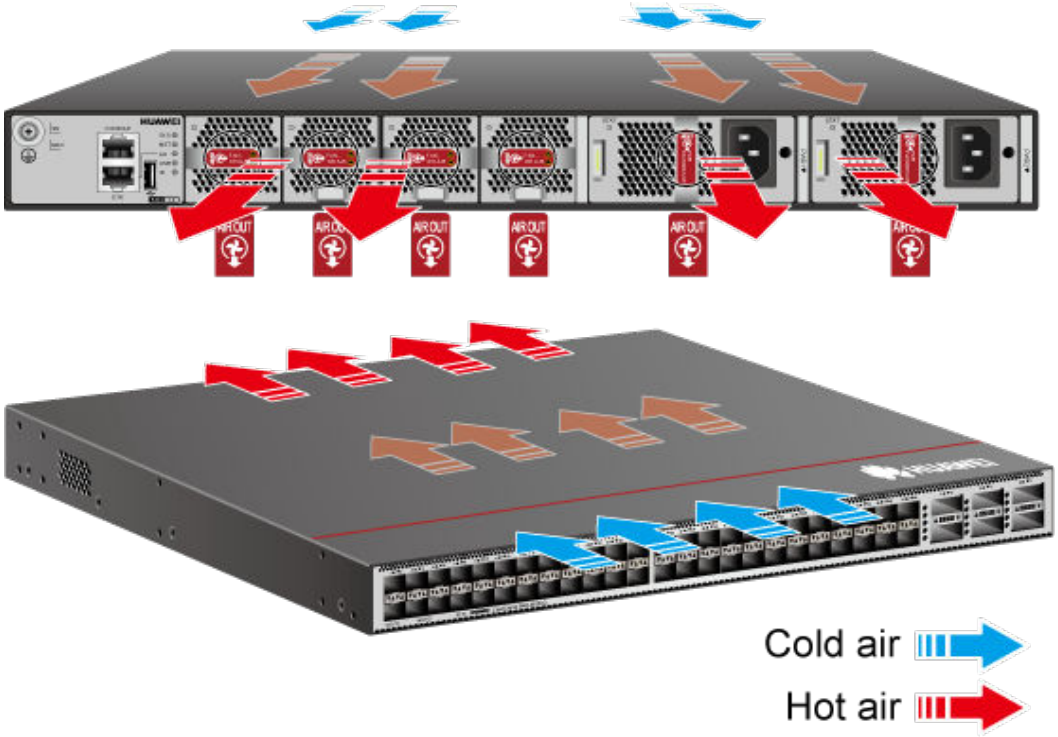


Figure 4-196 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-185 Technical specifications of the CE6881-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC

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Item	Specification
Console port	RJ45
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front airflow, depending on the selected fan modules and power modules
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40ºC to +70ºC (-40°F to +158°F)

4.4.16.4 CE6881-48S6CQ (02352QGF-004)

Overview

Table 4-186 Basic information about the CE6881-48S6CQ

Item	Details
Description	CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02352QGF-004
Model	CE6881-48S6CQ
First supported version	V200R021C10SPC600
Other part numbers	02352QGG-004 (CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02352QGH-004 (CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R019C10SPC800, install the patch of V200R019SPH050 or a later version. If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6881

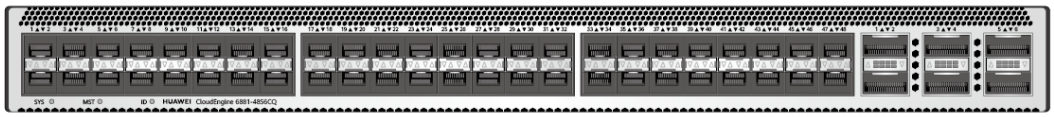
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Appearance

Figure 4-197 Appearance of the CE6881-48S6CQ



Front (power supply side)



Rear (port side)

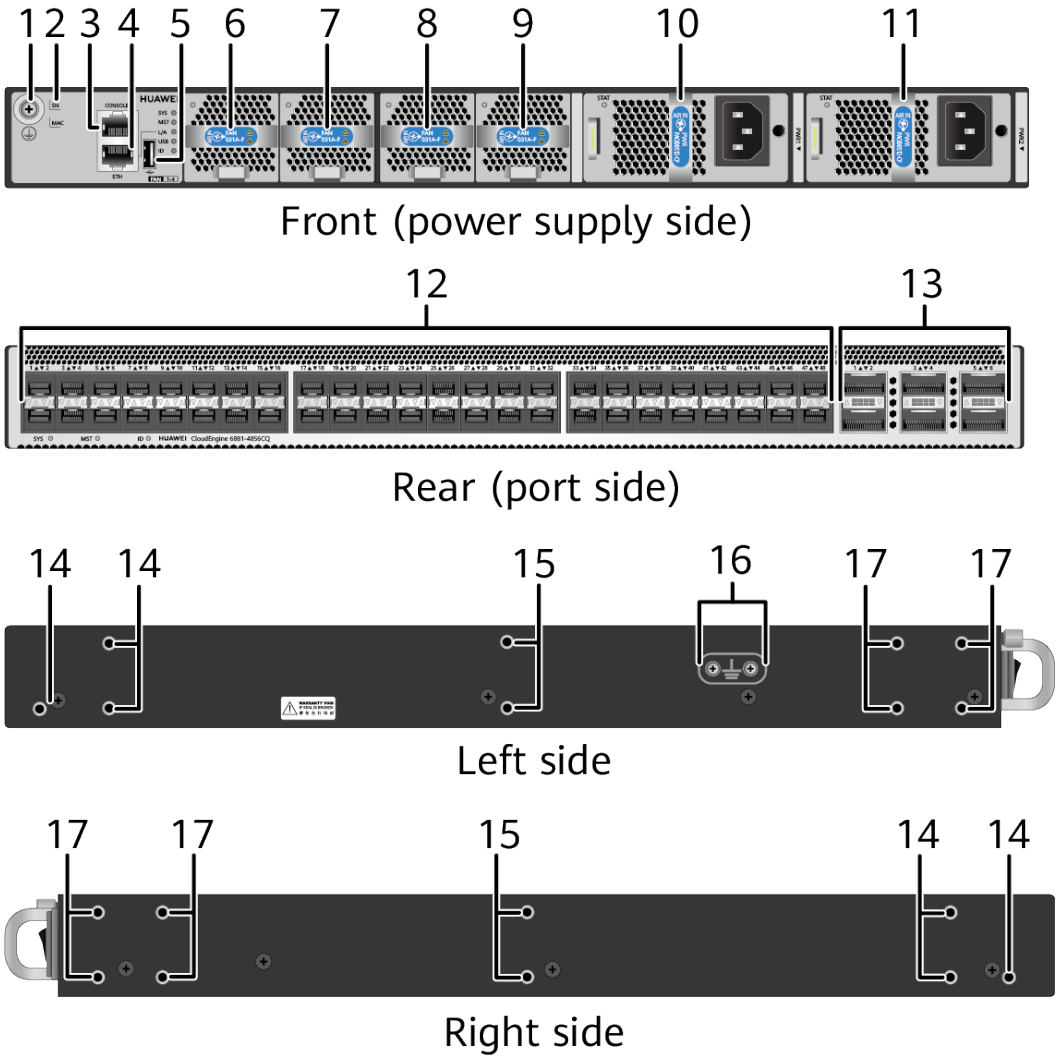
NOTE

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Components

Figure 4-198 Components of the CE6881-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-187 Slots on the CE6881-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-199 Indicators on the CE6881-48S6CQ 1

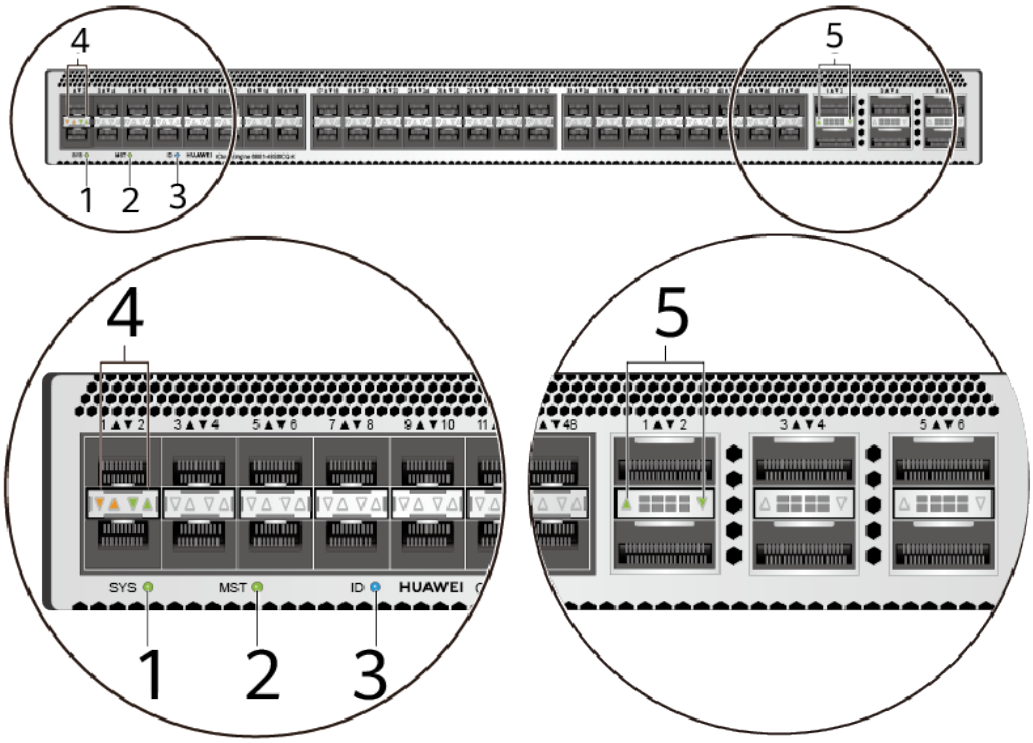
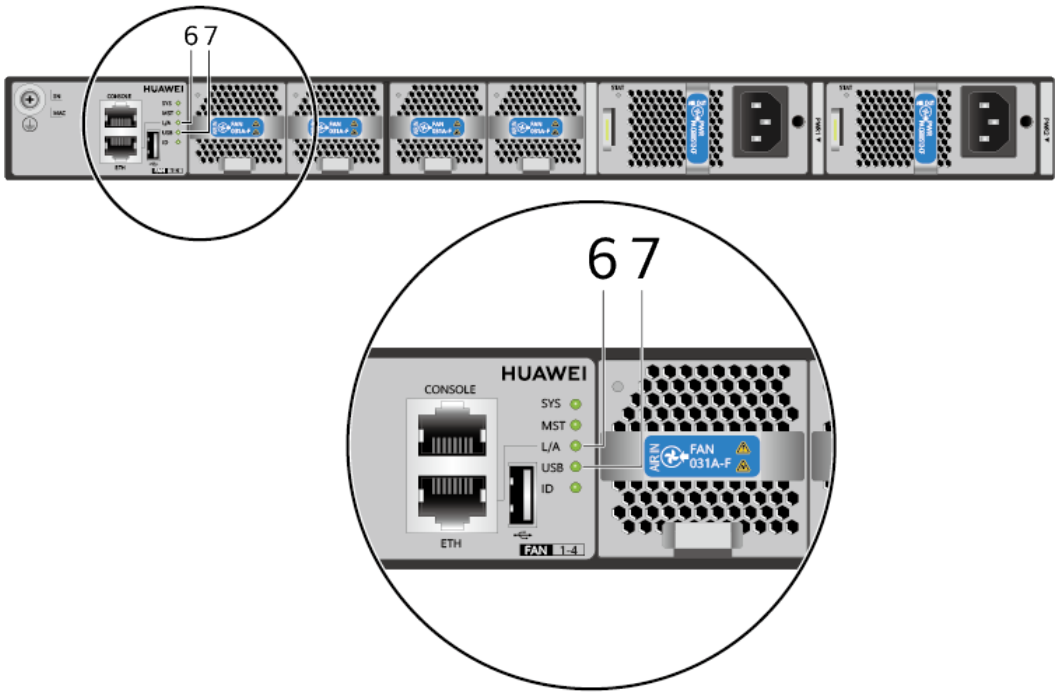


Figure 4-200 Indicators on the CE6881-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-188 Indicators on the CE6881-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-189 Ports on the CE6881-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-201 Front-to-back airflow for port-side exhaust

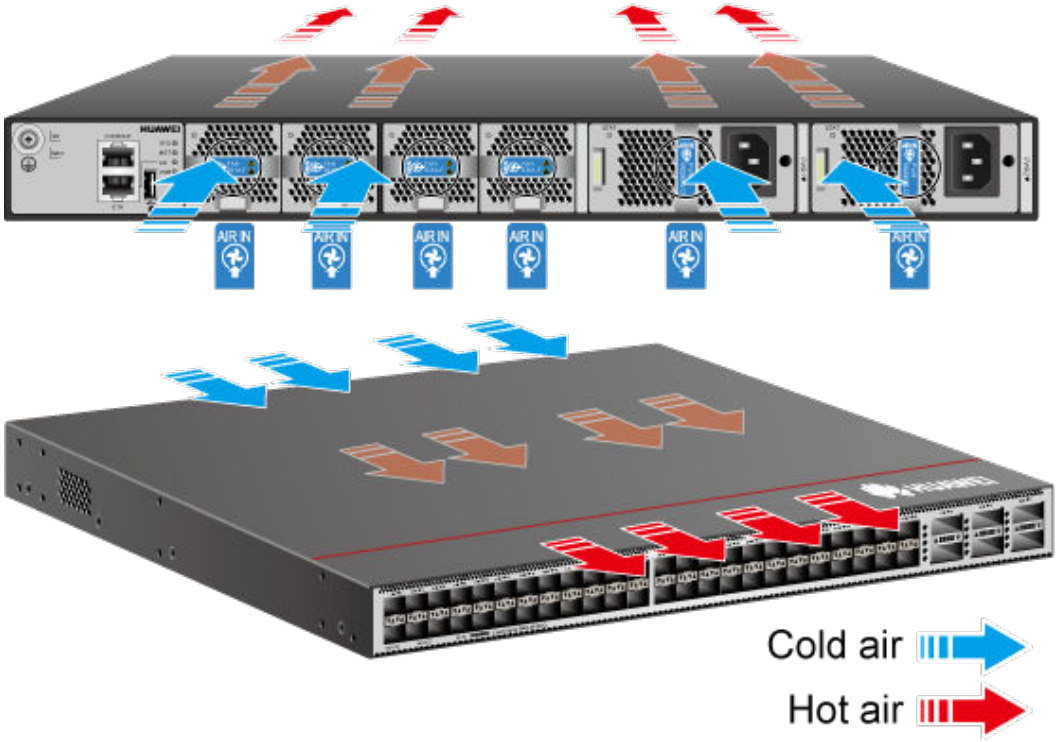
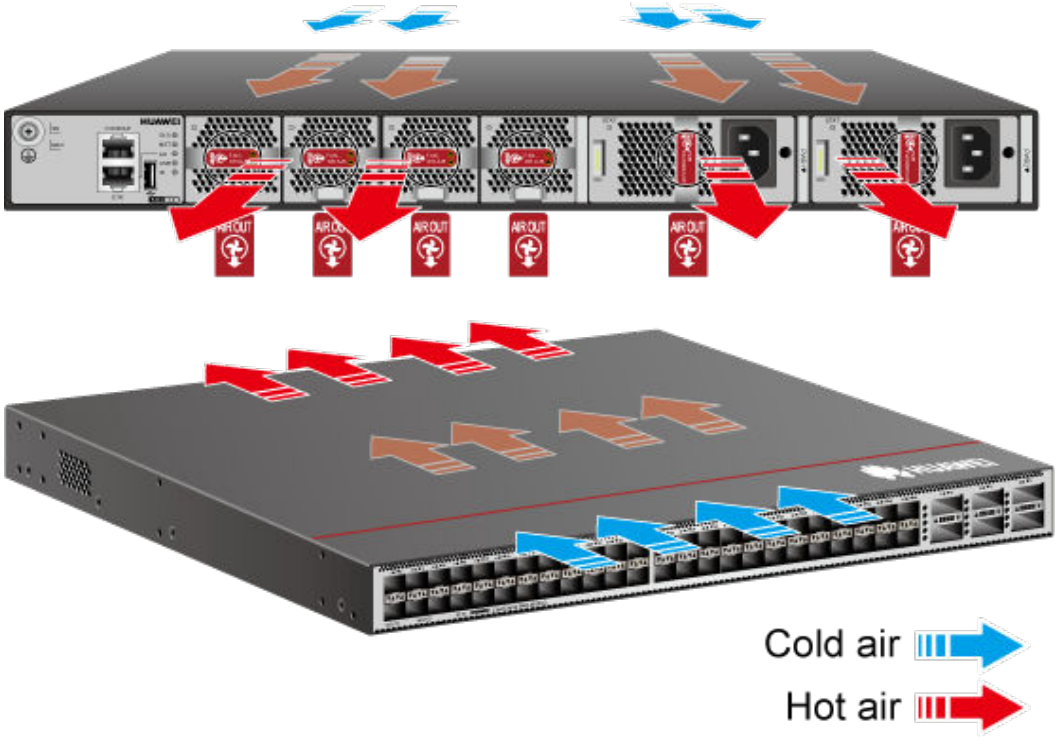


Figure 4-202 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-190 Technical specifications of the CE6881-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC

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Item	Specification
Console port	RJ45
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front airflow, depending on the selected fan modules and power modules
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.4.16.5 CE6881-48S6CQ (02352QGF-006)

Overview

Table 4-191 Basic information about the CE6881-48S6CQ

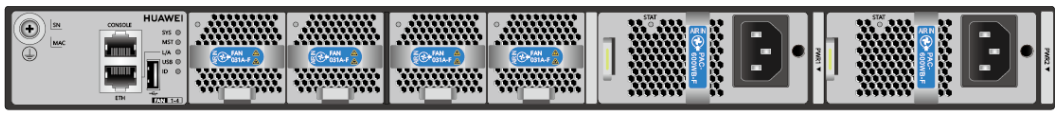
Item	Details
Description	CE6881-48S6CQ switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02352QGF-006
Model	CE6881-48S6CQ
First supported version	V200R021C10SPC600

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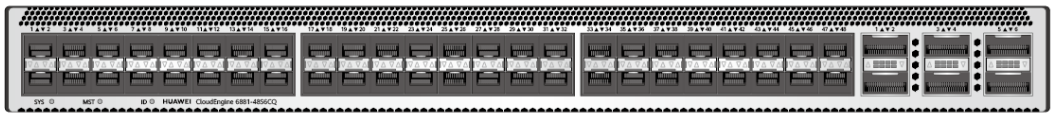
Item	Details
Other part numbers	02352QGG-006 (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake) 02352QGH-006 (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust) 02355MCT (CE6881-48S6CQ switch, 48*10G SFP+, 6*100G QSFP28, without fan and power modules) 02355MCU (CE6881-48S6CQ-B switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake) 02355MCV (CE6881-48S6CQ-F switch, 48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust)
Supported Patch Version	If the switch runs V200R019C10SPC800, install the patch of V200R019SPH050 or a later version. If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6881

Appearance

Figure 4-203 Appearance of the CE6881-48S6CQ



Front (power supply side)



Rear (port side)

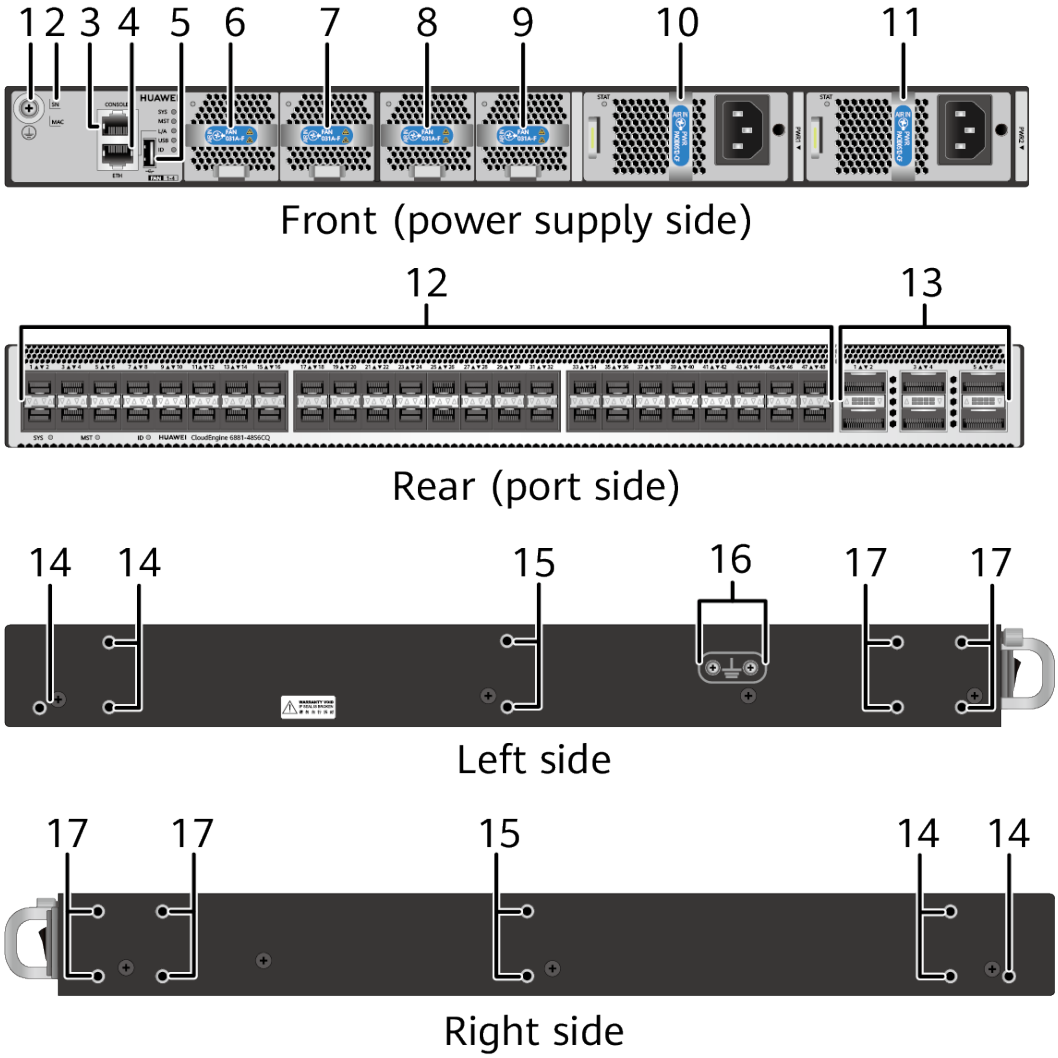
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NOTE

The figures in this document are for reference only.

Components

Figure 4-204 Components of the CE6881-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1

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7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1
11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-192 Slots on the CE6881-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-205 Indicators on the CE6881-48S6CQ 1

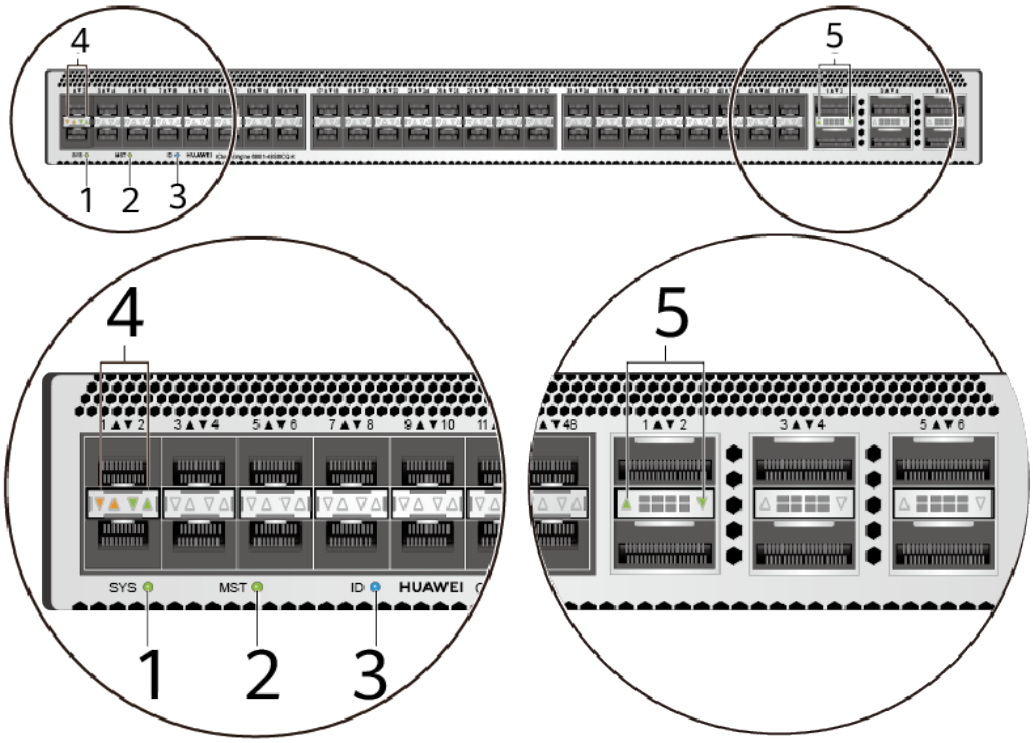
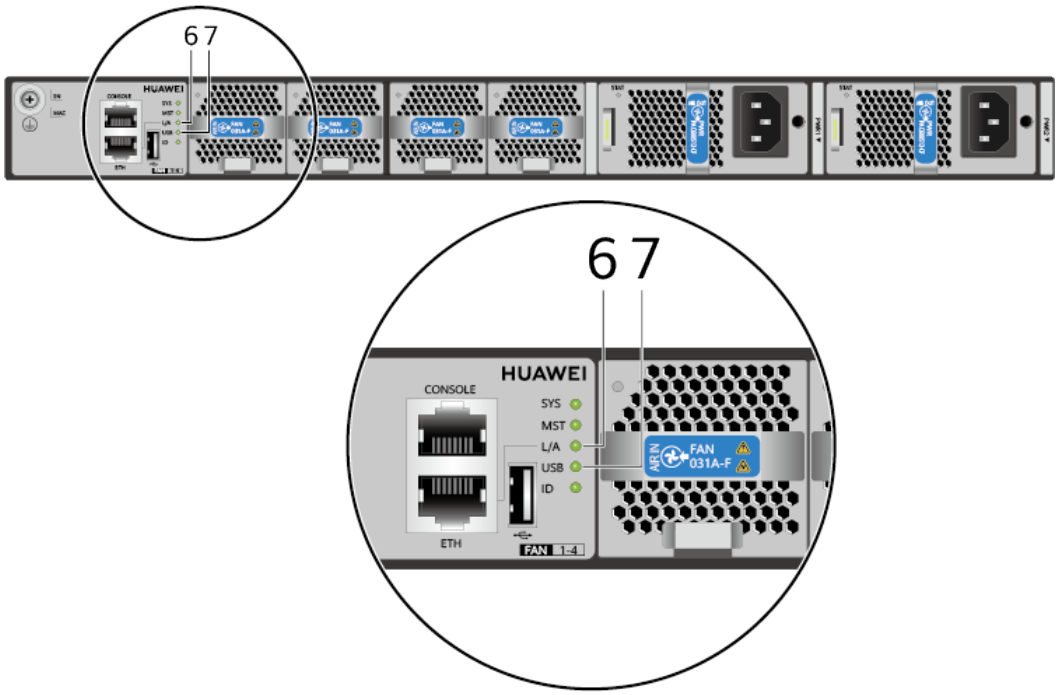


Figure 4-206 Indicators on the CE6881-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-193 Indicators on the CE6881-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-194 Ports on the CE6881-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-207 Front-to-back airflow for port-side exhaust

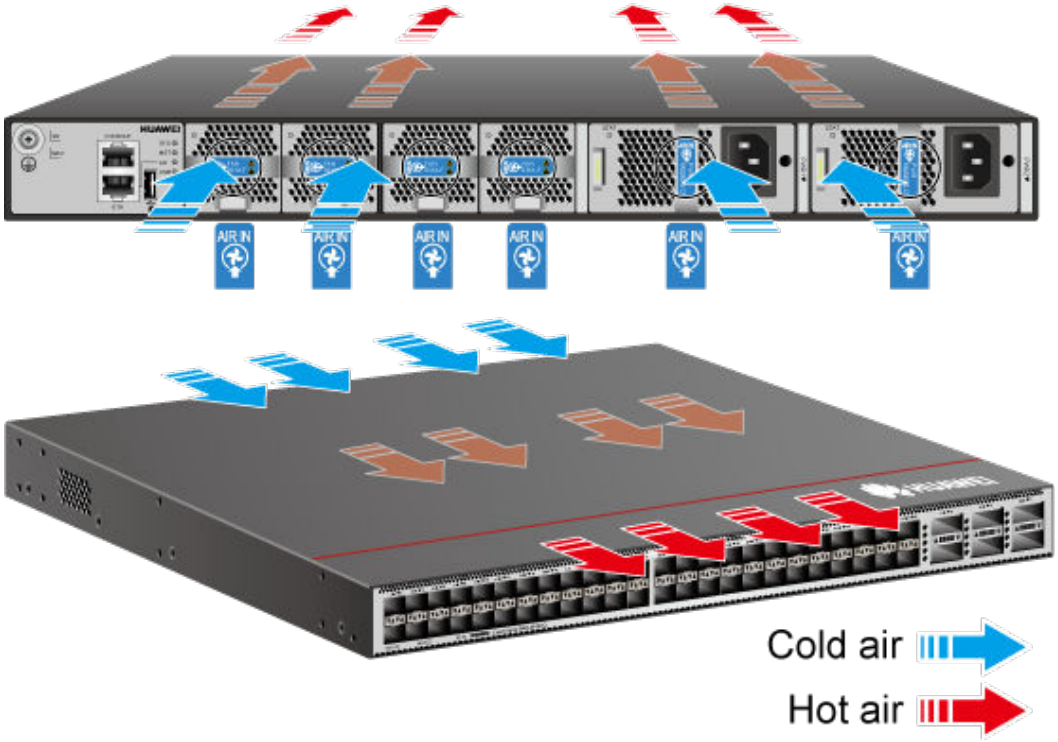
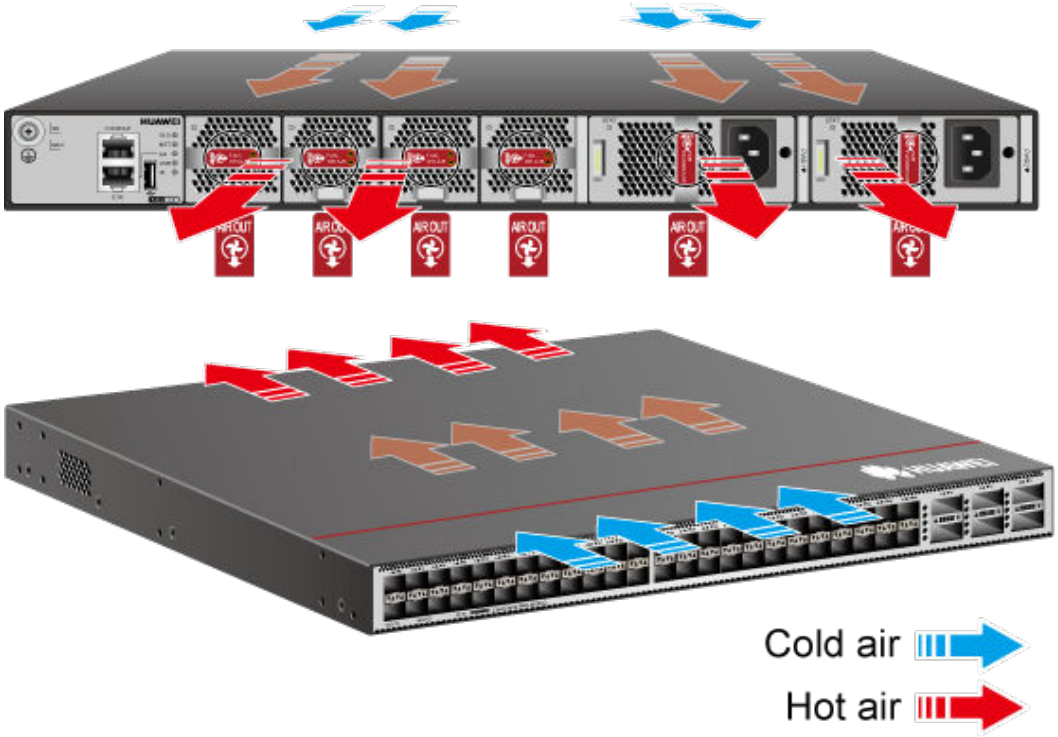


Figure 4-208 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-195 Technical specifications of the CE6881-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC

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Item	Specification
Console port	RJ45
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front airflow, depending on the selected fan modules and power modules
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40ºC to +70ºC (-40°F to +158°F)

4.4.16.6 CE6881-48S6CQ (02352QGF-007)

Overview

Table 4-196 Basic information about the CE6881-48S6CQ

Item	Details
Description	CE6881-48S6CQ switch (48*10GE SFP+, 6*100GE QSFP28, without fan and power modules)
Part Number	02352QGF-007
Model	CE6881-48S6CQ
First supported version	V200R021C10SPC600
Supported Patch Version	If the switch runs V200R019C10SPC800, install the patch of V200R019SPH050 or a later version. If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6881

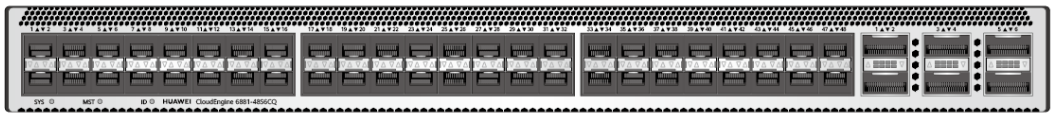
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Appearance

Figure 4-209 Appearance of the CE6881-48S6CQ



Front (power supply side)



Rear (port side)

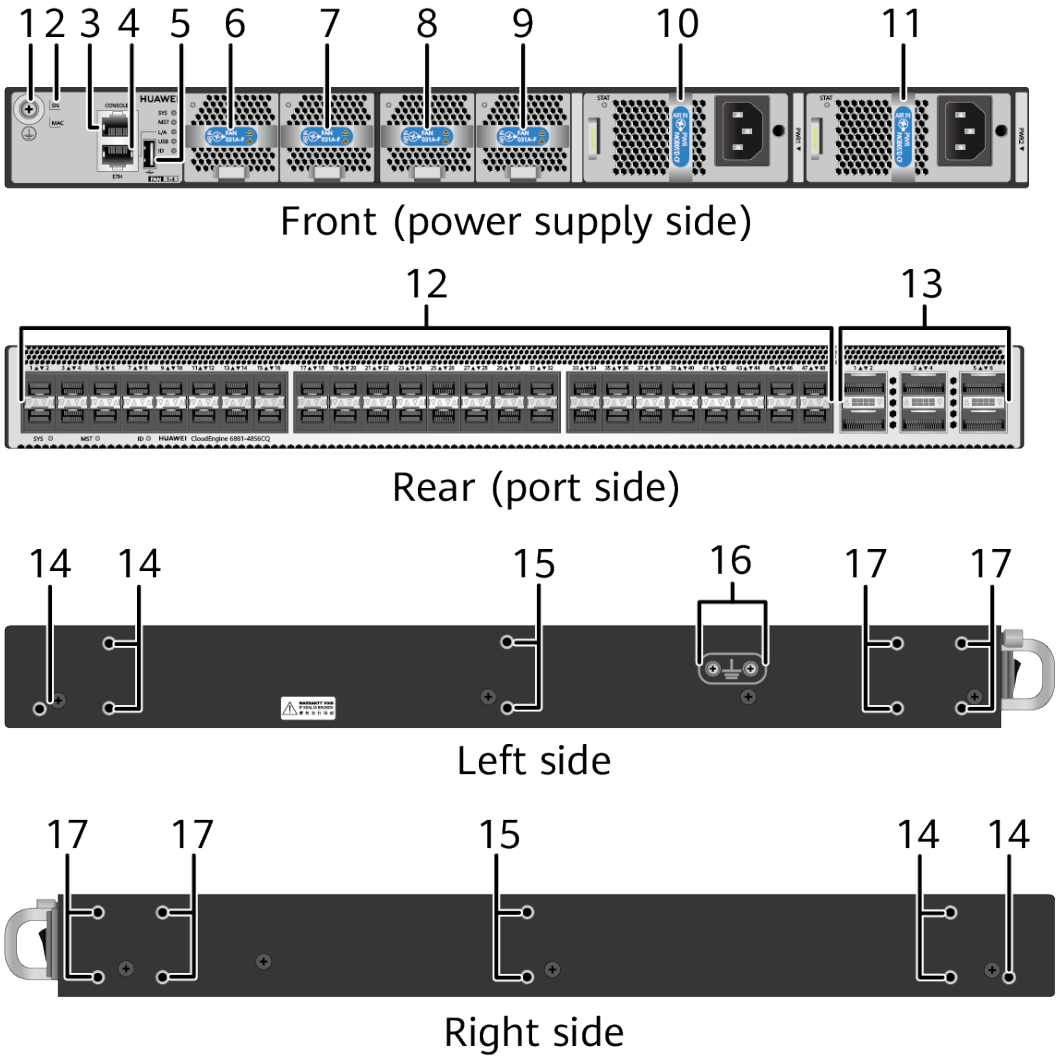
NOTE

The figures in this document are for reference only.

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Components

Figure 4-210 Components of the CE6881-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-197 Slots on the CE6881-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-211 Indicators on the CE6881-48S6CQ 1

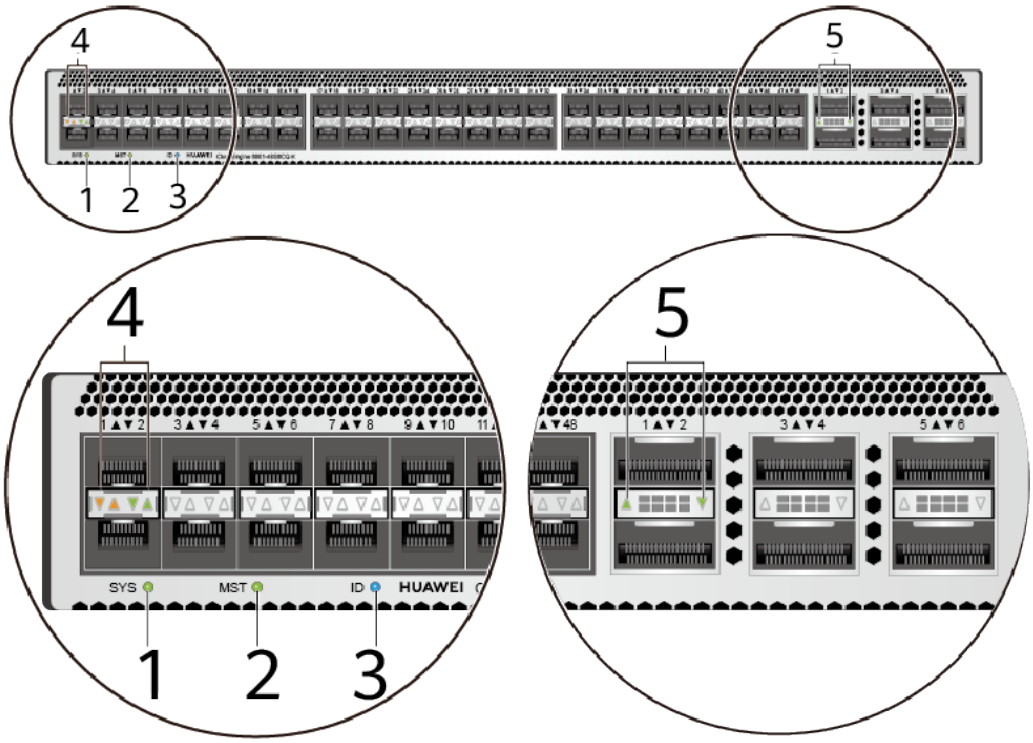
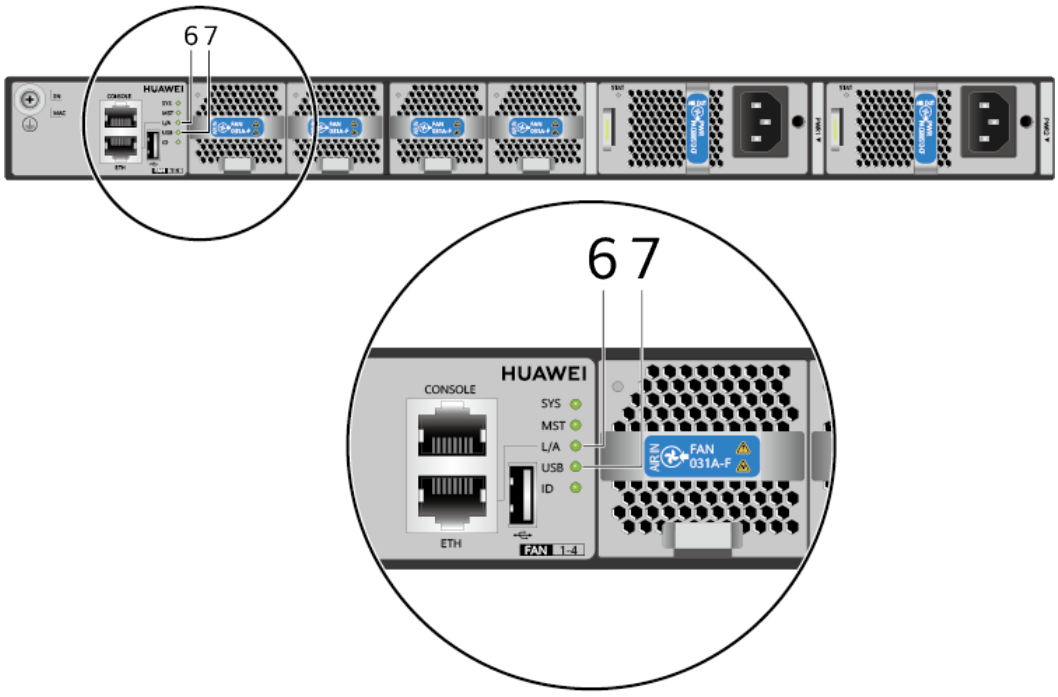


Figure 4-212 Indicators on the CE6881-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-198 Indicators on the CE6881-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-199 Ports on the CE6881-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-213 Front-to-back airflow for port-side exhaust

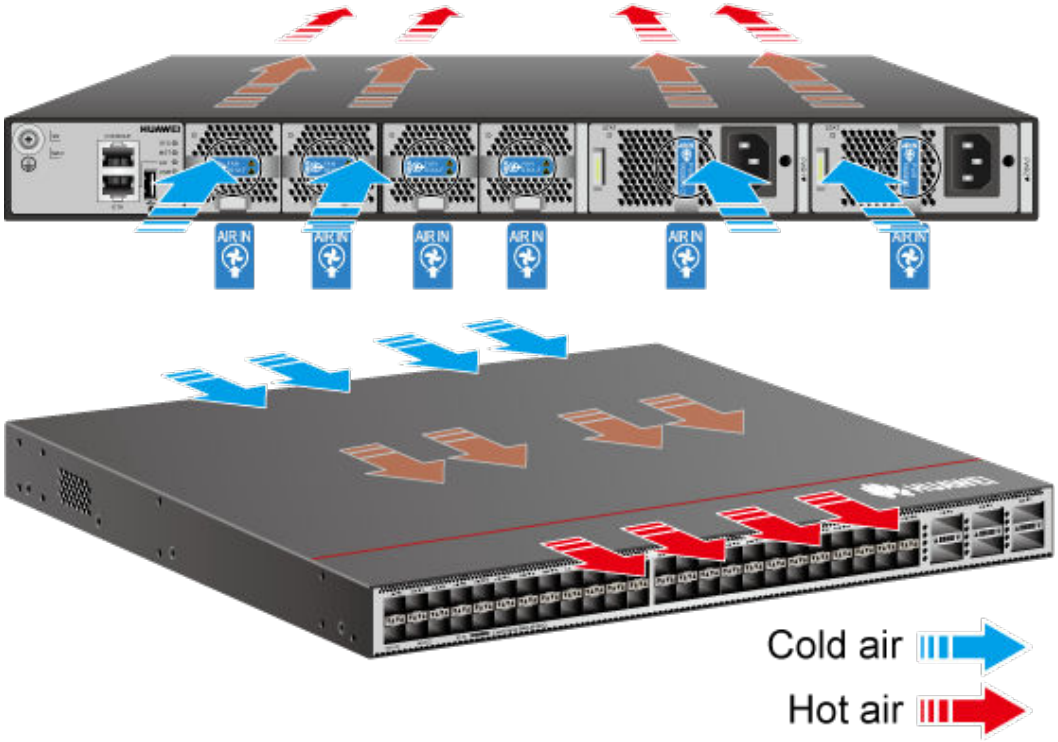
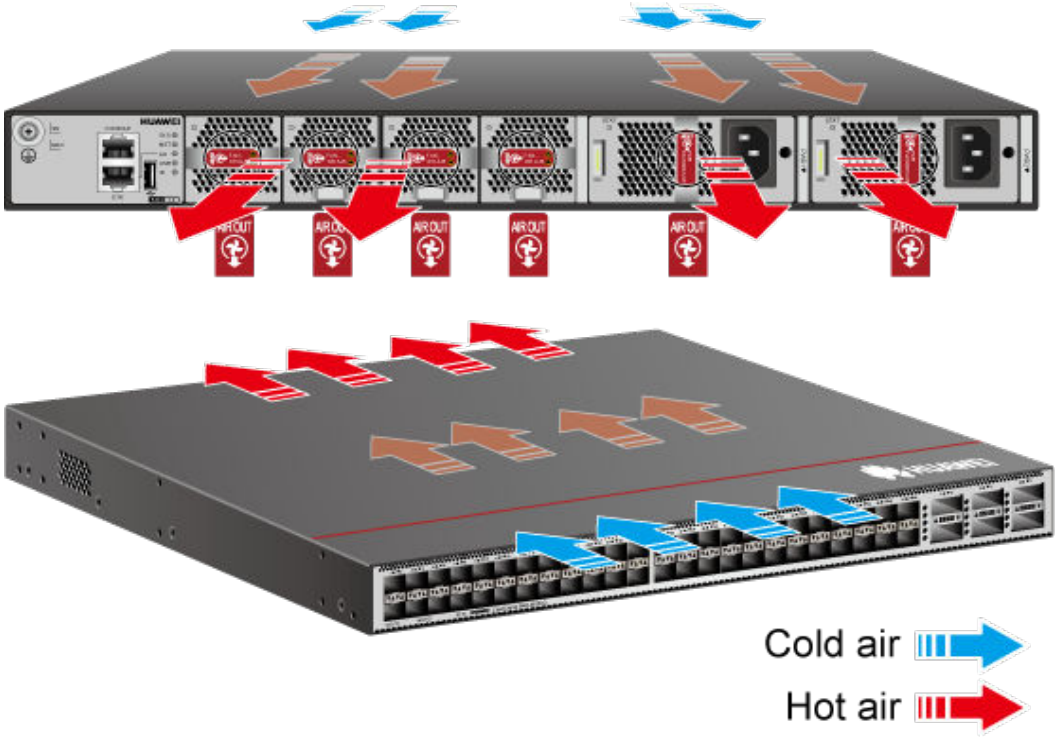


Figure 4-214 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-200 Technical specifications of the CE6881-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.57 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules but excluding optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC

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Item	Specification
Console port	RJ45
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front airflow, depending on the selected fan modules and power modules
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40ºC to +70ºC (-40°F to +158°F)

4.4.17 CE6881-48S6CQ-K

4.4.17.1 CE6881-48S6CQ-K (02353JAP)

Overview

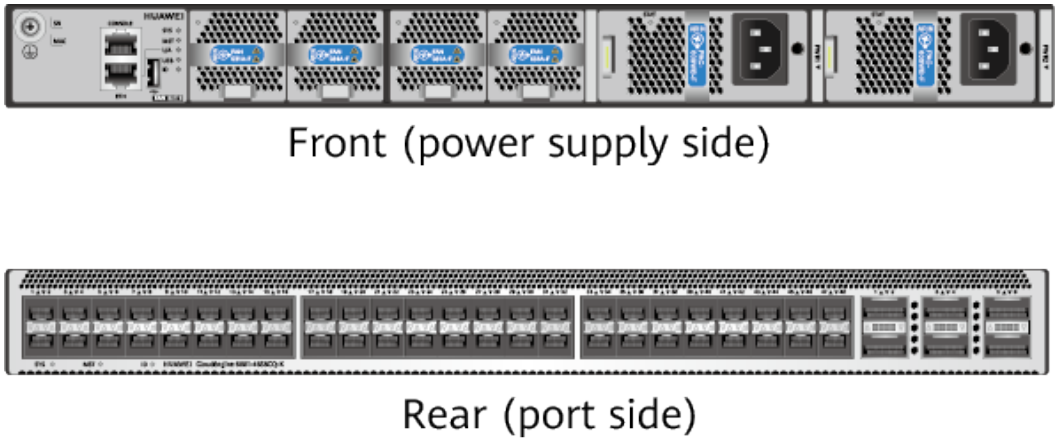
Table 4-201 Basic information about the CE6881-48S6CQ-K

Item	Details
Description	CE6881-48S6CQ-K switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02353JAP
Model	CE6881-48S6CQ-K
First supported version	V200R019C10
Other part numbers	02353JAQ (CE6881-48S6CQ-K switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake))
Short Name	CE6881K

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Appearance

Figure 4-215 Appearance of the CE6881-48S6CQ-K



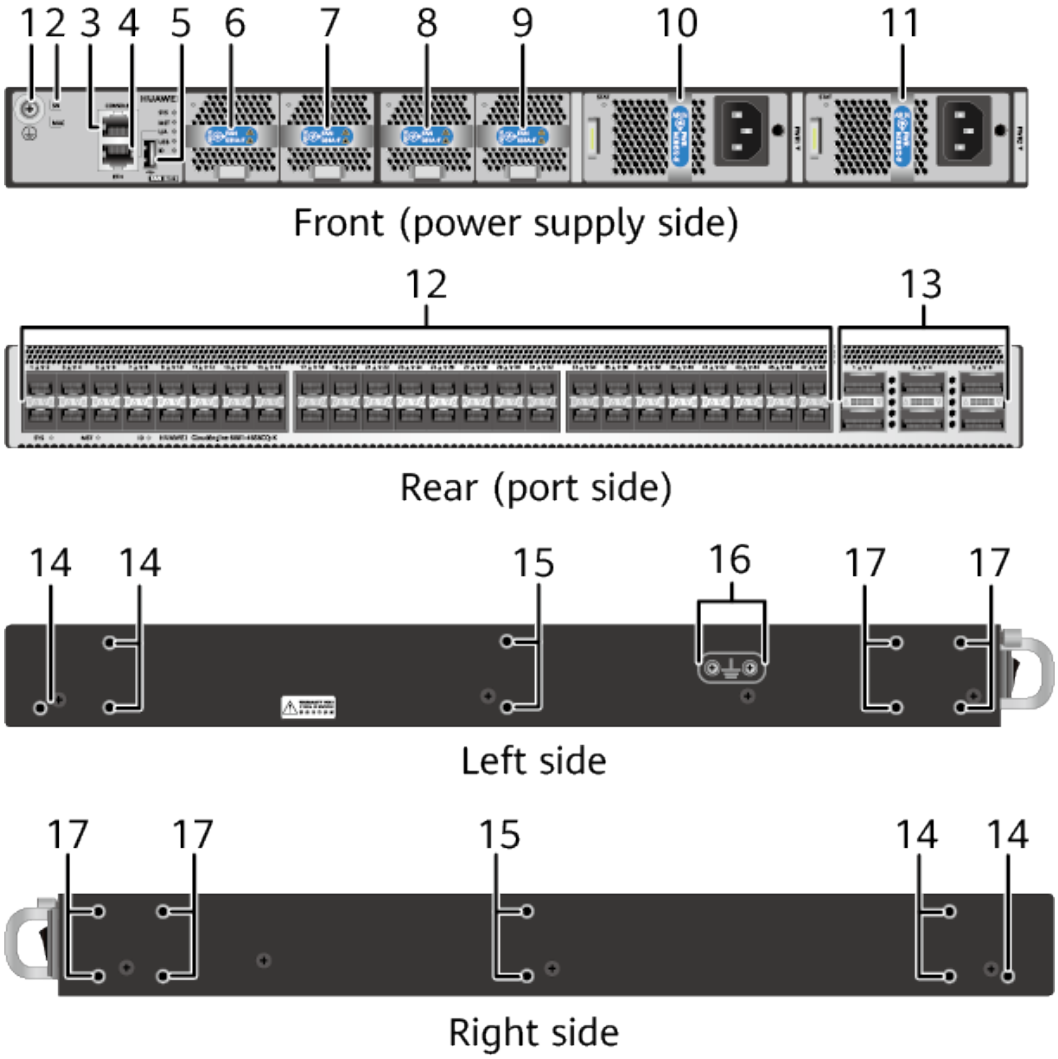
NOTE

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Components

Figure 4-216 Components of the CE6881-48S6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-202 Slots on the CE6881-48S6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-217 Indicators on the CE6881-48S6CQ-K 1

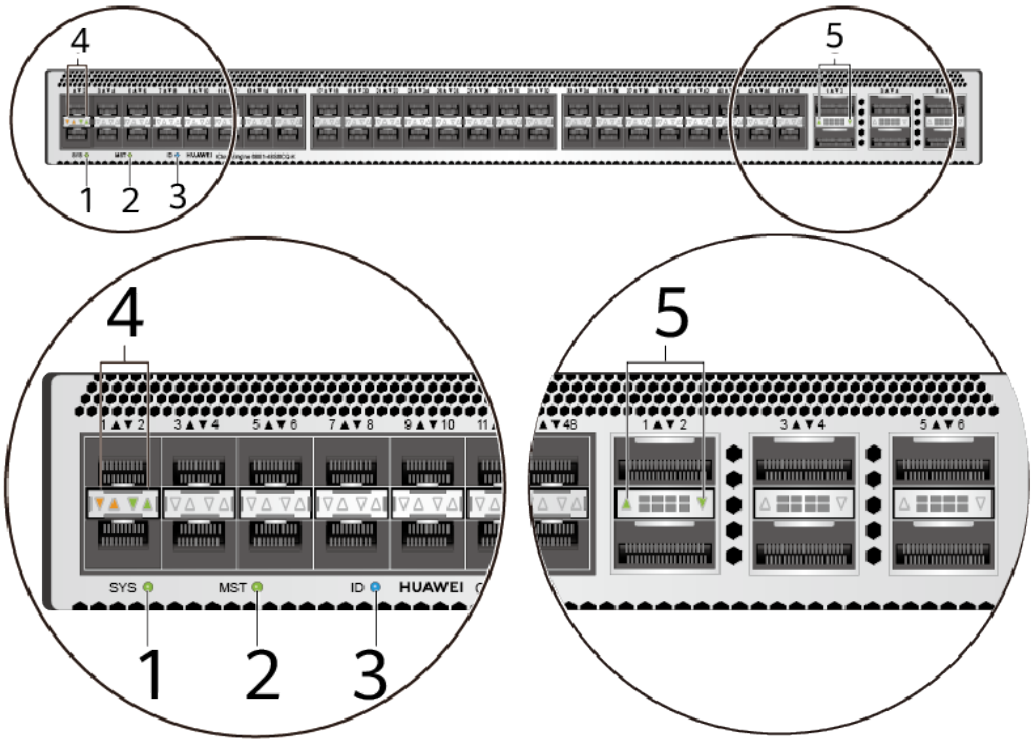
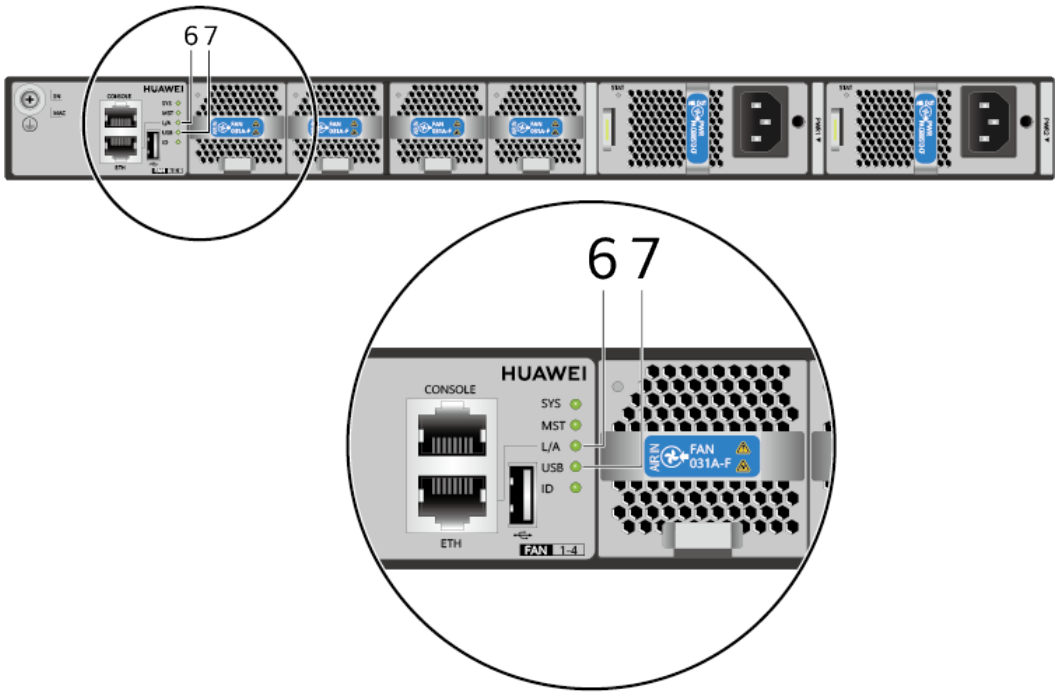


Figure 4-218 Indicators on the CE6881-48S6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-203 Indicators on the CE6881-48S6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-204 Ports on the CE6881-48S6CQ-K

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-219** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-220** (using a CE6863 chassis as an example).

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Figure 4-219 Front-to-back airflow for port-side exhaust

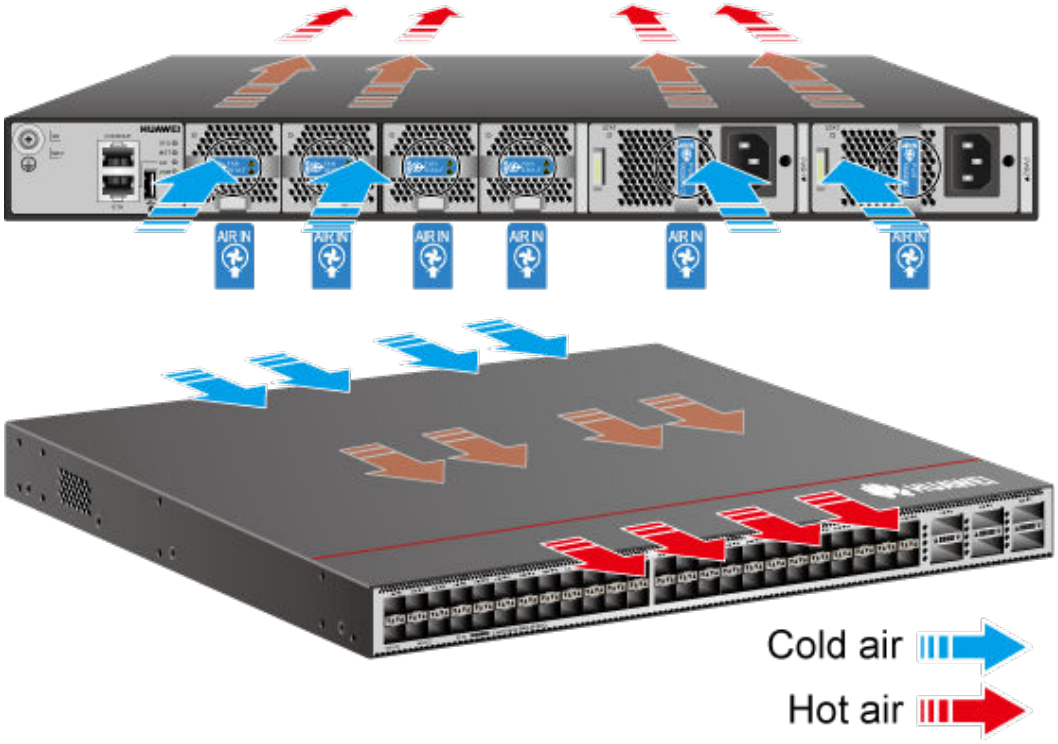
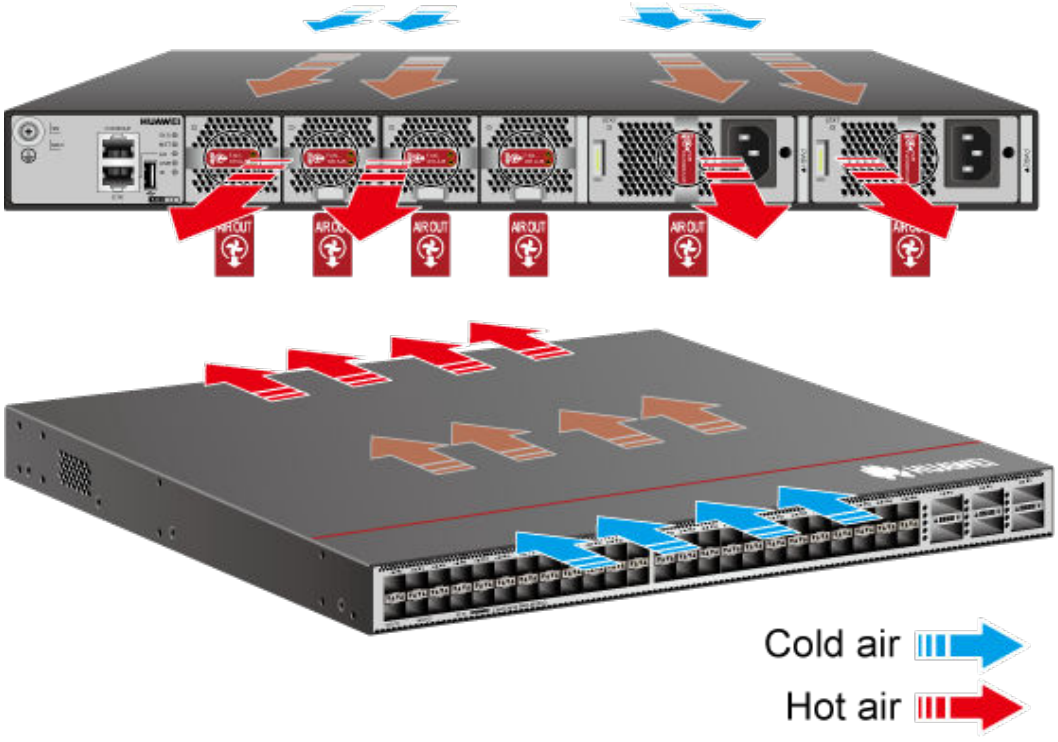


Figure 4-220 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-205 Technical specifications of the CE6881-48S6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.17.2 CE6881-48S6CQ-K (02353JAQ-001)

Overview

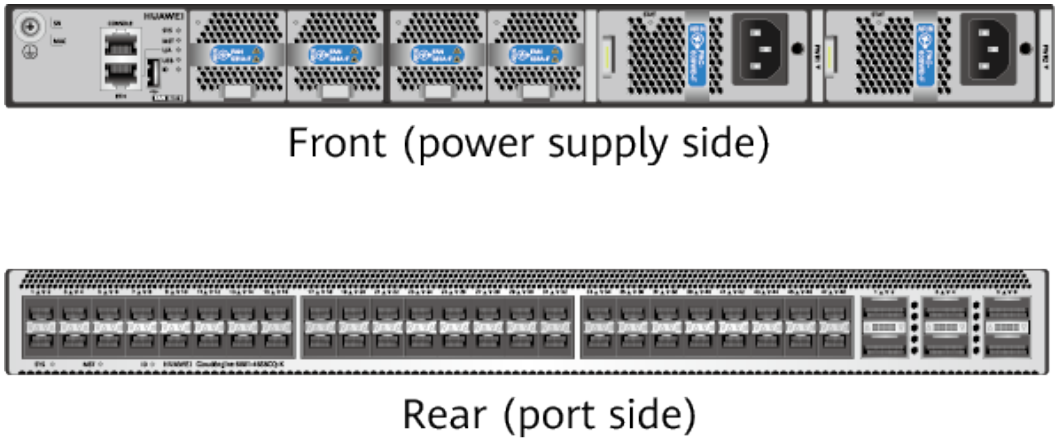
Table 4-206 Basic information about the CE6881-48S6CQ-K

Item	Details
Description	CE6881-48S6CQ-K switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)
Part Number	02353JAQ-001
Model	CE6881-48S6CQ-K
First supported version	V200R020C10
Short Name	CE6881K

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Appearance

Figure 4-221 Appearance of the CE6881-48S6CQ-K



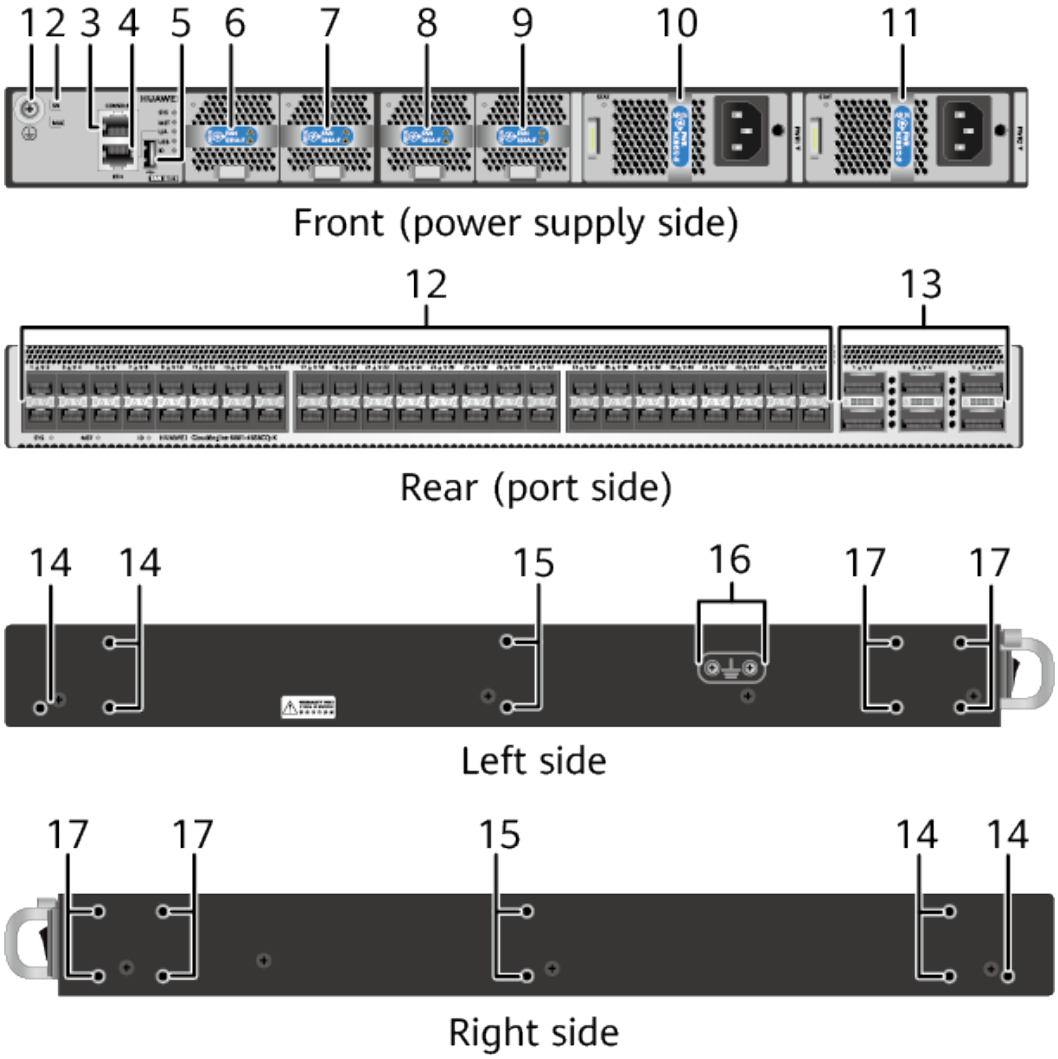
NOTE

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Components

Figure 4-222 Components of the CE6881-48S6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-207 Slots on the CE6881-48S6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-223 Indicators on the CE6881-48S6CQ-K 1

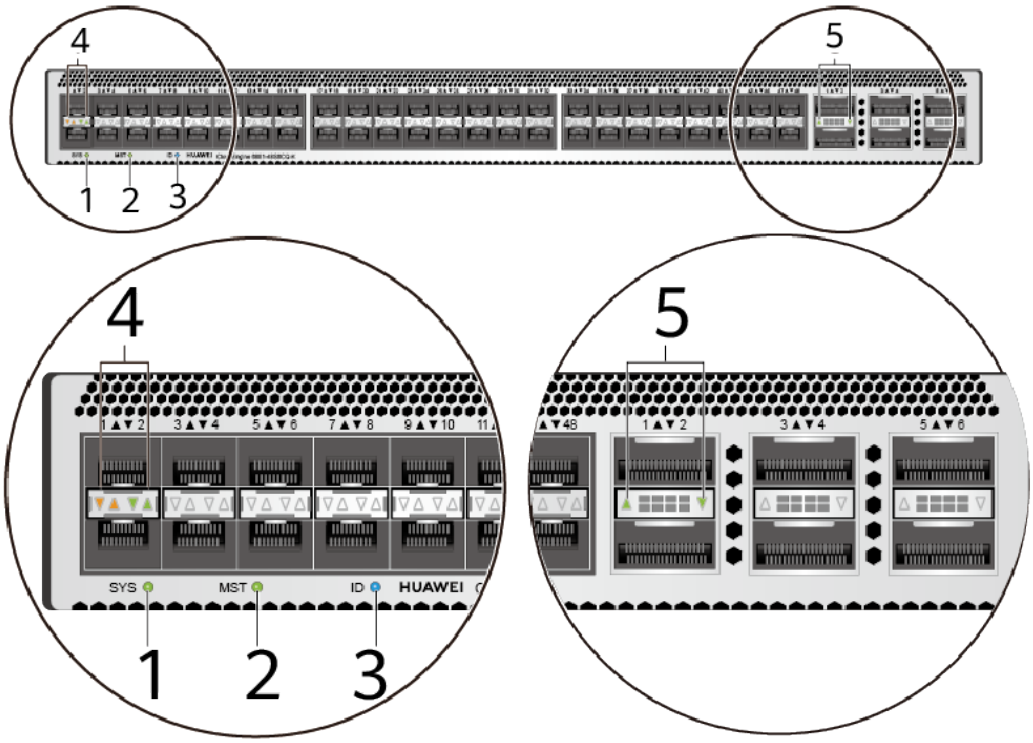
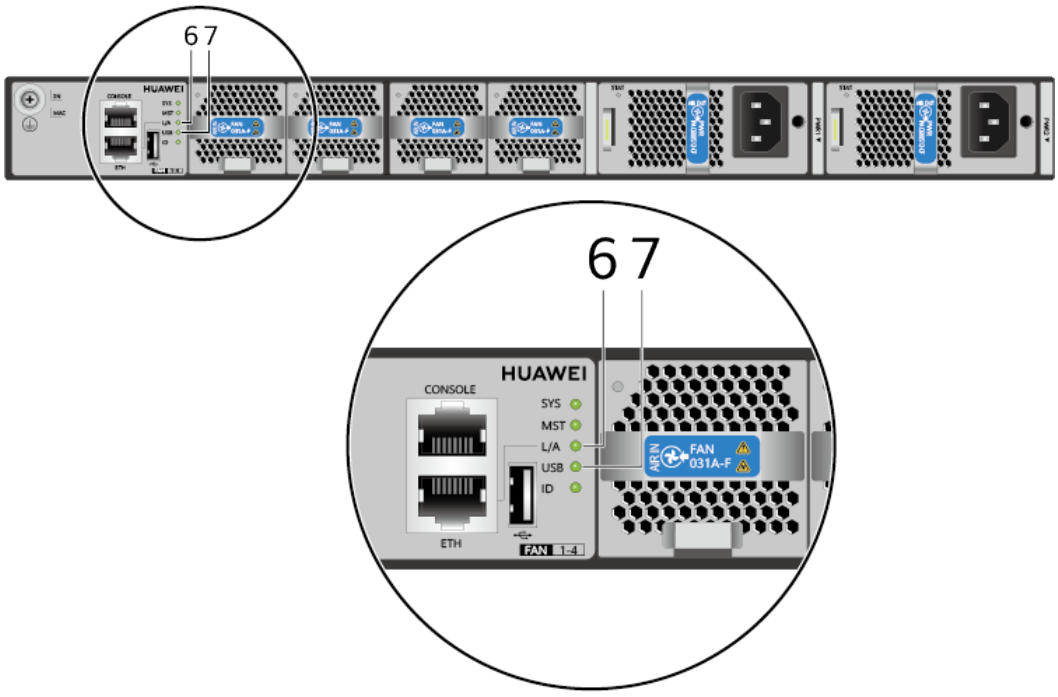


Figure 4-224 Indicators on the CE6881-48S6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-208 Indicators on the CE6881-48S6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-209 Ports on the CE6881-48S6CQ-K

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-225** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-226** (using a CE6863 chassis as an example).

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Figure 4-225 Front-to-back airflow for port-side exhaust

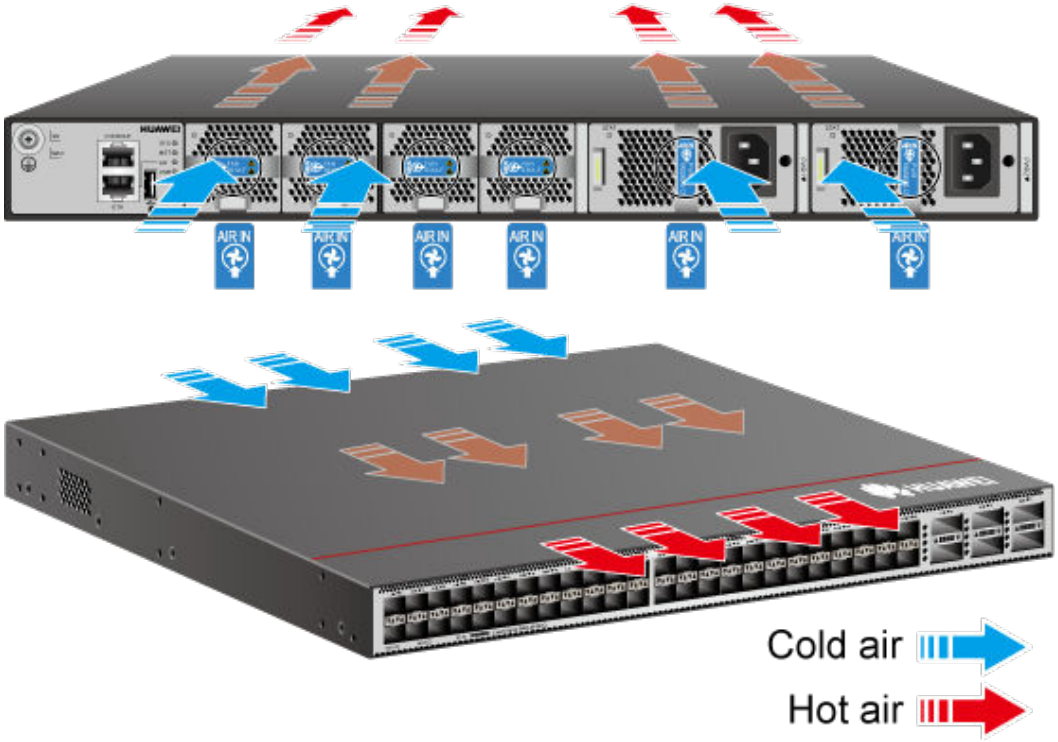
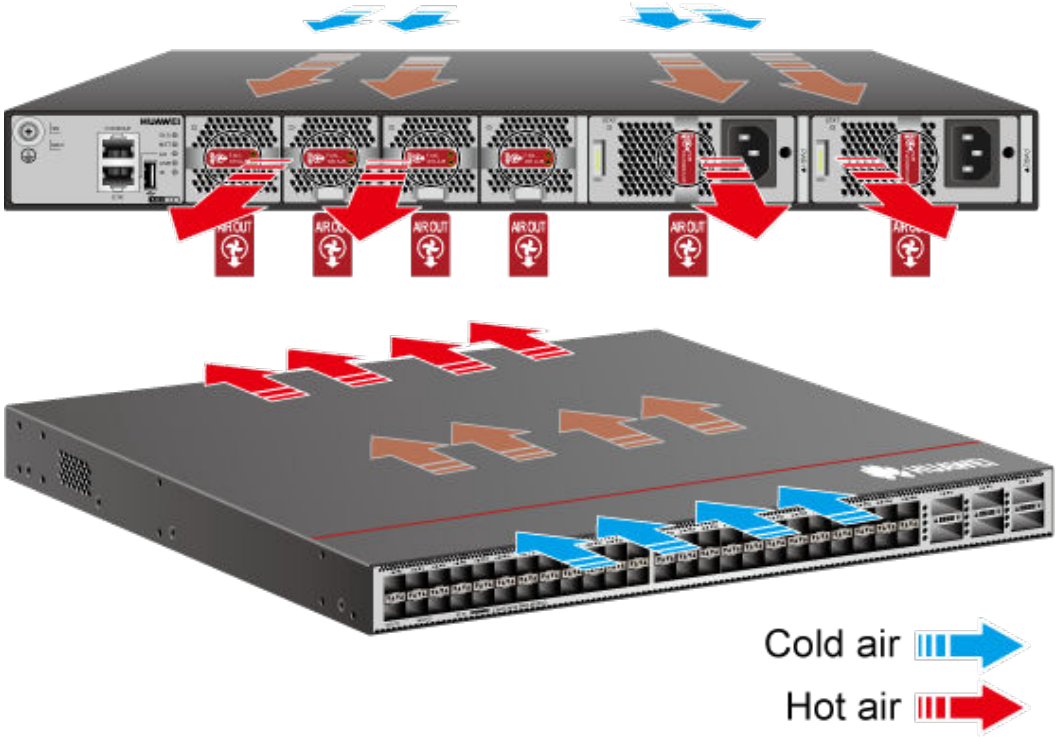


Figure 4-226 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-210 Technical specifications of the CE6881-48S6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.17.3 CE6881-48S6CQ-K (02353JAP-002)

Overview

Table 4-211 Basic information about the CE6881-48S6CQ-K

Item	Details
Description	CE6881-48S6CQ-K switch (48*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02353JAP-002
Model	CE6881-48S6CQ-K
First supported version	V200R021C10SPC600
Other part numbers	02353JAQ-002 (CE6881-48S6CQ-K switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354TDT-002 (CE6881-48S6CQ-K switch (48*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH020 or a later version.
Short Name	CE6881K

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Appearance

Figure 4-227 Appearance of the CE6881-48S6CQ-K



Front (power supply side)



Rear (port side)

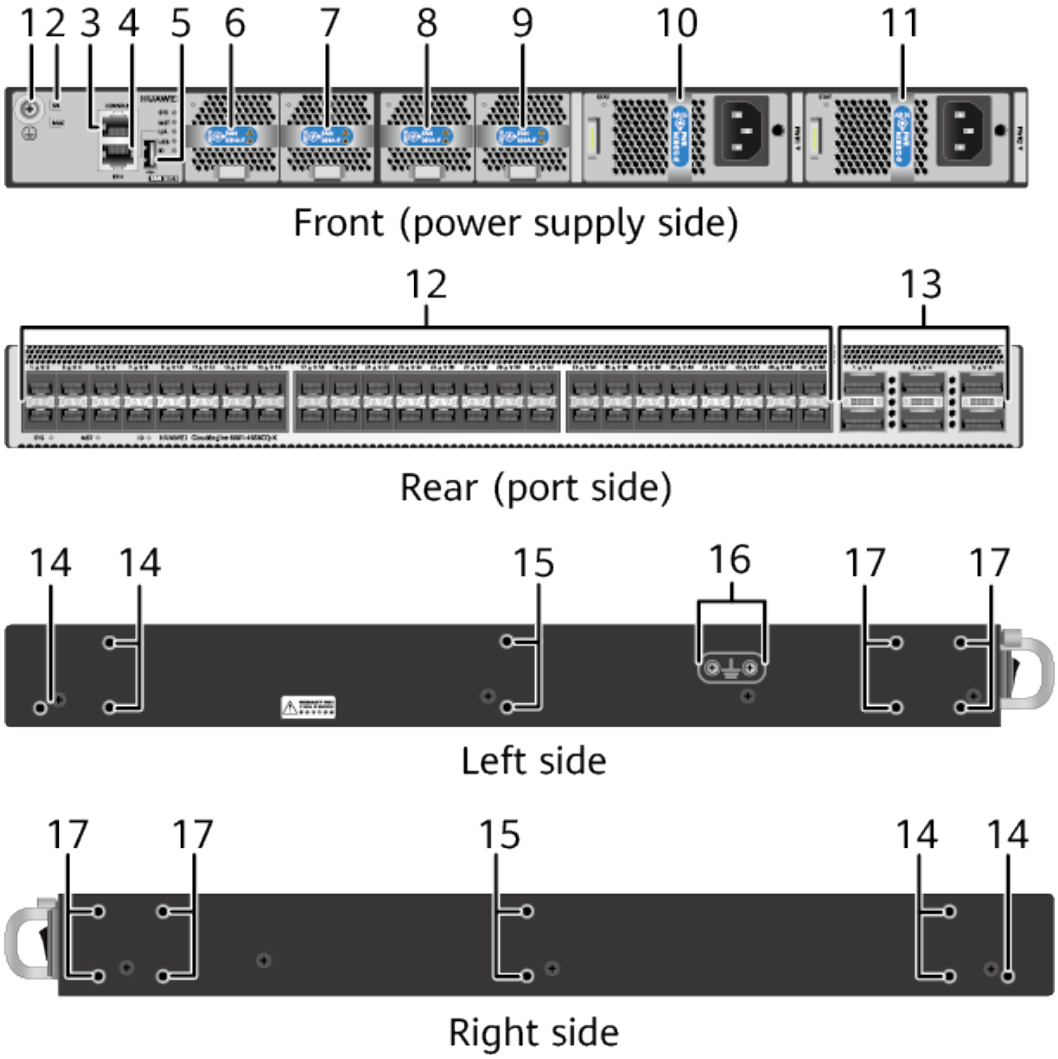
NOTE

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Components

Figure 4-228 Components of the CE6881-48S6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GE SFP+ Ethernet optical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-212 Slots on the CE6881-48S6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-229 Indicators on the CE6881-48S6CQ-K 1

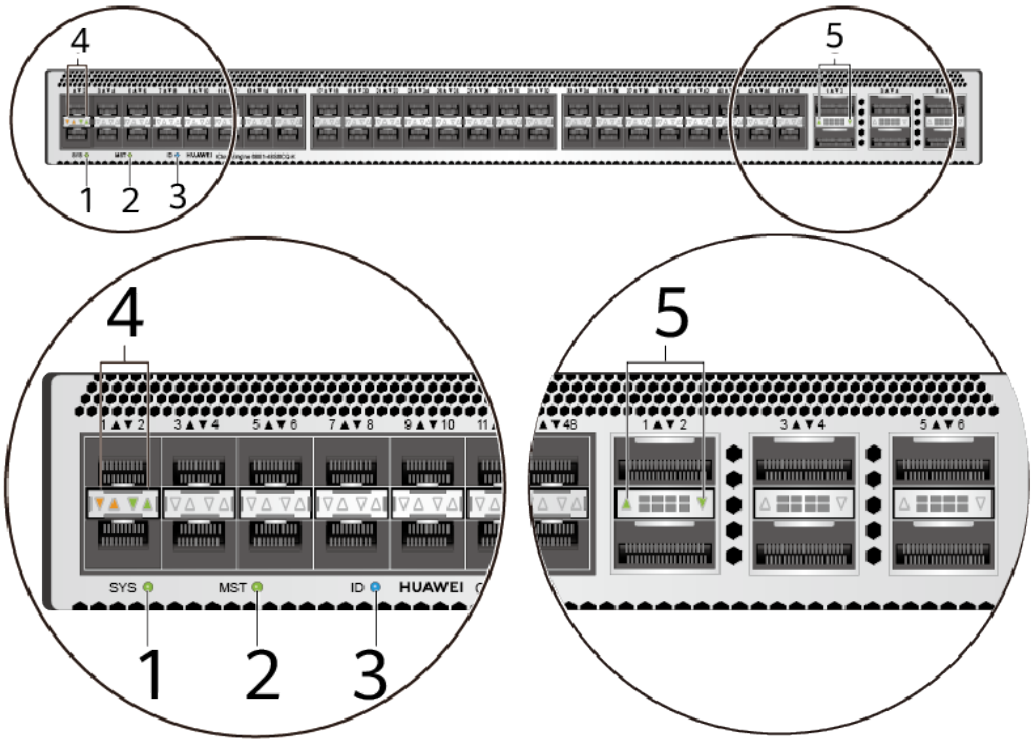
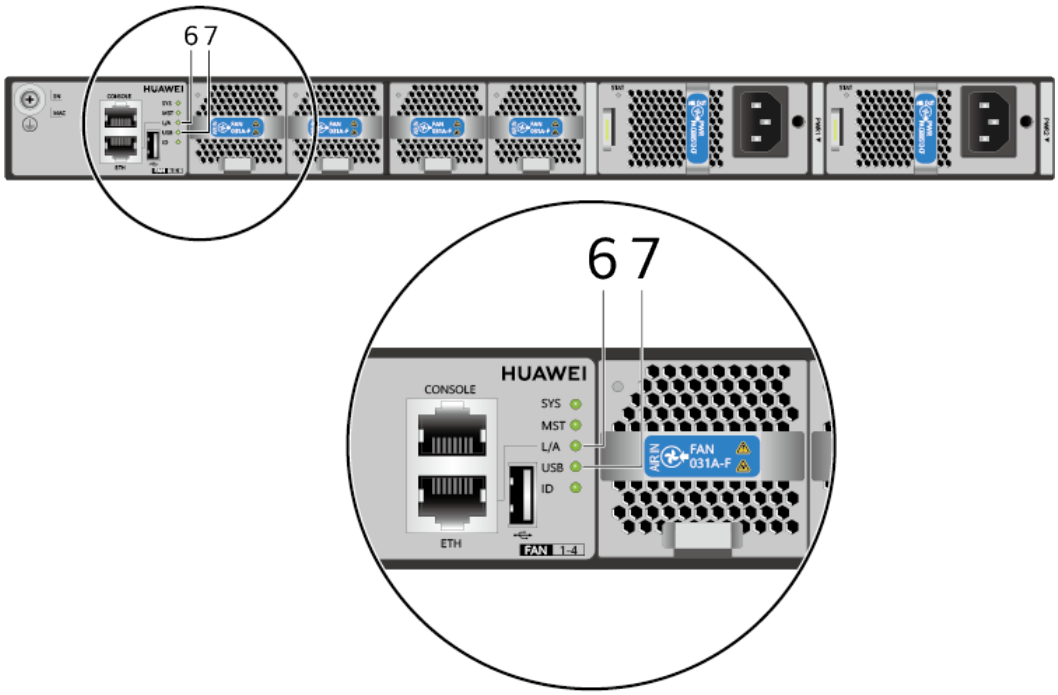


Figure 4-230 Indicators on the CE6881-48S6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-213 Indicators on the CE6881-48S6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GE optical port) **NOTE** • Each 10GE/25GE optical port has two single-color indicators: the ACT indicator (yellow) on the left and the LINK indicator (green) on the right. • Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-214 Ports on the CE6881-48S6CQ-K

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1) When a GE copper module is installed on a 10GE optical port, the port can work only at the rate of 100 Mbit/s or 1000 Mbit/s. 2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3) In V200R005C20, 10GE ports numbered from 13 to 16 and from 25 to 28 do not support GE media. If GE media are installed on these ports, the ports will enter the Error-Down state. In V200R019C10 and later versions, GE media can be installed on 10GE ports numbered from 13 to 16 and from 25 to 28. After GE media are installed, you need to run the speed 1000 command to switch the port rate to 1000 Mbit/s so that the ports can go Up. In addition, ports 13 to 16 and ports 25 to 28 are switched together. For example, if a GE medium is installed on port 13 and the speed 1000 command is run, the rate of ports 14, 15, and 16 is changed together.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • In V200R022C00 and earlier versions, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C10 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
		connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**NOTE** 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

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Figure 4-231 Front-to-back airflow for port-side exhaust

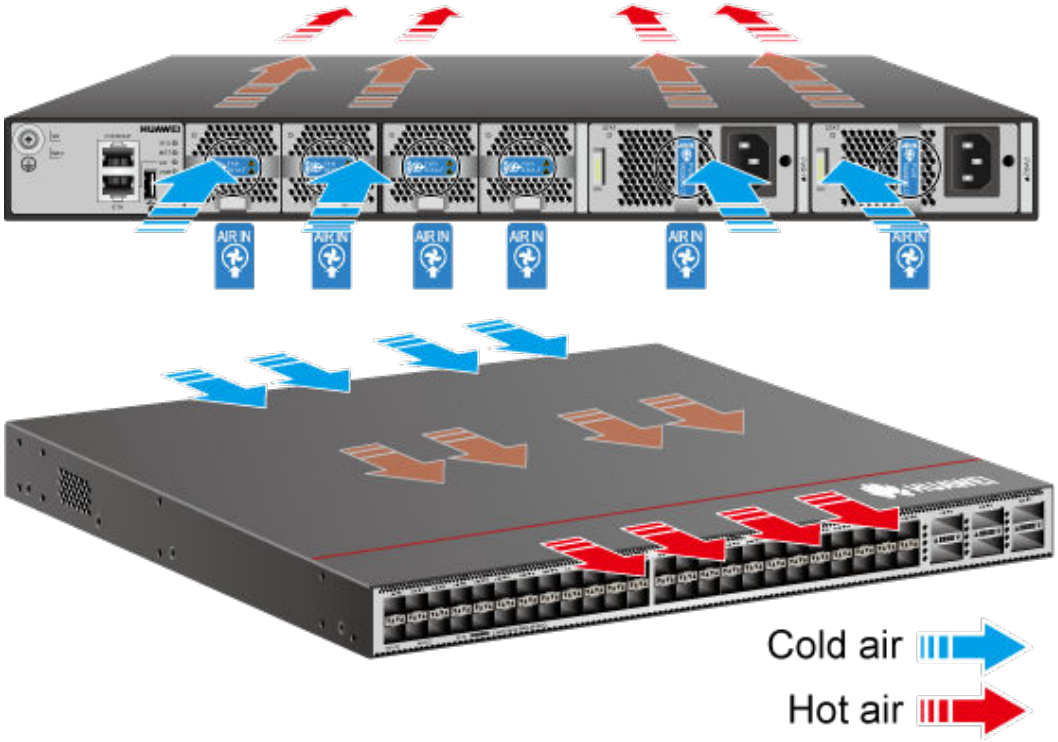
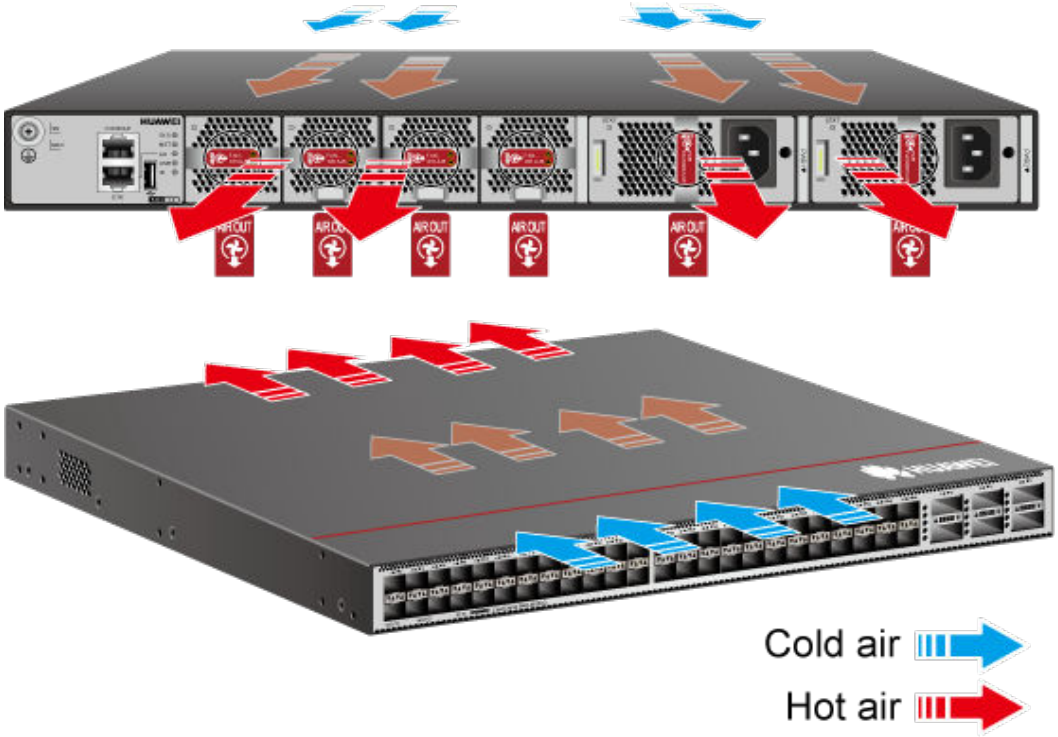


Figure 4-232 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-215 Technical specifications of the CE6881-48S6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (12.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	48*10GE SFP+ **NOTE** 1. 10GE ports can be configured to work at 1 Gbit/s. Ports 13-16 and 25-28 can be configured to work at 10 Gbit/s or 1 Gbit/s using commands, and the speed of other ports can be auto-negotiated based on optical modules. (In V200R005C20, ports 13-16 and 25-28 cannot be configured to work at 1 Gbit/s. In V200R019C10 and later versions, they can be configured to work at 1 Gbit/s.) 2. 10GE LRM/80 km linear optical modules are not supported. 3. 10GE 1 m/3 m/5 m copper cables are supported.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In V200R022C00 and earlier versions, 100GE ports cannot be split. In V200R022C10, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE optical ports and 100GE optical ports
RTC	Supported

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Item	Specification
Typical power consumption [W]	• 194 W (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 240 W (100% throughput, short-distance optical modules on all ports, dual power modules)
Typical heat dissipation [BTU/hour]	• 662 BTU/hour (100% throughput, SFP+ high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) • 819 BTU/hour (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	161 W
Static heat dissipation [BTU/hour]	549 BTU/hour
Maximum power consumption [W]	349 W
Maximum heat dissipation	1191 BTU/hour
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999960856
MTBF [year]	45.9 years
MTTR [hour]	1.57 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 58 dB(A) • Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: < 75 dB(A) • Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.18 CE6881-48T6CQ

4.4.18.1 CE6881-48T6CQ (02353GLB)

Overview

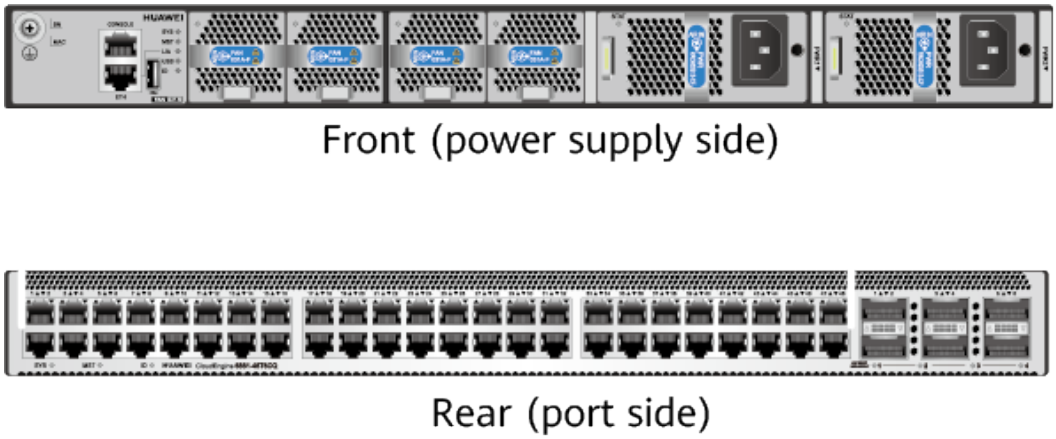
Table 4-216 Basic information about the CE6881-48T6CQ

Item	Details
Description	CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353GLB
Model	CE6881-48T6CQ
First supported version	V200R020C00
Other part numbers	02353GLC (CE6881-48T6CQ switch(48*10GE RJ45,6*100GE QSFP28,2*AC power modules,4*fan modules,port-side intake)) 02353GLD (CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6881

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Appearance

Figure 4-233 Appearance of the CE6881-48T6CQ



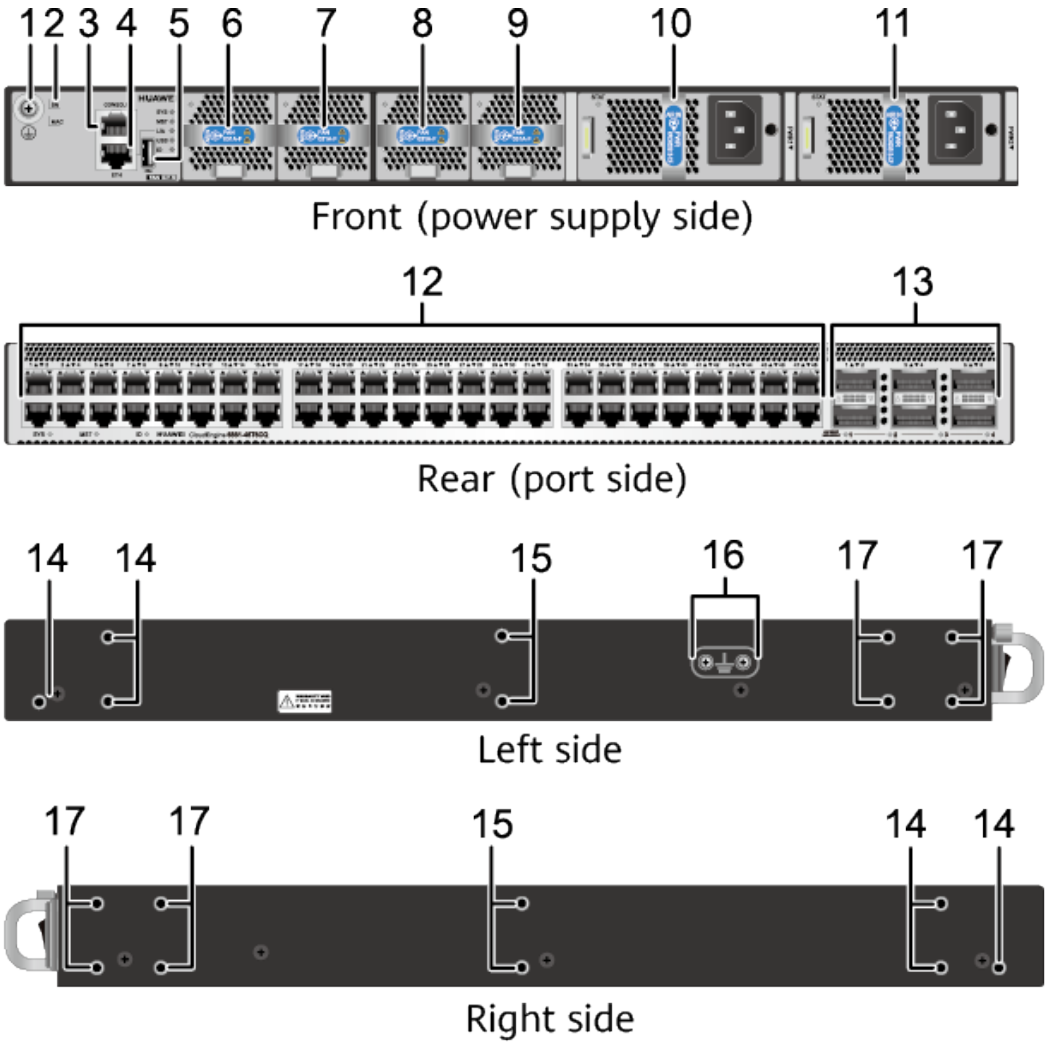
NOTE

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Components

Figure 4-234 Components of the CE6881-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-217 Slots on the CE6881-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-235 Indicators on the CE6881-48T6CQ 1

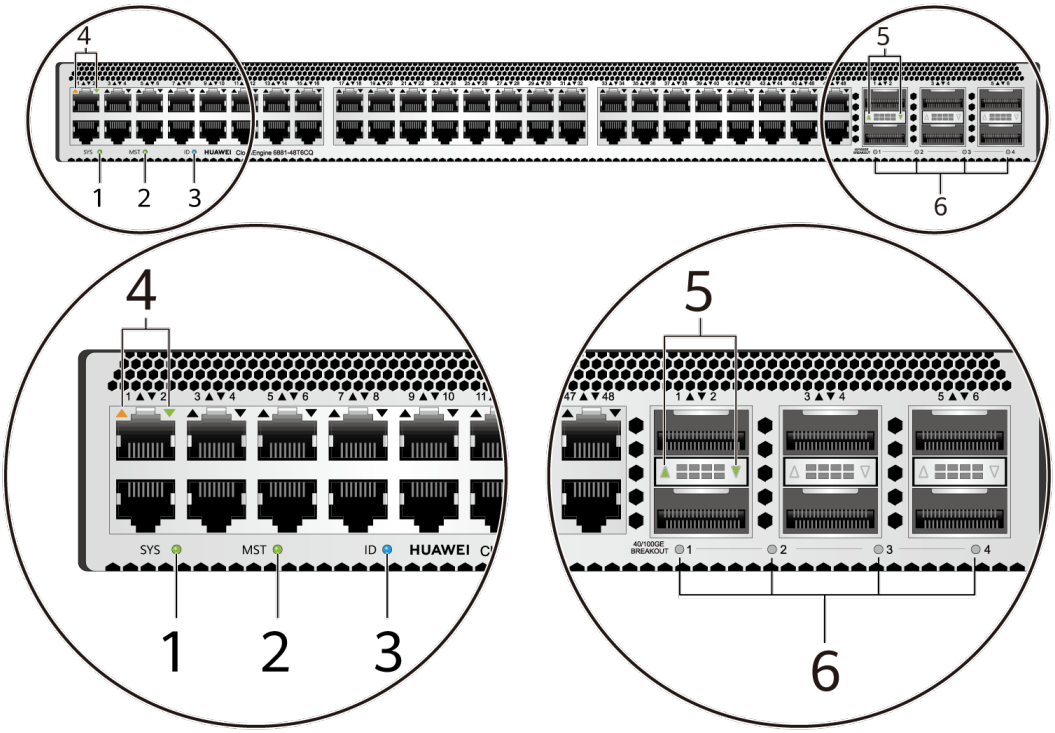
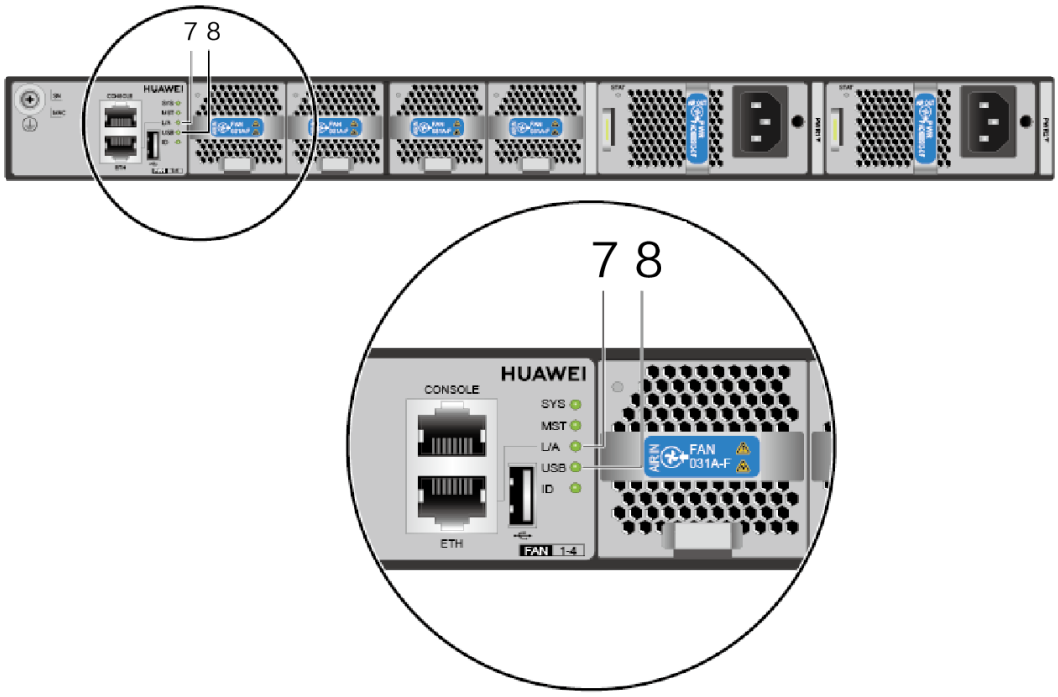


Figure 4-236 Indicators on the CE6881-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-218 Indicators on the CE6881-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE A 40GE/100GE QSFP28 optical port on the CE6881-48T6CQ cannot be split into four 10GE or 25GE ports, and the indicators are off.	Green	Steady on	At least one port works in 10GE/25GE mode and is split into four 10GE/25GE ports.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-219 Ports on the CE6881-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet electrical port receives and sends service traffic at 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port supports auto-sensing to 100 Mbit/s or 1000 Mbit/s. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Standards compliance: IEEE 802.3an and IEEE 802.3az • Electrical interface attribute: Both straight-through cables and crossover cables can be used. • Working mode: 100 Mbit/s, 1000 Mbit/s, and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	LC/MPO	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Standards compliance: IEEE 802.3ba • Optical port attribute: depending on the optical module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. QSFP+ to QSFP+ high-speed cables and QSFP28 to QSFP28 high-speed cables do not support auto-negotiation of copper cables. They can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports 1/3/5 m QSFP28 high-speed cables. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables. 4. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

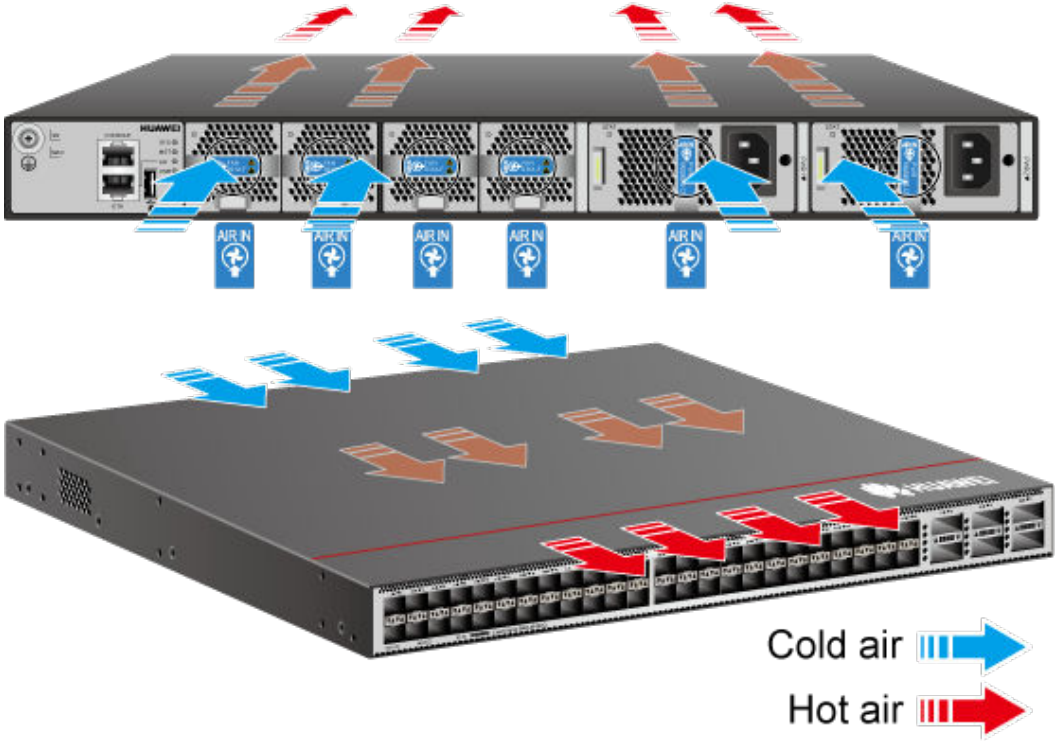
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-237** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

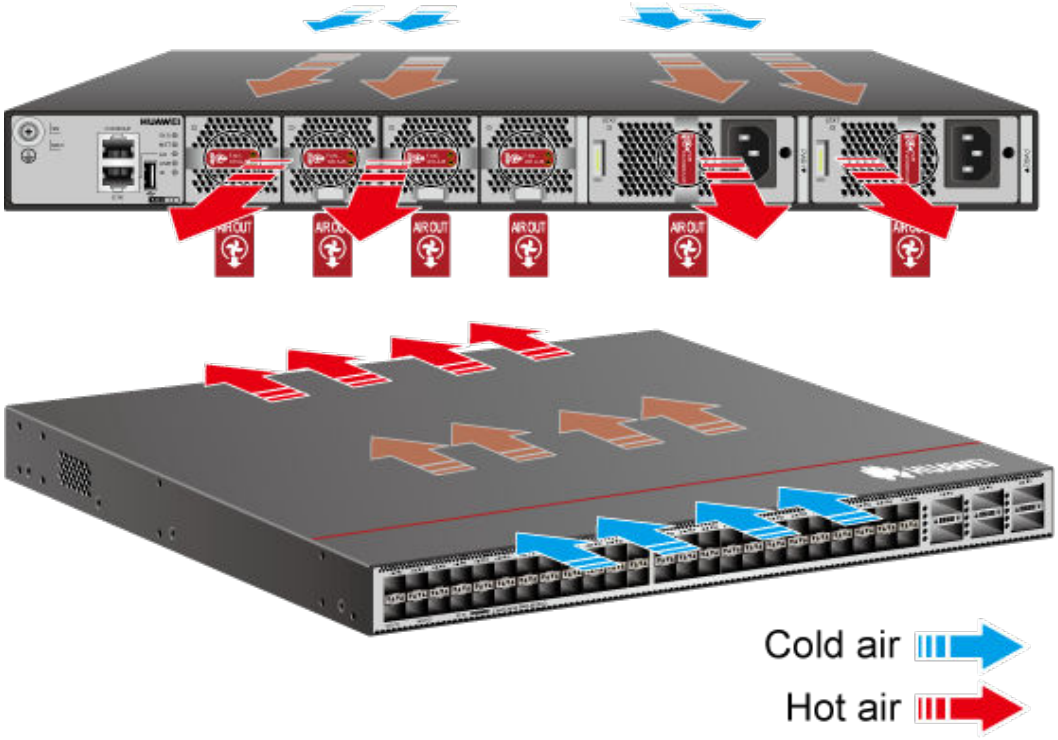
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-238** (using a CE6863 chassis as an example).

Figure 4-237 Front-to-back airflow for port-side exhaust



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Figure 4-238 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-220 Technical specifications of the CE6881-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.6 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHZ
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (Only full-duplex is supported)

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Item	Specification
Uplink Service interface	6 x 100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 347 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 362 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 1184 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 1235 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	235 W
Static heat dissipation [BTU/hour]	801 BTU/hour
Maximum power consumption [W]	452 W
Maximum heat dissipation	1542
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999953209
MTBF [year]	48.16 years
MTTR [hour]	1.78 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dB(A) on average (maximum: 52 dB(A)) • Back-to-front airflow: 50 dB(A) on average (maximum: 52 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dB(A) on average (maximum: 74 dB(A)) • Back-to-front airflow: 67 dB(A) on average (maximum: 73 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.18.2 CE6881-48T6CQ (02353GLB-001)

Overview

Table 4-221 Basic information about the CE6881-48T6CQ

Item	Details
Description	CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353GLB-001
Model	CE6881-48T6CQ
First supported version	V200R021C10SPC600
Other part numbers	02353GLC-001 (CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353GLD-001 (CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH011 or a later version.

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Item	Details
Short Name	CE6881

Appearance

Figure 4-239 Appearance of the CE6881-48T6CQ



Front (power supply side)



Rear (port side)

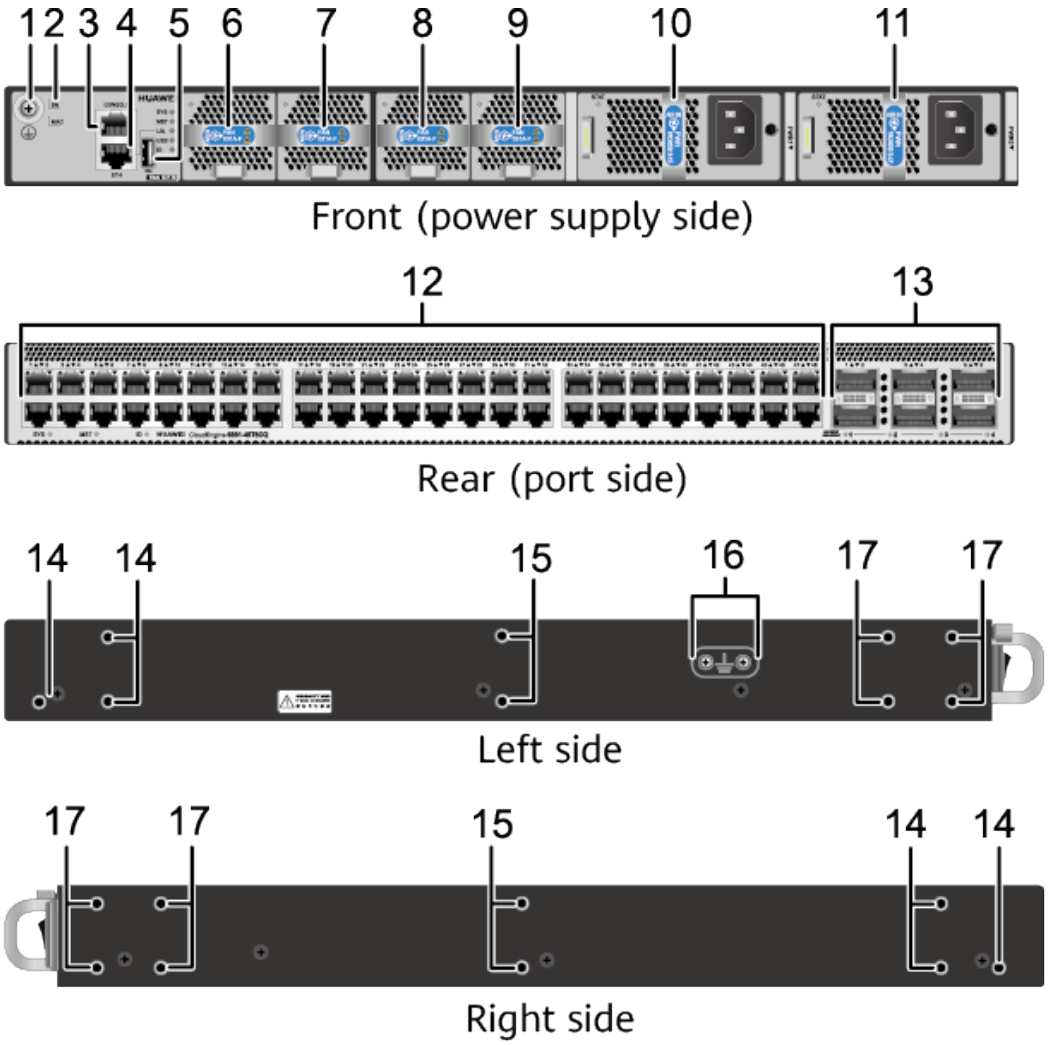
NOTE

The figures in this document are for reference only.

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Components

Figure 4-240 Components of the CE6881-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-222 Slots on the CE6881-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-241 Indicators on the CE6881-48T6CQ 1

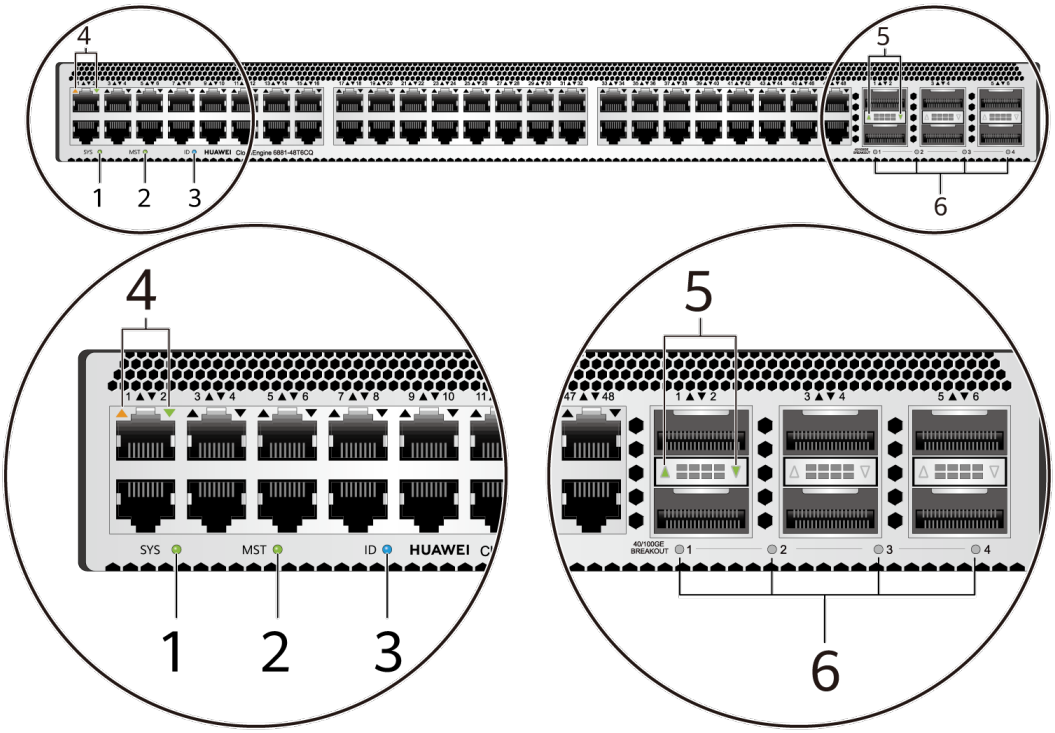
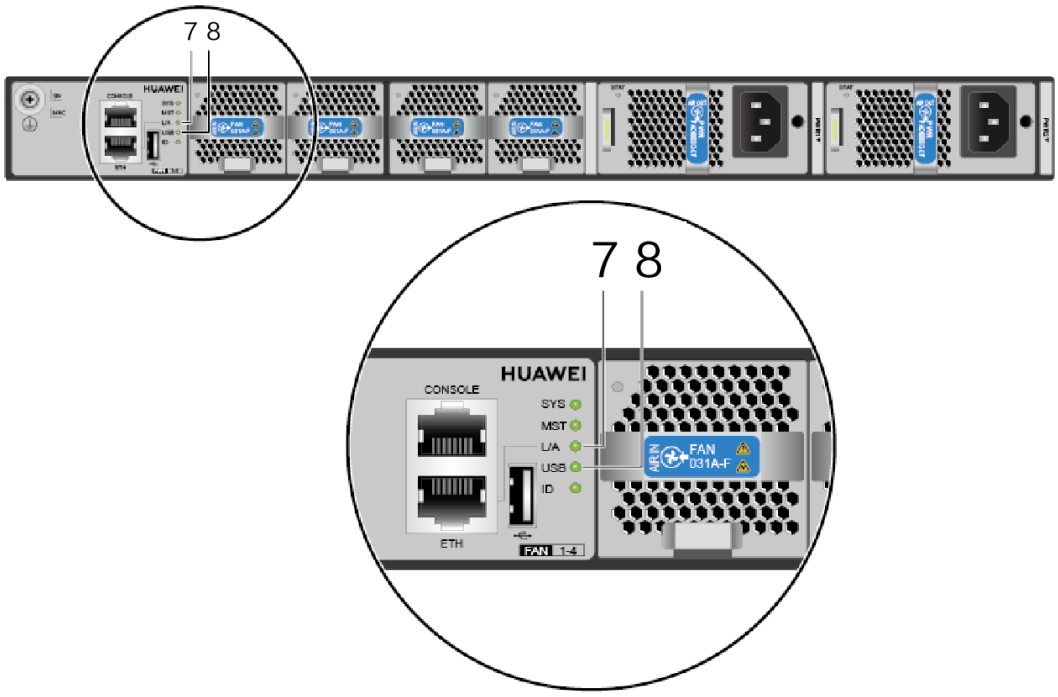


Figure 4-242 Indicators on the CE6881-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-223 Indicators on the CE6881-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE A 40GE/100GE QSFP28 optical port on the CE6881-48T6CQ cannot be split into four 10GE or 25GE ports, and the indicators are off.	Green	Steady on	At least one port works in 10GE/25GE mode and is split into four 10GE/25GE ports.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-224 Ports on the CE6881-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet electrical port receives and sends service traffic at 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port supports auto-sensing to 100 Mbit/s or 1000 Mbit/s. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Complied standards: IEEE 802.3an and IEEE 802.3az • Electrical interface attribute: Both straight-through cables and crossover cables can be used. • Working mode: 100 Mbit/s, 1000 Mbit/s, and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	LC/MPO	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Standards compliance: IEEE 802.3ba • Optical port attribute: depending on the optical module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. QSFP+ to QSFP+ high-speed cables and QSFP28 to QSFP28 high-speed cables do not support auto-negotiation of copper cables. They can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports 1/3/5 m QSFP28 high-speed cables. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables. 4. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

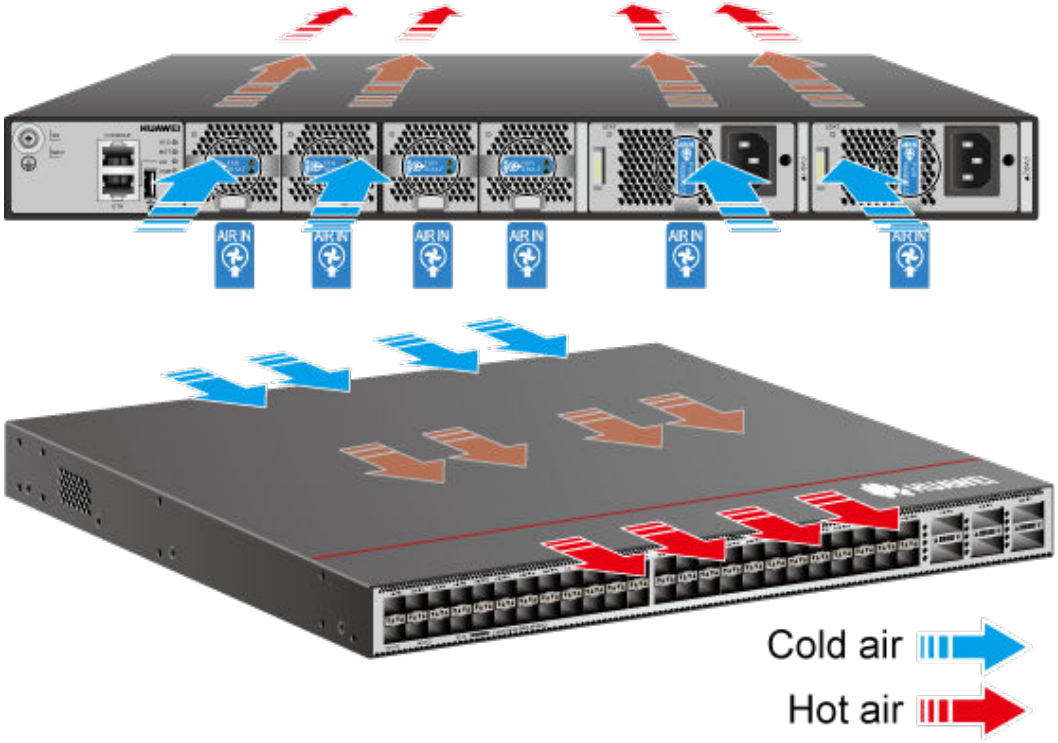
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-243** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

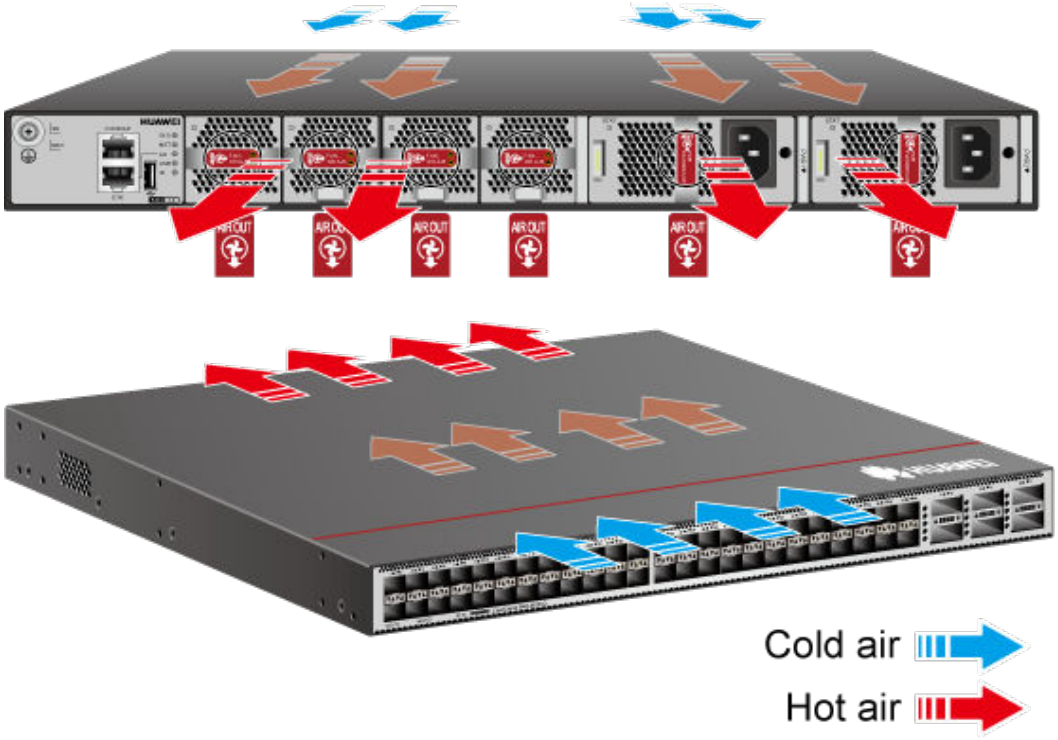
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-244** (using a CE6863 chassis as an example).

Figure 4-243 Front-to-back airflow for port-side exhaust



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Figure 4-244 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-225 Technical specifications of the CE6881-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.55 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.62 lb) (including AC power modules and fan modules, but not including optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (supporting only full-duplex)

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Item	Specification
Uplink Service interface	6 x 100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10G electrical port and 100G optical port
RTC	Supported
Typical power consumption [W]	• 347 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 362 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 1184 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 1235 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	235 W
Static heat dissipation [BTU/hour]	801 BTU/hour
Maximum power consumption [W]	452 W
Maximum heat dissipation	1542
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short period of time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999953209
MTBF [year]	48.16 years
MTTR [hour]	1.78 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dB(A) on average (maximum: 52 dB(A)) • Back-to-front airflow: 50 dB(A) on average (maximum: 52 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dB(A) on average (maximum: 74 dB(A)) • Back-to-front airflow: 67 dB(A) on average (maximum: 73 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.18.3 CE6881-48T6CQ (02353GLB-002)

Overview

Table 4-226 Basic information about the CE6881-48T6CQ

Item	Details
Description	CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353GLB-002
Model	CE6881-48T6CQ
First supported version	V200R021C10SPC600
Other part numbers	02353GLC-002 (CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353GLD-002 (CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))

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Item	Details
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH022 or a later version. If the switch runs V200R021C10SPC600, install the patch of V200R021SPH022 or a later version.
Short Name	CE6881

Appearance

Figure 4-245 Appearance of the CE6881-48T6CQ



Front (power supply side)



Rear (port side)

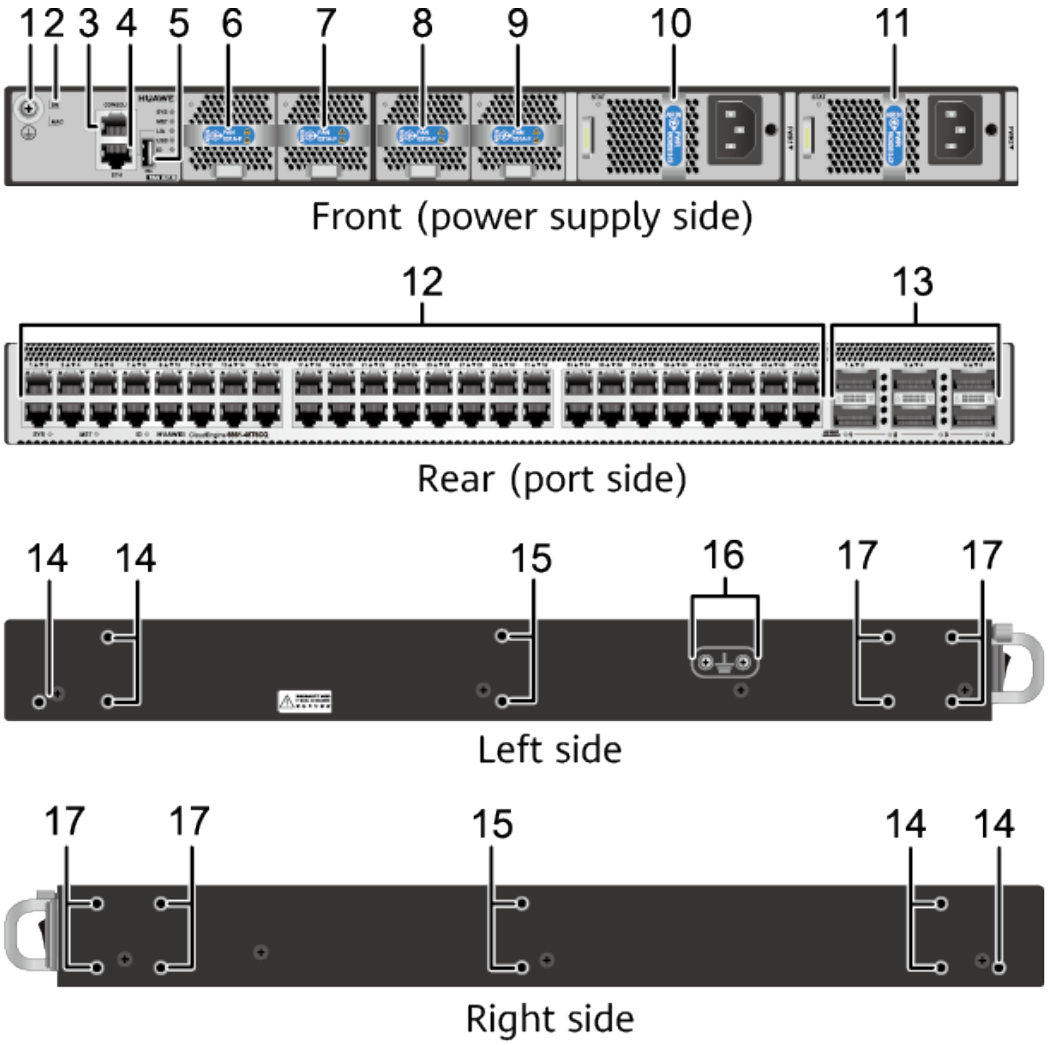
NOTE

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Components

Figure 4-246 Components of the CE6881-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-227 Slots on the CE6881-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-247 Indicators on the CE6881-48T6CQ 1

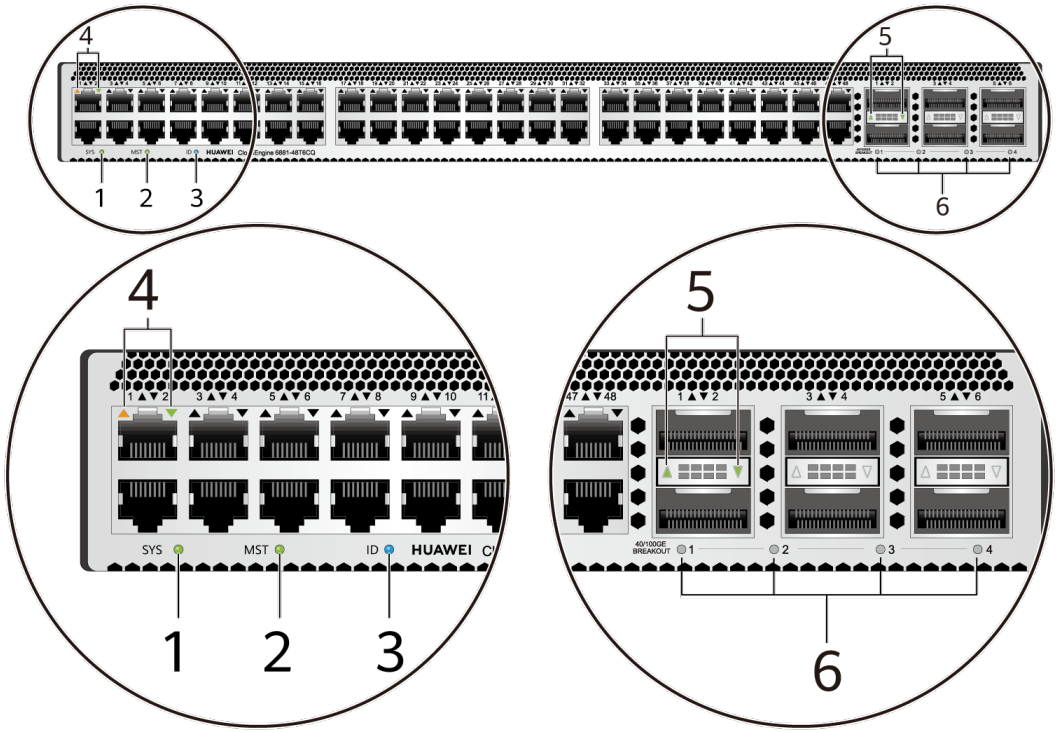
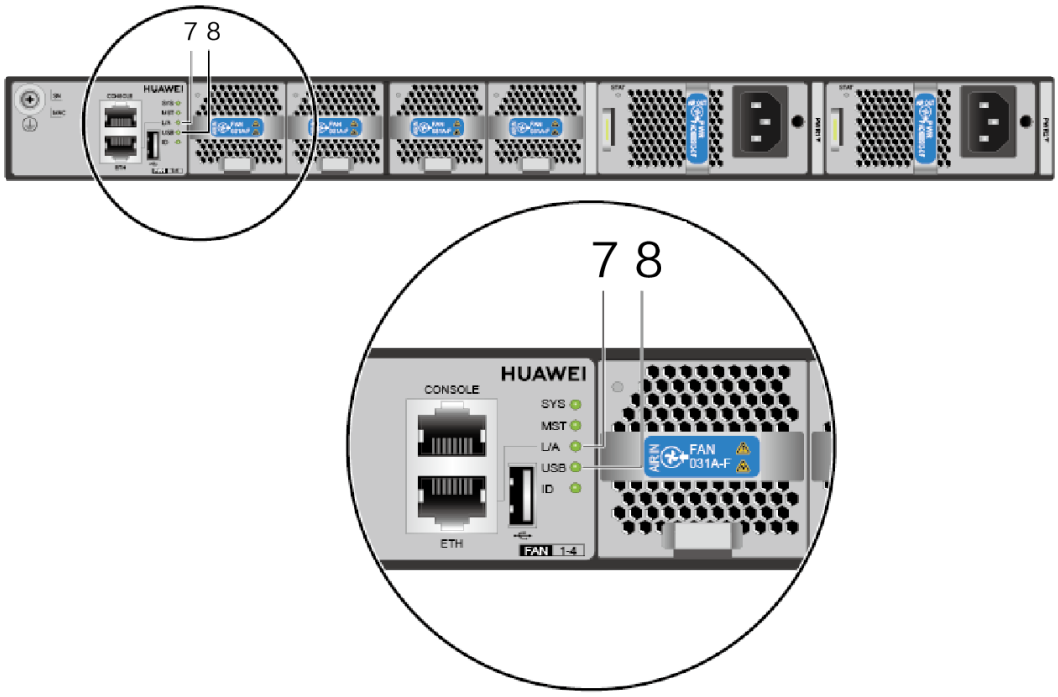


Figure 4-248 Indicators on the CE6881-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-228 Indicators on the CE6881-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE A 40GE/100GE QSFP28 optical port on the CE6881-48T6CQ cannot be split into four 10GE or 25GE ports, and the indicators are off.	Green	Steady on	At least one port works in 10GE/25GE mode and is split into four 10GE/25GE ports.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-229 Ports on the CE6881-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet electrical port receives and sends service traffic at 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port supports auto-sensing to 100 Mbit/s or 1000 Mbit/s. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Complied standards: IEEE 802.3an and IEEE 802.3az • Electrical interface attribute: Both straight-through cables and crossover cables can be used. • Working mode: 100 Mbit/s, 1000 Mbit/s, and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	LC/MPO	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Standards compliance: IEEE 802.3ba • Optical port attribute: depending on the optical module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. QSFP+ to QSFP+ high-speed cables and QSFP28 to QSFP28 high-speed cables do not support auto-negotiation of copper cables. They can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports 1/3/5 m QSFP28 high-speed cables. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables. 4. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

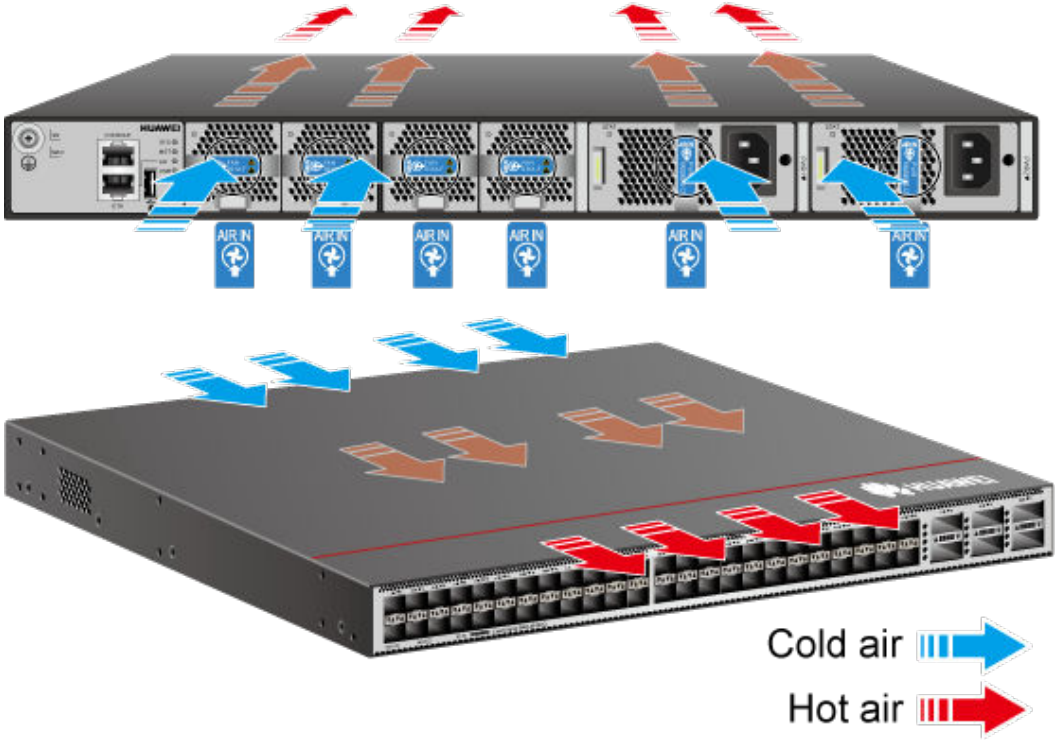
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

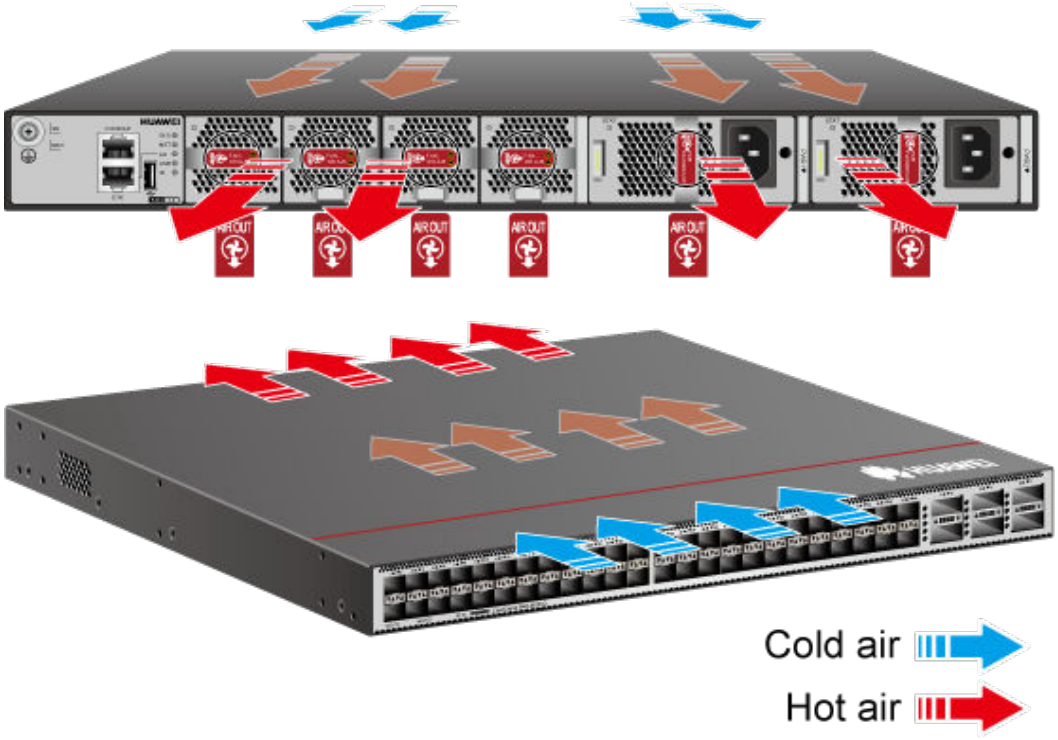
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-249 Front-to-back airflow for port-side exhaust



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Figure 4-250 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-230 Technical specifications of the CE6881-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.55 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.62 lb) (including AC power modules and fan modules, but not including optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (supporting only full-duplex)

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Item	Specification
Uplink Service interface	6 x 100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10G electrical port and 100G optical port
RTC	Supported
Typical power consumption [W]	• 347 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 362 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 1184 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 1235 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	235 W
Static heat dissipation [BTU/hour]	801 BTU/hour
Maximum power consumption [W]	452 W
Maximum heat dissipation	1542
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short period of time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999953209
MTBF [year]	48.16 years
MTTR [hour]	1.78 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dB(A) on average (maximum: 52 dB(A)) • Back-to-front airflow: 50 dB(A) on average (maximum: 52 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dB(A) on average (maximum: 74 dB(A)) • Back-to-front airflow: 67 dB(A) on average (maximum: 73 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.4.18.4 CE6881-48T6CQ (02353GLB-004)

Overview

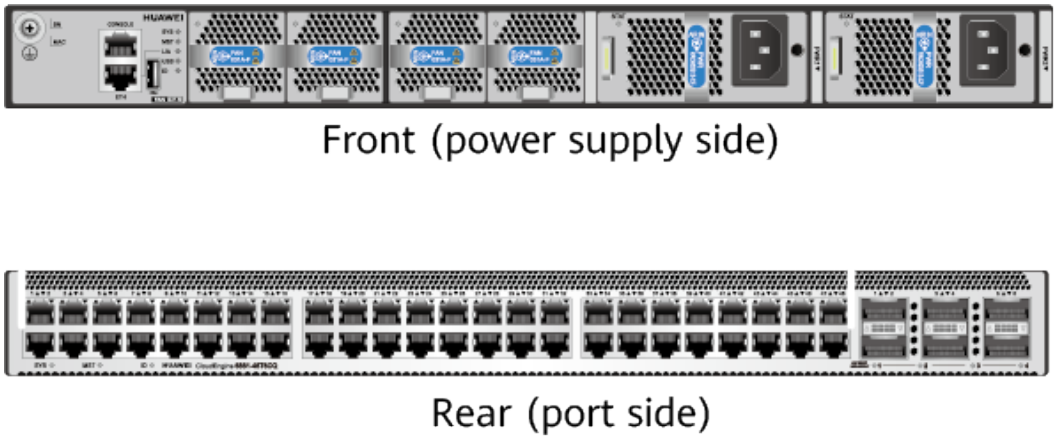
Table 4-231 Basic information about the CE6881-48T6CQ

Item	Details
Description	CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353GLB-004
Model	CE6881-48T6CQ
First supported version	V200R022C10
Other part numbers	02353GLC-004 (CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353GLD-004(CE6881-48T6CQ switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))
Short Name	CE6881

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Appearance

Figure 4-251 Appearance of the CE6881-48T6CQ



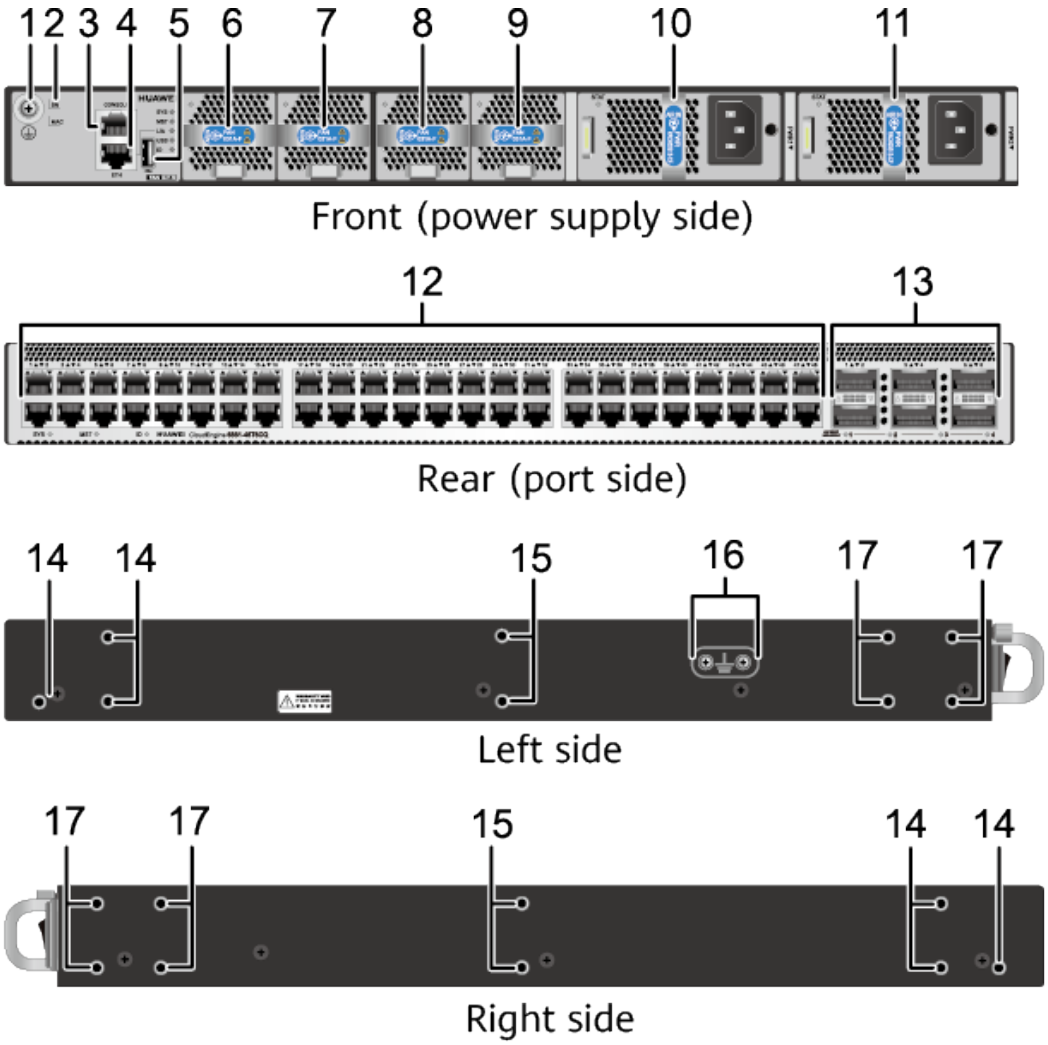
NOTE

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Components

Figure 4-252 Components of the CE6881-48T6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-232 Slots on the CE6881-48T6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-253 Indicators on the CE6881-48T6CQ 1

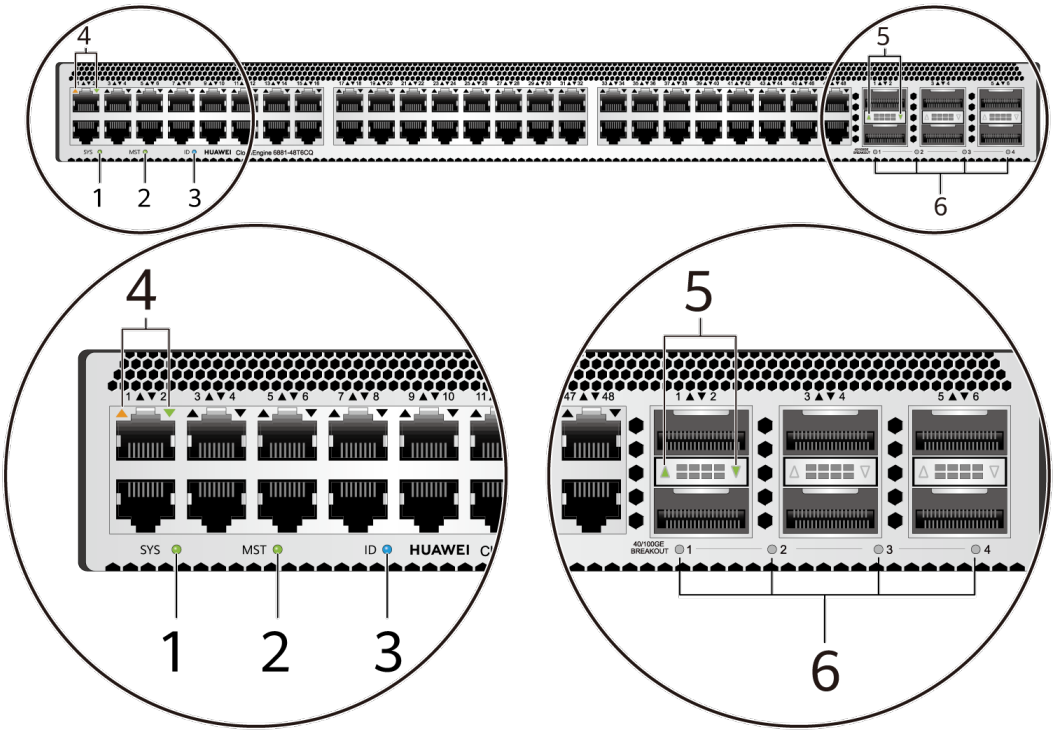
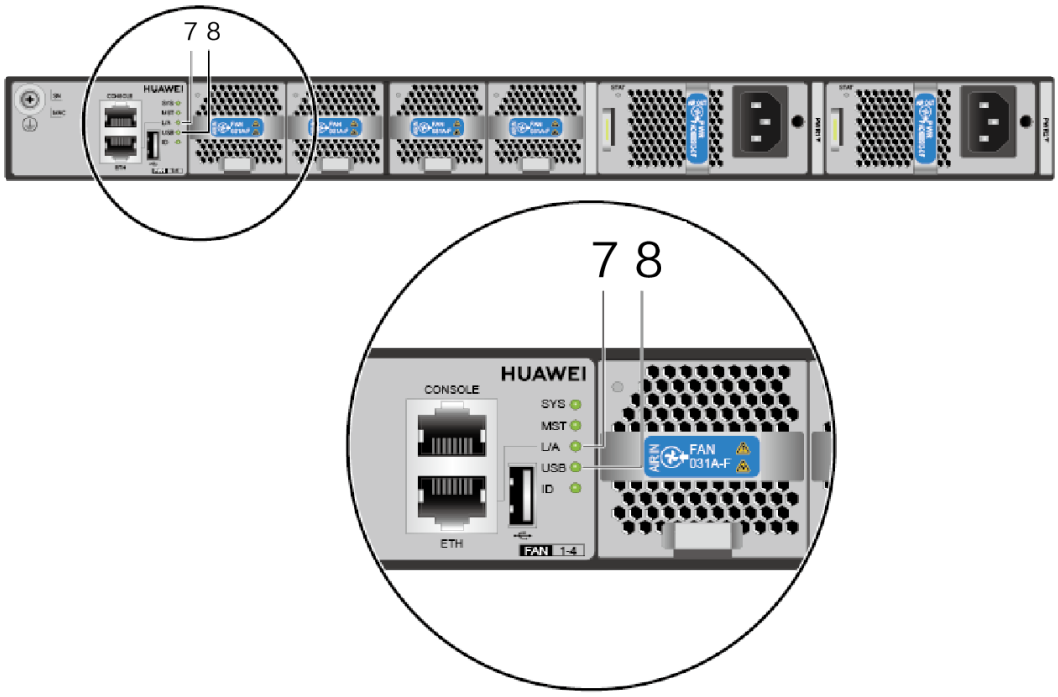


Figure 4-254 Indicators on the CE6881-48T6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-233 Indicators on the CE6881-48T6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
	NOTE · In V200R003C00 and later versions, you can run the dfs-master led enable command to enable the stack master/slave indicator to display the master/slave state of the DFS group. · After the stack master/slave indicator is enabled, it displays the master/slave state of the DFS group. The stack master/slave indicator of the device with DFS in the master state is steady on, and the stack master/slave indicator of the device with DFS in the slave state is steady off.	Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

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Silkscreen	Name	Color	Status	Description
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
	NOTE A 40GE/100GE QSFP28 optical port on the CE6881-48T6CQ cannot be split into four 10GE or 25GE ports, and the indicators are off.	Green	Steady on	At least one port works in 10GE/25GE mode and is split into four 10GE/25GE ports.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-234 Ports on the CE6881-48T6CQ

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet electrical port receives and sends service traffic at 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port supports auto-sensing to 100 Mbit/s or 1000 Mbit/s. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Standards compliance: IEEE 802.3an and IEEE 802.3az • Electrical interface attribute: Both straight-through cables and crossover cables can be used. • Working mode: 100 Mbit/s, 1000 Mbit/s, and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	LC/MPO	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Standards compliance: IEEE 802.3ba • Optical port attribute: depending on the optical module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. QSFP+ to QSFP+ high-speed cables and QSFP28 to QSFP28 high-speed cables do not support auto-negotiation of copper cables. They can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports 1/3/5 m QSFP28 high-speed cables. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables. 4. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

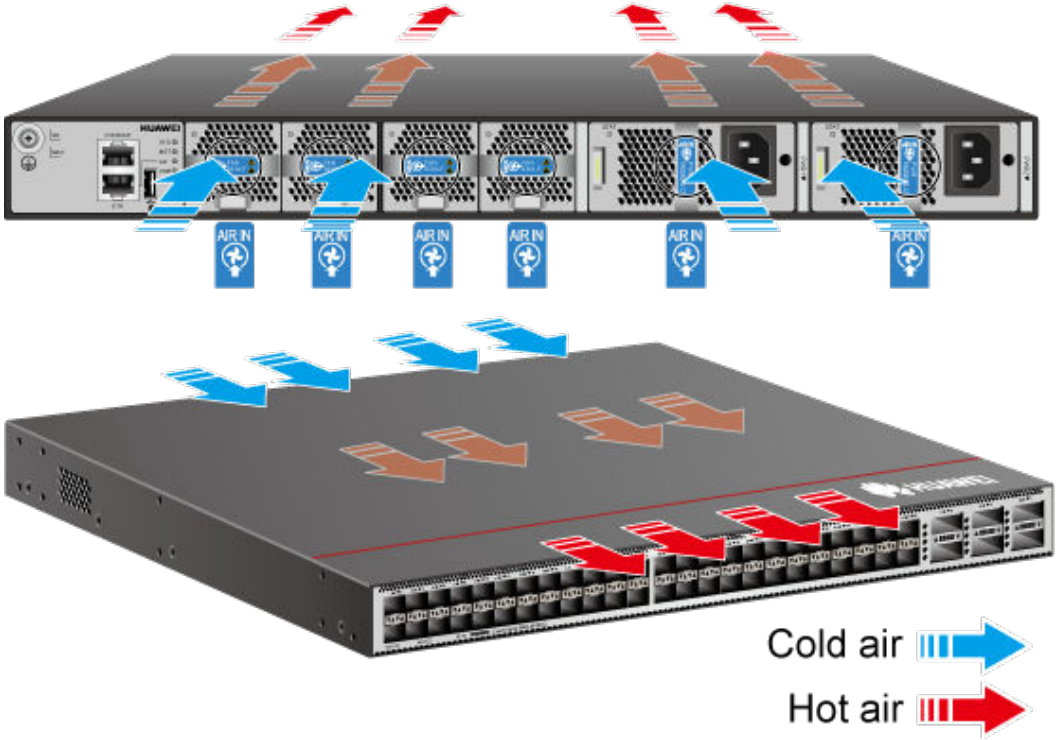
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

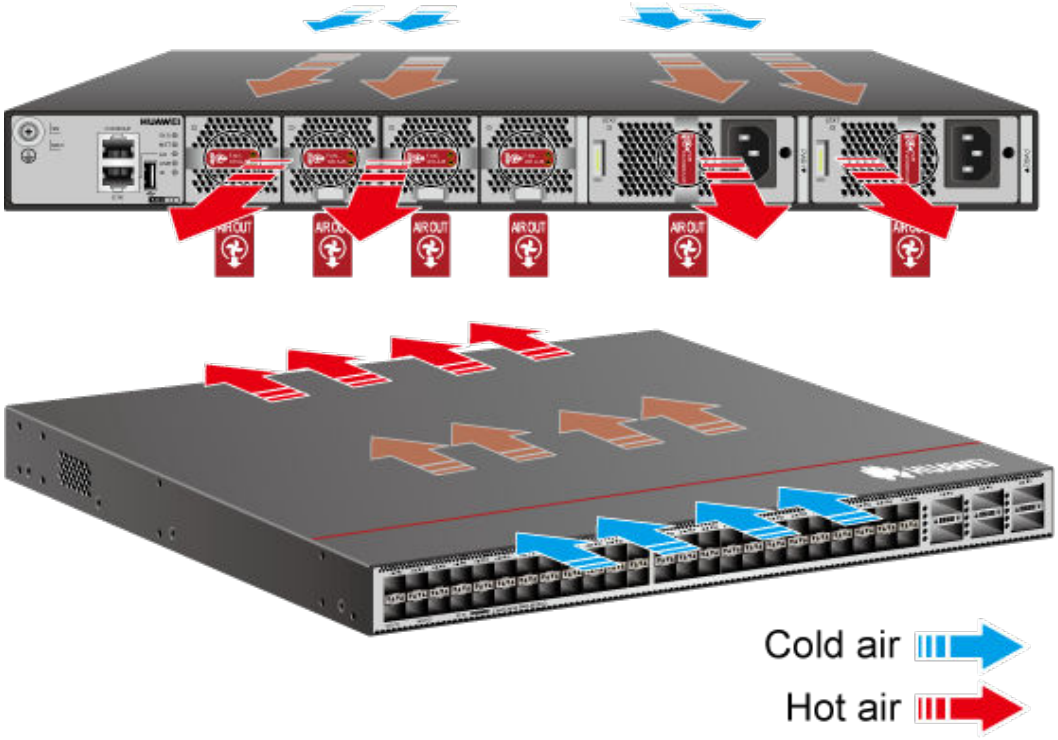
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-255 Front-to-back airflow for port-side exhaust



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Figure 4-256 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-235 Technical specifications of the CE6881-48T6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.55 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.62 lb) (including AC power modules and fan modules, but not including optical modules. If the device supports multiple models of modules, the heaviest modules are used for the measurement.)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (supporting only full-duplex)

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Item	Specification
Uplink Service interface	6 x 100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10G electrical port and 100G optical port
RTC	Supported
Typical power consumption [W]	• 347 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 362 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 1184 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 1235 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	235 W
Static heat dissipation [BTU/hour]	801 BTU/hour
Maximum power consumption [W]	452 W
Maximum heat dissipation	1542
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Compliance with safety standards • Compliance with EMC standards • Compliance with environment and environmental protection standards
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short period of time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.9999953209
MTBF [year]	48.16 years
MTTR [hour]	1.78 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dB(A) on average (maximum: 52 dB(A)) • Back-to-front airflow: 50 dB(A) on average (maximum: 52 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dB(A) on average (maximum: 74 dB(A)) • Back-to-front airflow: 67 dB(A) on average (maximum: 73 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.19 CE6881-48T6CQ-K

4.4.19.1 CE6881-48T6CQ-K (02353PCJ)

Overview

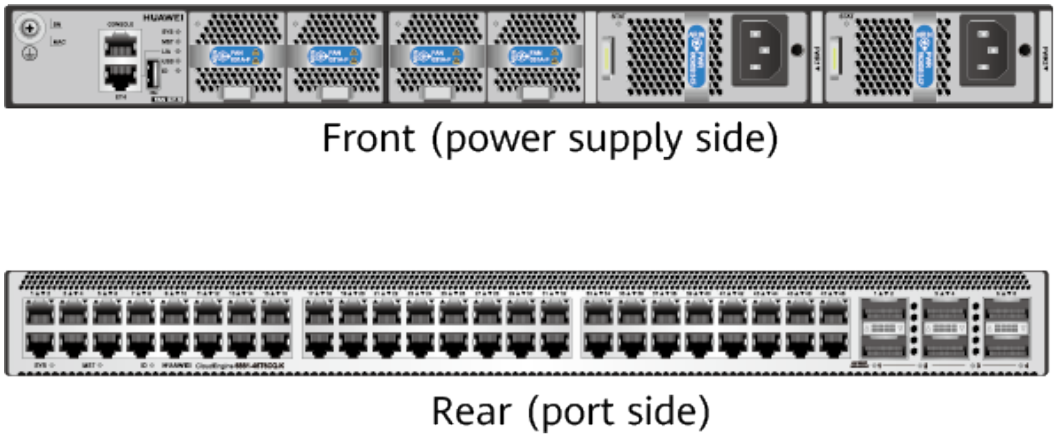
Table 4-236 Basic information about the CE6881-48T6CQ-K

Item	Details
Description	CE6881-48T6CQ-K switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353PCJ
Model	CE6881-48T6CQ-K
First supported version	V200R020C00
Other part numbers	02353PCK (CE6881-48T6CQ-K switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake))
Short Name	CE6881K

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Appearance

Figure 4-257 Appearance of the CE6881-48T6CQ-K



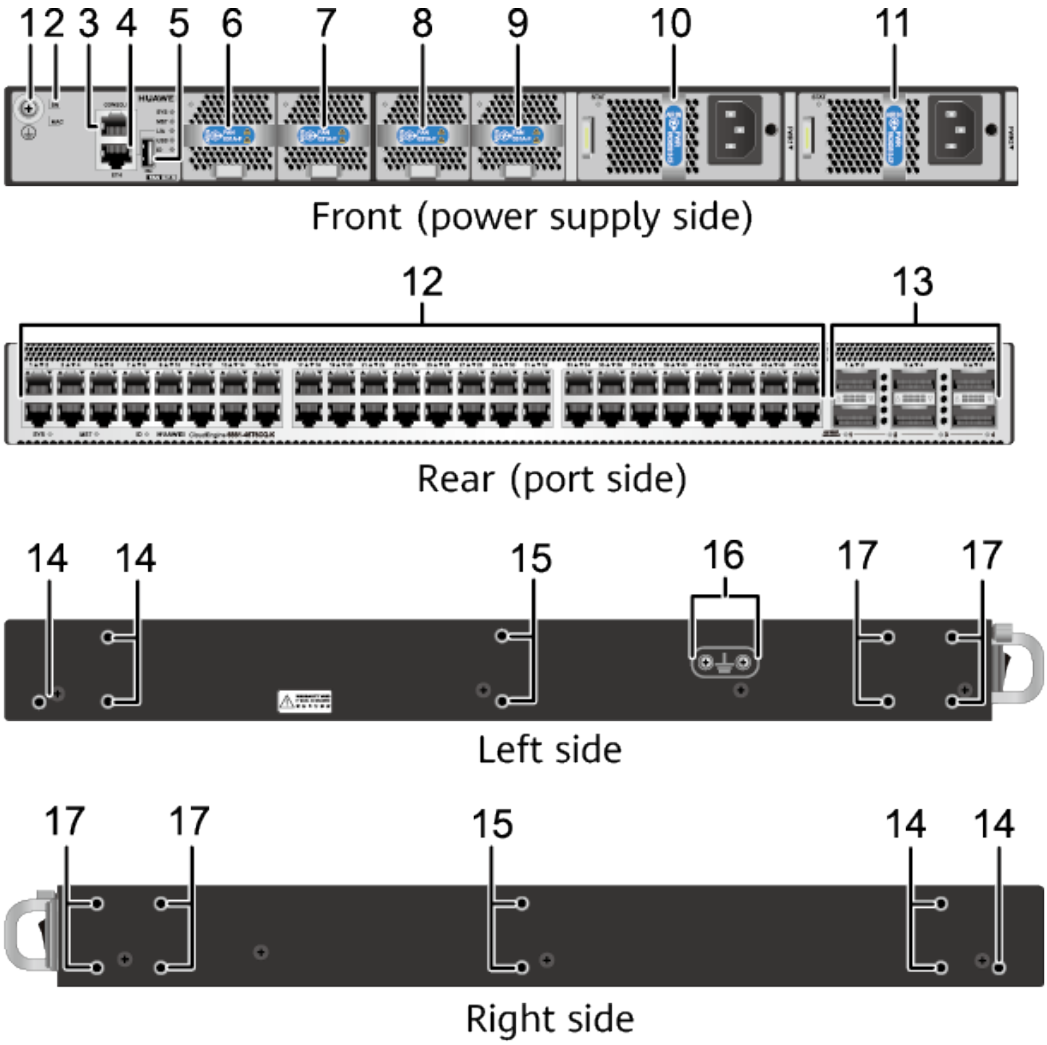
NOTE

The figures in this document are for reference only.

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Components

Figure 4-258 Components of the CE6881-48T6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-237 Slots on the CE6881-48T6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-259 Indicators on the CE6881-48T6CQ-K 1

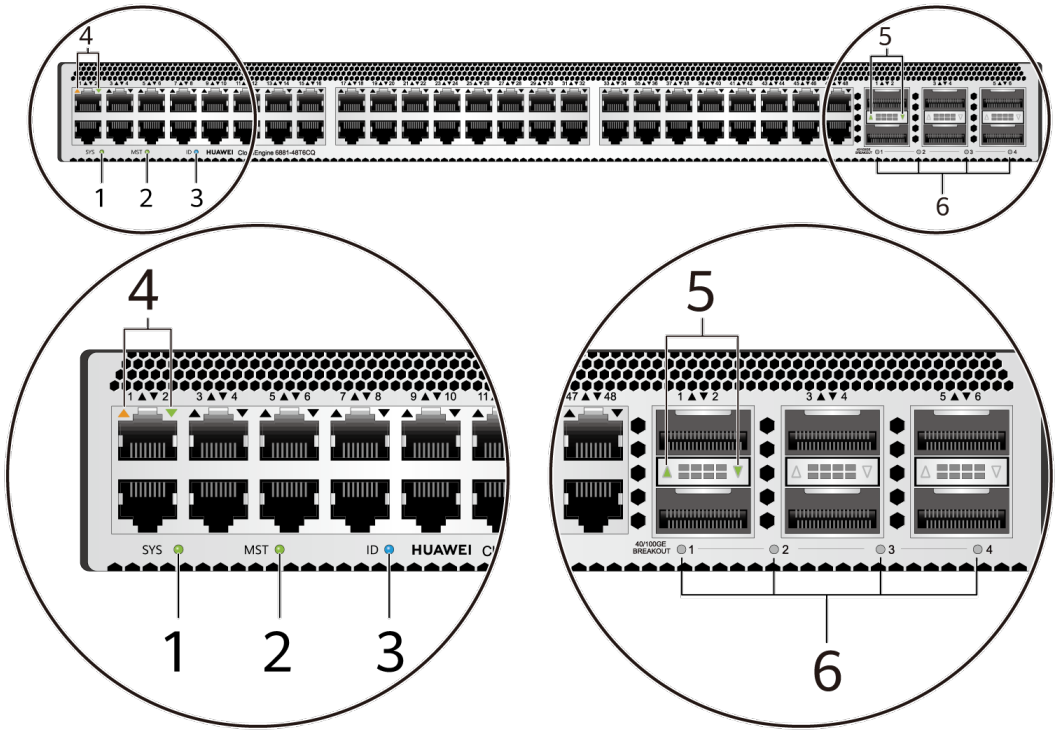
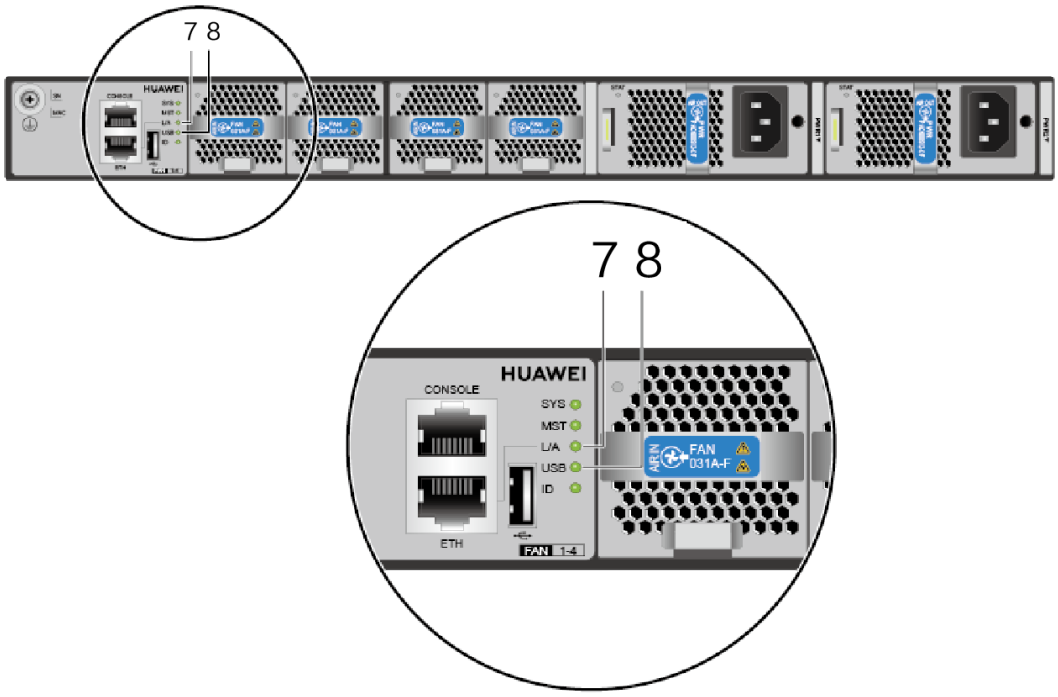


Figure 4-260 Indicators on the CE6881-48T6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-238 Indicators on the CE6881-48T6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.
		Green	Steady on	At least one port works in 10GE/25GE mode and is split into four 10GE/25GE ports.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-239 Ports on the CE6881-48T6CQ-K

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet electrical port receives and sends service traffic at 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port supports auto-sensing to 100 Mbit/s or 1000 Mbit/s. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Standards compliance: IEEE 802.3an and IEEE 802.3az • Electrical interface attribute: Both straight-through cables and crossover cables can be used. • Working mode: 100 Mbit/s, 1000 Mbit/s, and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	LC/MPO	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Standards compliance: IEEE 802.3ba • Optical port attribute: depending on the optical module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. QSFP+ to QSFP+ high-speed cables and QSFP28 to QSFP28 high-speed cables do not support auto-negotiation of copper cables. They can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports 1/3/5 m QSFP28 high-speed cables. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables. 4. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

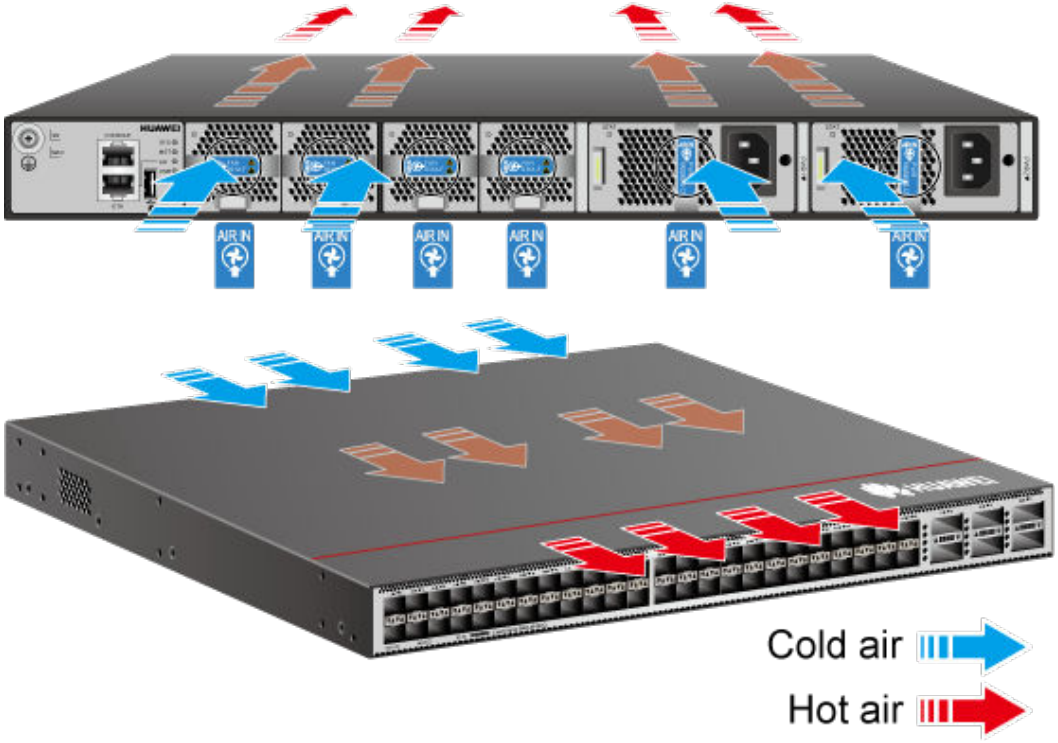
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-261** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

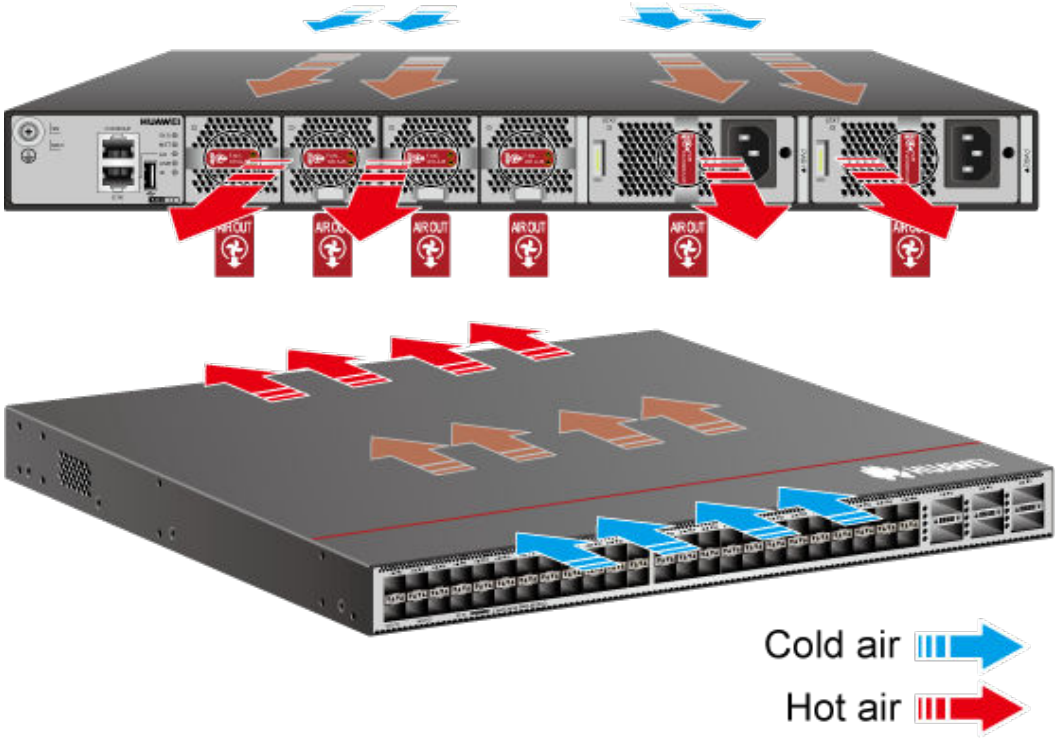
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-262** (using a CE6863 chassis as an example).

Figure 4-261 Front-to-back airflow for port-side exhaust



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Figure 4-262 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-240 Technical specifications of the CE6881-48T6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.6 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHZ
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (Only full-duplex is supported)

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Item	Specification
Uplink Service interface	6 x 100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 347 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 362 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 1184 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 1235 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports + short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	235 W
Static heat dissipation [BTU/hour]	801 BTU/hour
Maximum power consumption [W]	452 W
Maximum heat dissipation	1542
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999953209
MTBF [year]	48.16 years
MTTR [hour]	1.78 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dB(A) on average (maximum: 52 dB(A)) • Back-to-front airflow: 50 dB(A) on average (maximum: 52 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dB(A) on average (maximum: 74 dB(A)) • Back-to-front airflow: 67 dB(A) on average (maximum: 73 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.19.2 CE6881-48T6CQ-K (02353PCJ-001)

Overview

Table 4-241 Basic information about the CE6881-48T6CQ-K

Item	Details
Description	CE6881-48T6CQ-K switch (48*10GE RJ45, 6*100GE QSFP28, without fan and power modules)
Part Number	02353PCJ-001
Model	CE6881-48T6CQ-K
First supported version	V200R021C10SPC600
Other part numbers	02353PCK-001 (CE6881-48T6CQ-K switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02354TDU-001 (CE6881-48T6CQ-K switch (48*10GE RJ45, 6*100GE QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))

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Item	Details
Supported Patch Version	If the switch runs V200R021C00SPC200, install the patch of V200R021SPH022 or a later version. If the switch runs V200R021C10SPC600, install the patch of V200R021SPH022 or a later version.
Short Name	CE6881K

Appearance

Figure 4-263 Appearance of the CE6881-48T6CQ-K



Front (power supply side)



Rear (port side)

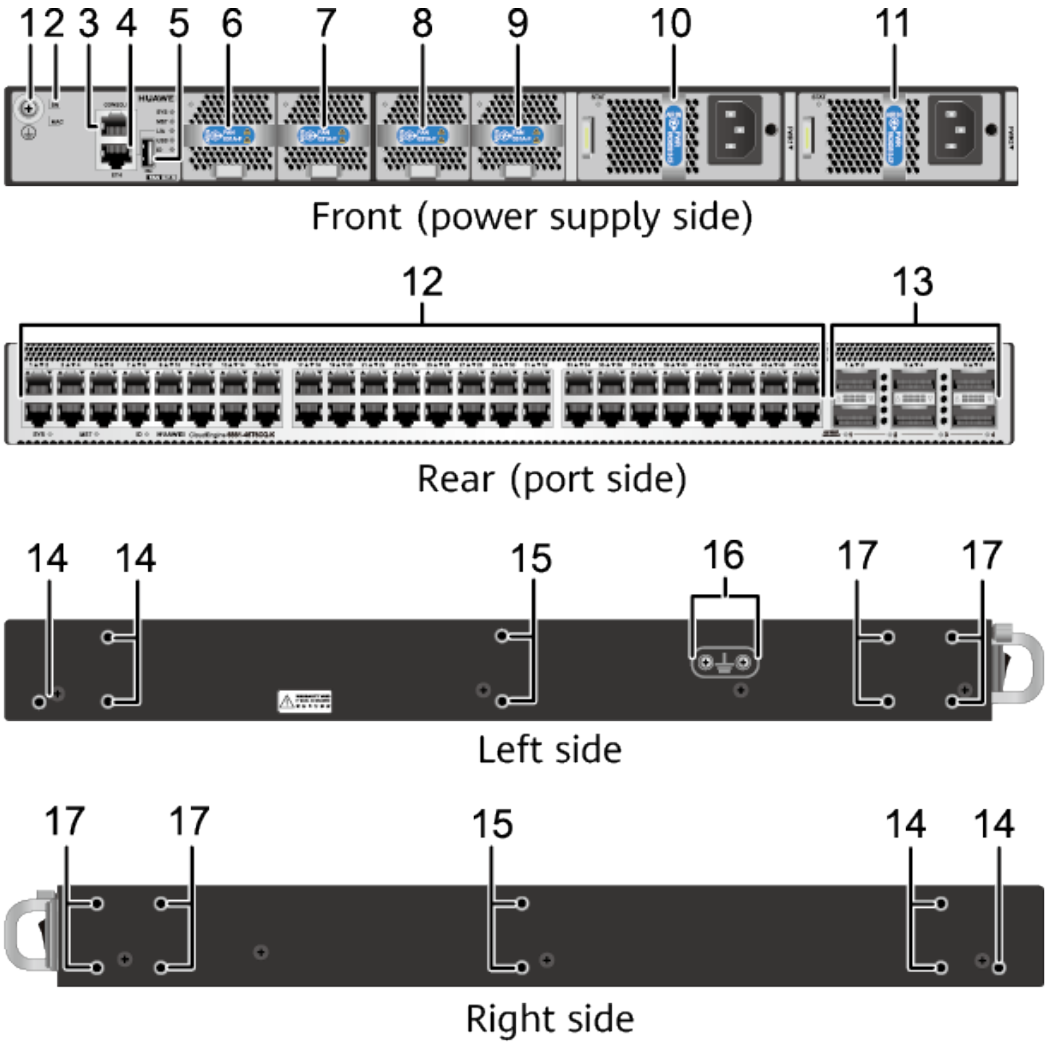
NOTE

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Components

Figure 4-264 Components of the CE6881-48T6CQ-K



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Forty-eight 10GBASE-T Ethernet electrical ports
13	Six 40GE/100GE QSFP28 Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-242 Slots on the CE6881-48T6CQ-K

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	(1) The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. (2) The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. (3) All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	1) To ensure system stability and heat dissipation, each CloudEngine 6800 series switch provides four fan slots, in which pluggable fan modules are installed to cool the chassis. 2) It is recommended that four fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. 3) All fan modules are hot swappable.

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Indicators

Figure 4-265 Indicators on the CE6881-48T6CQ-K 1

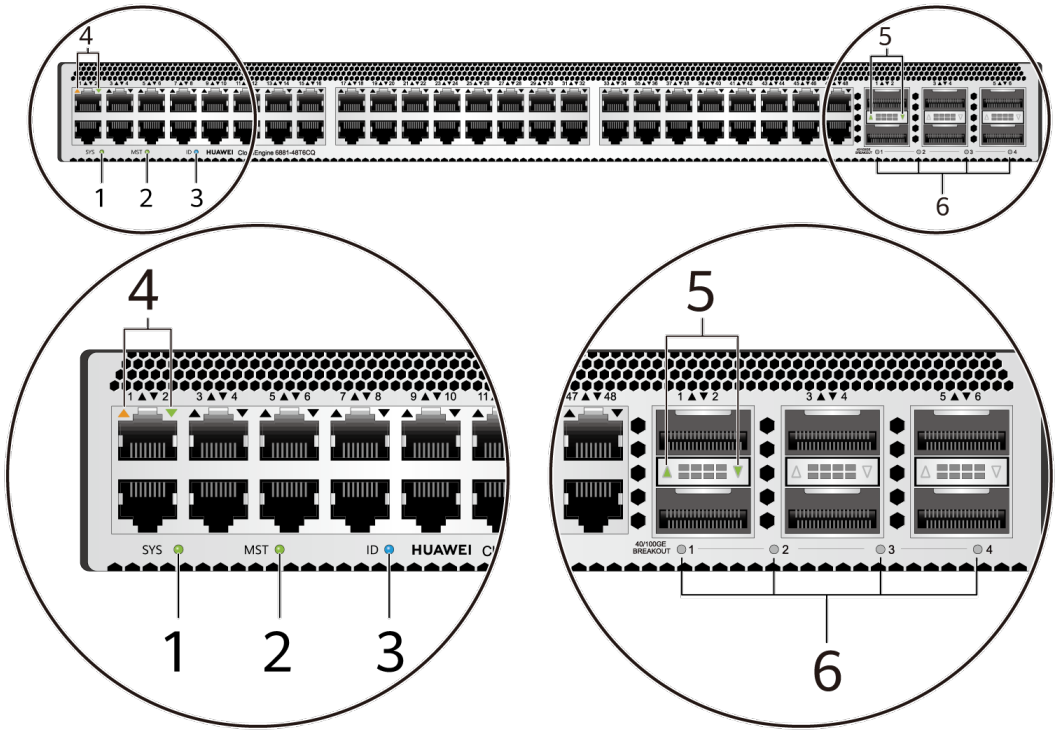
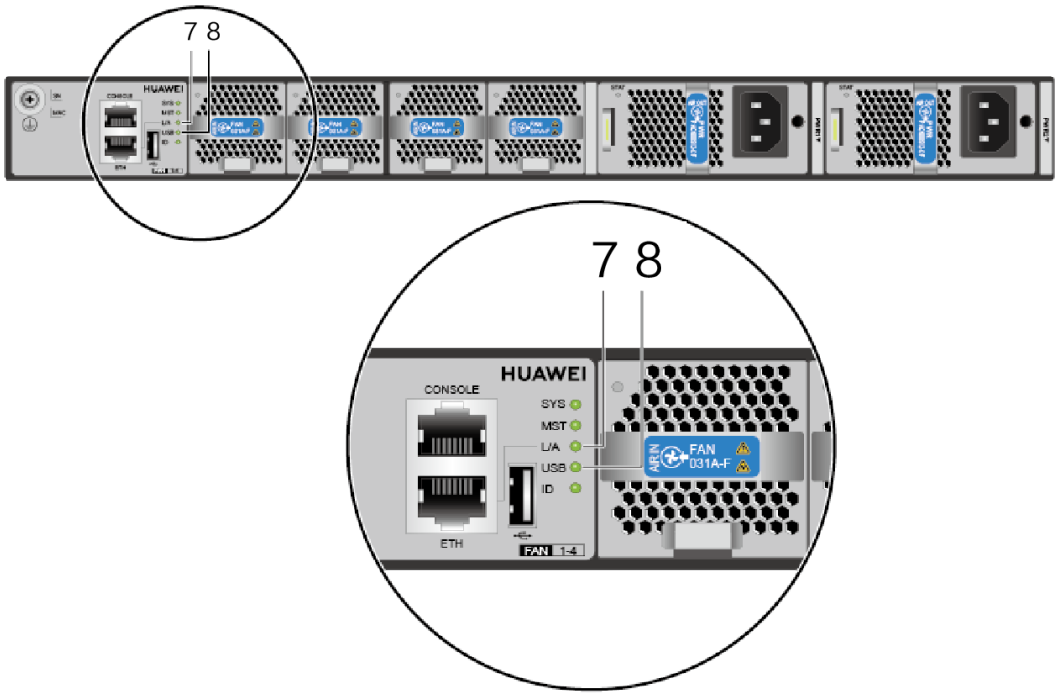


Figure 4-266 Indicators on the CE6881-48T6CQ-K 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GBASE-T electrical port)	5. Service port indicator (40GE/100GE optical port)
6. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-243 Indicators on the CE6881-48T6CQ-K

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GBASE-T Ethernet electrical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE QSFP28 optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE QSFP28 optical port)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.
		Green	Steady on	At least one port works in 10GE/25GE mode and is split into four 10GE/25GE ports.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-244 Ports on the CE6881-48T6CQ-K

Port	Connector Type	Description	Available Components
10GBASE-T Ethernet electrical port	RJ45	A 10GBASE-T Ethernet electrical port receives and sends service traffic at 100 Mbit/s, 1000 Mbit/s, or 10 Gbit/s. The port supports auto-sensing to 100 Mbit/s or 1000 Mbit/s. 10GBASE-T Ethernet electrical ports must use Category 6A shielded Ethernet cables or higher Ethernet cables. • Complied standards: IEEE 802.3an and IEEE 802.3az • Electrical interface attribute: Both straight-through cables and crossover cables can be used. • Working mode: 100 Mbit/s, 1000 Mbit/s, and 10 Gbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Both straight-through cables and crossover cables can be used.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	LC/MPO	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Standards compliance: IEEE 802.3ba • Optical port attribute: depending on the optical module or cable in use • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. QSFP+ to QSFP+ high-speed cables and QSFP28 to QSFP28 high-speed cables do not support auto-negotiation of copper cables. They can only be used on stack ports and M-LAG peer-link ports. 2. When a QSFP28 high-speed cable is installed on a 100GE port that works at 100 Gbit/s, the port supports 1/3/5 m QSFP28 high-speed cables. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables. 4. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) of a device is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. • Complied standard: IEEE 802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

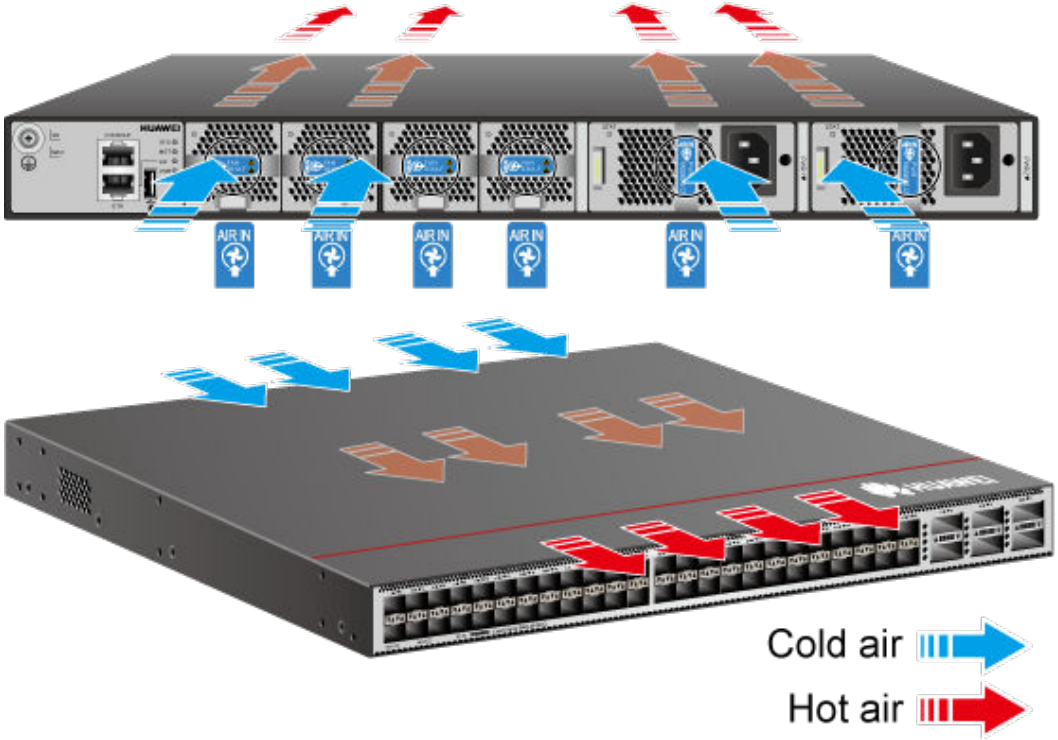
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- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5 Front-to-back airflow for port-side exhaust** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

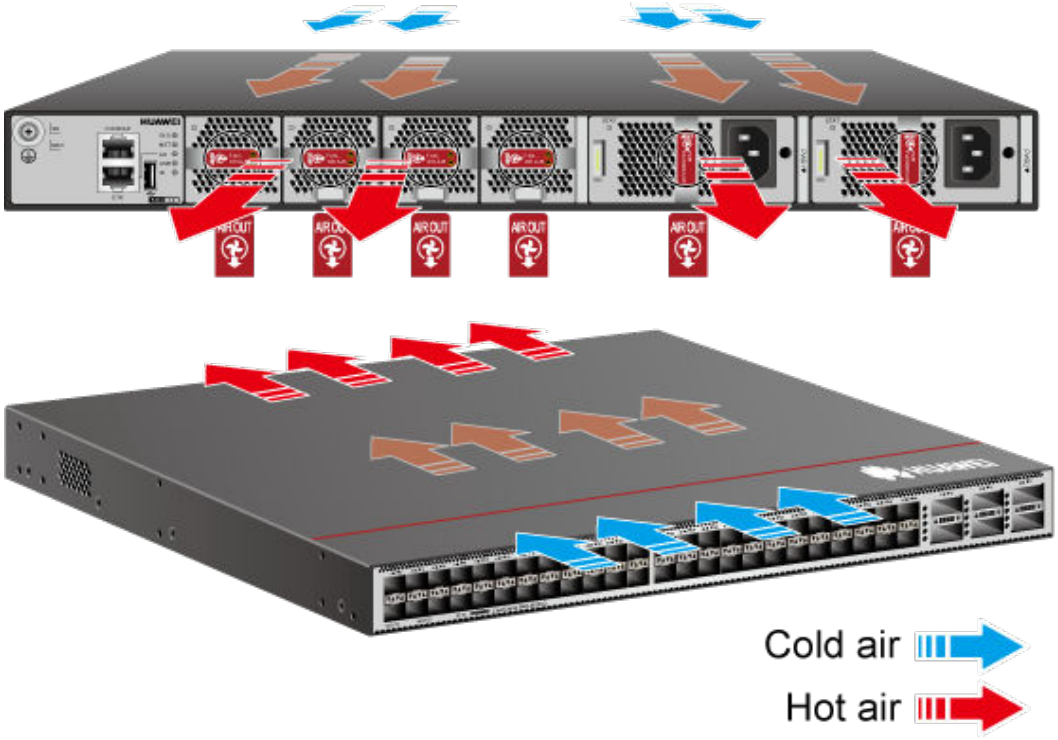
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6 Back-to-front airflow for port-side intake** (using a CE6863 chassis as an example).

Figure 4-267 Front-to-back airflow for port-side exhaust



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Figure 4-268 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-245 Technical specifications of the CE6881-48T6CQ-K

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	6.6 kg (14.6 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.9 kg (19.6 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	10.4 kg (22.93 lb)
Weight with packaging (full configuration) [kg (lb)]	12.3 kg (27.12 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHZ
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	48*10GE RJ45 (Only full-duplex is supported)

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Item	Specification
Uplink Service interface	6 x 100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. In versions earlier than V200R022C00, 100GE ports cannot be split into 4 x 25GE and 4 x 10GE ports. In V200R022C00 and later versions, ports 5 and 6 can be split into 4 x 25GE or 4 x 10GE ports. Other ports cannot be split. 40GE/100GE port 5 supports only static split, and 40GE/100GE port 4 is deleted after split is configured. After split is canceled for 40GE/100GE port 5, 40GE/100GE port 5 can be restored, but 40GE/100GE port 4 can be restored only after the card is restarted. After a port is split, the port cannot be connected using a copper cable. When a copper cable is installed on the port, a message is displayed, indicating that the medium does not match. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE electrical ports and 100GE optical ports
RTC	Supported
Typical power consumption [W]	• 347 W (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 362 W (50% throughput, 3 m Ethernet cables on 48 ports and short-distance optical modules on 6 ports, normal temperature, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	• 1184 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports and QSFP28 high-speed cables on 6 ports, normal temperature, dual power modules) • 1235 BTU/hr (50% throughput, 3 m Ethernet cables on 48 ports + short-distance optical modules on 6 ports, normal temperature, dual power modules)
Static power consumption [W]	235 W
Static heat dissipation [BTU/hour]	801 BTU/hour
Maximum power consumption [W]	452 W
Maximum heat dissipation	1542
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	• AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode • HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999953209
MTBF [year]	48.16 years
MTTR [hour]	1.78 hours
Noise at normal temperature (27°C, sound pressure) [dB(A)]	• Front-to-back airflow: 49 dB(A) on average (maximum: 52 dB(A)) • Back-to-front airflow: 50 dB(A) on average (maximum: 52 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	• Front-to-back airflow: 69 dB(A) on average (maximum: 74 dB(A)) • Back-to-front airflow: 67 dB(A) on average (maximum: 73 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	< 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.4.20 CE6881E-48S6CQ (02353LHN)

Overview

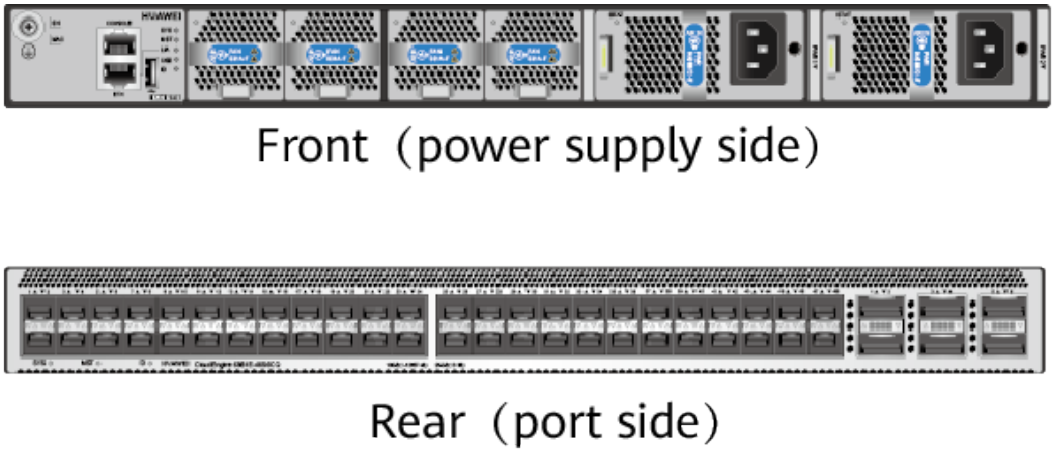
Table 4-246 Basic information about the CE6881E-48S6CQ

Item	Details
Description	CE6881E-48S6CQ switch (24*25G SFP28,24*10G SFP+, 6*100G QSFP28, without fan and power modules)
Part Number	02353LHN
Model	CE6881E-48S6CQ
First supported version	V200R019C10
Other part numbers	02353LHP (CE6881E-48S6CQ switch (24*25G SFP28,24*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side intake)) 02353LHQ (CE6881E-48S6CQ switch (24*25G SFP28,24*10G SFP+, 6*100G QSFP28, 2*AC power modules, 4*fan modules, port-side exhaust))

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Appearance

Figure 4-269 Appearance of the CE6881E-48S6CQ



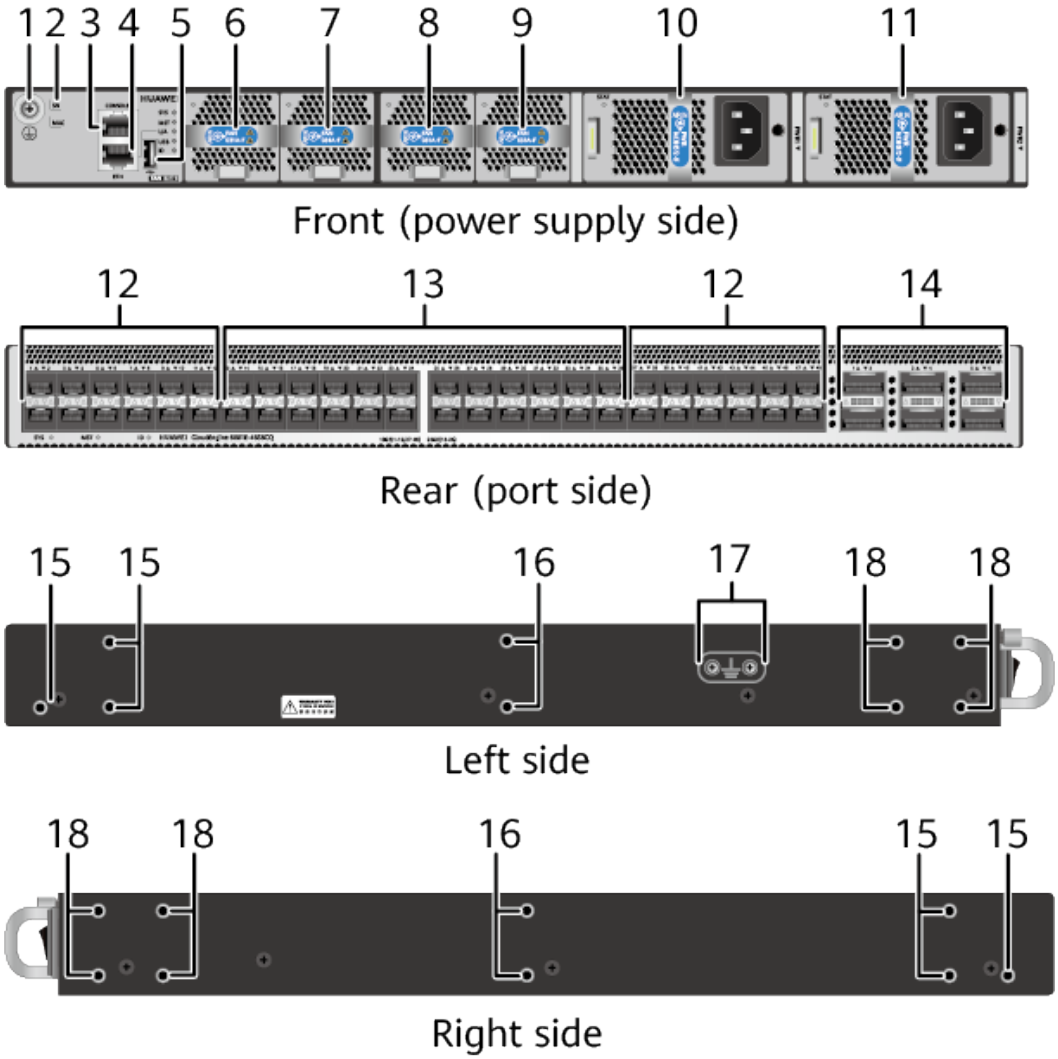
NOTE

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Components

Figure 4-270 Components of the CE6881E-48S6CQ



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	Console port	4	ETH management port (RJ45)
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Twenty-four 10GE SFP+ Ethernet optical ports
13	Twenty-four 10GE/25GE SFP28 Ethernet optical ports	14	Six 40GE/100GE QSFP28 Ethernet optical ports
15	Three port-side mounting holes for mounting brackets	16	Two middle mounting holes for mounting brackets
17	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal	18	Four power-supply-side mounting holes for mounting brackets

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Slot Layout

Table 4-247 Slots on the CE6881E-48S6CQ

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	The CloudEngine 6800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 6800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	• Each of the CloudEngine 6800 series switches has four fan slots in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. • It is recommended that four fan modules be properly installed on the switch to ensure normal switch operating. The switch supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. • All fan modules are hot swappable.

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Indicators

Figure 4-271 Indicators on the CE6881E-48S6CQ 1

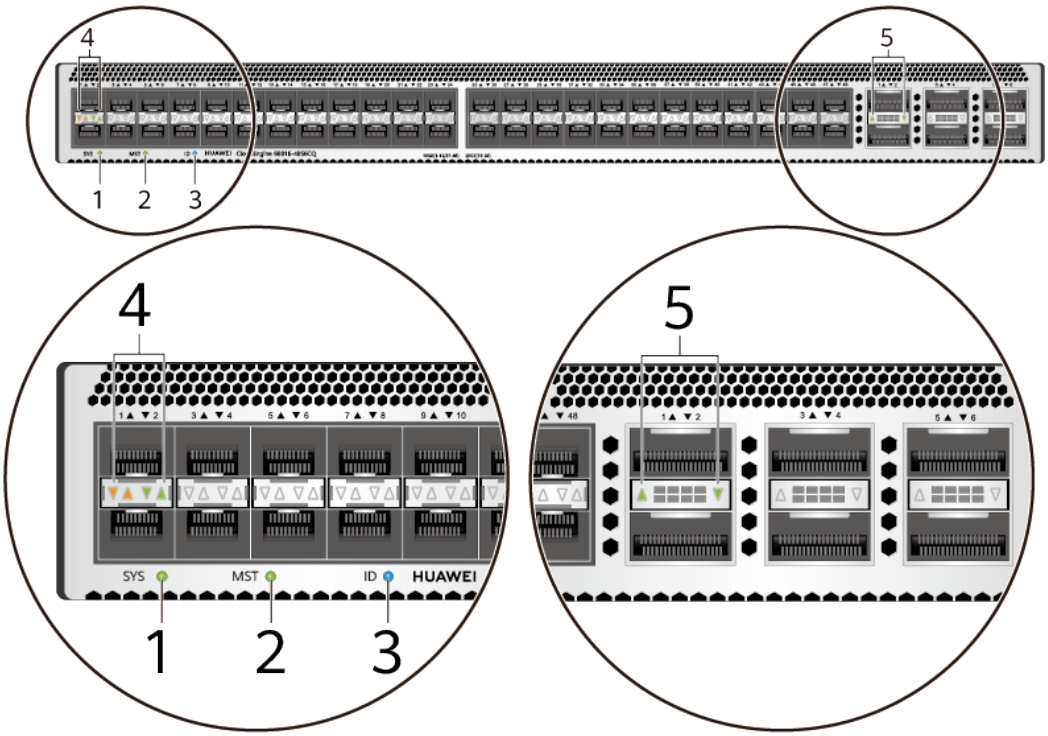
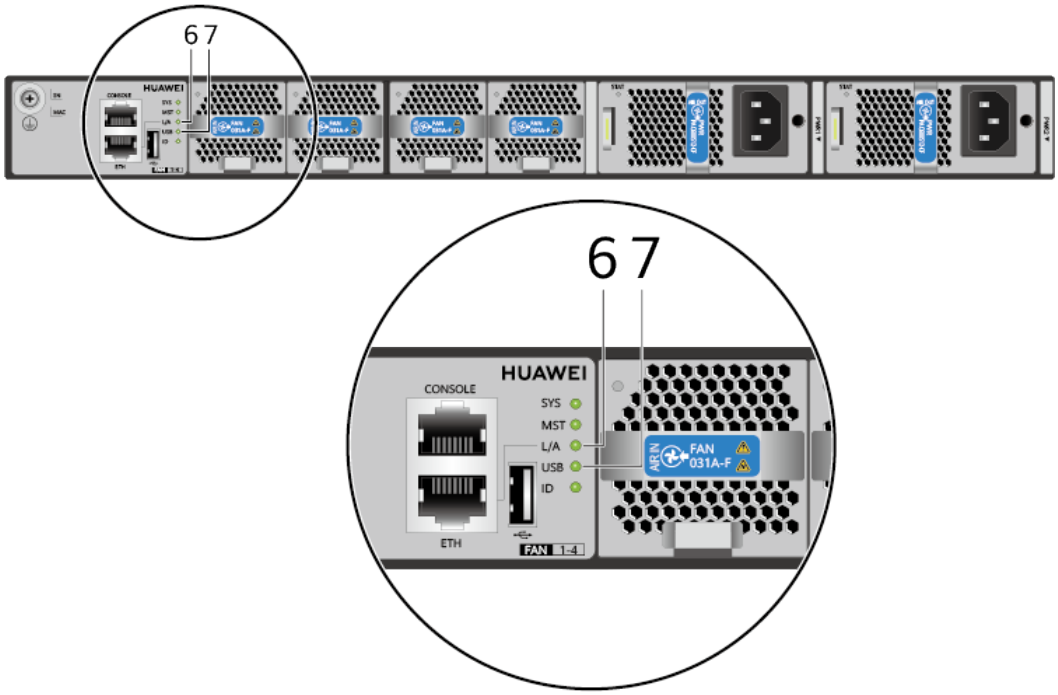


Figure 4-272 Indicators on the CE6881E-48S6CQ 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (10GE/25GE optical port)	5. Service port indicator (40GE/100GE optical port)
6. ETH management port indicator	7. USB-based deployment indicatorc	-	-	-

Table 4-248 Indicators on the CE6881E-48S6CQ

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).

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Silkscreen	Name	Color	Status	Description
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE/25GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Yellow	Steady off	The port is not sending or receiving data.
		Yellow	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-249 Ports on the CE6881E-48S6CQ

Port	Connector Type	Description	Available Components
10GE SFP+ port	LC	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** (1) When a GE copper module is installed on a 10GE optical port, the port can only work at 100 Mbit/s or 1000 Mbit/s. (2) 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules.

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Port	Connector Type	Description	Available Components
10GE/25GE SFP28 optical port	The connector type of the optical fiber depends on the optical module.	• Optical port attribute: depending on the optical module or cable in use • Restrictions: A 10GE/25GE SFP28 optical port works at 25 Gbit/s by default and does not support 1 Gbit/s or 10 Gbit/s auto-sensing. You can run the port mode 10g or port mode ge command to set the port speed to 10 Gbit/s or 1 Gbit/s. The 24 10GE/25GE SFP28 optical ports are divided into 6 port groups, with four ports in each group (13-16, 17-20, 21-24, ..., 33-36). · If any port in a port group is configured to work at 1 Gbit/s, 10 Gbit/s, or 25 Gbit/s, the other three ports in the group work at the same speed. · When four ports in a port group work at 25 Gbit/s, they support only 25GE media and	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **25GE SFP28 optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **SFP28 to SFP28 AOC cable** **SFP28 to SFP28 high-speed cable** **NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. When the port works at 25 Gbit/s, 1 m SFP28 high-speed cables are supported, and auto-negotiation of copper cables is not supported. The SFP28 high-speed cables can only be used on stack ports and M-LAG peer-link ports. 4. When a 25GE port is configured to work at 10 Gbit/s, the port supports 1 m, 3 m, and 5 m 10G SFP+ high-speed cables.

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Port	Connector Type	Description	Available Components
		will go Down if other types of media are used. When the ports in a port group work at 10 Gbit/s, they support only 10GE media and will go Down if other types of media are used. When the ports in a port group work at 1 Gbit/s, they support only GE media and will go Down if other types of media are used. • Complied standard: IEEE 802.3by • Working mode: full-duplex	

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • 40GE/100GE QSFP28 Ethernet optical ports cannot be split. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE 1. Ports to which QSFP+ to QSFP+ or QSFP28 to QSFP28 high-speed cables are connected cannot be split into 4x25GE and 4x10GE ports. Auto-negotiation of copper cables is not supported. These cables can only be used on stack ports and M-LAG peer-link ports. 2. When a 100GE port has a QSFP28 high-speed cable installed and works at the rate of 100 Gbit/s, 1 m, 3 m, and 5 m QSFP28 high-speed cables are supported. The 100G 3/5 m copper cable supports only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state. 3. If a 100GE port is configured to work at the rate of 40 Gbit/s, the port supports 1 m, 3 m, and 5 m 40G QSFP + high-speed cables.

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure 4-273** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-274** (using a CE6863 chassis as an example).

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Figure 4-273 Front-to-back airflow for port-side exhaust

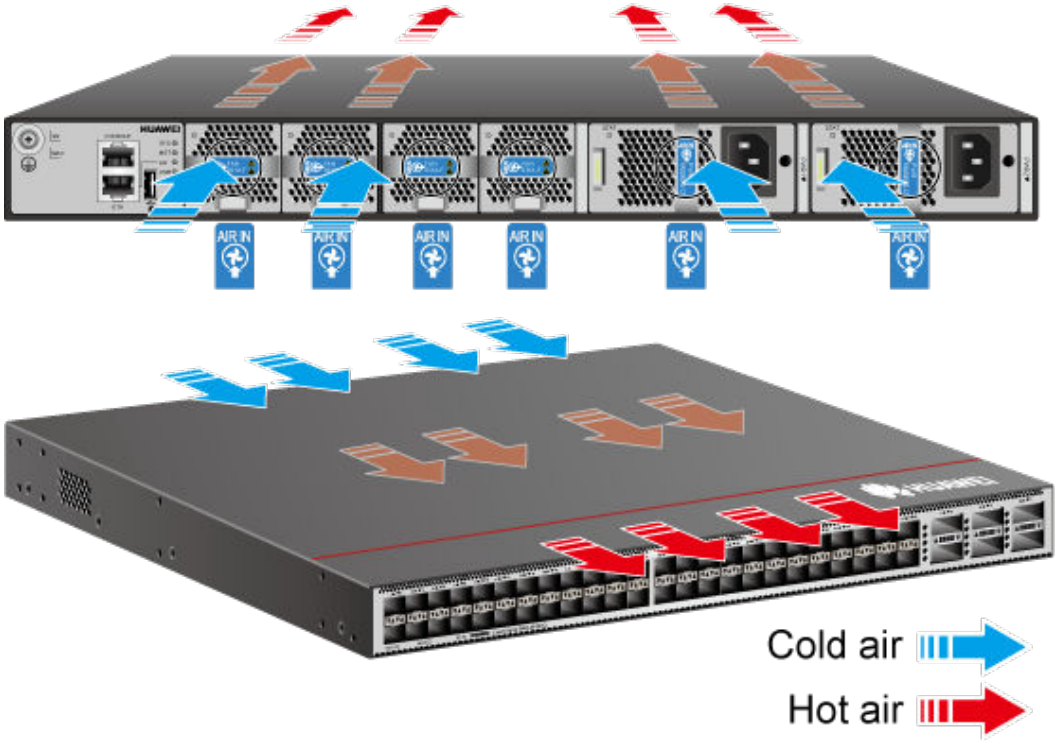
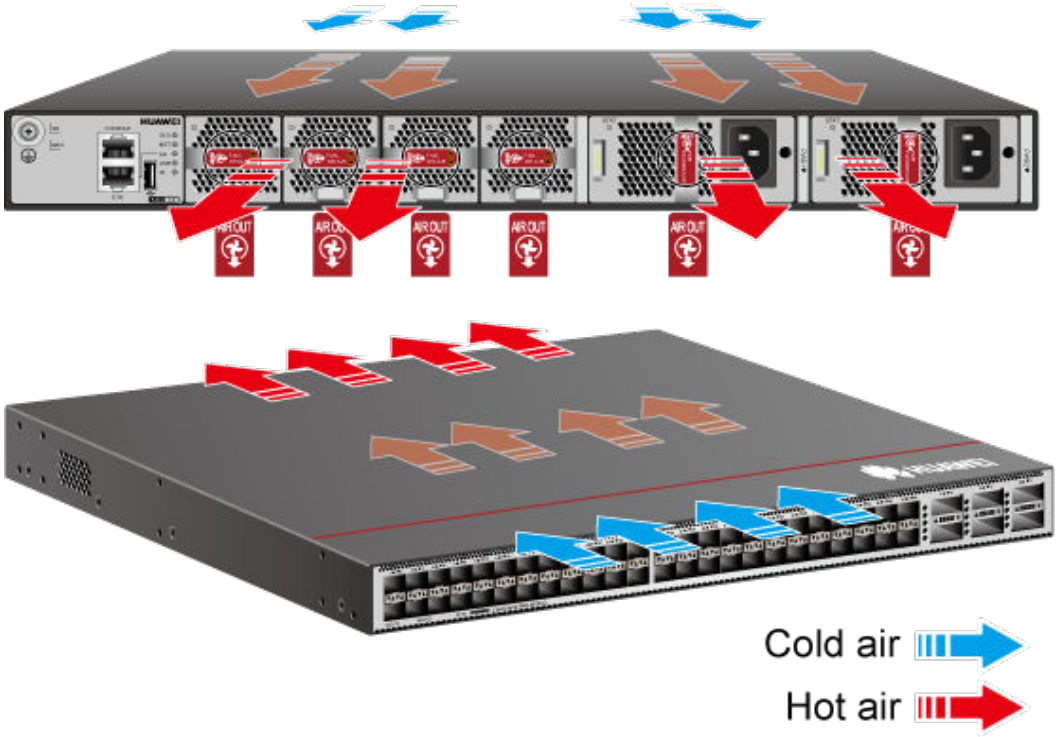


Figure 4-274 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-250 Technical specifications of the CE6881E-48S6CQ

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.56 in.)
Weight without packaging [kg (lb)]	5.7 kg (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	7.8 kg (17.2 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	24 x 10GE SFP+ and 24 x 25GE SFP28 **NOTE** 1. 10GE ports can be configured as GE ports, and the ports can automatically adjust their speeds based on the installed modules. 2. 25GE ports can be configured as 10GE and GE ports. Every four downlink 25GE ports form a group, and their speeds can be set to 10 Gbit/s or 1 Gbit/s using the CLI. 3. 10GE LRM/80 km linear optical modules are not supported. 4. 25GE 1 m copper cables and 10GE 1 m/3 m/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 5. 25GE copper cables can only be used on stack ports and M-LAG peer-link ports.
Uplink Service interface	6*100GE QSFP28 **NOTE** 1. Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. 2. A 100GE QSFP28 port cannot be split into 4 x 25GE or 4 x 10GE ports. 3. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on stack ports and M-LAG peer-link ports. 100G 3/5 m copper cables support only RS FEC. After the non-RS FEC mode is configured, the port enters the error-down state.
Service port supporting the stack function	10GE optical ports, 25GE optical ports, and 100GE optical ports
RTC	Supported
Typical power consumption [W]	203 W (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 252 W (100% throughput, short-distance optical modules on all ports, dual power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	693 BTU/hr (100% throughput, SFP28 high-speed cables on 48 ports and QSFP28 high-speed cables on 6 ports, dual power modules) 860 BTU/hr (100% throughput, short-distance optical modules on all ports, dual power modules)
Static power consumption [W]	165 W
Static heat dissipation [BTU/hour]	563 BTU/hour
Maximum power consumption [W]	363 W
Maximum heat dissipation	1239
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W

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Item	Specification
Maximum output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.9999960856
MTBF [year]	45.9 year
MTTR [hour]	1.57 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: < 58 dB(A) Back-to-front airflow: < 57 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: < 75 dB(A) Back-to-front airflow: < 74 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.5 CE8800

4.5.1 CE8850-32CQ-EI

Version Mapping

Table 4-251 lists the mappings between the CE8850-32CQ-EI and software versions.

Table 4-251 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE8800	CE8850	CE8850-32CQ-EI	CE8850EI	V200R002C50 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

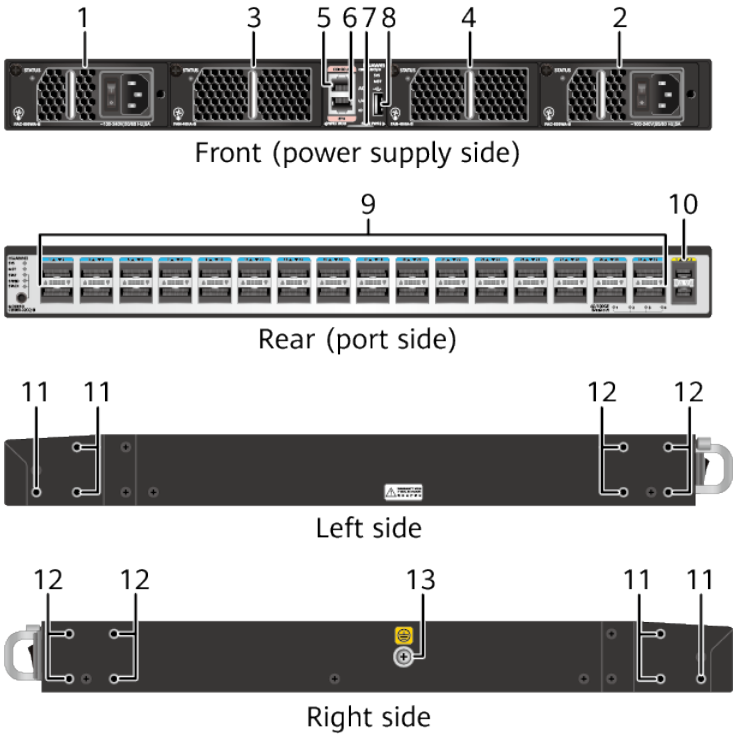
Appearance and Structure

NOTE

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Figure 4-275 CE8850-32CQ-EI



1	Power supply slot 1 Applicable power modules: • **5.5 600 W AC Power Module (PAC-600WA)** • **600 W DC Power Module (PDC600S12)**	2	Power supply slot 2 Applicable power modules: • **5.5 600 W AC Power Module (PAC-600WA)** • **600 W DC Power Module (PDC600S12)**
3	Fan slot 1 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**	4	Fan slot 2 Applicable fan modules: • **6.8 FAN-40HA Series Fan Modules**
5	Console port	6	ETH management port (RJ45)
7	Barcode label **NOTE** This label is drawable, and you can pull it outward to view the ESN barcode and MAC address of the switch.	8	USB port

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9	Thirty-two 40GE/100GE QSFP28 Ethernet optical ports **NOTE** A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. Since V200R021C10, ports 100GE1/0/3 to 100GE1/0/30 can be split into two 50GE ports. Ports 100GE1/0/1, 100GE1/0/2, 100GE1/0/31, and 100GE1/0/32 cannot be split into two 50GE ports. Applicable modules and cables: • **40GE QSFP+ Optical Modules** • **9.10 100GE QSFP28 Optical Modules** (QSFP28-100G-4WDM-40 not supported) • **8.9.4 QSFP+ to QSFP+ AOC cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable** • **8.9.5 QSFP+ to 4*SFP+ AOC cable** • **8.8.5 QSFP+ to 4*SFP+ High-Speed Cable** • **8.9.6 QSFP28 to QSFP28 AOC Cable** • **8.8.6 QSFP28 to QSFP28 High-Speed Cable** • **8.8.7 QSFP28 to 4*SFP28 High-Speed Cable**	10	Two 10GE SFP+ Ethernet optical ports Applicable modules and cables: • **9.7 10GE SFP+ Optical Modules** (OSXD22N00, LE2MXSC80FF0 and SFP-10G-ZDWT-L not supported) • **9.4 GE eSFP Optical Modules** • **9.5 GE SFP Copper Modules** (works at 10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s) • **8.9.2 SFP+ to SFP+ AOC Cable** • **8.8.2 SFP+ to SFP+ High-Speed Cable**
11	Three port-side mounting holes for mounting brackets	12	Four power-supply-side mounting holes for mounting brackets
13	Ground screw	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

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  - When both power modules are working properly, they equally provide power for a chassis.
  - When one power module fails, the other one provides all power required for a chassis.

  All power modules are hot swappable.

- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-276** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

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Figure 4-276 Front-to-back airflow (air flows out from the port side)

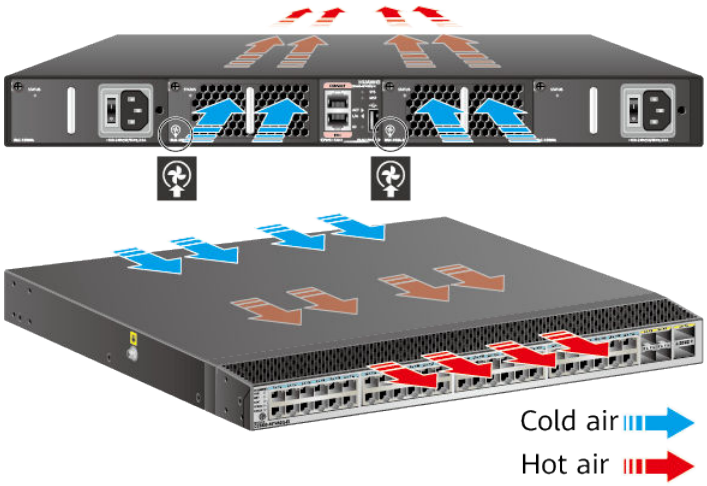
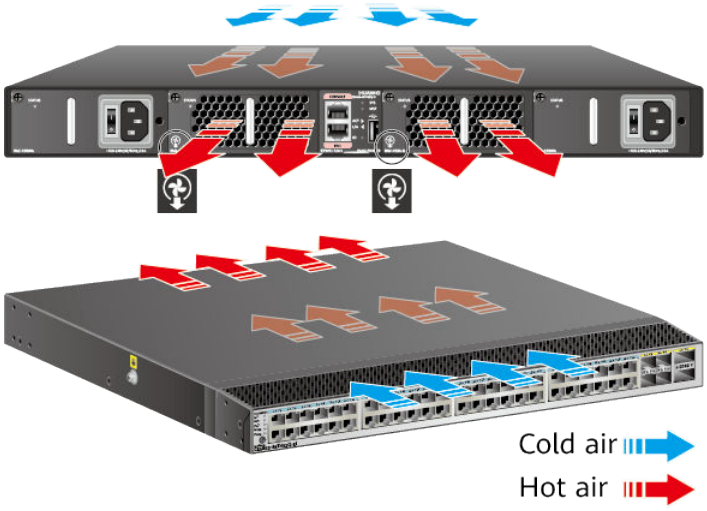


Figure 4-277 Back-to-front airflow (air flows in from the port side)



Indicators

Indicators on the CE8850-32CQ-EI are the same as those on the CE7850-32Q-EI. CE7850-32Q-EI is used as an example.

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Figure 4-278 Indicators on the CE8850-32Q-EI rear panel

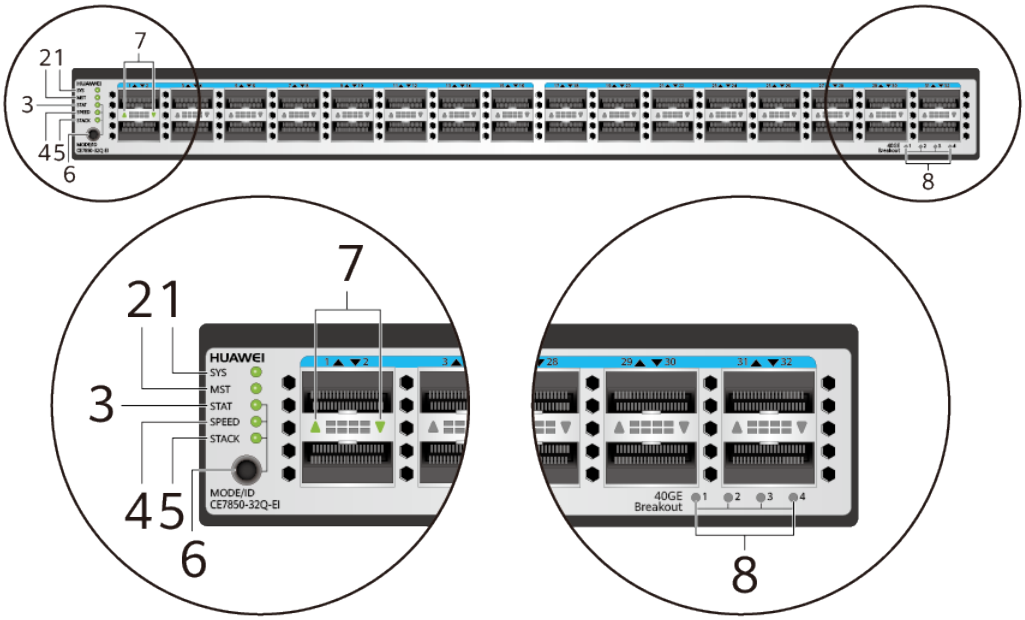
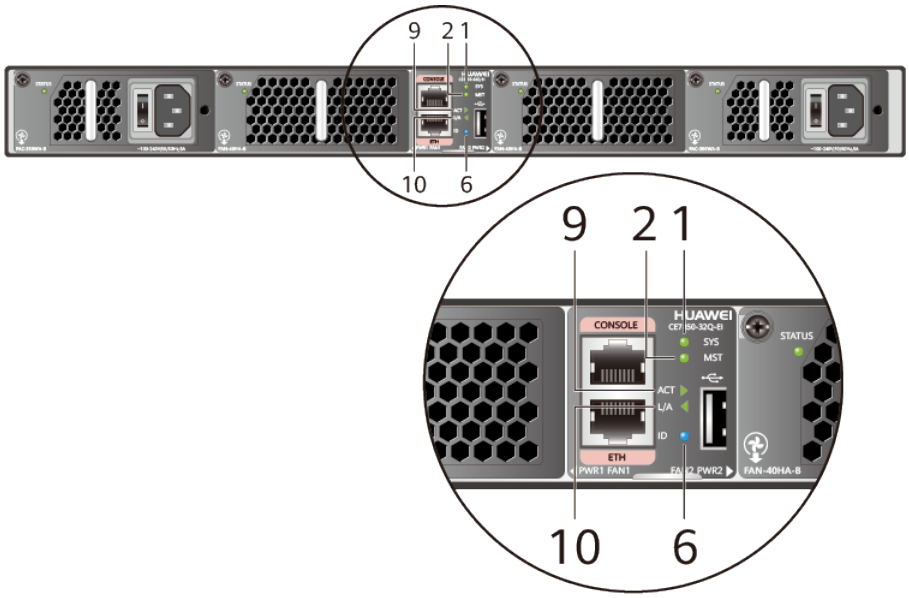


Figure 4-279 Indicators on the CE8850-32Q-EI front panel



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Table 4-252 Indicator description

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running normally.
			Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.
2	MST	Stack master/slave indicator **NOTE** In V200R003C00 and later versions, you can use the **dfs-master led enable** command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Off	The switch is not a stack master.
				Steady on	The switch is a stack master or standalone switch.
			Yellow	Steady on	A master election error or another type of error has occurred in the stack. **NOTE** This indicator state is not supported in V100R005C00 and later versions.
3	STAT	STAT mode indicator	Green	Off	The STAT mode is not selected.

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No.	Indicator	Name	Color	Status	Description
				Steady on	The STAT mode (default mode) is selected, and service port indicators show the link connection states and link activity on ports.
4	SPEED	SPEED mode indicator	Green	Off	The SPEED mode is not selected.
				Steady on	The SPEED mode is selected, and service port indicators show the speed of each port.
5	STACK	STACK mode indicator	Green	Off	The STACK mode is not selected.
				Steady on	The STACK mode is selected, and service port indicators show the stack member ID of the local switch.
6	MODE/ID	Mode switch button and ID indicator **NOTE** The mode switch button on the rear panel is integrated with the ID indicator. There is only an ID indicator and no mode switch button on the front panel.	Mode switch button	-	• When you press the MODE button once, the SPEED indicator turns green and service port indicators show the speed of each port. • When you press the MODE button a second time, the STACK indicator turns green and service port indicators show the stack member ID of the local switch. • When you press the button a third time, the STAT indicator turns green (default mode) and service port indicators show the link connection states and link activity on ports. If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the STAT indicator is steady green, the SPEED and STACK indicators are off.
			ID indicator: blue	Off	The ID indicator is not used (default state).

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No.	Indicator	Name	Color	Status	Description
				Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
7	-	Service port indicator (40GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Meanings of service port indicators vary in different modes. For details, see **Table 4-253**. When a 40GE port is configured as four 10GE ports, this indicator shows the status of a 10GE port. The sequence number of the indicated 10GE port is identified by indicators 40GE Breakout 1/2/3/4 on the lower right corner of the panel. **NOTE** Each 40GE port has a single-color indicator, which shows the status of the 40GE port by default. If a 40GE port is not split and is connected to four 10GE ports on a remote device using a one-to-four high-speed cable, the 40GE port cannot go Up and its indicator is off.		
8	-	40GE Breakout 1/2/3/4 (sequence number indicators of 10GE ports converted from a 40GE port) **NOTE** Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Off	40GE ports are not split into four 10GE ports.

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No.	Indicator	Name	Color	Status	Description
				Steady on	At least one 40GE port has been split into four 10GE ports. When one or more 40GE ports are configured as four 10GE ports, these indicators identify the sequence numbers of the 10GE ports. A 40GE port indicator (7 in **Figure 4-278**) shows the status of a 10GE port converted from the 40GE port: • When Breakout indicator 1 is on, each 40GE port indicator shows the status of the first 10GE port converted from the corresponding 40GE port. • When Breakout indicator 2 is on, each 40GE port indicator shows the status of the second 10GE port converted from the corresponding 40GE port. • When Breakout indicator 3 is on, each 40GE port indicator shows the status of the third 10GE port converted from the corresponding 40GE port. • When Breakout indicator 4 is on, each 40GE port indicator shows the status of the fourth 10GE port converted from the corresponding 40GE port. The following is an example: The first 40GE port shown in **Figure 4-278** is split into four 10GE ports, and the second 40GE port is not split. • When Breakout indicator 1 is on, the indicator of 40GE port 1 shows the status of the first 10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2. • When Breakout indicator 2 is on, the indicator of 40GE port 1 shows the status of the second

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No.	Indicator	Name	Color	Status	Description
					10GE port converted from 40GE port 1, and the indicator of 40GE port 2 still shows the status of 40GE port 2.
9	ACT	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment has been completed.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment has failed.
10	L/A	ETH management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.
				Blinking	The port is sending or receiving data.

Table 4-253 Service port indicators in various modes

Display Mode	Port	Color	Description
STAT	40GE optical port	-	Off: The port is not connected or has been shut down.
		Green	• Steady on: A link is established on the port. • Blinking: The port is sending or receiving data.

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Display Mode	Port	Color	Description
SPEED	40GE optical port	-	Off: The port is not connected or has been shut down.
		Green	• Steady on: The 40GE port has been split into four 10GE ports. • Blinking: The port is working as a 40GE port.
STACK	Green **NOTE** This row describes the states and meanings of port indicators on a switch working in stack mode.		• Off: Port indicators do not show the stack member ID of the switch. • Steady on: If the indicator of a port is steady on, the port number is the stack member ID of the switch. **NOTE** In STACK mode, a 10GE optical port has only its LINK indicator on (green).

Ports

10GE SFP+ Ethernet Optical Port

A 10GE SFP+ Ethernet optical port supports auto-sensing to 1 Gbit/s, and can receive and send services at a rate of 1000 Mbit/s or 10 Gbit/s. **Table 4-254** describes the attributes of a 10GE SFP+ Ethernet optical port.

Table 4-254 Attributes of a 10GE SFP+ Ethernet optical port

Attribute	Description
Connector type	LC

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Attribute	Description
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ae
Working mode	Supported rate: 1000 Mbit/s and 10 Gbit/s auto-sensing Full-duplex

40GE/100GE QSFP28 Optical Port

Table 4-255 describes the attributes of a 40GE/100GE QSFP28 optical port.

Table 4-255 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. Table 4-256 describes the attributes of the console port.

Table 4-256 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite

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or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-257** describes the attributes of the ETH management port (RJ45).

Table 4-257 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-258 lists technical specifications of the CE8850-32CQ-EI switch.

Table 4-258 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 420.0 mm x 43.6 mm (17.4 in. x 16.5 in. x 1.72 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 9.0 kg (19.84 lb)
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing

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Item		Description
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 52 dBA • Front-to-back airflow: < 52 dBA
Power specifications	Power source type	AC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	Not supported
	Rated input current	• 600 W AC power (PAC-600WA series): 9 A (100 V AC to 240 V AC) • 600 W DC power (PDC600S12 series): 20A (-48 V DC to -60 V DC)
Chassis power consumption	Maximum power consumption	453 W
	Typical power consumption	219 W (100% throughput, SFP+ cables on 2 ports and QSFP28 cables on 32 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	1544 BTU/hr
	Typical heat dissipation	748 BTU/hr (100% throughput, SFP+ cables on 2 ports and QSFP28 cables on 32 ports, double power modules)
Surge protection		Power module: • AC: 6 kV in common mode and 6 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules

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Item		Description
Reliability	Power module backup	1+1 backup
	Fan module backup	1+1 backup not supported **NOTE** A CE8850EI chassis uses two fan modules, with each fan module containing two fans. The four fans in the chassis work in 3+1 backup mode.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	45.34 years
	Mean time to repair (MTTR)	1.68 hours
	Availability	0.99999576496
Technical specifications	Processor	1.5 GHz, eight-core
	DRAM Memory	4 GB
	NOR Flash	32 MB
	NAND Flash	1 GB
Stack	Service port supporting the stack function	10GE optical ports and 100GE optical ports
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-259 provides the ordering information.

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Table 4-259 Ordering information

Part Number	Part Model	Part Description
02350SQW	CE8850-32CQ-EI	CE8850-32CQ-EI Switch (32-Port 10GE QSFP28, 2-Port 10GE QSFP+, Without Fan and Power Module)
02350SBC	CE8850-EI-F-B0A	CE8850-32CQ-EI Switch (32-Port 100GE QSFP28, 2-Port 10GE SFP+, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02350SBD	CE8850-EI-B-B0A	CE8850-32CQ-EI Switch (32-Port 100GE QSFP28, 2-Port 10GE SFP+, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.5.2 CE8850E-32CQ-EI

4.5.2.1 CE8850E-32CQ-EI (02354LHV)

Overview

Table 4-260 Basic information about the CE8850E-32CQ-EI

Item	Details
Description	CE8850E-32CQ-EI Switch (32*100GE QSFP28,1*10GE SFP+,without fan and power module)
Part Number	02354LHV
Model	CE8850E-32CQ-EI
First supported version	V200R021C10
Other part numbers	02354LHX (CE8850E-32CQ-EI Switch(32*100GE QSFP28,1*10GE SFP+,2*AC power module,4*fan module,port-side intake)) 02354LJA (CE8850E-32CQ-EI Switch(32*100GE QSFP28,1*10GE SFP+,2*AC power module,4*fan module,port-side exhaust))
Short Name	CE8850E-32CQ-EI

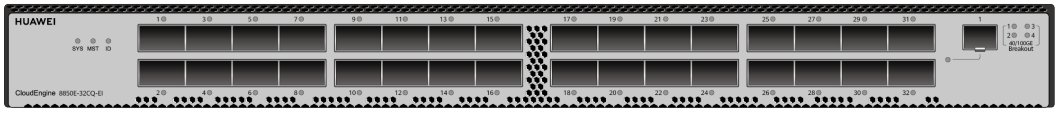
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Appearance

Figure 4-280 Appearance of the CE8850E-32CQ-EI



Front (power supply side)



Rear (port side)

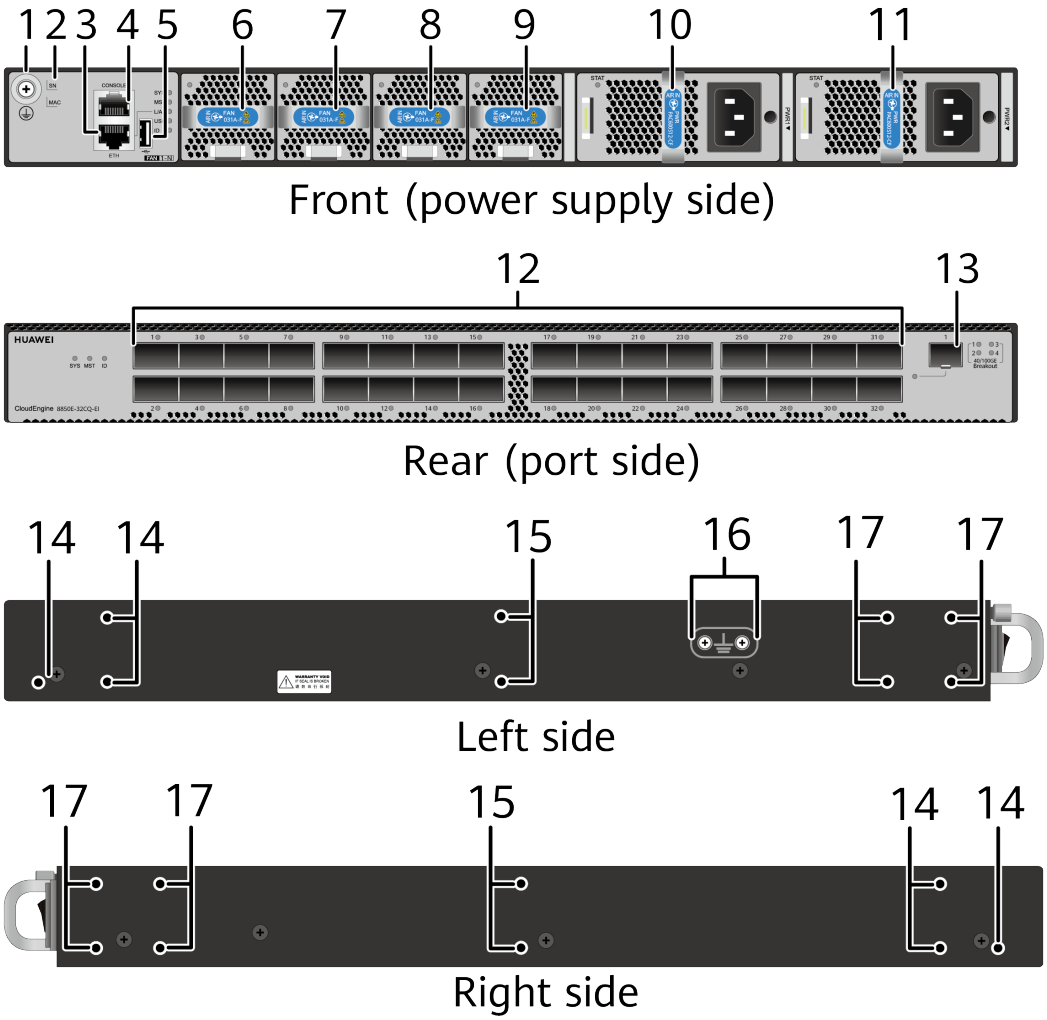
NOTE

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Components

Figure 4-281 Components of the CE8850E-32CQ-EI



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	ETH management port (RJ45)	4	Console port
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Thirty-two 40GE/100GE SFP28 Ethernet optical ports
13	One 10GE SFP+ Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-261 Slots on the CE8850E-32CQ-EI

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CE8850E-32CQ-EI switch has two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 8800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	Each CE8850E-32CQ-EI switch has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-282 Indicators on the CE8850E-32CQ-EI 1

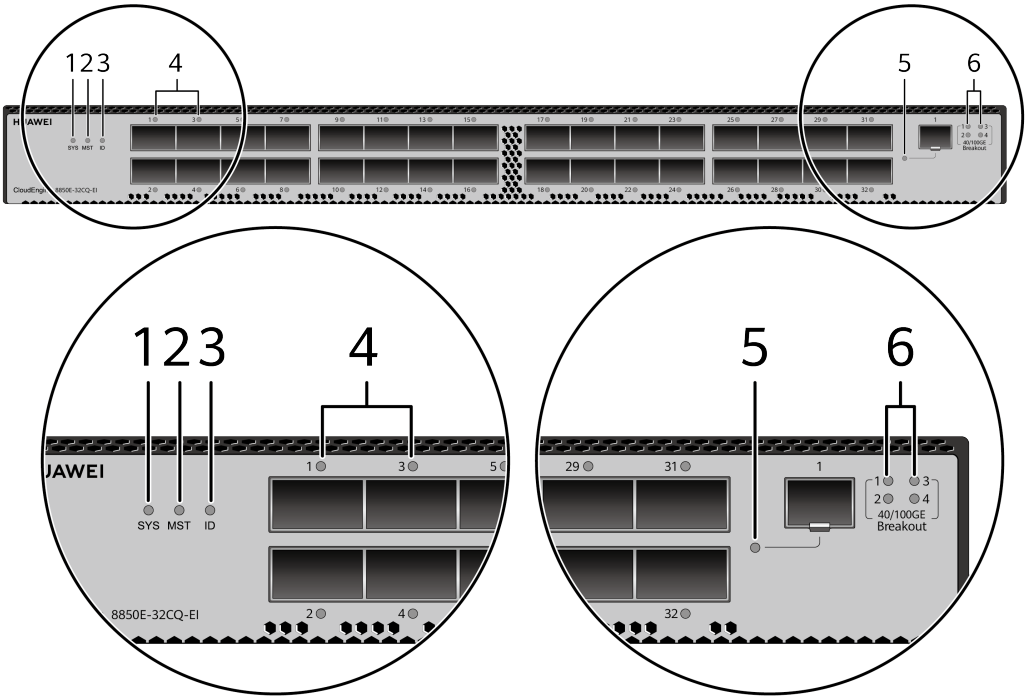
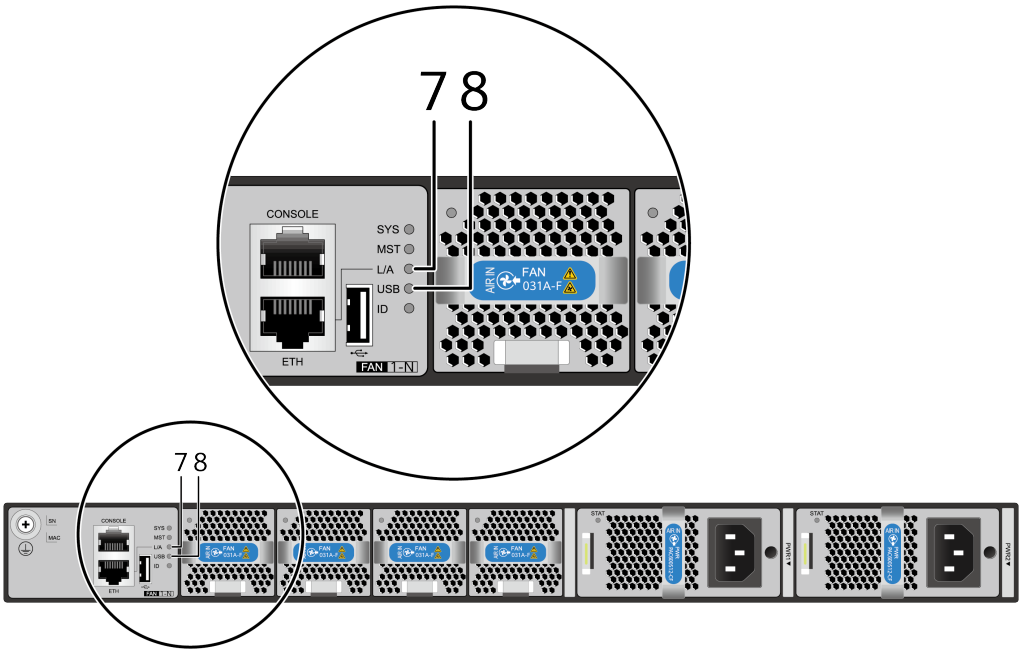


Figure 4-283 Indicators on the CE8850E-32CQ-EI 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (40GE/100GE optical port)	5. Service port indicator (10GE optical port)
6. 40/100GE Breakout 1/2/3/4 (sequence number indicators of 10/25GE ports converted from a 40/100GE port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-262 Indicators on the CE8850E-32CQ-EI

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.

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Silkscreen	Name	Color	Status	Description
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
40G/100G Breakout 1/2/3/4	10GE/25GE mode sequence number indicators of a 40GE/100GE port (40G/100G Breakout 1/2/3/4) (Note: The four sequence number indicators 1, 2, 3, and 4 are on in turn, and each indicator is on for 5s.)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	At least one port works in 10GE or 25GE mode and is split into four 10GE or 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators take effect and work with port indicators to identify the sequence numbers of the 10GE/25GE ports. When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 2 is on, each port indicator shows the status of the second 10GE/25GE port derived from the corresponding

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Silkscreen	Name	Color	Status	Description
				40GE/100GE port. When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-263 Ports on the CE8850E-32CQ-EI

Port	Connector Type	Description	Available Components
10GE SFP+ optical port	The connector type of the optical fiber depends on the optical module.	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. If the IOAM function is enabled, the 10G panel port is unavailable. If the IOAM function is disabled, the 10G panel port is available and does not need to be restarted.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	• **40GE QSFP+ optical modules** • **100GE QSFP28 optical modules** • **QSFP+ to QSFP+ AOC cable** • **QSFP+ to QSFP+ AOC cable** • **QSFP+ to 4*SFP+ AOC cable** • **QSFP28 to QSFP28 AOC cable** • **QSFP28 to QSFP28 AOC cable** • **QSFP+ to QSFP+ high-speed cable** • **QSFP+ to QSFP+ high-speed cable** • **QSFP+ to 4*SFP+ high-speed cable** • **QSFP+ to 4*SFP+ high-speed cable** • **QSFP28 to QSFP28 high-speed cable** • **QSFP28 to QSFP28 high-speed cable** • **QSFP28 to 4*SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE Splitting 100GE port 23, using 10GE port 1, and configuring IOAM are mutually exclusive. 100GE port 23 supports only static split, and the device needs to be restarted for the split to take effect. Other ports can be split into four 25GE or 10GE ports, which cannot work at the rate of 1 Gbit/s through auto-sensing.
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	**Console cable**

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power

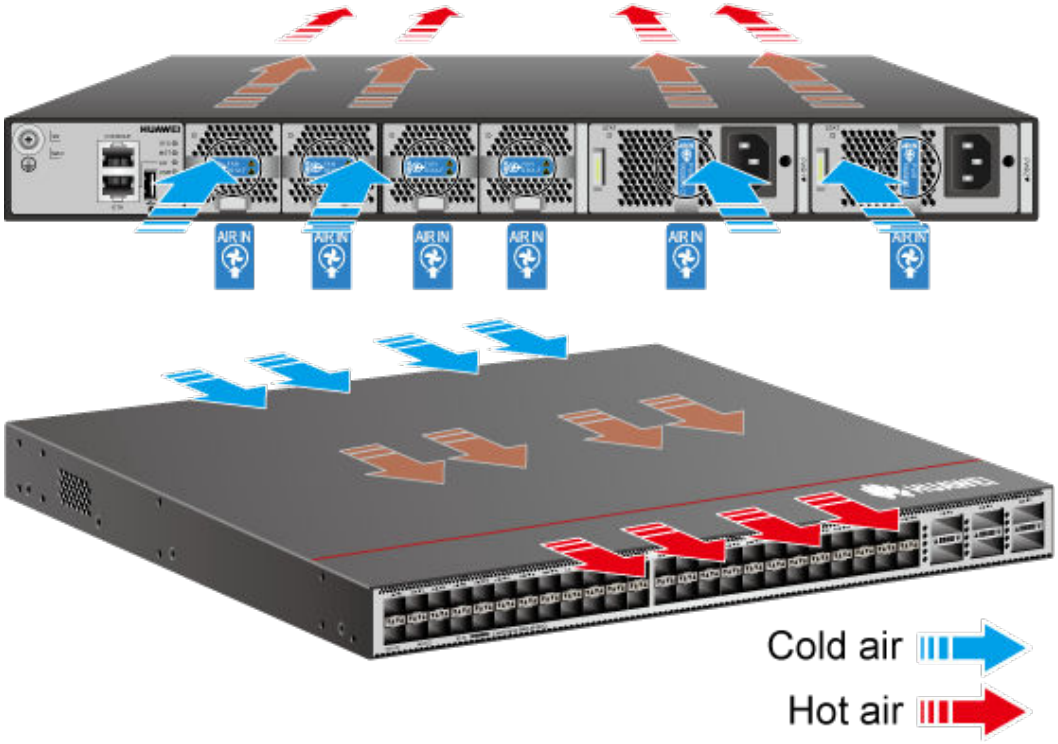
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supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).

- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

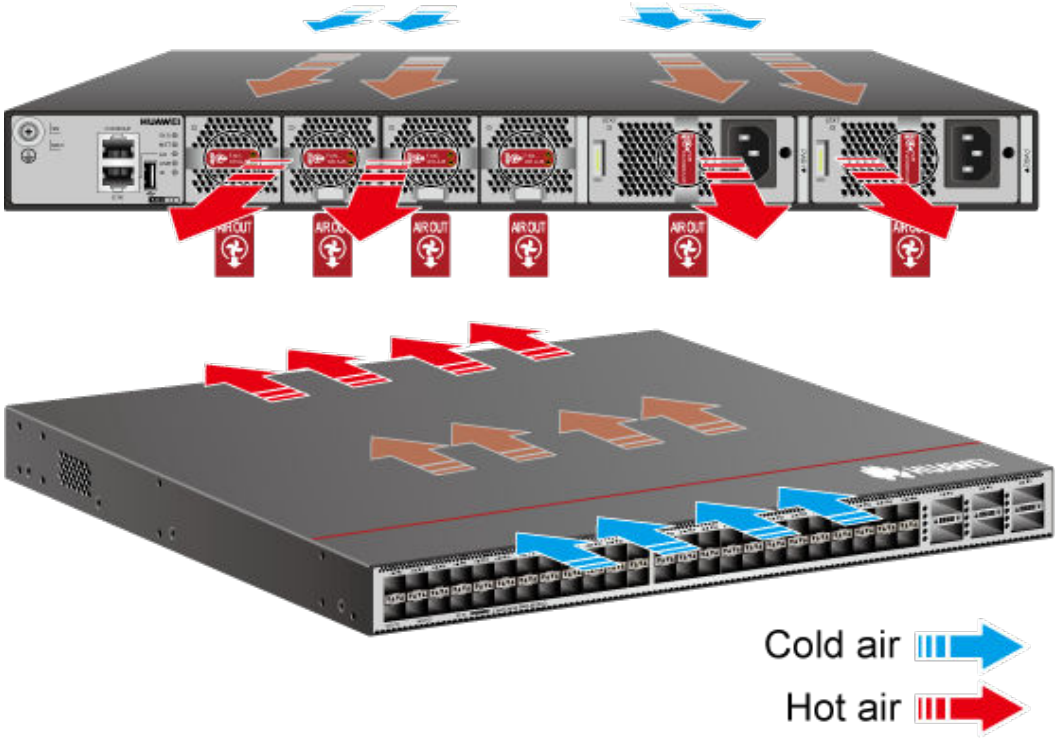
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

Figure 4-284 Front-to-back airflow for port-side exhaust



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Figure 4-285 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-264 Technical specifications of the CE8850E-32CQ-EI

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.9 in. x 25.6 in. x 21.7 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.1 mm (1.72 in. x 17.40 in. x 17.58 in.)
Weight without packaging [kg (lb)]	6.0 kg (13.23 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.6 kg (18.96 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.3 kg (20.50 lb)
Weight with packaging (full configuration) [kg (lb)]	11.6 kg (25.57 lb)
Installation Type	Cabinet Installation
CPU	4-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	32 x 100GE QSFP28 ports and 1 x 10GE SFP+ port, regardless of the direction (uplink or downlink) **NOTE** 1. 100GE ports except port 23 can be split into 4 x 25GE or 4 x 10GE ports. After the split, they cannot be used as GE ports. 2. Splitting 100GE port 23, using 10GE port 1, and configuring IOAM are mutually exclusive. 100GE port 23 supports only static split, and the device needs to be restarted for the split to take effect. 3. The 10GE SFP+ port can function as a GE SFP optical/electrical port. 4. Supported optical modules: (1) In the case of port-side air intake, 100GE ports support 100G-AOC/SR4/DR/LR4/4WDM optical modules. (2) In the case of port-side air exhaust, 100GE ports support 100G-AOC/SR4/DR/LR4 optical modules.
Service port supporting the stack function	100GE optical port
RTC	Supported
Typical power consumption [W]	203 W (100% traffic load, copper cables on half of ports, normal temperature, dual AC power modules) 244 W (100% traffic load, short-distance optical modules on half of ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	693 BTU/hr (100% traffic load, copper cables on half of ports, normal temperature, dual AC power modules) 833 BTU/hr (100% traffic load, short-distance optical modules on half of ports, normal temperature, dual AC power modules)
Static power consumption [W]	165 W
Static heat dissipation [BTU/hour]	563 BTU/hour

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Item	Specification
Maximum power consumption [W]	339 W (100% traffic load, short-distance optical modules on all ports, normal temperature, dual AC power modules) 450 W (100% traffic load, long-distance optical modules on all ports, 40°C, dual AC power modules)
Maximum heat dissipation	1157 BTU/hour (100% traffic load, short-distance optical modules on all ports, normal temperature, dual AC power modules) 1535 BTU/hour (100% traffic load, long-distance optical modules on all ports, 40°C, dual AC power modules)
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: AC: 100 V AC to 240 V AC, 50/60 Hz; DC: 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A

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Item	Specification
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	The device supports 3+1 backup of fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-back or back-to-front, depending on the fan modules and power modules.
Availability	0.999993932
MTBF [year]	35.88 year
MTTR [hour]	1.89 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 49.8 dB(A) on average (maximum: 53.6 dB(A)) Back-to-front airflow: 47.8 dB(A) on average (maximum: 51.2 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 67.6 dB(A) on average (maximum: 73.4 dB(A)) Back-to-front airflow: 68 dB(A) on average (maximum: 75.4 dB(A))

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Item	Specification
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

4.5.2.2 CE8850E-32CQ-EI (02354LHV-001)

Overview

Table 4-265 Basic information about the CE8850E-32CQ-EI

Item	Details
Description	CE8850E-32CQ-EI Switch (32*100GE QSFP28,1*10GE SFP+,without fan and power module)
Part Number	02354LHV-001
Model	CE8850E-32CQ-EI
First supported version	V200R021C10SPC600

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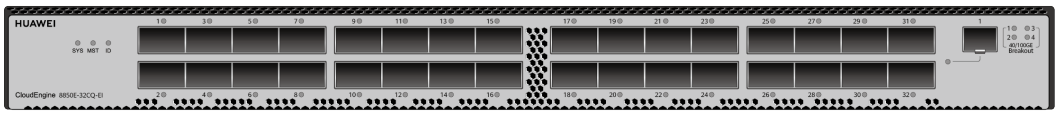
Item	Details
Other part numbers	02354LHX-001 (CE8850E-32CQ-EI Switch (32*100GE QSFP28,1*10GE SFP+,2*AC power module,4*fan module,port-side intake)) 02354LJA-001 (CE8850E-32CQ-EI Switch (32*100GE QSFP28,1*10GE SFP+,2*AC power module,4*fan module,port-side exhaust)) 02355MSH (CE8850E-32CQ-EI Switch (32*100GE QSFP28, 1*10GE SFP+,without fan and power module)) 02355MSJ (CE8850E-32CQ-EI Switch (32*100GE QSFP28, 1*10GE SFP+, 2*AC power module,4*fan module, port-side intake)) 02355MSR (CE8850E-32CQ-EI Switch (32*100GE QSFP28, 1* 10GE SFP+, 2*AC power module,4*fan module, port-side exhaust))
Short Name	CE8850E-32CQ-EI

Appearance

Figure 4-286 Appearance of the CE8850E-32CQ-EI



Front (power supply side)



Rear (port side)

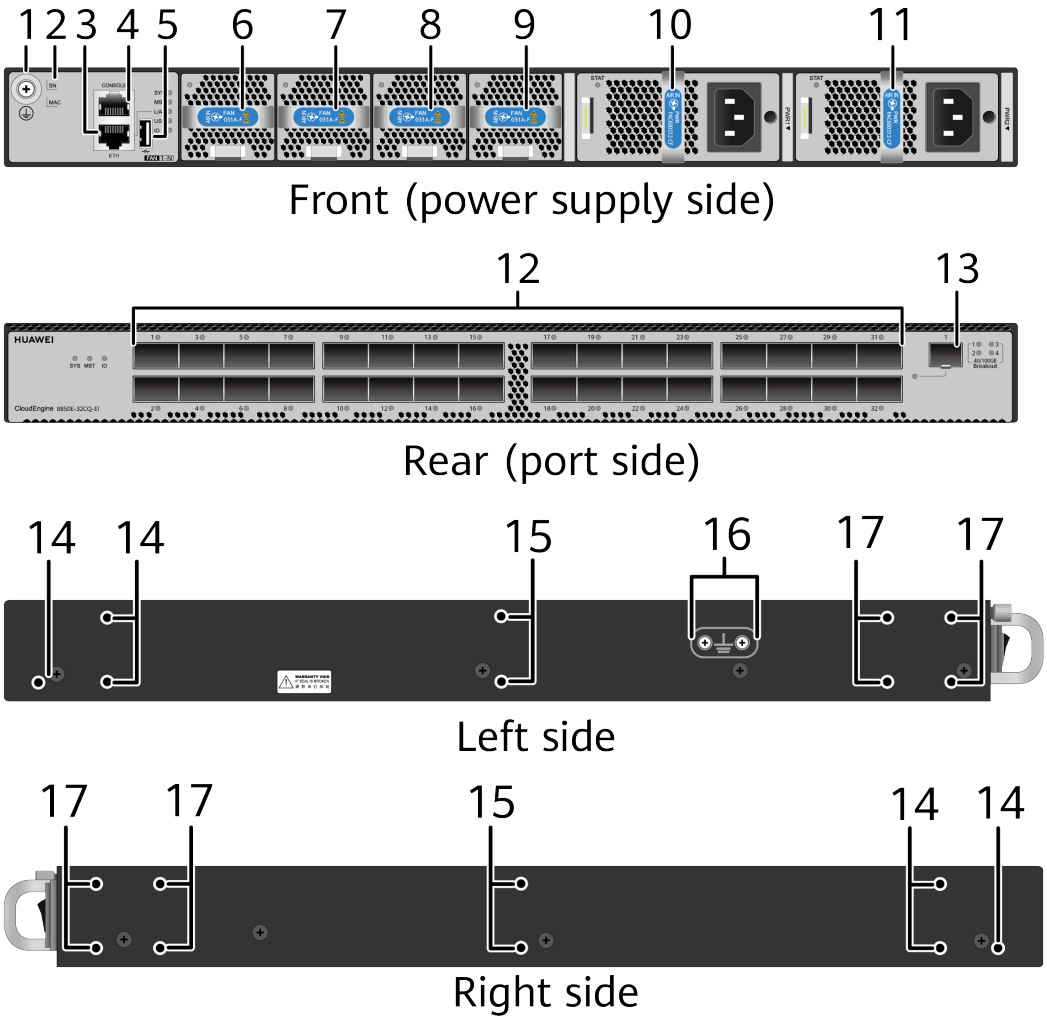
NOTE

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Components

Figure 4-287 Components of the CE8850E-32CQ-EI



1	Ground screw	2	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.
3	ETH management port (RJ45)	4	Console port
5	USB port	6	Fan slot 1
7	Fan slot 2	8	Fan slot 3
9	Fan slot 4	10	Power supply slot 1

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11	Power supply slot 2	12	Thirty-two 40GE/100GE SFP28 Ethernet optical ports
13	One 10GE SFP+ Ethernet optical ports	14	Three port-side mounting holes for mounting brackets
15	Two middle mounting holes for mounting brackets	16	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal
17	Four power-supply-side mounting holes for mounting brackets	-	-

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Slot Layout

Table 4-266 Slots on the CE8850E-32CQ-EI

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	-	Horizontal insertion	The CE8850E-32CQ-EI switch has two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 8800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each power module provides half of the power for the switch. If one power module fails, the other one provides full power for the switch. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	-	Horizontal insertion	Each CE8850E-32CQ-EI switch has four fan slots in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. It is recommended that four fan modules be properly installed on a switch to ensure normal switch operating. The device supports four pluggable fan modules that work in hot standby mode. The system can operate properly for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-288 Indicators on the CE8850E-32CQ-EI 1

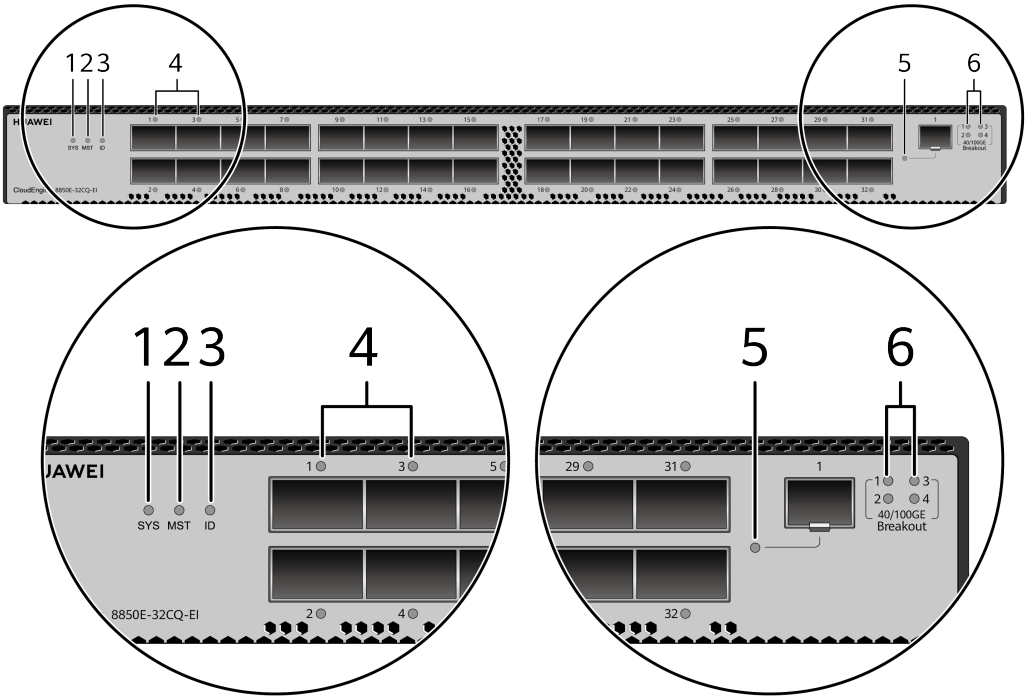
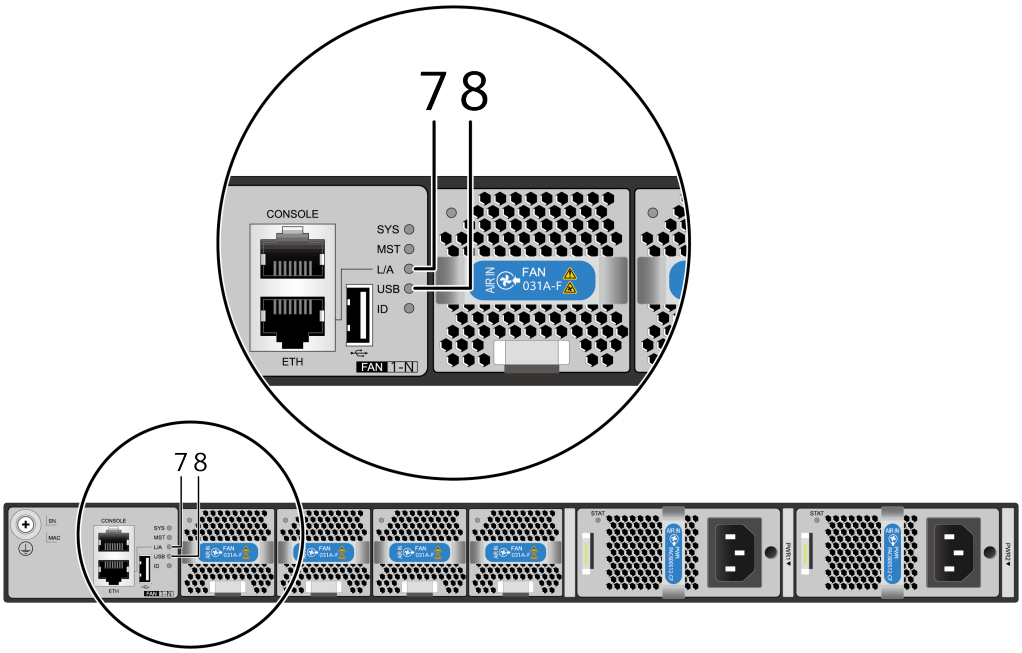


Figure 4-289 Indicators on the CE8850E-32CQ-EI 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. Service port indicator (40GE/100GE optical port)	5. Service port indicator (10GE optical port)
6. 40/100GE Breakout 1/2/3/4 (sequence number indicators of 10/25GE ports converted from a 40/100GE port)	7. ETH management port indicator	8. USB-based deployment indicatorc	-	-

Table 4-267 Indicators on the CE8850E-32CQ-EI

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/ slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.

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Silkscreen	Name	Color	Status	Description
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (10GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
-	Service port indicator (40GE/100GE optical port)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
40G/100G Breakout 1/2/3/4	10GE/25GE mode sequence number indicators of a 40GE/100GE port (40G/100G Breakout 1/2/3/4) (Note: The four sequence number indicators 1, 2, 3, and 4 are on in turn, and each indicator is on for 5s.)	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
		Green	Steady on	At least one port works in 10GE or 25GE mode and is split into four 10GE or 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators take effect and work with port indicators to identify the sequence numbers of the 10GE/25GE ports. When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 2 is on, each port indicator shows the status of the second 10GE/25GE port derived from the corresponding

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Silkscreen	Name	Color	Status	Description
				40GE/100GE port. When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.

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Silkscreen	Name	Color	Status	Description
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-268 Ports on the CE8850E-32CQ-EI

Port	Connector Type	Description	Available Components
10GE SFP+ optical port	The connector type of the optical fiber depends on the optical module.	A 10GE SFP+ Ethernet optical port can work at 1000 Mbit/s through auto-sensing, and can send and receive service data at 1000 Mbit/s or 10 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE802.3ae • Working mode: 1000 Mbit/s and 10 Gbit/s auto-sensing, full-duplex	**GE eSFP optical modules** **GE SFP copper modules** **10GE SFP+ optical modules** **SFP+ to SFP+ AOC cable** **SFP+ to SFP+ high-speed cable** **NOTE** 1. When a GE copper module is installed on a 10GE optical port, the port can only work at 1000 Mbit/s. 2. 10GE optical ports do not support OSXD22N00 or LE2MXSC80FF0 optical modules. 3. If the IOAM function is enabled, the 10G panel port is unavailable. If the IOAM function is disabled, the 10G panel port is available and does not need to be restarted.

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Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attribute: depending on the optical module or cable in use • Complied standard: IEEE 802.3ba • Working mode: full-duplex	• **40GE QSFP+ optical modules** • **100GE QSFP28 optical modules** • **QSFP+ to QSFP+ AOC cable** • **QSFP+ to QSFP+ AOC cable** • **QSFP+ to 4*SFP+ AOC cable** • **QSFP28 to QSFP28 AOC cable** • **QSFP28 to QSFP28 AOC cable** • **QSFP+ to QSFP+ high-speed cable** • **QSFP+ to QSFP+ high-speed cable** • **QSFP+ to 4*SFP+ high-speed cable** • **QSFP+ to 4*SFP+ high-speed cable** • **QSFP28 to QSFP28 high-speed cable** • **QSFP28 to QSFP28 high-speed cable** • **QSFP28 to 4*SFP28 high-speed cable**

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Port	Connector Type	Description	Available Components
			NOTE Splitting 100GE port 23, using 10GE port 1, and configuring IOAM are mutually exclusive. 100GE port 23 supports only static split, and the device needs to be restarted for the split to take effect. Other ports can be split into four 25GE or 10GE ports, which cannot work at the rate of 1 Gbit/s through auto-sensing.
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	**Console cable**

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Port	Connector Type	Description	Available Components
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power

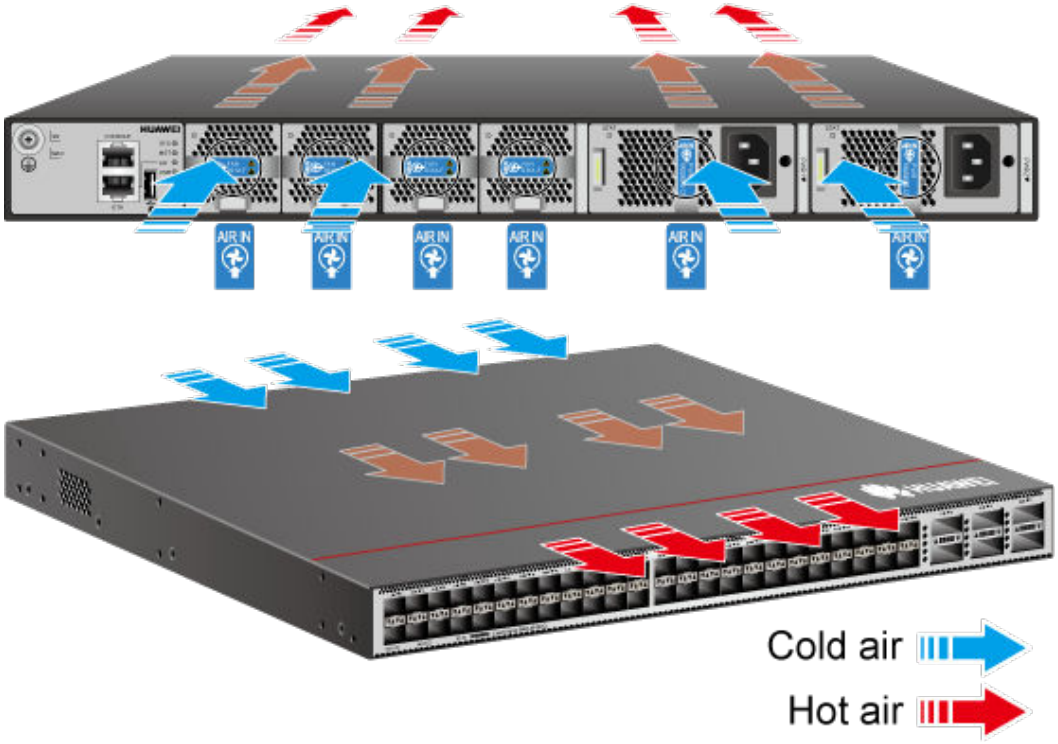
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supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).

- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

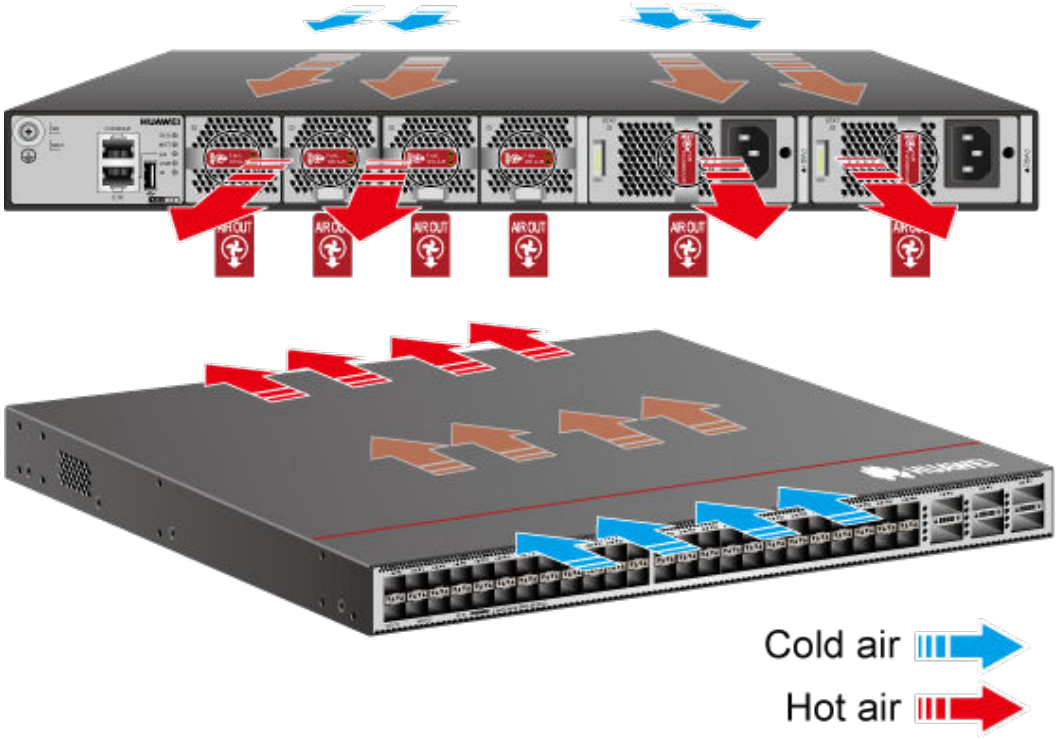
. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

Figure 4-290 Front-to-back airflow for port-side exhaust



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Figure 4-291 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-269 Technical specifications of the CE8850E-32CQ-EI

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	175 mm x 650 mm x 550 mm (6.89 in. x 25.59 in. x 21.65 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.) Maximum dimensions (the depth is the maximum distance from the protruding port on the front panel to the module handle on the rear panel): 43.6 mm x 442.0 mm x 446.5 mm (1.72 in. x 17.40 in. x 17.58 in.)
Weight without packaging [kg (lb)]	6.0 kg (13.23 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	8.6 kg (18.96 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	9.3 kg (20.50 lb)
Weight with packaging (full configuration) [kg (lb)]	11.6 kg (25.57 lb)
Installation Type	Cabinet installation
CPU	Quad-core, 1.4 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	32 x 100GE QSFP28 ports and 1 x 10GE SFP+ port, regardless of the direction (uplink or downlink) **NOTE** 1. 100GE ports except port 23 can be split into 4 x 25GE or 4 x 10GE ports. After the split, they cannot be used as GE ports. 2. Splitting 100GE port 23, using 10GE port 1, and configuring IOAM are mutually exclusive. 100GE port 23 supports only static split, and the device needs to be restarted for the split to take effect. 3. The 10GE SFP+ port can function as a GE SFP optical/electrical port. 4. Supported optical modules: (1) In the case of port-side air intake, 100GE ports support 100G-AOC/SR4/DR/LR4/4WDM optical modules. (2) In the case of port-side air exhaust, 100GE ports support 100G-AOC/SR4/DR/LR4 optical modules.
Service port supporting the stack function	100GE optical port
RTC	Supported
Typical power consumption [W]	203 W (100% traffic load, copper cables on half of ports, normal temperature, dual AC power modules) 244 W (100% traffic load, short-distance optical modules on half of ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	693 BTU/hr (100% traffic load, copper cables on half of ports, normal temperature, dual AC power modules) 833 BTU/hr (100% traffic load, short-distance optical modules on half of ports, normal temperature, dual AC power modules)
Static power consumption [W]	165 W
Static heat dissipation [BTU/hour]	563 BTU/hour

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Item	Specification
Maximum power consumption [W]	339 W (100% traffic load, short-distance optical modules on all ports, normal temperature, dual AC power modules) 450 W (100% traffic load, long-distance optical modules on all ports, 40°C, dual AC power modules)
Maximum heat dissipation	1157 BTU/hour (100% traffic load, short-distance optical modules on all ports, normal temperature, dual AC power modules) 1535 BTU/hour (100% traffic load, long-distance optical modules on all ports, 40°C, dual AC power modules)
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 600 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1000 W DC power module: –48 V DC to –60 V DC • 1200 W high-voltage DC power module: 240 V DC to 380 V DC
Input voltage range [V]	• 600 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1000 W DC power module: –38.4 V DC to –72 V DC • 1200 W high-voltage DC power module: 190 V DC to 400 V DC
Maximum input current [A]	• 600 W AC&240 V DC power module: 8 A (100 V AC to 240 V AC); 4 A (240 V DC) • 1000 W DC power module: 30 A (–48 V DC to –60 V DC) • 1200 W high-voltage DC power module: 8 A
Rated output power [W]	• 600 W AC&240 V DC power module: 600 W • 1000 W DC power module: 1000 W • 1200 W high-voltage DC power module: 1200 W

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Item	Specification
Certification	· Complies with safety standards. · Complies with EMC standards. · Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.999993932
MTBF [year]	35.88 year
MTTR [hour]	1.89 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 49.8 dB(A) on average (maximum: 53.6 dB(A)) Back-to-front airflow: 47.8 dB(A) on average (maximum: 51.2 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 67.6 dB(A) on average (maximum: 73.4 dB(A)) Back-to-front airflow: 68 dB(A) on average (maximum: 75.4 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing

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Item	Specification
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, non-condensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

4.5.3 CE8850-64CQ-EI

4.5.3.1 CE8850-64CQ-EI (02351RFF)

Version Mapping

Table 4-270 lists the mappings between the CE8850-64CQ-EI and software versions.

Table 4-270 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE8800	CE8850	CE8850-64CQ-EI	CE8850EI	V200R005C00 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

Appearance and Structure

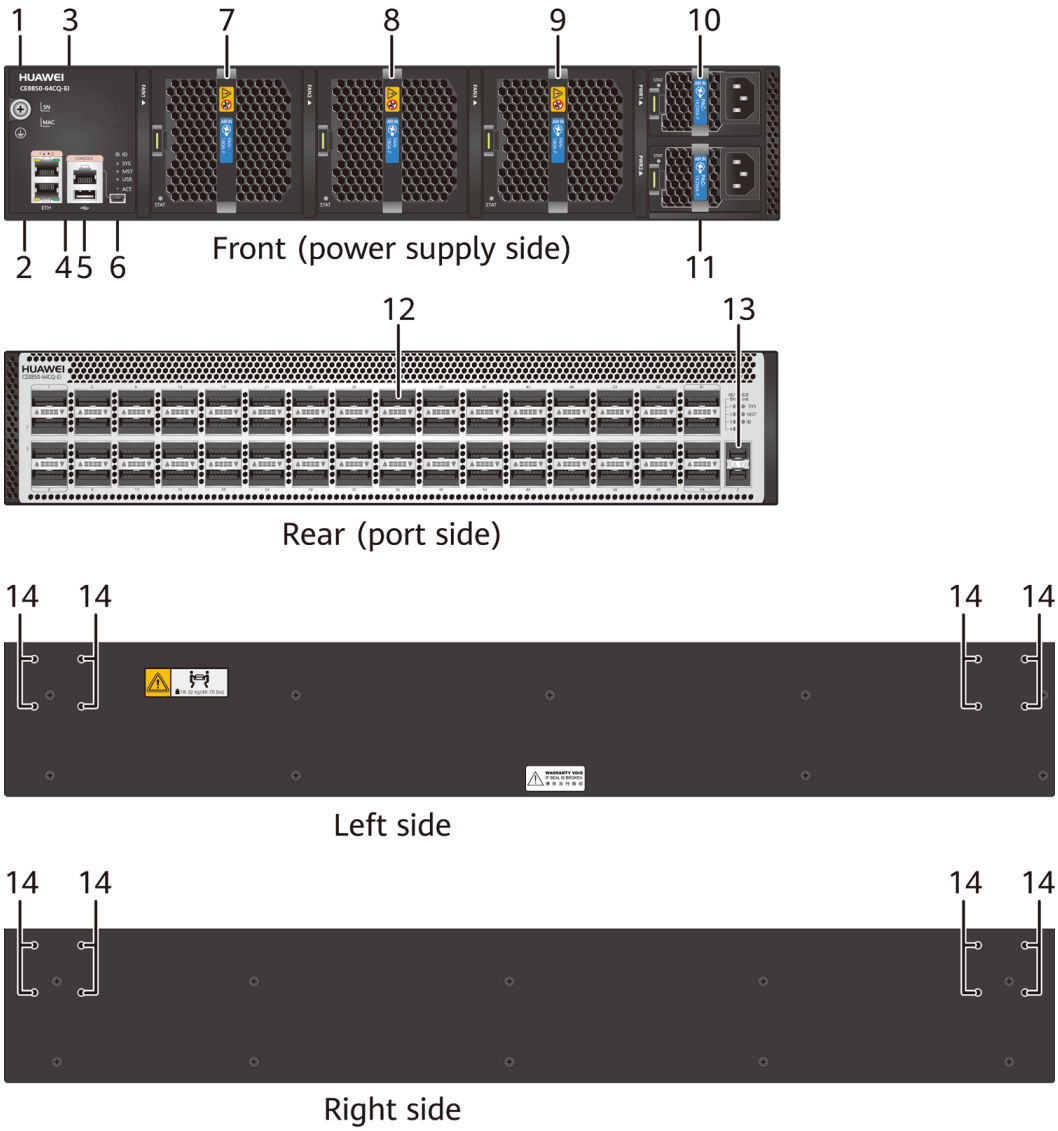
NOTE

The appearances of devices and modules are subject to actually delivered products. The figures in this document are for reference only.

Appearance of the CE8850-64CQ-EI

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Figure 4-292 CE8850-64CQ-EI



1	Ground screw	2	Two ETH management ports (RJ45)
3	ESN and MAC address label	4	Console port
5	USB port	6	Mini USB port
7	Fan slot 1 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**	8	Fan slot 2 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**

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9	Fan slot 3 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**	10	Power supply slot 1 Applicable power modules: • **5.15 1200 W AC&240 V DC Power Module (PAC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)** • **5.26 1200 W DC Power Module (PDC-1K2WA)** **NOTE** If two 1200 W AC&240 V DC power modules are installed on the CE8850-64CQ-EI and 110 V AC power input is provided to the power modules, you are advised to perform the following operations: 1. Use an external power source that provides 110 V input with double live wires. In this case, each power module provides 1200 W of rated output power and the power modules work in 1+1 redundancy mode. 2. If the external power source provides 110 V input with a single live wire, each power module provides 800 W of rated output power. In this case, two power modules must be configured. They power the switch at the same time and do not work in redundancy mode.

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11	Power supply slot 2 Applicable power modules: • **5.15 1200 W AC&240 V DC Power Module (PAC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)** • **5.26 1200 W DC Power Module (PDC-1K2WA)** **NOTE** If two 1200 W AC&240 V DC power modules are installed on the CE8850-64CQ-EI and 110 V AC power input is provided to the power modules, you are advised to perform the following operations: 1. Use an external power source that provides 110 V input with double live wires. In this case, each power module provides 1200 W of rated output power and the power modules work in 1+1 redundancy mode. 2. If the external power source provides 110 V input with a single live wire, each power module provides 800 W of rated output power. In this case, two power modules must be configured. They power the switch at the same time and do not work in redundancy mode.	12	Sixty-four 40GE/100GE QSFP28 Ethernet optical ports **NOTE** • A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. • In V200R020C10 and later versions, a 100GE interfaces can be split into two 50GE interfaces. The interface supports only QSFP28-100G-SR4 optical modules. Applicable modules and cables: • **9.9 40GE QSFP+ Optical Modules** • **100GE QSFP28 Optical Modules** • **QSFP+ to QSFP+ AOC cable** • **QSFP+ to 4*SFP+ AOC cable** • **8.8.5 QSFP+ to 4*SFP+ High-Speed Cable** • **8.8.4 QSFP+ to QSFP+ High-Speed Cable** • **8.9.6 QSFP28 to QSFP28 AOC Cable** • **8.8.6 QSFP28 to QSFP28 High-Speed Cable** • **8.8.7 QSFP28 to 4*SFP28 High-Speed Cable**
13	Two 10GE SFP+ Ethernet optical ports These two ports are reserved for future function expansion and cannot be used currently.	14	Mounting holes for mounting brackets

Slot

- Power supply slot

  The CE8850-64CQ-EI has two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CE8850-64CQ-EI supports double power modules (1+1 backup).

  – When both power modules are working properly, they equally provide power for a chassis.

  – When one power module fails, the other one provides all power required for a chassis.

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All power modules are hot swappable.

- Fan slot

  The CE8850-64CQ-EI has three fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have three working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-293** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

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Figure 4-293 Front-to-back airflow (air flows out from the port side)

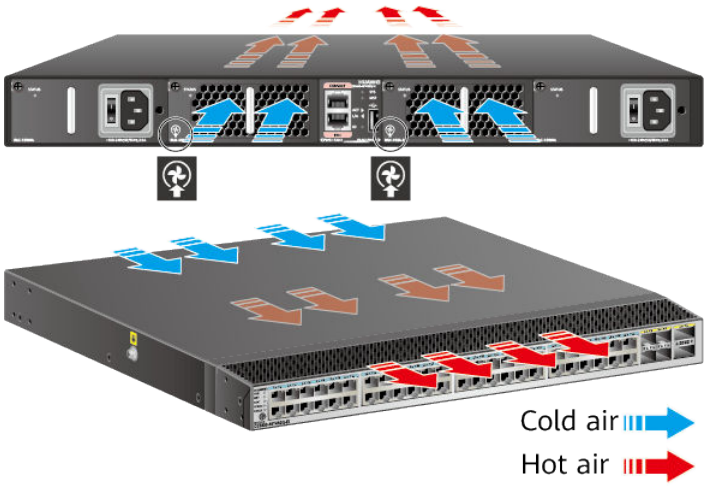
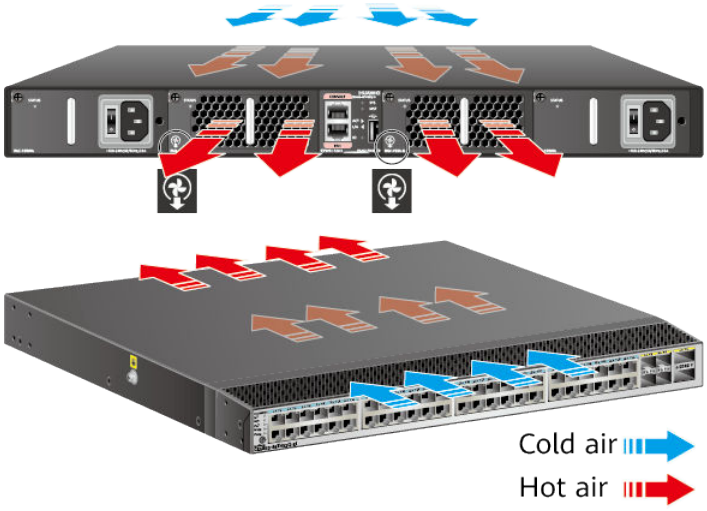


Figure 4-294 Back-to-front airflow (air flows in from the port side)



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Indicators

Figure 4-295 Indicators on the CE8850-64CQ-EI rear panel

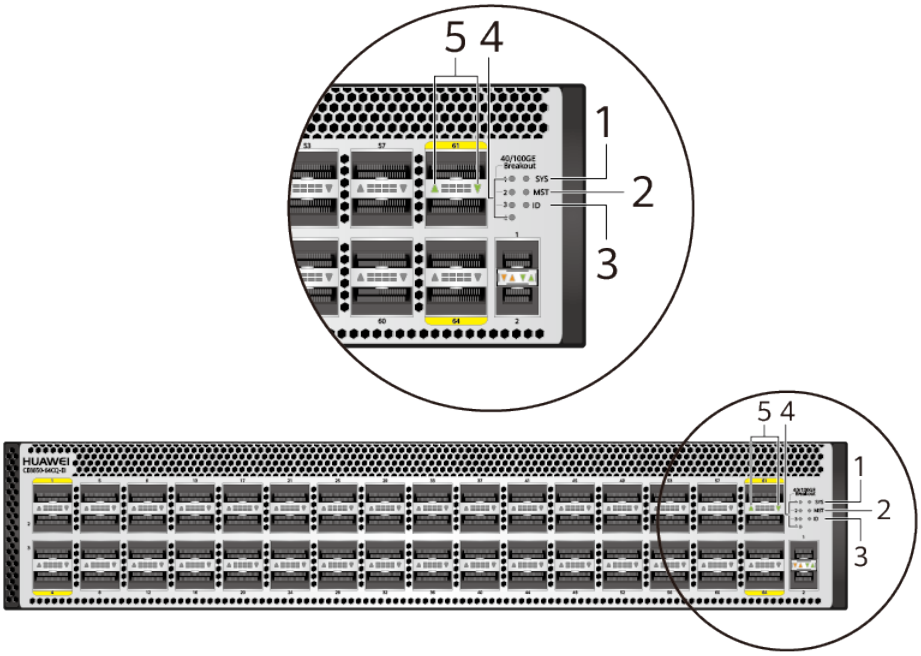
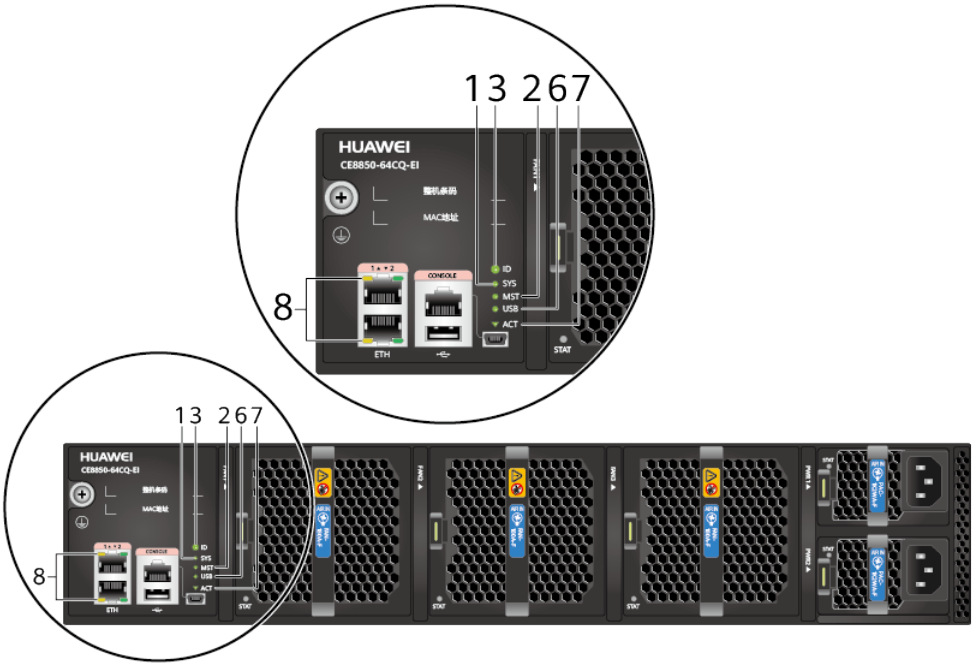


Figure 4-296 Indicators on the CE8850-64CQ-EI front panel



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Table 4-271 Indicator description

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running normally.
			Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.
2	MST	Stack master/slave indicator **NOTE** In V200R003C00 and later versions, you can use the **dfs-master led enable** command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.	Green	Off	The switch is not a stack master.
				Steady on	The switch is a stack master or standalone switch.

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No.	Indicator	Name	Color	Status	Description
3	ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
				Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
4	-	40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE port) **NOTE** Indicators 1, 2, 3, 4 turn on in cyclic order, with each indicator keeping on for 5s.	Green	Off	40GE/100GE ports are working in 40GE or 100GE mode and not split into four 10GE ports or four 25GE ports.
				Steady on	At least one 40GE/100GE port has been split into four 10GE ports or four 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators identify the sequence numbers of the 10GE/25GE ports. A port indicator (5 in **Figure 4-295**) shows the status of a 10GE/25GE port converted from the corresponding 40GE/100GE port: • When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 2 is on, each port indicator shows the status of the second 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. • When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.

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No.	Indicator	Name	Color	Status	Description
5	-	Service port indicator (40GE/100GE optical port) **NOTE** Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.	Green	Off	No link has been established on the port or the port has been shut down.
				Steady on	A link is established on the port.
				Blinking	The port is sending or receiving data.
6	USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment has been completed.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment has failed.
7	ACT	Mini USB port indicator	Green	Off	The Mini USB port is inactive, and the console port can be used.
				Steady on	The Mini USB port is active, and the console port cannot be used.
8	-	ETH management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.
			Yellow	Blinking	The port is sending or receiving data.

Ports

40GE/100GE QSFP28 Optical Port

Table 4-272 describes the attributes of a 40GE/100GE QSFP28 optical port.

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Table 4-272 Attributes of a 40GE/100GE QSFP28 optical port

Attribute	Description
Connector type	Depending on the optical module
Optical attributes	Depending on the module or cable in use
Standards compliance	IEEE802.3ba
Working mode	Full-duplex

10GE SFP+ Optical Port

The two 10GE SFP+ optical ports are reserved for future function expansion and cannot be used currently.

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 4-273** describes the attributes of the console port.

Table 4-273 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

NOTE

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Mini USB Port

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite

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or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-274** describes the attributes of the ETH management port (RJ45).

Table 4-274 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

The CE8850-64CQ-EI switch has two ETH management ports (RJ45). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE8850-64CQ-EI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see "Modify parameters" in the *Basic Configuration Guide - BIOS Menu*.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

Specifications

Table 4-275 lists technical specifications of the CE8850-64CQ-EI switch.

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Table 4-275 Technical specifications

Item		Description
Physical specifications		• Dimensions (H x W x D): 88.1 mm x 442.0 mm x 600.0 mm (3.47 in. x 17.4 in. x 23.6 in.) • Weight (with two power modules and three fan modules, calculated based on the heaviest model if multiple models are supported): 22.2 kg
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 64 dBA • Front-to-back airflow: < 64 dBA
Power specifications	Power source type	AC/DC/high-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 130 V AC/200 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	• Rated voltage of 240 V high-voltage DC power input: 240 V DC • Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC • Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC • Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC

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Item		Description
	Rated input current	• 1200 W AC&240 V DC power module (PAC-1K2WA series): 10 A (100 V AC to 130 V AC)/8 A (200 V AC to 240 V AC)/8 A (240 V DC) • 1200 W high-voltage DC power module (PHD-1K2WA series): 8 A (240 V DC to 380 V DC) • 1200 W DC power (PDC-1K2WA series): 38 A (-48 V DC to -60 V DC)
Chassis power consumption	Maximum power consumption	965W
	Typical power consumption	375 W (100% throughput, QSFP28 cables on 64 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	3293BTU/hr
	Typical heat dissipation	1280 BTU/hr (100% throughput, QSFP28 cables on 64 ports, double power modules)
Surge protection		Power module: • AC: 4 kV in common mode and 2.5 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, depending on the fan modules and power modules
Reliability and availability	Power module backup	1+1 backup

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Item		Description
	Fan module backup	The device supports 2+1 backup of fan modules. The system can operate normally for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately. **NOTE** A CE8850EI chassis uses three fan modules, with each fan module containing one fan. The three fans in the chassis work in 2+1 backup mode.
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	35.98
	Mean time to repair (MTTR)	1.68
	Availability	0.999997043
Technical specifications	Processor	1.5 GHz, eight-core
	DRAM Memory	4GB
	NOR Flash	32MB
	NAND Flash	2GB
Stack	Service port supporting the stack function	100GE optical ports
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To

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obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-276 provides the ordering information.

Table 4-276 Ordering information

Part Number	Part Model	Part Description
02351RFF	CE8850-64CQ-EI	CE8850-64CQ-EI Switch (64-Port 100GE QSFP28, 2-Port 10GE SFP+, Without Fan and Power Modules)
02351RFJ	CE8850-EI-F-B0B	CE8850-64CQ-EI Switch (64-Port 100GE QSFP28, 2-Port 10GE SFP+, 2*AC Power Module, 3*FAN Box, Port-side Exhaust)
02351RFH	CE8850-EI-B-B0B	CE8850-64CQ-EI Switch (64-Port 100GE QSFP28, 2-Port 10GE SFP+, 2*AC Power Module, 3*FAN Box, Port-side Intake)

4.5.3.2 CE8850-64CQ-EI (02351RFF-001)

Overview

Table 4-277 Basic information about the CE8850-64CQ-EI

Item	Details
Description	CE8850-64CQ-EI Switch (64-Port 100GE QSFP28,Without Fan and Power Module)
Part Number	02351RFF-001
Model	CE8850-64CQ-EI
First supported version	V200R021C10SPC600
Other part numbers	02351RFH-001 (CE8850-64CQ-EI Switch(64-Port 100GE QSFP28,2*AC Power Module,3*FAN Box,Port-side Intake)) 02351RFJ-001 (CE8850-64CQ-EI Switch(64-Port 100GE QSFP28,2*AC Power Module,3*FAN Box,Port-side Exhaust))
Short Name	CE8850EI

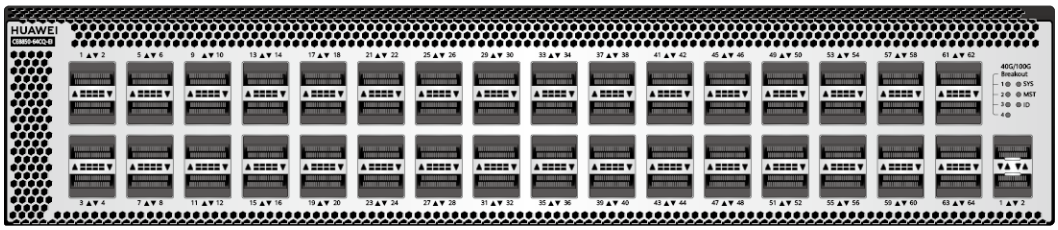
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Appearance

Figure 4-297 Appearance of the CE8850-64CQ-EI



Front (power supply side)



Rear (port side)

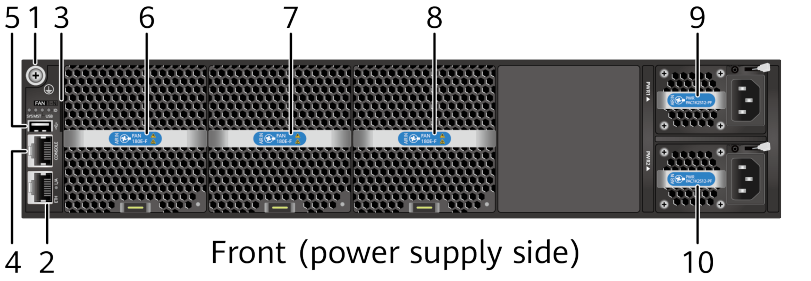
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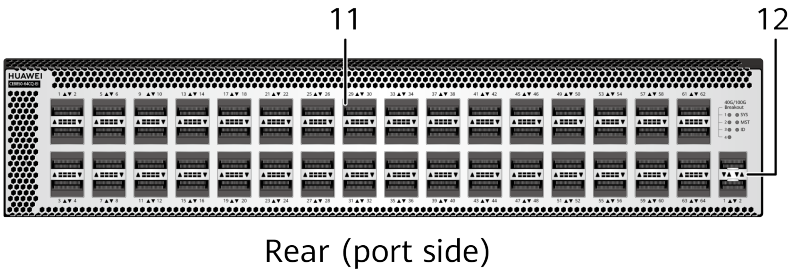
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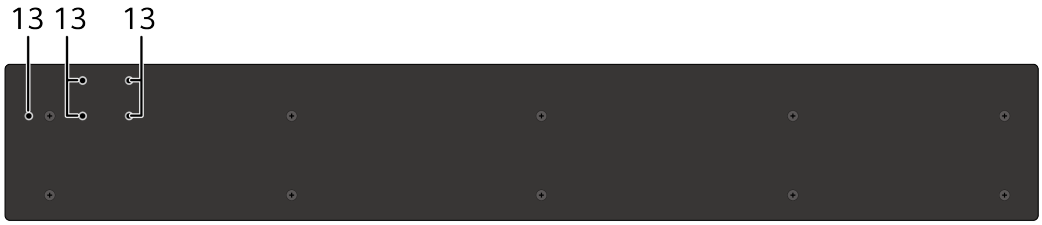
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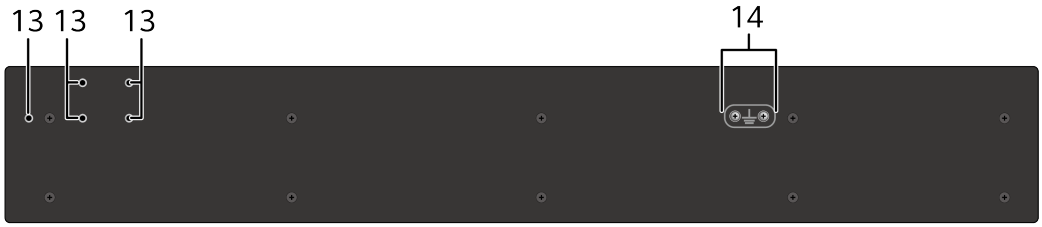
Components

Figure 4-298 Components of the CE8850-64CQ-EI









1	Ground screw	2	ETH management port (RJ45)
3	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.	4	Console port

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5	USB port	6	Fan slot 1 Applicable fan modules: **FAN-180E-B Fan Module** **FAN-180E-F Fan Module**
7	Fan slot 2 Applicable fan modules: **FAN-180E-B Fan Module** **FAN-180E-F Fan Module**	8	Fan slot 3 Applicable fan modules: **FAN-180E-B Fan Module** **FAN-180E-F Fan Module**
9	Power supply slot 1 Applicable power modules: **1200W AC&240V DC Power Module (Back to Front,Power panel side exhaust)** **1200W AC&240V DC Power Module (Front to Back,Power panel side intake)** **1200W DC Power Module (Back to Front,Power panel side exhaust)** **1200W DC Power Module (Front to Back ,Power panel side intake)**	10	Power supply slot 2 Applicable power modules: **1200W AC&240V DC Power Module (Back to Front,Power panel side exhaust)** **1200W AC&240V DC Power Module (Front to Back,Power panel side intake)** **1200W DC Power Module (Back to Front,Power panel side exhaust)** **1200W DC Power Module (Front to Back ,Power panel side intake)**
11	Sixty-four 40GE/100GE QSFP28 Ethernet optical ports	12	Two 10GE SFP+ Ethernet optical ports These two ports are reserved for future function expansion and cannot be used currently.
13	Mounting holes for mounting brackets	14	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal

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Slot Layout

Table 4-278 Slots on the CE8850-64CQ-EI

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slot	PWR1, PWR2	Horizontal insertion	The CloudEngine 8800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 8800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each provides half of the power for the switch. When one power module fails, the other one provides all power required for the chassis. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slot	FAN1 to FAN3	Horizontal insertion	Each CloudEngine 8800 series switch provides three fan slots, in which pluggable fan modules can be installed to cool the chassis, ensuring system stability and heat dissipation. When a switch is working properly, it is recommended that three fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-299 Indicators on the CE8850-64CQ-EI 1

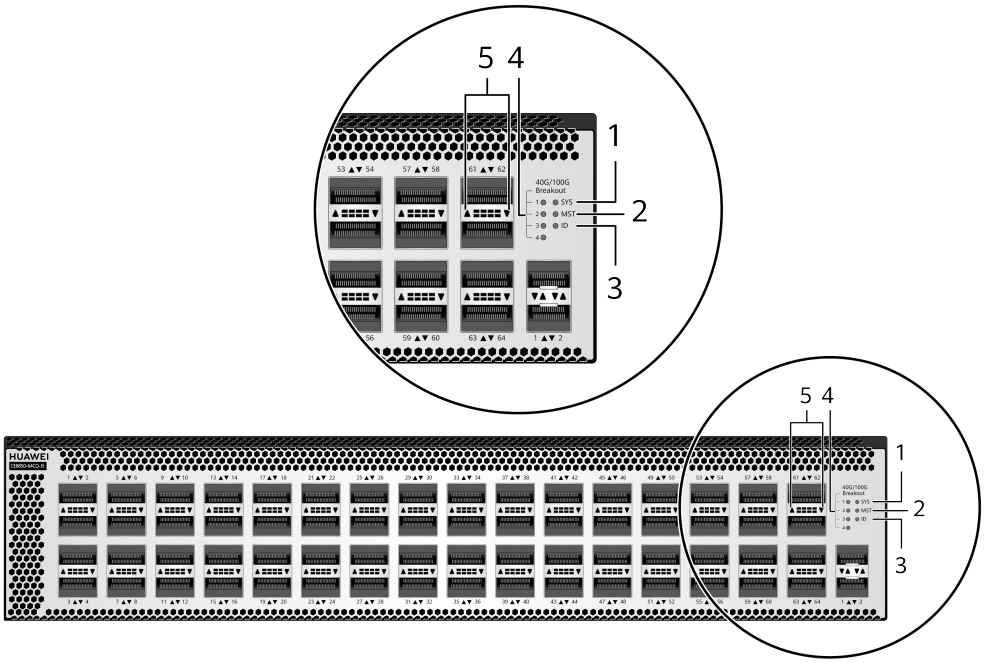
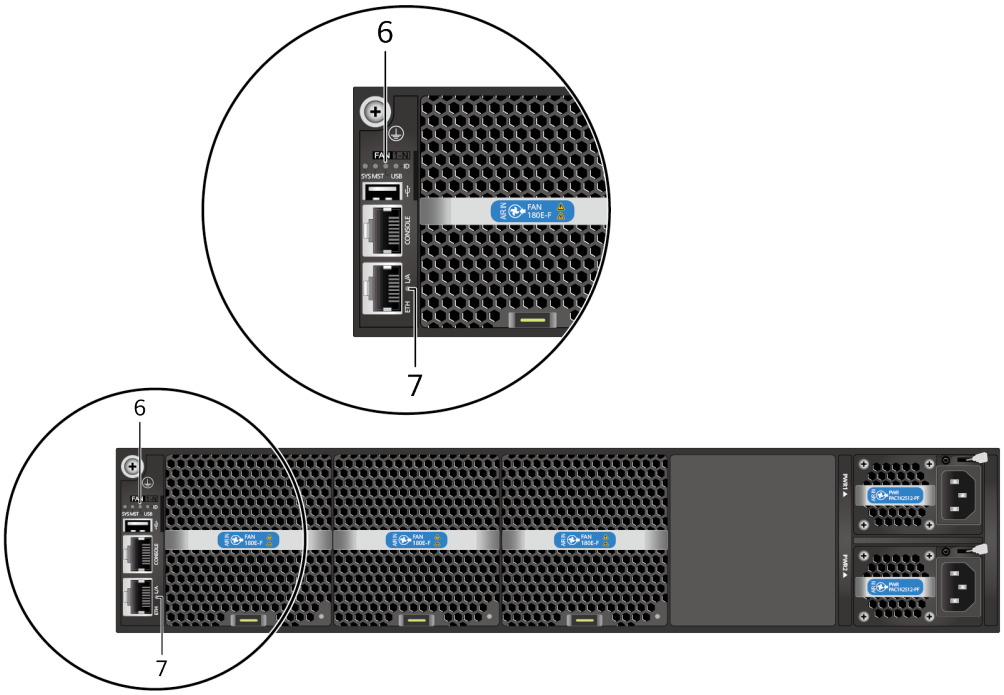


Figure 4-300 Indicators on the CE8850-64CQ-EI 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE port)	5. Service port indicator (40GE/100GE optical port)
6. USB-based deployment indicatorc	7.ETH management port indicator	-	-	-

Table 4-279 Indicators on the CE8850-64CQ-EI

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.

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Silkscreen	Name	Color	Status	Description
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (40GE/100GE optical port) (Note: Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
40G/100G Breakout 1/2/3/4	10GE/25GE mode sequence number indicators of a 40GE/100GE port (40G/100G Breakout 1/2/3/4) (Note: The four sequence number indicators 1, 2, 3, and 4 are on in turn, and each	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
	indicator is on for 5s.)	Green	Steady on	At least one port works in 10GE or 25GE mode and is split into four 10GE or 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators take effect and work with port indicators to identify the sequence numbers of the 10GE/25GE ports. Observe the port indicator marked with 5 in the diagram of indicators on the CE8850-64CQ-EI panel. When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 2 is on, each port

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Silkscreen	Name	Color	Status	Description
				indicator shows the status of the second 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-280 Ports on the CE8850-64CQ-EI

Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex **NOTE** 1. A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. 2. A 100GE port can be split into two 50GE ports. This function is available only to QSFP28-100G-SR4 optical modules.	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to 4*SFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to 4*SFP28 high-speed cable**
10GE SFP+ optical port	The connector type of the optical fiber depends on the optical module.	Two 10GE SFP+ optical ports are unavailable and reserved for future function expansion.	-

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-301 Front-to-back airflow for port-side exhaust

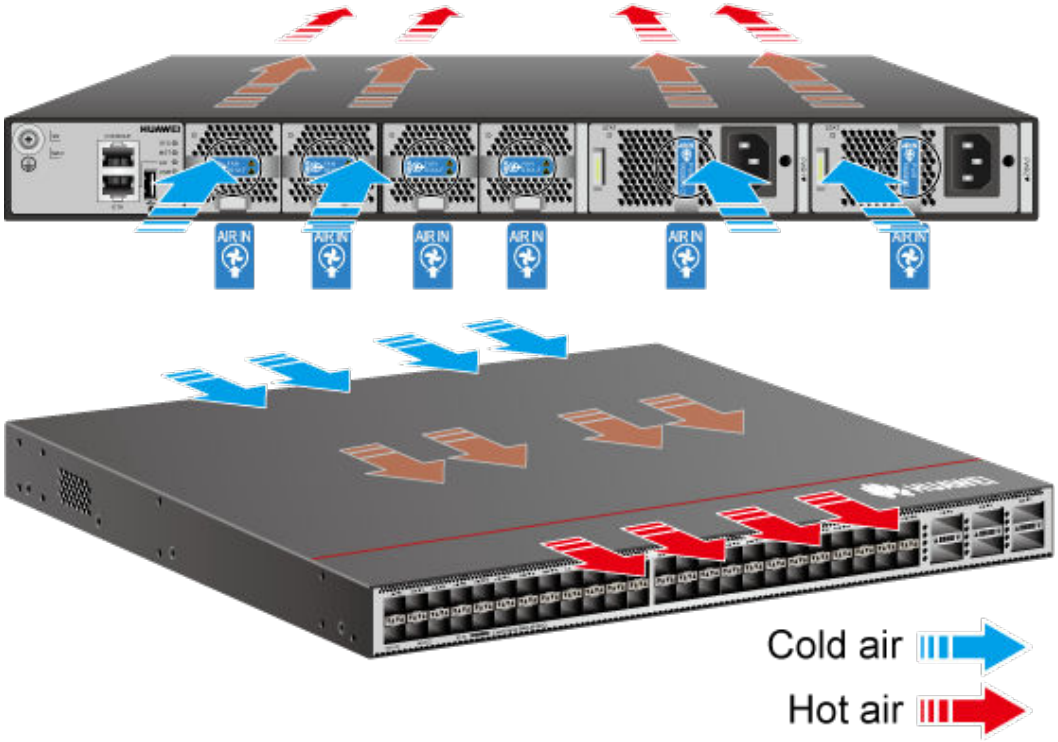
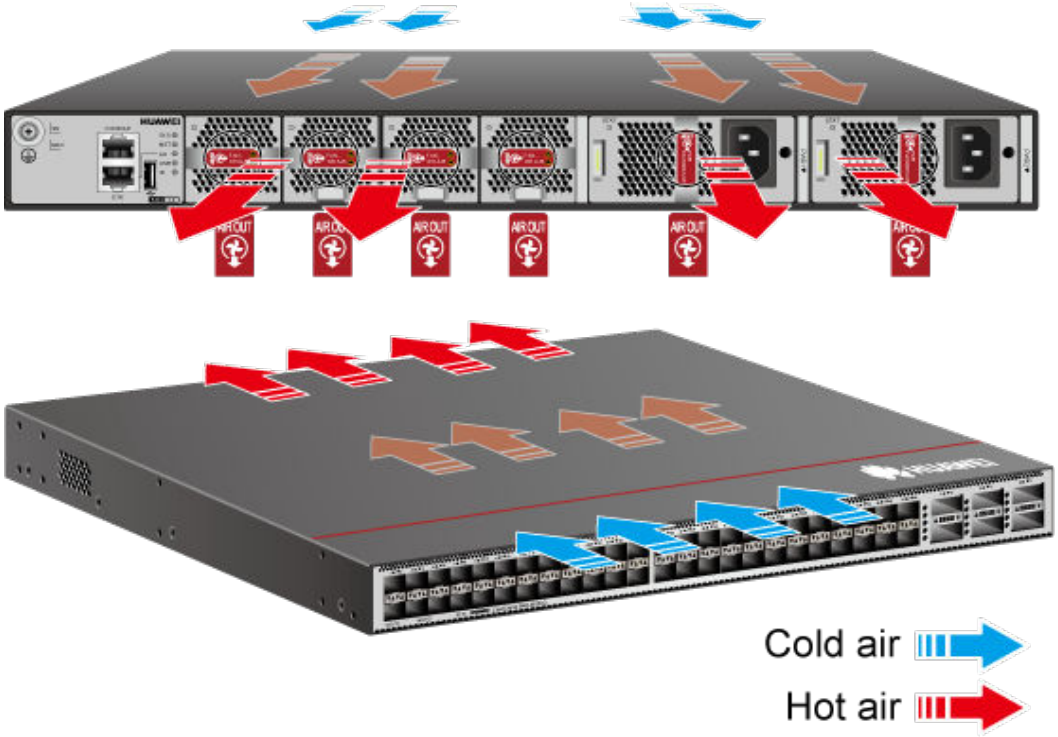


Figure 4-302 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-281 Technical specifications of the CE8850-64CQ-EI

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	280 mm x 875 mm x 665 mm (11.02 in. x 34.45 in. x 26.18 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 86.1 mm x 442.0 mm x 600.0 mm (3.39 in. x 17.40 in. x 23.62 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 86.1 mm x 442.0 mm x 633.9 mm (3.39 in. x 17.40 in. x 24.96 in.)
Weight without packaging [kg (lb)]	12 kg (26.46 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	16.4 kg (36.16 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	22.3 kg (49.16 lb)
Weight with packaging (full configuration) [kg (lb)]	26.7 kg (58.86 lb)
Installation Type	Cabinet installation
CPU	8-core, 1.5 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	64*40GE/100GE QSFP28 Ethernet optical ports (Note: A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. A 100GE port can be split into two 50GE ports. This function is available only to QSFP28-100G-SR4 optical modules.)
Uplink Service interface	2 x 10GE SFP+ Ethernet optical ports (Note: This port is unavailable currently and is reserved for future function expansion.)
Service port supporting the stack function	100GE optical port
RTC	Supported
Typical power consumption [W]	376 W (100% traffic load, QSFP28 high-speed cables on 32 ports, normal temperature, dual AC power modules) 455 W (100% traffic load, QSFP28 short-distance optical modules on 32 ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	1283 BTU/hr (100% traffic load, QSFP28 high-speed cables on 32 ports, normal temperature, dual AC power modules) 1553 BTU/hr (100% traffic load, QSFP28 short-distance optical modules on 32 ports, normal temperature, dual AC power modules)
Static power consumption [W]	302 W
Static heat dissipation [BTU/hour]	1031 BTU/hour
Maximum power consumption [W]	629 W (100% traffic load, QSFP28 short-distance optical modules on 64 ports, normal temperature, dual AC power modules) 965 W (100% traffic load, QSFP28 long-distance optical modules on 64 ports, 40°C, dual AC power modules)

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Item	Specification
Maximum heat dissipation	2147 BTU/hour (100% traffic load, QSFP28 short-distance optical modules on 64 ports, normal temperature, dual AC power modules) 3293 BTU/hour (100% traffic load, QSFP28 long-distance optical modules on 64 ports, 40°C, dual AC power modules)
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 1200 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1200 W DC power module: –48 V DC to –60 V DC; +48 V DC
Input voltage range [V]	• 1200 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1200 W DC power module: -38.4 V DC to -72 V DC; +38.4 V DC to +72 V DC
Maximum input current [A]	• 1200 W AC&240 V DC power module: 10 A (100 V AC to 130 V AC); 8 A (200 V AC to 240 V AC); 8 A (240 V DC) • 1200 W DC power module: 38 A (–48 V DC to –60 V DC); 38 A (+48 V DC)
Rated output power [W]	• 1200 W AC&240 V DC power module: 1200 W • 1200 W DC power module: 1200 W
Certification	· Compliance with safety standards · Compliance with EMC standards · Compliance with environment and environmental protection standards
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	3
Redundant fans	The device supports 2+1 backup of fan modules that work in hot standby mode. The system can operate normally for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.999992477
MTBF [year]	20.71 year
MTTR [hour]	1.85 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 61.5 dB(A) on average (maximum: 65.9 dB(A)) Back-to-front airflow: 61.3 dB(A) on average (maximum: 66.5 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 82.5 dB(A) on average (maximum: 87.4 dB(A)) Back-to-front airflow: 79.7 dB(A) on average (maximum: 85.6 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

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4.5.3.3 CE8850-64CQ-EI (02351RFF-004)

Overview

Table 4-282 Basic information about the CE8850-64CQ-EI

Item	Details
Description	CE8850-64CQ-EI Switch (64-Port 100GE QSFP28,Without Fan and Power Module)
Part Number	02351RFF-004
Model	CE8850-64CQ-EI
First supported version	V200R022C10
Other part numbers	02351RFH-004 (CE8850-64CQ-EI Switch(64-Port 100GE QSFP28,2*AC Power Module,3*FAN Box,Port-side Intake)) 02351RFJ-004 (CE8850-64CQ-EI Switch(64-Port 100GE QSFP28,2*AC Power Module,3*FAN Box,Port-side Exhaust))
Short Name	CE8850EI

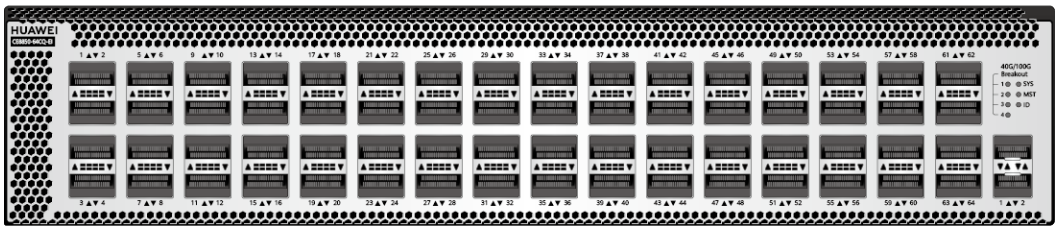
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Appearance

Figure 4-303 Appearance of the CE8850-64CQ-EI



Front (power supply side)



Rear (port side)

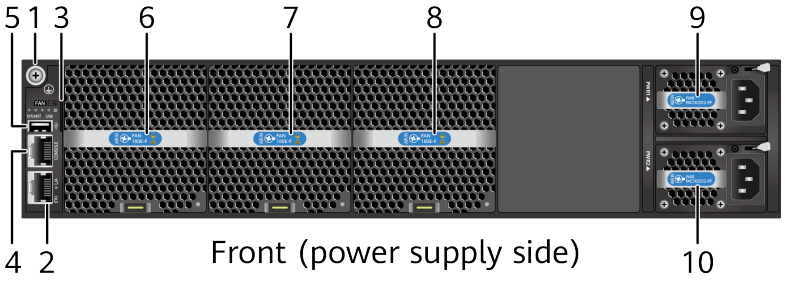
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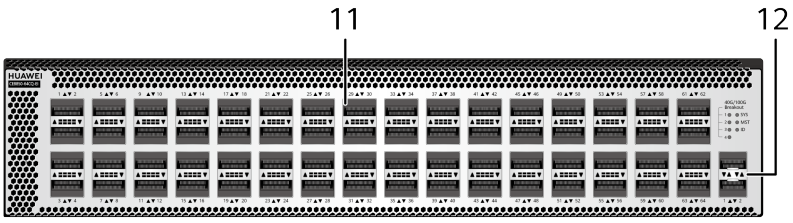
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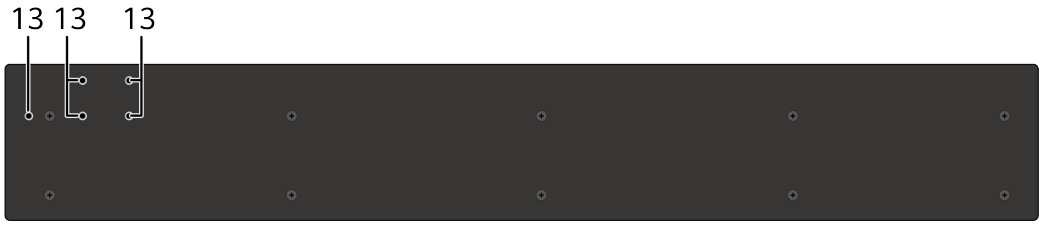
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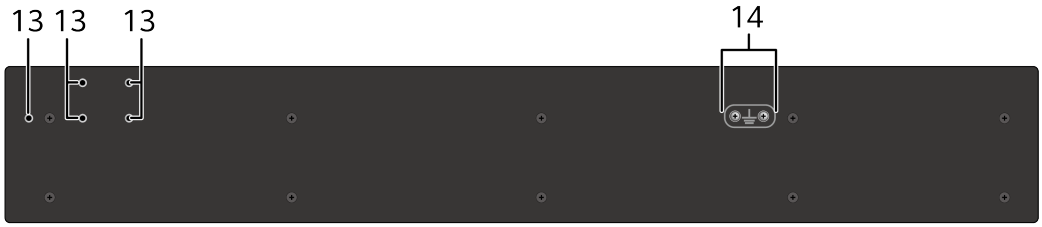
Components

Figure 4-304 Components of the CE8850-64CQ-EI









1	Ground screw	2	ETH management port (RJ45)
3	Equipment serial number (ESN) **NOTE** You can scan the code to view the ESN and MAC address of the switch.	4	Console port

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5	USB port	6	Fan slot 1
7	Fan slot 2 Applicable fan modules: **FAN-180E-B Fan Module** **FAN-180E-F Fan Module**	8	Fan slot 3 Applicable fan modules: **FAN-180E-B Fan Module** **FAN-180E-F Fan Module**
9	Power supply slot 1 Applicable power modules: **1200W AC&240V DC Power Module (Back to Front,Power panel side exhaust)** **1200W AC&240V DC Power Module (Front to Back,Power panel side intake)** **1200W DC Power Module (Back to Front,Power panel side exhaust)** **1200W DC Power Module (Front to Back ,Power panel side intake)**	10	Power supply slot 2 Applicable power modules: **1200W AC&240V DC Power Module (Back to Front,Power panel side exhaust)** **1200W AC&240V DC Power Module (Front to Back,Power panel side intake)** **1200W DC Power Module (Back to Front,Power panel side exhaust)** **1200W DC Power Module (Front to Back ,Power panel side intake)**
11	Sixty-four 40GE/100GE QSFP28 Ethernet optical ports	12	Two 10GE SFP+ Ethernet optical ports These two ports are reserved for future function expansion and cannot be used currently.
13	Mounting holes for mounting brackets	14	Equipotential bonding Ground screws for a ground cable with a two-hole OT terminal

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Slot Layout

Table 4-283 Slots on the CE8850-64CQ-EI

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	PWR1, PWR2	Horizontal insertion	The CloudEngine 8800 series switches have two power module slots, in which pluggable power modules can be installed. A chassis can use one or two power modules. In particular, dual power modules provide higher reliability. The CloudEngine 8800 series switches support dual power modules working in 1+1 backup mode. When both power modules are working properly, each provides half of the power for the switch. When one power module fails, the other one provides all power required for the chassis. All power modules are hot swappable.

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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	FAN1 to FAN3	Horizontal insertion	Each CloudEngine 8800 series switch provides three fan slots, in which pluggable fan modules can be installed to cool the chassis, ensuring system stability and heat dissipation. When a switch is working properly, it is recommended that three fan modules work at the same time. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately. All fan modules are hot swappable.

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Indicators

Figure 4-305 Indicators on the CE8850-64CQ-EI 1

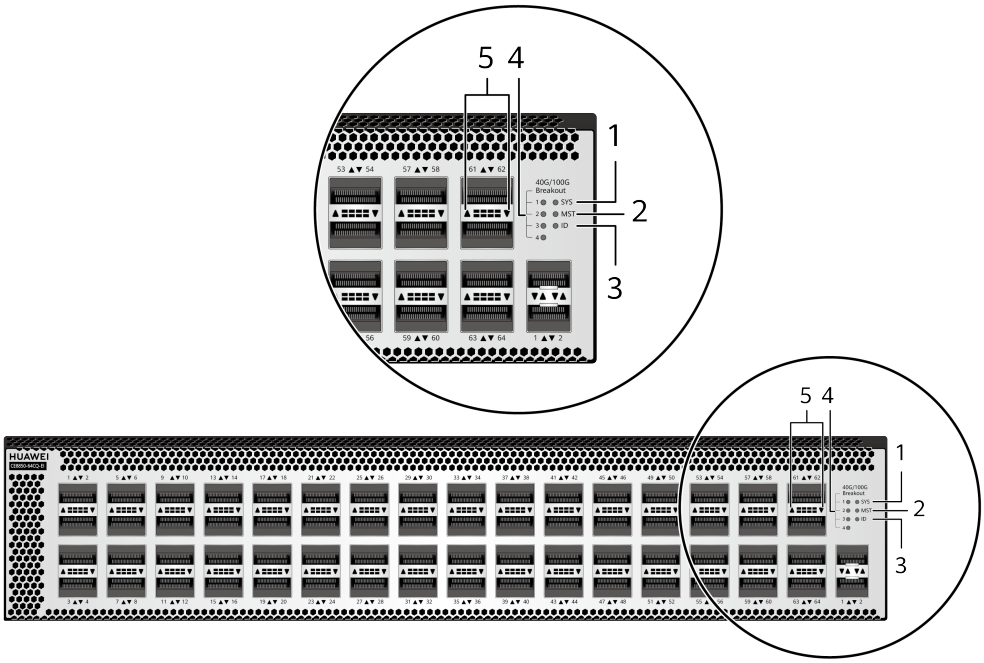
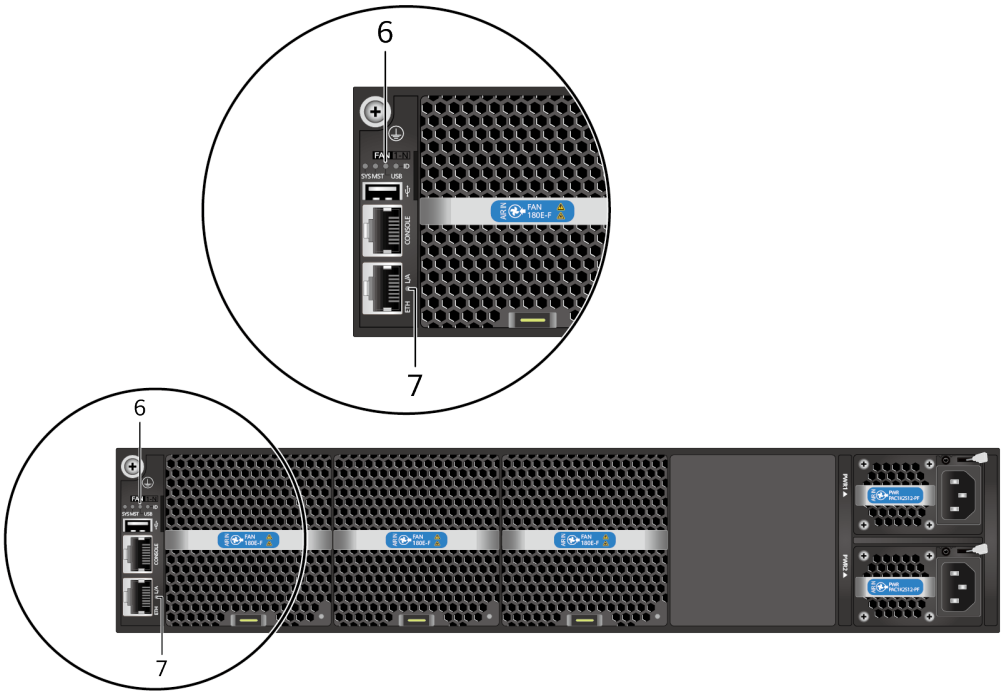


Figure 4-306 Indicators on the CE8850-64CQ-EI 2



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1. System status indicator	2. Stack master/slave indicator	3. ID indicator	4. 40G/100G Breakout 1/2/3/4 (sequence number indicators of 10GE/25GE ports converted from a 40GE/100GE port)	5. Service port indicator (40GE/100GE optical port)
6. USB-based deployment indicatorc	7.ETH management port indicator	-	-	-

Table 4-284 Indicators on the CE8850-64CQ-EI

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.
		Red	Steady on	The system fails to start. At least one power module does not work normally. At least one fan module does not work normally.
MST	Stack master/slave indicator	Green	Steady off	The device is not a stack master.
		Green	Steady on	The device is a stack master or standalone device.

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Silkscreen	Name	Color	Status	Description
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.
-	Service port indicator (40GE/100GE optical port) (Note: Arrowheads show the positions of ports. A down arrowhead indicates a bottom-row port, and an up arrowhead indicates a top-row port.)	Green	Steady off	The port is not connected or has been shut down.
		Green	Steady on	A link has been established on the port.
		Green	Blinking	The port is sending or receiving data.
40G/100G Breakout 1/2/3/4	10GE/25GE mode sequence number indicators of a 40GE/100GE port (40G/100G Breakout 1/2/3/4) (Note: The four sequence number indicators 1, 2, 3, and 4 are on in turn, and each	Green	Steady off	40GE/100GE ports work in 40GE or 100GE mode and are not split into four 10GE or 25GE ports.

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Silkscreen	Name	Color	Status	Description
	indicator is on for 5s.)	Green	Steady on	At least one port works in 10GE or 25GE mode and is split into four 10GE or 25GE ports. When one or more 40GE/100GE ports are split into four 10GE ports or four 25GE ports, these indicators take effect and work with port indicators to identify the sequence numbers of the 10GE/25GE ports. Observe the port indicator marked with 5 in the diagram of indicators on the CE8850-64CQ-EI panel. When indicator 1 is on, each port indicator shows the status of the first 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 2 is on, each port

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Silkscreen	Name	Color	Status	Description
				indicator shows the status of the second 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 3 is on, each port indicator shows the status of the third 10GE/25GE port derived from the corresponding 40GE/100GE port. When indicator 4 is on, each port indicator shows the status of the fourth 10GE/25GE port derived from the corresponding 40GE/100GE port.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Green	Blinking	The port is sending or receiving data.

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Silkscreen	Name	Color	Status	Description
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.
		Red	Steady on	USB-based deployment fails.

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Ports

Table 4-285 Ports on the CE8850-64CQ-EI

Port	Connector Type	Description	Available Components
40GE/100GE QSFP28 optical port	The connector type of the optical fiber depends on the optical module.	A 40GE/100GE QSFP28 Ethernet optical port sends and receives service traffic at 40 Gbit/s or 100 Gbit/s. • Optical port attributes: depending on the module or cable in use • Standards compliance: IEEE 802.3ba • Working mode: full-duplex **NOTE** 1. A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. 2. A 100GE port can be split into two 50GE ports. This function is available only to QSFP28-100G-SR4 optical modules.	**40GE QSFP+ optical modules** **100GE QSFP28 optical modules** **QSFP+ to QSFP+ AOC cable** **QSFP+ to QSFP+ AOC cable** **QSFP+ to 4*SFP+ AOC cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to QSFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP+ to 4*SFP+ high-speed cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 AOC cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to QSFP28 high-speed cable** **QSFP28 to 4*SFP28 high-speed cable**
10GE SFP+ optical port	The connector type of the optical fiber depends on the optical module.	Two 10GE SFP+ optical ports are unavailable and reserved for future function expansion.	-

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Port	Connector Type	Description	Available Components
Console port	RJ45	The console port is connected to a console for on-site configuration. • Complied standard: RS232 • Working mode: duplex universal asynchronous receiver/ transmitter (UART) • Baud rate: 9600 bit/s to 115200 bit/s. The default value is 9600 bit/s.	Console cable
ETH management port	RJ45	The ETH management port (RJ45) is used to connect the device to a configuration terminal or network management workstation to configure the device locally or remotely. • Complied standard: IEEE802.3ab • Working mode: 10/100/1000 Mbit/s auto-sensing, full-duplex • Maximum transmission distance: 100 m	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	Supports USB 2.0 flash drives.

Heat Dissipation System

The cooling system of the CloudEngine 6800 series switches uses front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used.

- Front-to-back airflow: Power modules and fan modules with front-to-back airflow are identified by 

. Air flows into the chassis from the power supply side and is exhausted from the port side, as shown in **Figure5** (using a CE6863 chassis as an example).
- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure6** (using a CE6863 chassis as an example).

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Figure 4-307 Front-to-back airflow for port-side exhaust

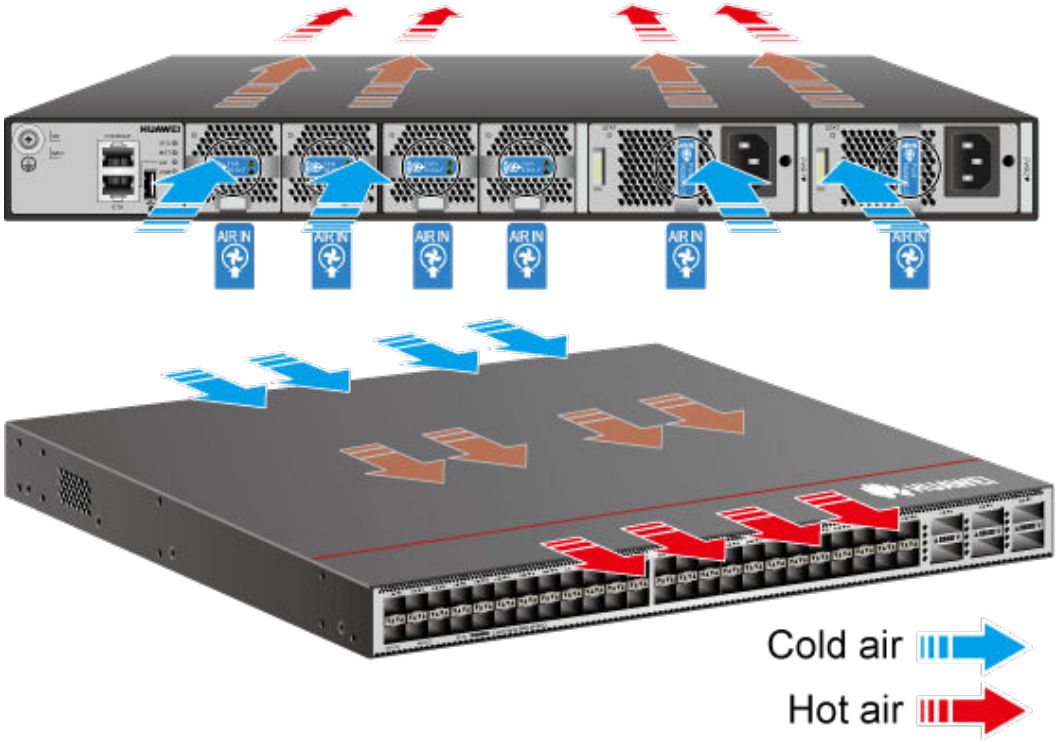
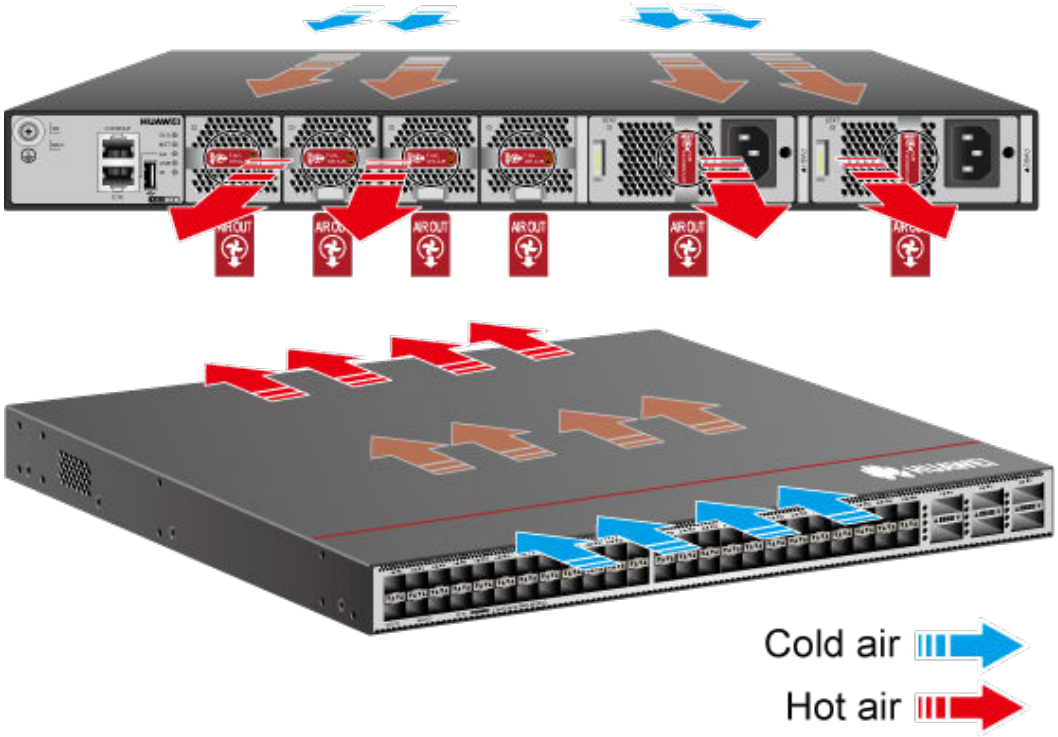


Figure 4-308 Back-to-front airflow for port-side intake



The airflow direction of the power modules and fan modules required on the CloudEngine 6800 series switches depends on how the device is installed in a cabinet. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the power supply

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side facing the front and the port side facing the back, the switch needs to adopt fan modules and power modules with front-to-back airflow.

NOTE

Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

Technical Specifications

Table 4-286 Technical specifications of the CE8850-64CQ-EI

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	280 mm x 875 mm x 665 mm (11.02 in. x 34.45 in. x 26.18 in.)
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 86.1 mm x 442.0 mm x 600.0 mm (3.39 in. x 17.40 in. x 23.62 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 86.1 mm x 442.0 mm x 633.9 mm (3.39 in. x 17.40 in. x 24.96 in.)
Weight without packaging [kg (lb)]	12 kg (26.46 lb) (excluding optical modules, power modules, and fan modules)
Weight without packaging (full configuration) [kg (lb)]	16.4 kg (36.16 lb) (including AC power modules and fan modules, excluding optical modules, calculated based on the heaviest model if multiple models are supported)
Weight with packaging [kg (lb)]	22.3 kg (49.16 lb)
Weight with packaging (full configuration) [kg (lb)]	26.7 kg (58.86 lb)
Installation Type	Cabinet installation
CPU	8-core, 1.5 GHz
Memory	DRAM: 4 GB
NOR Flash	64 MB
NAND Flash	4 GB
USB	Supported

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Item	Specification
Power supply mode	• AC • DC • HVDC
Console port	RJ45
Downlink Service interface	64*40GE/100GE QSFP28 Ethernet optical ports (Note: A QSFP28 Ethernet optical port can be split into four 10GE or 25GE ports. A 100GE port can be split into two 50GE ports. This function is available only to QSFP28-100G-SR4 optical modules.)
Uplink Service interface	2 x 10GE SFP+ Ethernet optical ports (Note: This port is unavailable currently and is reserved for future function expansion.)
Service port supporting the stack function	100GE optical port
RTC	Supported
Typical power consumption [W]	376 W (100% traffic load, QSFP28 high-speed cables on 32 ports, normal temperature, dual AC power modules) 455 W (100% traffic load, QSFP28 short-distance optical modules on 32 ports, normal temperature, dual AC power modules)
Typical heat dissipation [BTU/hour]	1283 BTU/hr (100% traffic load, QSFP28 high-speed cables on 32 ports, normal temperature, dual AC power modules) 1553 BTU/hr (100% traffic load, QSFP28 short-distance optical modules on 32 ports, normal temperature, dual AC power modules)
Static power consumption [W]	302 W
Static heat dissipation [BTU/hour]	1031 BTU/hour
Maximum power consumption [W]	629 W (100% traffic load, QSFP28 short-distance optical modules on 64 ports, normal temperature, dual AC power modules) 965 W (100% traffic load, QSFP28 long-distance optical modules on 64 ports, 40°C, dual AC power modules)

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Item	Specification
Maximum heat dissipation	2147 BTU/hour (100% traffic load, QSFP28 short-distance optical modules on 64 ports, normal temperature, dual AC power modules) 3293 BTU/hour (100% traffic load, QSFP28 long-distance optical modules on 64 ports, 40°C, dual AC power modules)
Number of power modules	2
Redundant power supply	1+1 backup
Rated input voltage [V]	• 1200 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1200 W DC power module: –48 V DC to –60 V DC; +48 V DC
Input voltage range [V]	• 1200 W AC&240 V DC power module: 90 V AC to 290 V AC, 45 Hz to 65 Hz; 190 V DC to 290 V DC • 1200 W DC power module: -38.4 V DC to -72 V DC; +38.4 V DC to +72 V DC
Maximum input current [A]	• 1200 W AC&240 V DC power module: 10 A (100 V AC to 130 V AC); 8 A (200 V AC to 240 V AC); 8 A (240 V DC) • 1200 W DC power module: 38 A (–48 V DC to –60 V DC); 38 A (+48 V DC)
Rated output power [W]	• 1200 W AC&240 V DC power module: 1200 W • 1200 W DC power module: 1200 W
Certification	· Compliance with safety standards · Compliance with EMC standards · Compliance with environment and environmental protection standards
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode

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Item	Specification
Types of fans	Pluggable
Number of fans	3
Redundant fans	The device supports 2+1 backup of fan modules that work in hot standby mode. The system can operate normally for a short time after a single fan module fails. You are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling
Airflow direction	Front-to-rear or rear-to-front, depending on the selected fan modules and power modules
Availability	0.999992477
MTBF [year]	20.71 year
MTTR [hour]	1.85 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Front-to-back airflow: 61.5 dB(A) on average (maximum: 65.9 dB(A)) Back-to-front airflow: 61.3 dB(A) on average (maximum: 66.5 dB(A))
Noise at high temperature (40°C, sound pressure) [dB(A)]	Front-to-back airflow: 82.5 dB(A) on average (maximum: 87.4 dB(A)) Back-to-front airflow: 79.7 dB(A) on average (maximum: 85.6 dB(A))
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, noncondensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% RH to 95% RH, noncondensing
Storage temperature [°C (°F)]	–40°C to +70°C (–40°F to +158°F)

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4.5.4 CE8861-4C-EI

Version Mapping

Table 4-287 lists the mappings between the CE8861-4C-EI and software versions.

Table 4-287 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE8800	CE8861	CE8861-4C-EI	CE8861EI	V200R005C10 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

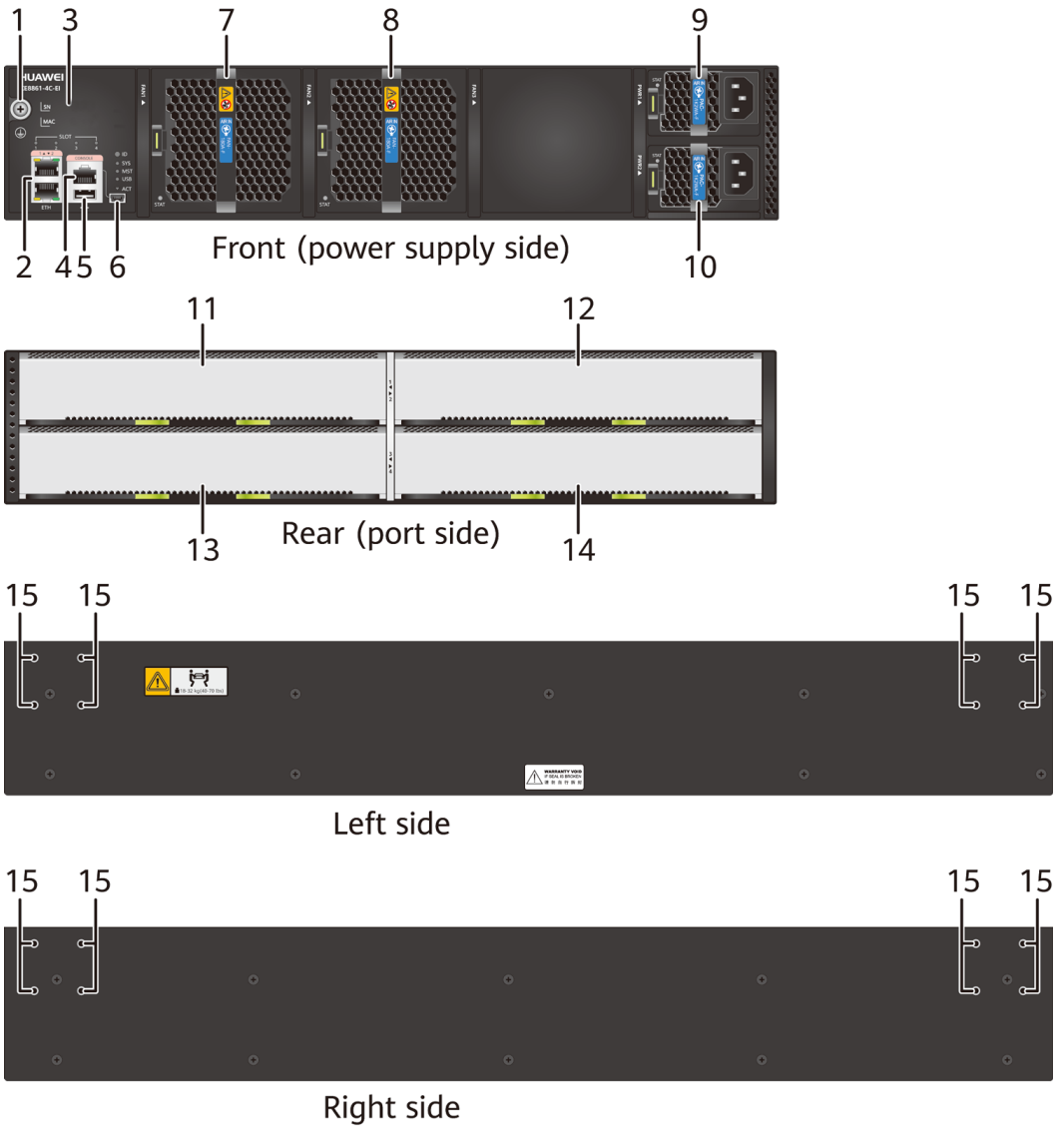
Appearance and Structure

NOTE

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Figure 4-309 CE8861-4C-EI



1	Ground screw	2	Two ETH management ports (RJ45)
3	ESN and MAC address label	4	Console port
5	USB port	6	Mini USB port
7	Fan slot 1 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**	8	Fan slot 2 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**

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9	Power supply slot 1 Applicable power modules: • **5.15 1200 W AC&240 V DC Power Module (PAC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)** • **5.26 1200 W DC Power Module (PDC-1K2WA)**	10	Power supply slot 2 Applicable power modules: • **5.15 1200 W AC&240 V DC Power Module (PAC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)** • **5.26 1200 W DC Power Module (PDC-1K2WA)**
11	Extended card slot 1 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ** • **CE88-D24S2CQ-U**	12	Extended card slot 2 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ** • **CE88-D24S2CQ-U**
13	Extended card slot 3 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ** • **CE88-D24S2CQ-U**	14	Extended card slot 4 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ** • **CE88-D24S2CQ-U**
15	Mounting holes for mounting brackets	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

  – When both power modules are working properly, they equally provide power for a chassis.

  – When one power module fails, the other one provides all power required for a chassis.

  All power modules are hot swappable.

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- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-310** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

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Figure 4-310 Front-to-back airflow (air flows out from the port side)

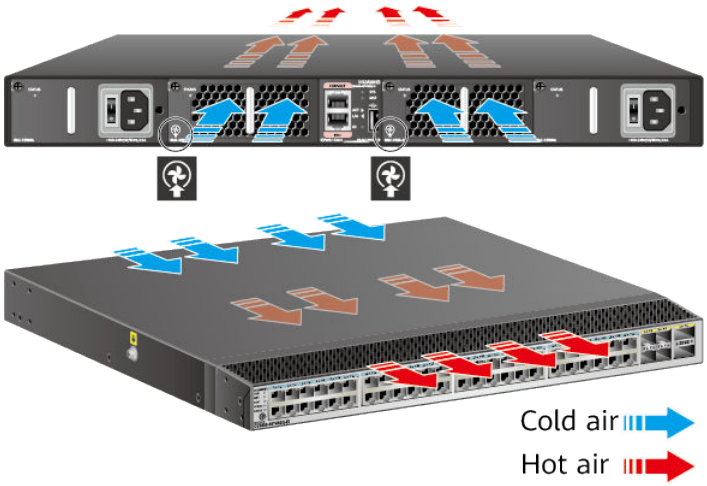
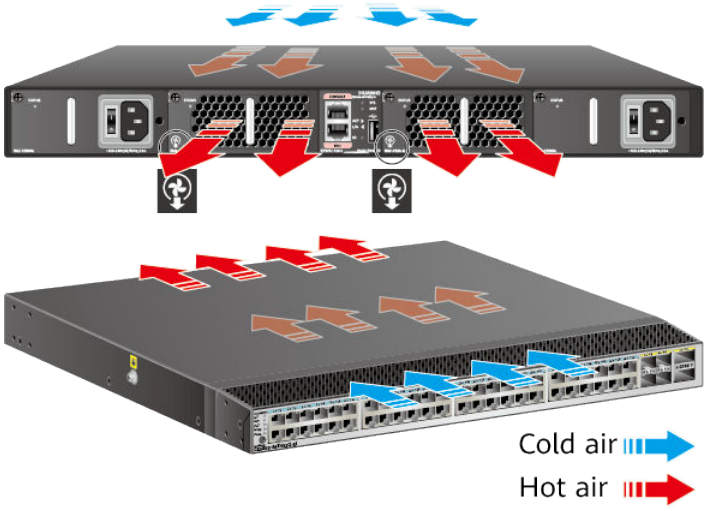


Figure 4-311 Back-to-front airflow (air flows in from the port side)

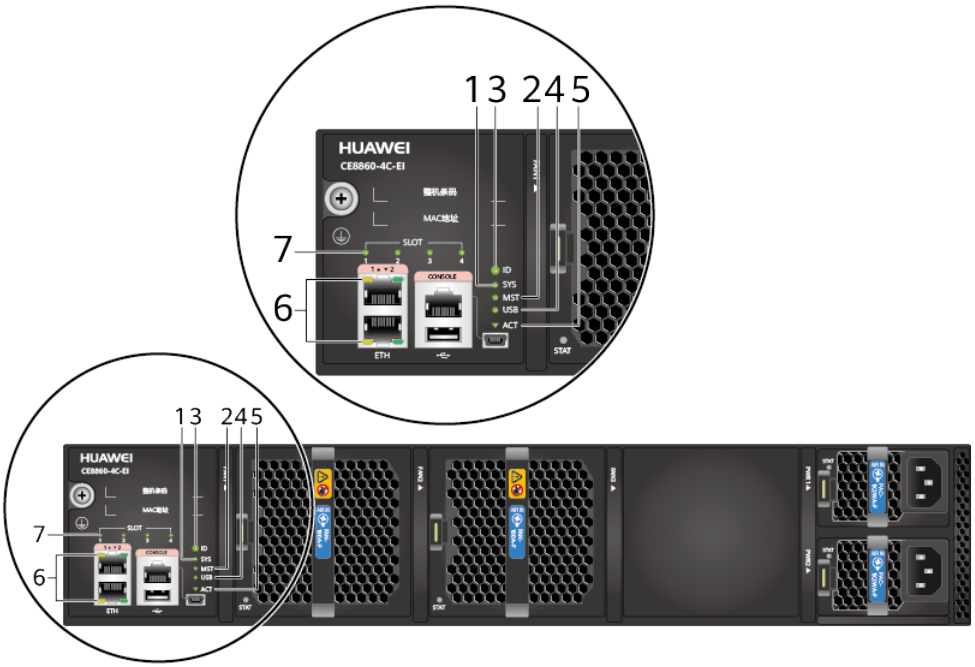


Indicators

Indicators on the CE8861-4C-EI are the same as those on the CE8860-4C-EI. CE8860-4C-EI is used as an example.

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Figure 4-312 Indicators on the CE8861-4C-EI front panel



NOTE

The CE8861-4C-EI has four card slots at the rear of the chassis and has no indicators on the rear panel. For details about indicators on extended cards, see the indicator description for the specific cards.

Table 4-288 Indicator description

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running normally.
			Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.
2	MST	Stack master/ slave indicator	Green	Off	The switch is not a stack master.

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No.	Indicator	Name	Color	Status	Description
		NOTE In V200R003C00 and later versions, you can use the **dfs-master led enable** command to enable the stack master/slave indicator to display the DFS group master and backup status. After the stack master/slave indicator is enabled to display the DFS group master and backup status, the stack master/slave indicator on the DFS master device is steady on and that on the DFS backup device is off.		Steady on	The switch is a stack master or standalone switch.
3	ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
				Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.
4	USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment has been completed.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment has failed.

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No.	Indicator	Name	Color	Status	Description
5	ACT	Mini USB port indicator	Green	Off	The Mini USB port is inactive, and the console port can be used.
				Off	The Mini USB port is active, and the console port cannot be used.
6	-	ETH management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.
			Yellow	Blinking	The port is sending or receiving data.
7	SLOT	Card status indicators **NOTE** Indicators 1, 2, 3, 4 show the status of cards in slots 1, 2, 3, 4, respectively.	Green	Off	No card is present in the slot, a card is present but is not powered on, or the system is not running.
				Slow blinking	The card is running normally.
				Fast blinking	The card is powering on or resetting.
			Red	Steady on	A fault that affects services has occurred on the card. The fault cannot be rectified automatically and requires manual intervention.

Ports

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 4-289** describes the attributes of the console port.

Table 4-289 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)

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Attribute	Description
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

NOTE

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Mini USB Port

The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-290** describes the attributes of the ETH management port (RJ45).

Table 4-290 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

The CE8861EI switches have two ETH management ports (RJ45). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE8861EI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see "Modify parameters" in the *Basic Configuration Guide - BIOS Menu*.

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- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-291 lists technical specifications of the CE8861-4C-EI switch.

Table 4-291 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 88.1 mm (17.4 in. x 23.6 in. x 3.47 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 21.3 kg
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)

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Item		Description
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 58 dBA • Front-to-back airflow: < 56 dBA
Power specifications	Power source type	AC/DC/high-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 130 V AC/200 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC
	High-voltage DC power input	• Rated voltage of 240 V high-voltage DC power input: 240 V DC • Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC • Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC • Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC
	Rated input current	• 1200 W AC&240 V DC power module (PAC-1K2WA series): 10 A (100 V AC to 130 V AC)/8 A (200 V AC to 240 V AC)/8 A (240 V DC) • 1200 W high-voltage DC power module (PHD-1K2WA series): 8 A (240 V DC to 380 V DC) • 1200 W DC power (PDC-1K2WA series): 38 A (-48 V DC to -60 V DC)
Chassis power consumption	Maximum power consumption	• Fully configured with four CE88-D8CQ cards: 658 W • Fully configured with four CE88-D16Q cards: 620 W • Fully configured with four CE88-D24T2CQ cards: 747 W • Fully configured with four CE88-D24S2CQ cards: 674 W • Fully configured with four CE88-D24S2CQ-U cards: 795 W

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Item		Description
	Typical power consumption	• Fully configured with four CE88-D8CQ cards: 398 W (100% throughput, QSFP28 cables on 32 ports, double power modules) • Fully configured with four CE88-D16Q cards: 383 W (100% throughput, QSFP+ cables on 64 ports, double power modules) • Fully configured with four CE88-D24T2CQ cards: 532 W (100% throughput, 3 m Ethernet cables on 96 ports and QSFP28 cables on 8 ports, double power modules) • Fully configured with four CE88-D24S2CQ cards: 437 W (100% throughput, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules) • Fully configured with four CE88-D24S2CQ-U cards: 525 W (100% throughput, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules)
Chassis heat dissipation	Maximum heat dissipation	• Fully configured with four CE88-D8CQ cards: 2245 BTU/hr • Fully configured with four CE88-D16Q cards: 2116 BTU/hr • Fully configured with four CE88-D24T2CQ cards: 2549 BTU/hr • Fully configured with four CE88-D24S2CQ cards: 2300 BTU/hr • Fully configured with four CE88-D24S2CQ-U cards: 2713 BTU/hr

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Item		Description
	Typical heat dissipation	• Fully configured with four CE88-D8CQ cards: 1358 BTU/hr (100% throughput, QSFP28 cables on 32 ports, double power modules) • Fully configured with four CE88-D16Q cards: 1307 BTU/hr (100% throughput, QSFP+ cables on 64 ports, double power modules) • Fully configured with four CE88-D24T2CQ cards: 1815 BTU/hr (100% throughput, 3 m Ethernet cables on 96 ports and QSFP28 cables on 8 ports, double power modules) • Fully configured with four CE88-D24S2CQ cards: 1491 BTU/hr (100% throughput, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules) • Fully configured with four CE88-D24S2CQ-U cards: 1791 BTU/hr (100% throughput, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules)
Surge protection		Power module: • AC: 4 kV in common mode and 2.5 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules
Reliability and availability	Power module backup	1+1 backup
	Fan module backup	Two fan modules, working in 1+1 backup mode when the temperature is below 35°C
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	36.02 years
	Mean time to repair (MTTR)	1.87 hours

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Item		Description
	Availability	0.9999940608
Technical specifications	Processor	1.5 GHz, eight-core
	DRAM Memory	4 GB
	NOR Flash	32 MB
	NAND Flash	2 GB
Stack	Service port supporting the stack function	See the description of ports on each card.
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-292 provides the ordering information.

Table 4-292 Ordering information

Part Number	Part Model	Part Description
02351SGW	CE8861-4C-EI	CE8861-4C-EI Mainframe (With 4 Subcard Slots, Without FAN Box and Power Module)
02351SHA	CE8861-4C-EI-F	CE8861-4C-EI Mainframe (With 4 Subcard Slots, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)
02351SGY	CE8861-4C-EI-B	CE8861-4C-EI Mainframe (With 4 Subcard Slots, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.5.5 CE8868-4C-EI

Version Mapping

Table 4-293 lists the mappings between the CE8868-4C-EI and software versions.

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Table 4-293 Version mapping

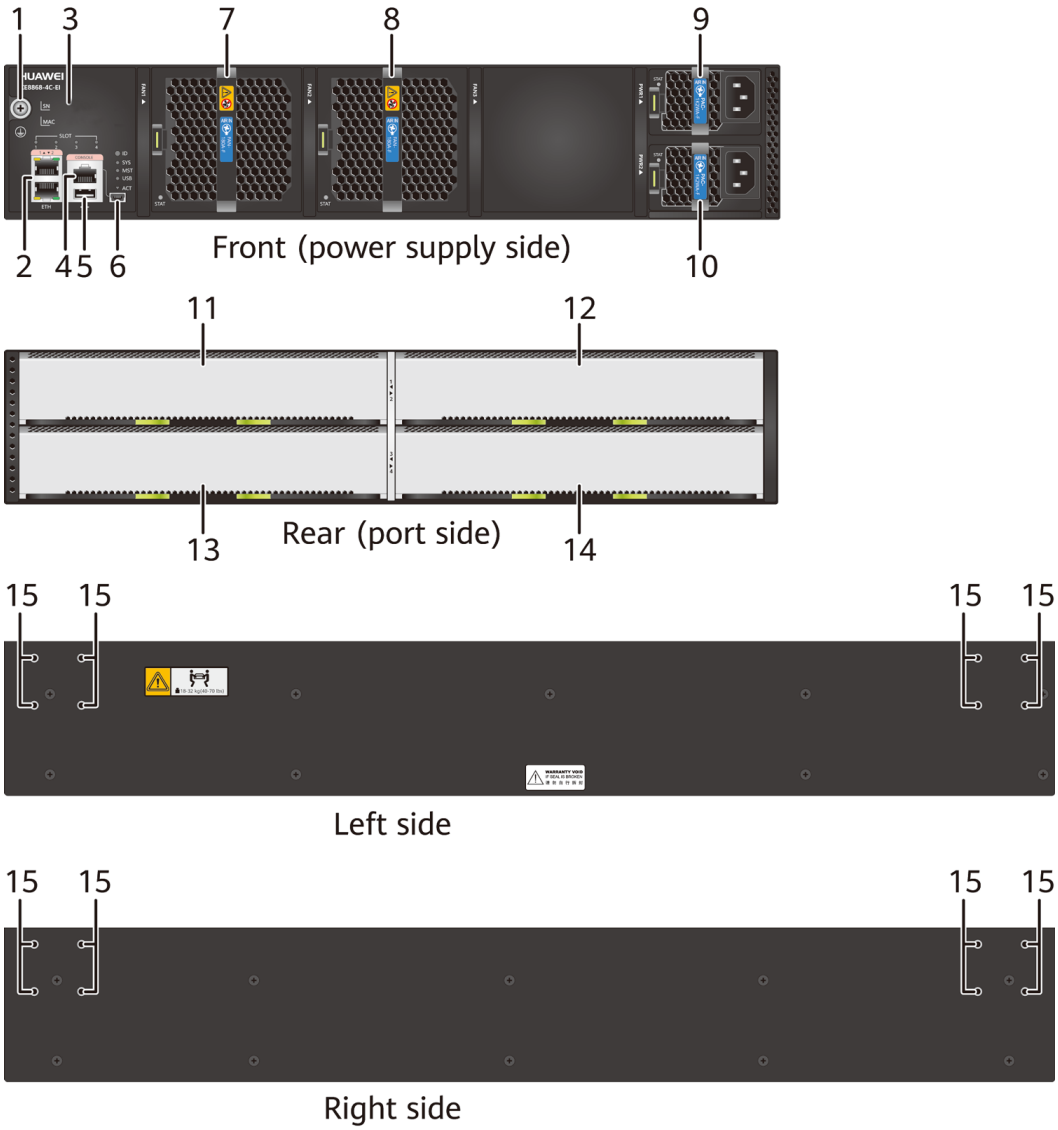
Device Series	Sub-series	Device Model	Short Name	Supported Version
CE8800	CE8868	CE8868-4C-EI	CE8868EI	V200R005C10 to V200R022C10 **NOTE** This model is not supported in V200R005C20 and V200R020C00.

Appearance and Structure

NOTE

The figures in this document are for reference only.

Figure 4-313 CE8868-4C-EI



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1	Ground screw	2	Two ETH management ports (RJ45)
3	ESN and MAC address label	4	Console port
5	USB port	6	Mini USB port
7	Fan slot 1 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**	8	Fan slot 2 Applicable fan modules: • **6.10 FAN-180A Series Fan Modules**
9	Power supply slot 1 Applicable power modules: • **5.15 1200 W AC&240 V DC Power Module (PAC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)** • **5.26 1200 W DC Power Module (PDC-1K2WA)**	10	Power supply slot 2 Applicable power modules: • **5.15 1200 W AC&240 V DC Power Module (PAC-1K2WA)** • **5.24 1200 W High-voltage DC Power Module (PHD-1K2WA)** • **5.26 1200 W DC Power Module (PDC-1K2WA)**
11	Extended card slot 1 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ**	12	Extended card slot 2 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ**
13	Extended card slot 3 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ**	14	Extended card slot 4 Applicable cards: • **CE88-D8CQ** • **CE88-D16Q** • **CE88-D24T2CQ** • **CE88-D24S2CQ**
15	Mounting holes for mounting brackets	-	-

Slot

- Power supply slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) have two power supply slots, in which power modules can

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be installed to provide power to the chassis. A chassis can have one or two power modules. Double power modules can provide higher reliability.

The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI) support double power modules (1+1 backup).

- When both power modules are working properly, they equally provide power for a chassis.
- When one power module fails, the other one provides all power required for a chassis.

All power modules are hot swappable.

- Fan slot

  The CloudEngine 8800, 7800, 6800, and 5800 series switches (except the CE8850-64CQ-EI, CE6863-48S6CQ, CE6881-48S6CQ, CE6820-48S6CQ, CE6863-48S6CQ-K, CE6881-48S6CQ-K, CE6881E-48S6CQ and CE6857-48S6CQ-EI) have two fan slots, in which fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have two working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Airflow

The cooling systems of the CloudEngine 8800, 7800, 6800, and 5800 series switches have front-to-back or back-to-front airflow depending on the airflow direction of the power modules and fan modules used. The airflow direction of the power modules and fan modules required on the CloudEngine 8800, 7800, 6800, and 5800 series switches depends on how the switches are installed in cabinets. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If CloudEngine 8800, 7800, 6800, and 5800 series switches are installed with the power supply side facing the front, you are advised to use fan modules and power modules with front-to-back airflow in the switches.

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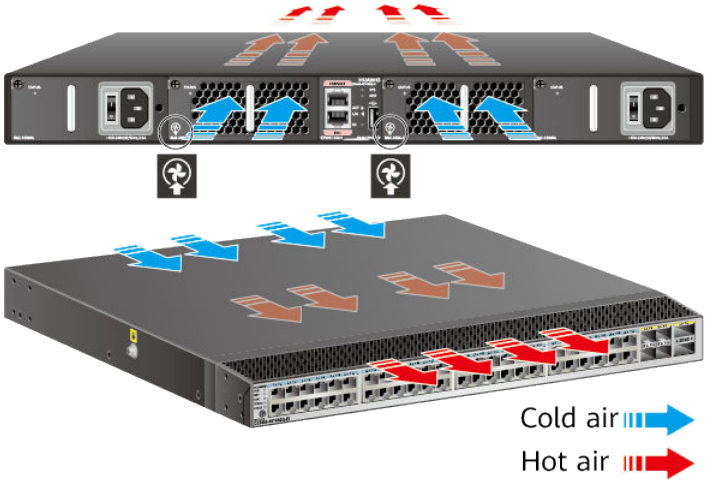
NOTE

- Front-to-back airflow: The power modules and fan modules using front-to-back airflow are marked  or 

. Air flows into the chassis from the power supply side and flows out from the port side, as shown in **Figure 4-314** (CE5800 as an example).
- Back-to-front airflow: The power modules and fan modules using back-to-front airflow are marked  or 

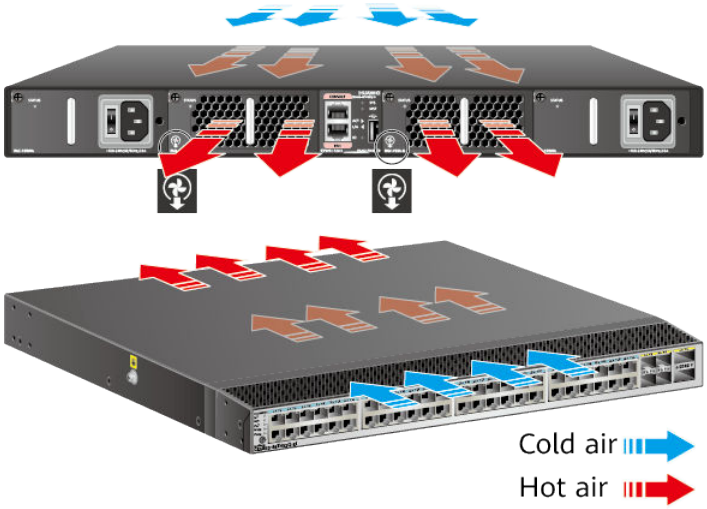
. Air flows into the chassis from the port side and flows out from the power supply side, as shown in **Figure 4-144** (CE5800 as an example).
- When the power module and fan module use forcible heat dissipation, they must use the same airflow method. For example, if the power module with back-to-front airflow is used, the fan module with back-to-front airflow must be used.

Figure 4-314 Front-to-back airflow (air flows out from the port side)



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Figure 4-315 Back-to-front airflow (air flows in from the port side)



Indicators

Indicators on the CE8868-4C-EI are the same as those on the CE8861-4C-EI. The **CE8861-4C-EI** is used as an example here to describe the indicators.

Ports

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 4-294** describes the attributes of the console port.

Table 4-294 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

NOTE

- The console port and Mini USB port share one internal serial port. You can use the console port or Mini USB port as the serial port according to your needs. When the Mini USB is activated, the console port cannot be used.
- When both the console port and Mini-USB port have a cable connected, the Mini-USB port is used.

Mini USB Port

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The Mini USB port can connect to a configuration terminal for onsite configuration of the system, but the configuration terminal must have a USB serial port driver installed. The Mini USB port is used as the serial port once a link is established on the port.

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-295** describes the attributes of the ETH management port (RJ45).

Table 4-295 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

The CE8868EI switches have two ETH management ports (RJ45). Pay attention to the following when using the two management ports:

- The two ports cannot be used together, and you must choose one of them to use.
- Before start of a CE8868EI switch, you can select interface 1 or interface 2 in the BIOS menu. Interface 1 is the default choice. For details, see "Modify parameters" in the *Basic Configuration Guide - BIOS Menu*.
- After registration of the switch succeeds:
  - If both the management ports have a cable connected and are in Up state, port 1 acts as the primary management port and port 2 becomes the backup automatically. The management interface number displayed on the command line interface is MEth0/0/0, regardless of which port is used.
  - If cables are connected to the two ETH management ports after successful registration of the switch, the port that is connected first is used as the primary management port.
  - If port 1 fails, the system switches management traffic to port 2 automatically. When port 1 recovers, management traffic cannot be switched back to port 1, unless port 2 fails or the switch restarts. You can observe indicators on the ETH management ports to determine which port is used currently. (The Link indicator of the ETH management port

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used is steady green. If data is being transmitted on this port, its ACT indicator is blinking yellow. The indicators of the backup port are off.)

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-296 lists technical specifications of the CE8868-4C-EI switch.

Table 4-296 Technical specifications

Item		Description
Physical specifications		• Dimensions (W x D x H): 442.0 mm x 600.0 mm x 88.1 mm (17.4 in. x 23.6 in. x 3.47 in.) • Weight (with two power modules and two fan modules, calculated based on the heaviest model if multiple models are supported): 21.3 kg
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	• Back-to-front airflow: < 58 dBA • Front-to-back airflow: < 56 dBA
Power specifications	Power source type	AC/DC/high-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 130 V AC/200 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 47 Hz to 63 Hz
	DC power input	• Rated voltage range: -48 V DC to -60 V DC • Maximum voltage range: -38.4 V DC to -72 V DC

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Item		Description
	High-voltage DC power input	• Rated voltage of 240 V high-voltage DC power input: 240 V DC • Maximum voltage range of 240 V high-voltage DC power input: 188 V DC to 290 V DC • Rated voltage range of 380 V high-voltage DC power input: 240 V DC to 380 V DC • Maximum voltage range of 380 V high-voltage DC power input: 188 V DC to 400 V DC
	Rated input current	• 1200 W AC&240 V DC power module (PAC-1K2WA series): 10 A (100 V AC to 130 V AC)/8 A (200 V AC to 240 V AC)/8 A (240 V DC) • 1200 W high-voltage DC power module (PHD-1K2WA series): 8 A (240 V DC to 380 V DC) • 1200 W DC power (PDC-1K2WA series): 38 A (-48 V DC to -60 V DC)
Chassis power consumption	Maximum power consumption	• Fully configured with four CE88-D8CQ cards: 658 W • Fully configured with four CE88-D16Q cards: 620 W • Fully configured with four CE88-D24T2CQ cards: 747 W • Fully configured with four CE88-D24S2CQ cards: 674 W
	Typical power consumption	• Fully configured with four CE88-D8CQ cards: 398 W (100% throughput, QSFP28 cables on 32 ports, double power modules) • Fully configured with four CE88-D16Q cards: 383 W (100% throughput, QSFP+ cables on 64 ports, double power modules) • Fully configured with four CE88-D24T2CQ cards: 532 W (100% throughput, 3 m Ethernet cables on 96 ports and QSFP28 cables on 8 ports, double power modules) • Fully configured with four CE88-D24S2CQ cards: 437 W (100% throughput, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules)

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Item		Description
Chassis heat dissipation	Maximum heat dissipation	• Fully configured with four CE88-D8CQ cards: 2245 BTU/hr • Fully configured with four CE88-D16Q cards: 2116 BTU/hr • Fully configured with four CE88-D24T2CQ cards: 2549 BTU/hr • Fully configured with four CE88-D24S2CQ cards: 2300 BTU/hr
	Typical heat dissipation	• Fully configured with four CE88-D8CQ cards: 1358 BTU/hr (100% throughput, QSFP28 cables on 32 ports, double power modules) • Fully configured with four CE88-D16Q cards: 1307 BTU/hr (100% throughput, QSFP+ cables on 64 ports, double power modules) • Fully configured with four CE88-D24T2CQ cards: 1815 BTU/hr (100% throughput, 3 m Ethernet cables on 96 ports and QSFP28 cables on 8 ports, double power modules) • Fully configured with four CE88-D24S2CQ cards: 1491 BTU/hr (100% throughput, SFP28 cables on 96 ports and QSFP28 cables on 8 ports, double power modules)
Surge protection		Power module: • AC: 4 kV in common mode and 2.5 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Front-to-back or back-to-front, which is determined by features of fan modules and power modules
Reliability and availability	Power module backup	1+1 backup
	Fan module backup	Two fan modules, working in 1+1 backup mode when the temperature is below 35°C
	Hot swap	Supported by all power modules and fan modules

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Item		Description
	Mean time between failures (MTBF)	36.02 years
	Mean time to repair (MTTR)	1.87 hours
	Availability	0.9999940608
Technical specifications	Processor	1.5 GHz, eight-core
	DRAM Memory	4 GB
	NOR Flash	32 MB
	NAND Flash	2 GB
Stack	Service port supporting the stack function	See the description of ports on each card.
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

Table 4-297 provides the ordering information.

Table 4-297 Ordering information

Part Number	Part Model	Part Description
02352CHJ	CE8868-4C-EI	CE8868-4C-EI Mainframe (With 4 Subcard Slots, Without FAN Box and Power Module)
02352CHN	CE8868-4C-EI-F	CE8868-4C-EI Mainframe (With 4 Subcard Slots, 2*AC Power Module, 2*FAN Box, Port-side Exhaust)

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Part Number	Part Model	Part Description
02352CHM	CE8868-4C-EI-B	CE8868-4C-EI Mainframe (With 4 Subcard Slots, 2*AC Power Module, 2*FAN Box, Port-side Intake)

4.6 CE9800

4.6.1 CE9860-4C-EI

Version Mapping

Table 4-298 lists the mappings between the CE9860-4C-EI and software versions.

Table 4-298 Version mapping

Device Series	Sub-series	Device Model	Short Name	Supported Version
CE9800	CE9860	CE9860-4C-EI	CE9860EI	V200R020C00 and later versions

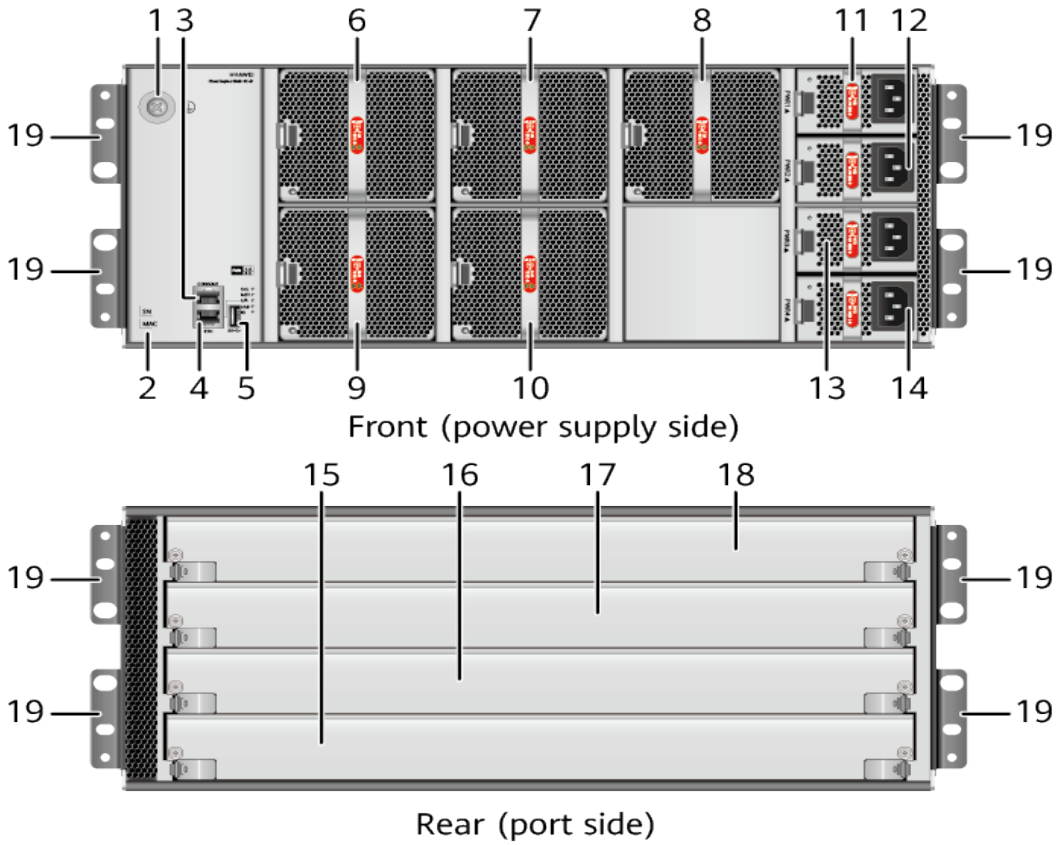
Appearance and Structure

NOTE

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Figure 4-316 CE9860-4C-EI



1	Ground screw	2	SN and MAC address label
3	Console port	4	ETH management port (RJ45)
5	USB 2.0 port	6	Fan slot 1 Applicable fan modules: • **FAN-180C series fan modules**
7	Fan slot 2 Applicable fan modules: • **FAN-180C series fan modules**	8	Fan slot 3 Applicable fan modules: • **FAN-180C series fan modules**
9	Fan slot 4 Applicable fan modules: • **FAN-180C series fan modules**	10	Fan slot 5 Applicable fan modules: • **FAN-180C series fan modules**

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11	Power supply slot 1 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W power module** • **1200 W DC Power Module**	12	Power supply slot 2 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W power module** • **1200 W DC Power Module**
13	Power supply slot 3 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W power module** • **1200 W DC Power Module**	14	Power supply slot 4 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W power module** • **1200 W DC Power Module**
15	Card slot 1 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**	16	Card slot 2 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**
17	Card slot 3 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**	18	Card slot 4 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**
19	Mounting brackets **NOTE** Cable management frames can be installed on the mounting brackets to route cables on the cards installed in the corresponding slots.	-	-

Slot Description

- Power Supply Slots

  Each CloudEngine 9800 series switch has four power supply slots, in which pluggable power modules can be installed to provide power to the chassis. Install at least two power modules. Four power modules can provide higher reliability. If only two power modules are used, do not upgrade, downgrade, or replace them.

  CloudEngine 9800 series switches support four power modules working in 2+2 backup mode.

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NOTE

If 1200 W AC&240 V DC power modules (PAC1K2S12) are installed on the switch and 110 V AC power input is provided to the power modules:

1. Use an external power source that provides 110 V input with double live wires. In this case, each power module provides 1200 W of rated output power and the power modules work in 2+2 backup mode.
2. If the external power source provides 110 V input with a single live wire, each power module provides 800 W of rated output power. In this case, the power modules cannot work in 2+2 backup mode.

- Fan Slots

  Each CloudEngine 9800 series switch has five fan slots, in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have five working fan modules to ensure normal operating.

  All fan modules are hot swappable.

Heat Dissipation System

CloudEngine 9800 series switches use back-to-front airflow. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the port side facing the front and the power supply side facing the back, the switch needs to adopt fan modules and power modules with back-to-front airflow.

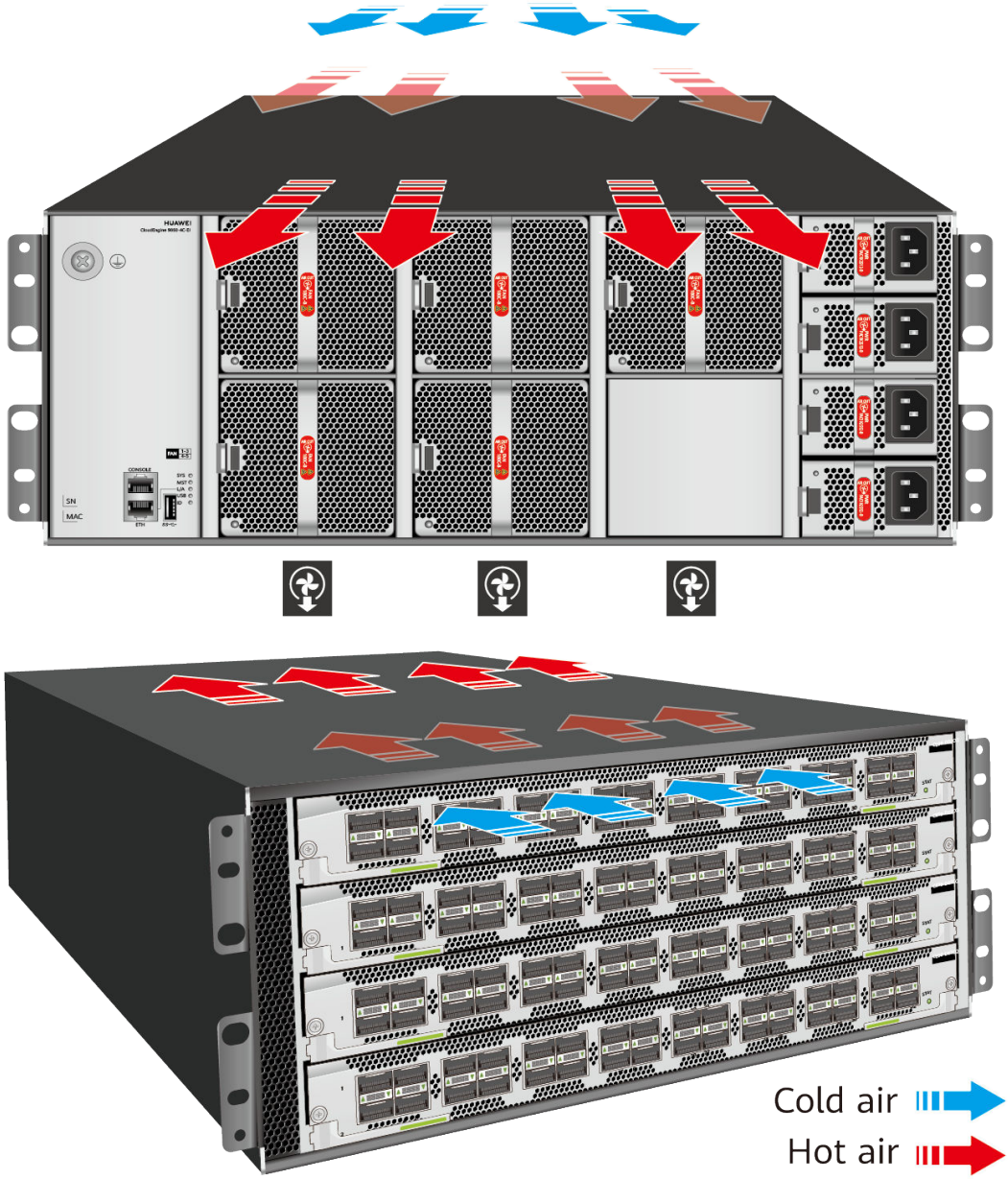
NOTE

- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by  or 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-317** (using a CE5800 chassis as an example).
- Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

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Figure 4-317 Back-to-front airflow for port-side intake



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Indicators

Figure 4-318 Indicators on the CE9860-4C-EI front panel

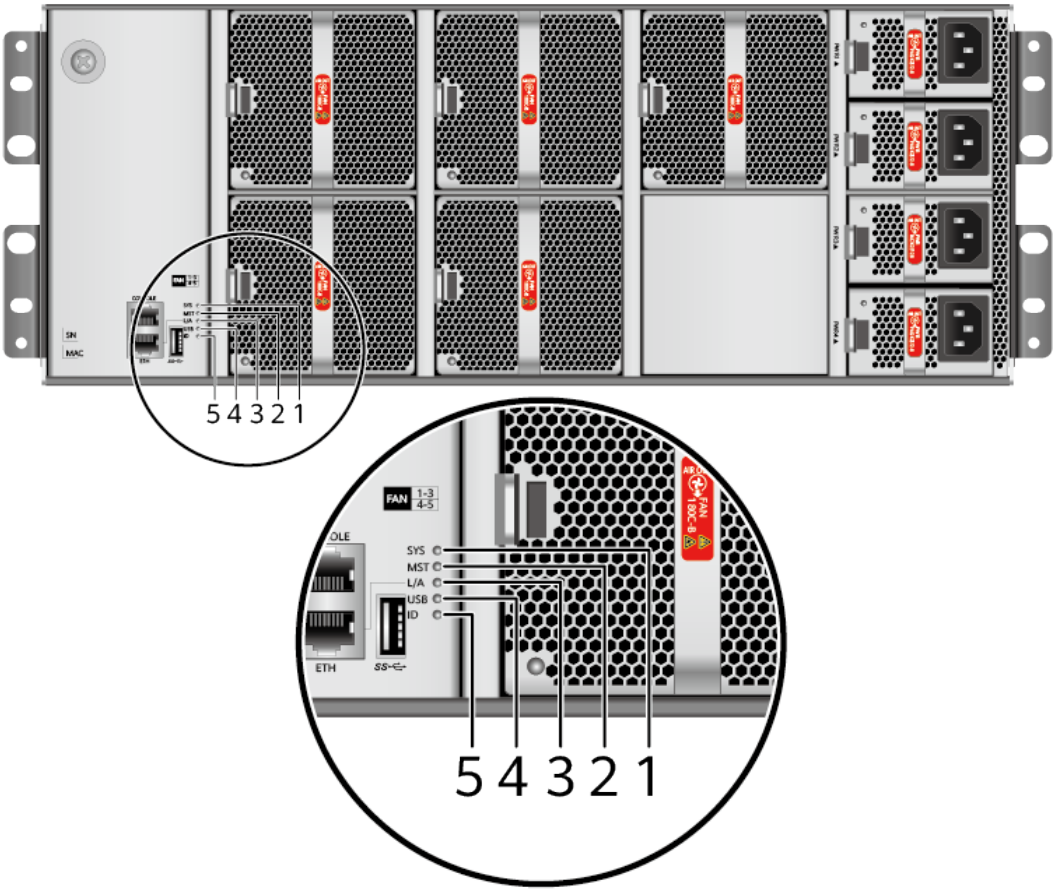


Table 4-299 Indicator description

No.	Indicator	Name	Color	Status	Description
1	SYS	System status indicator	Green	Off	The system is not running.
				Fast blinking	The system is starting.
				Slow blinking	The system is running normally.

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No.	Indicator	Name	Color	Status	Description
			Red	Steady on	• The system fails to start. • At least one power module does not work normally. • At least one fan module does not work normally.
2	MST	Stack master/slave indicator	-	Steady on	The CE9860-4C-EI does not support the stacking function. Therefore, this indicator is invalid.
3	L/A	ETH management port indicator	Green	Off	No link is established on the port.
				Steady on	A link is established on the port.
				Blinking	The port is sending or receiving data.
4	USB	USB-based deployment indicator	Green	Off	USB-based deployment is disabled (default state).
				Steady on	USB-based deployment has been completed.
				Blinking	The system is reading data from a USB flash drive.
			Red	Steady on	USB-based deployment has failed.
5	ID	ID indicator	Blue	Off	The ID indicator is not used (default state).
				Steady on	The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.

Ports

Console Port

The console port is connected to a console for onsite configuration. The port must use a **console cable**. **Table 4-300** describes the attributes of the console port.

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Table 4-300 Attributes of the console port

Attribute	Description
Connector type	RJ45
Standards compliance	RS232
Working mode	Duplex Universal Asynchronous Receiver/Transmitter (UART)
Baud rate	9600 bit/s to 115200 bit/s Default value: 9600 bit/s

ETH Management Port (RJ45)

The ETH management port (RJ45) of a switch is connected to the network port of a configuration terminal or network management workstation to set up the onsite or remote configuration environment. The ETH management port (RJ45) uses a Category 5 or higher category cable. **Table 4-301** describes the attributes of the ETH management port (RJ45).

Table 4-301 Attributes of the ETH management port (RJ45)

Attribute	Description
Connector type	RJ45
Standards compliance	IEEE802.3ab
Working mode	Supported rate: 10/100/1000 Mbit/s auto-sensing Full-duplex
Maximum transmission distance	100 m

USB Port

A USB flash drive can be connected to the USB port for log backup, system software backup and uploading, or USB-based deployment.

Specifications

Table 4-302 lists technical specifications of the CE9860-4C-EI switch.

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Table 4-302 Technical specifications

Item		Description
Physical specifications		• Dimensions (H x W x D): 175.0 mm x 442.0 mm x 765.0 mm (6.9 in. x 17.4 in. x 30.1 in.) • Weight (with four power modules and five fan modules, calculated based on the heaviest model if multiple models are supported): 46.2 kg (101.85 lb)
Environment parameters	Temperature	• Operating temperature: 0°C to 40°C (32°F to 104°F) at altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5096-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). • Storage temperature: -40°C to +70°C (-40°F to +158°F)
	Relative humidity	5% RH to 95% RH, noncondensing
	Altitude	< 5000 m (16404 ft.)
	Noise (sound pressure, 27°C)	Back-to-front airflow: < 66 dBA
Power specifications	Power source type	AC/High-voltage DC
	AC power input	• Rated input voltage range: 100 V AC to 240 V AC, 50/60 Hz • Maximum input voltage range: 90 V AC to 290 V AC, 45 Hz to 65 Hz
	High-voltage DC power input	• Rated voltage of 240 V high-voltage DC power input: 240 V DC • Maximum voltage range of 240 V high-voltage DC power input: 190 V DC to 290 V DC
	Rated input current	• 1200 W AC&240 V DC power module (PAC1K2S12 series): 10 A (100 V AC to 130 V AC)/8 A (200 V AC to 240 V AC)/8 A (240 V DC)
Chassis power consumption	Maximum power consumption	Configured with four CE98-D32CQ cards: 1627 W (70% of the full fan speed at an ambient temperature of 40°C) Configured with four CE98-D8DQ cards: 1717 W (full fan speed at an ambient temperature of 40°C)

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Item		Description
	Typical power consumption	Fully configured with four CE98-D32CQ cards: 1231 W (50% throughput, short-distance QSFP28 optical modules on 64 ports and long-distance QSFP28 optical modules on another 64 ports, two power modules) Configured with four CE98-D8DQ cards: 1289 W (50% throughput, short-distance QSFPDD optical modules on 32 ports, two power modules)
	Static power consumption	Configured with four CE98-D32CQ cards: 377 W Configured with four CE98-D8DQ cards: 548 W
Chassis heat dissipation	Maximum heat dissipation	Configured with four CE98-D32CQ cards: 5553 BTU/hour (70% of the full fan speed at an ambient temperature of 40°C) Configured with four CE98-D8DQ cards: 5861 BTU/hour (full fan speed at an ambient temperature of 40°C)
	Typical heat dissipation	Fully configured with four CE98-D32CQ cards: 4202 BTU/hr (50% throughput, 64-port short-distance QSFP28 optical module and 64-port long-distance QSFP28 optical module, double power modules) Configured with four CE98-D8DQ cards: 4400 BTU/hr (50% throughput, short-distance QSFPDD optical modules on 32 ports, two power modules)
	Static heat dissipation	Configured with four CE98-D32CQ cards: 1505 BTU/hour Configured with four CE98-D8DQ cards: 1871 BTU/hour
Surge protection		PAC1K2S12-B series power module: • AC: 4 kV in common mode and 2.5 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode PAC1K2S12-CB series power module: • AC: 6 kV in common mode and 6 kV in differential mode • DC: 4 kV in common mode and 2 kV in differential mode
Heat dissipation	Heat dissipation mode	Air cooling
	Airflow	Back-to-front airflow: Air flows into the chassis from the port side and flows out from the power supply side.

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Item		Description
Reliability and availability	Power module backup	2+2 backup
	Fan module backup	Five fan modules, working in 4+1 backup mode when the temperature is below 35°C
	Hot swap	Supported by all power modules and fan modules
	Mean time between failures (MTBF)	21.91 years
	Mean time to repair (MTTR)	3.43 hours
	Availability	0.9999934738
Technical specifications	Processor	2.2 GHz, 8-thread, four-core
	DRAM memory	16 GB
	NOR Flash	Two 32 MB flash memories
	SSD Flash	64 GB
Stack	Service port supporting the stacking function	Not supported
Certification		• Safety standards compliance • EMC standards compliance • Environmental standards compliance

Ordering Information

Ordering information is subject to change without notice in the case of product upgrades. Ordering information provided in this manual is for reference only. To obtain latest ordering information, contact Huawei switch distributors or local Huawei representative office.

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Table 4-303 provides the ordering information.

Table 4-303 Ordering information

Part Number	Part Model	Part Description
02352HQC	CE9860-4C-EI	CE9860-4C-EI mainframe (4*subcard slots, without fan and power modules)
02352HQD	CE9860-4C-EI-B	CE9860-4C-EI mainframe (4*subcard slots, 4*AC power modules, 5*fan modules, port-side intake)

4.6.2 CE9860-4C-EI-A (02355FEA)

Overview

Table 4-304 Basic information about the CE9860-4C-EI-A

Item	Details
Description	CE9860-4C-EI-A mainframe (4*subcard slots, without fan and power modules)
Part Number	02355FEA
Model	CE9860-4C-EI-A
First supported version	V200R022C10
Other part numbers	02355FEB (CE9860-4C-EI-A mainframe (4*subcard slots, 4*AC power modules, 4*fan modules, port-side intake)) 02355FUM (CE9860-4C-EI-A mainframe (4*subcard slots, 4*AC power modules, 4*fan modules, 4*32 Port 100GE QSFP28 Interface card, port-side intake)) 02355MRU (CE9860-4C-EI-A mainframe (4*subcard slots, without fan and power modules)) 02355MRV (CE9860-4C-EI-A mainframe (4*subcard slots, 4*AC power modules, 4*fan modules, port-side intake)) 02355MRW (CE9860-4C-EI-A mainframe (4*subcard slots, 4*AC power modules, 4*fan modules, 4*32 Port 100GE QSFP28 Interface card, port-side intake))

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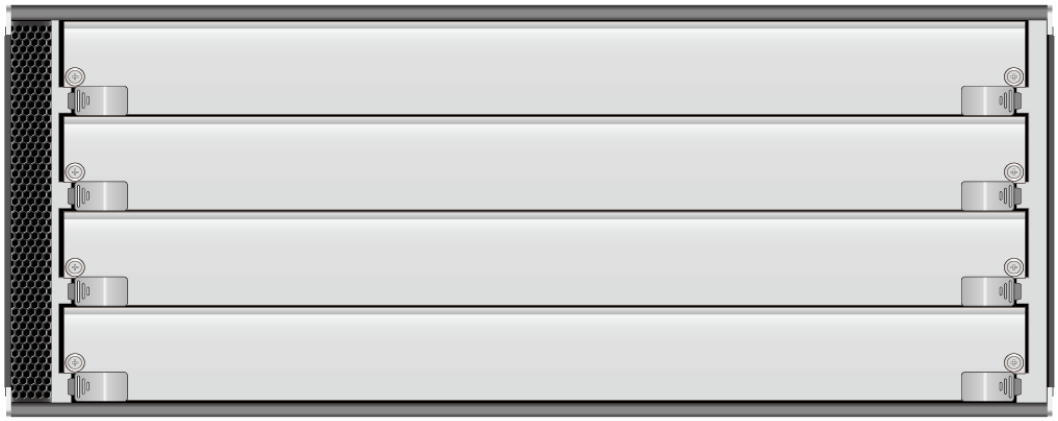
Item	Details
Short Name	CE9860EI

Appearance

Figure 4-319 Appearance of the CE9860-4C-EI-A



Front (power supply side)



Rear (port side)

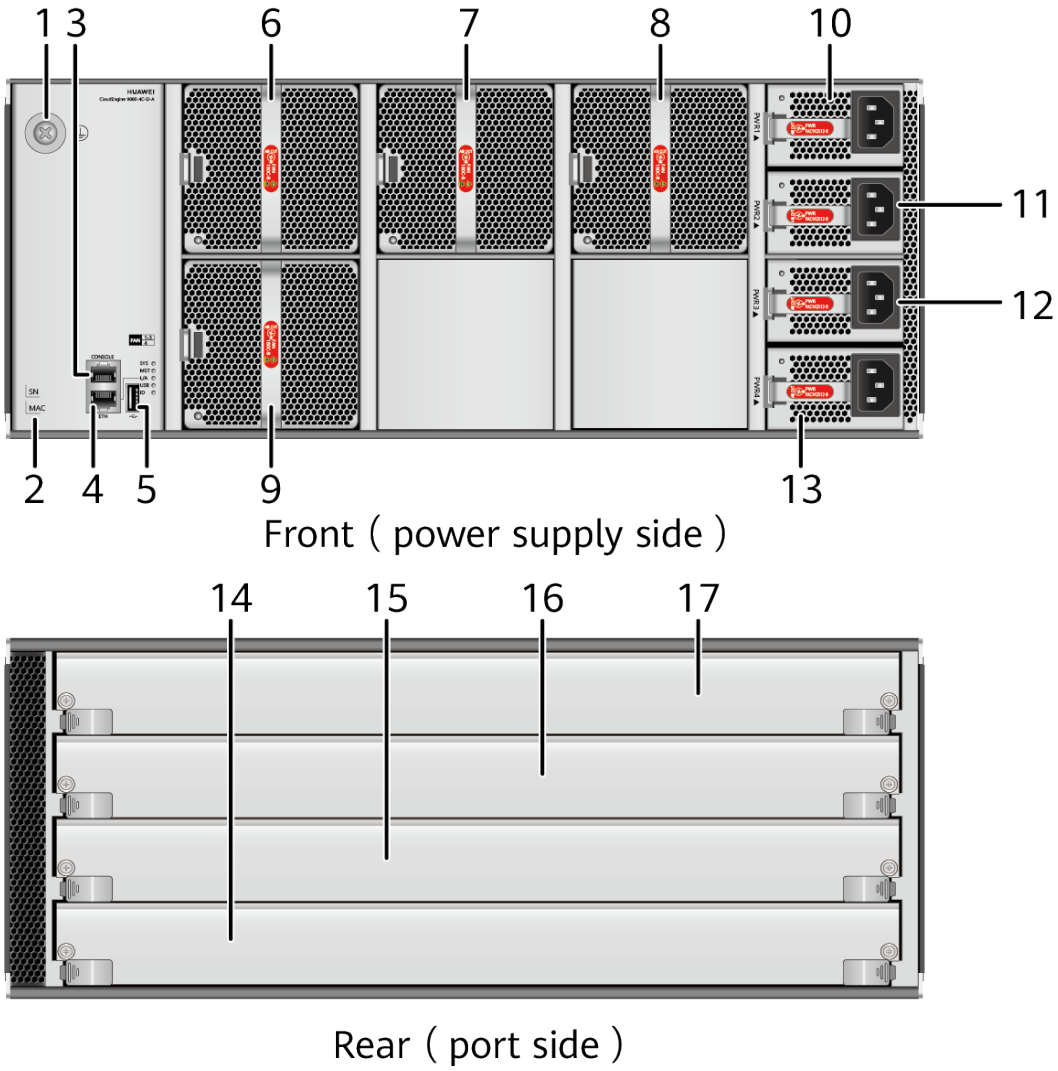
NOTE

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Components

Figure 4-320 Components of the CE9860-4C-EI-A



1	Ground screw	2	SN and MAC address label
3	Console port	4	ETH management port (RJ45)
5	USB 2.0 port	6	Fan slot 1 Applicable fan modules: • **FAN-180C series fan modules**
7	Fan slot 2 Applicable fan modules: • **FAN-180C series fan modules**	8	Fan slot 3 Applicable fan modules: • **FAN-180C series fan modules**

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9	Fan slot 4 Applicable fan modules: • **FAN-180C series fan modules**	10	Power supply slot 1 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W DC Power Module**
11	Power supply slot 2 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W DC Power Module**	12	Power supply slot 3 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W DC Power Module**
13	Power supply slot 4 Applicable power modules: • **1200 W AC&240 V DC power module** • **1200 W DC Power Module**	14	Card slot 1 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ** • **CE98-D32CQ-A**
15	Card slot 2 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**	16	Card slot 3 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**
17	Card slot 4 Applicable cards: • **CE98-D32CQ** • **CE98-D8DQ**	18	-

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Slot Layout

Table 4-305 Slots on the CE9860-4C-EI-A

Slot Type	Slot ID	Slot Direction	Remarks
Power supply slots	-	Horizontal insertion	• Each CloudEngine 9860-4C-EI-A switch has four power supply slots, in which pluggable power modules can be installed to provide power to the chassis. Install at least two power modules. Four power modules can provide higher reliability. If only two power modules are used, do not upgrade, downgrade, or replace them. • CloudEngine 9860-4C-EI-A switches support four power modules working in 2+2 backup mode.

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Slot Type	Slot ID	Slot Direction	Remarks
			NOTE If 1200 W AC&240 V DC power modules (PAC1K2S12) are installed on the switch and 110 V AC power input is provided to the power modules: ● Use an external power source that provides 110 V input with double live wires. In this case, each power module provides 1200 W of rated output power and the power modules work in 2+2 backup mode. ● If the external power source provides 110 V input with a single live wire, each power module provides 800 W of rated output power. In this case, the power modules cannot work in 2+2 backup mode.

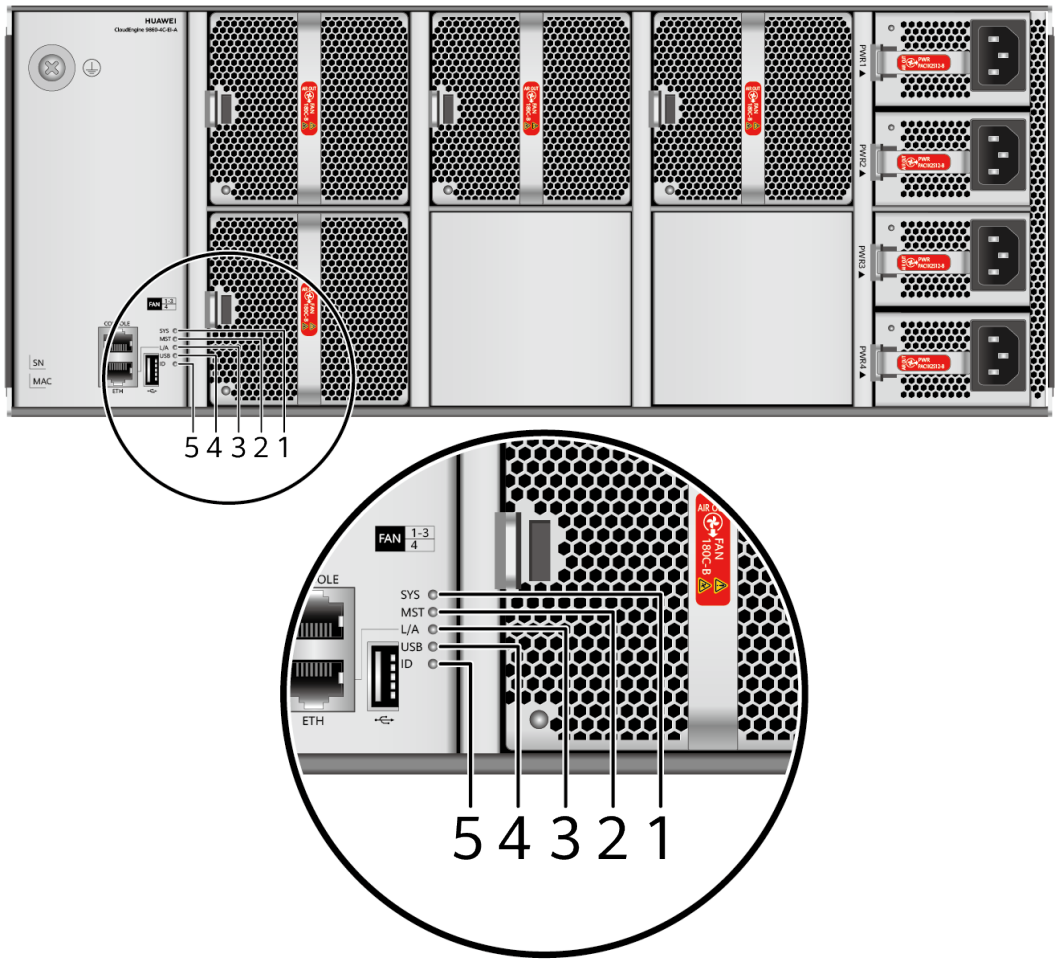
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Slot Type	Slot ID	Slot Direction	Remarks
Fan slots	-	Horizontal insertion	• Each CloudEngine 9860-4C-EI-A switch has four fan slots, in which pluggable fan modules can be installed to cool the chassis, ensuring efficient heat dissipation and system stability. A chassis must have four working fan modules to ensure normal operating. • All fan modules are hot swappable.

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Indicators

Figure 4-321 Indicators on the CE9860-4C-EI-A



1. System status indicator	2. Stack master/slave indicator	3. ETH management port indicator	4. USB-based deployment indicator	5. ID indicator

Table 4-306 Indicators on the CE9860-4C-EI-A

Silkscreen	Name	Color	Status	Description
SYS	System status indicator	Green	Steady off	The system is not running.
		Green	Fast blinking	The system is starting.
		Green	Slow blinking	The system is running normally.

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Silkscreen	Name	Color	Status	Description
		Red	Steady on	• An exception occurs during device startup. • The power module is abnormal. • The fan module is abnormal.
MST	Stack master/ slave indicator	Green	Steady on	The CloudEngine 9860-4C-EI does not support the stack function. Therefore, this indicator is invalid.
L/A	Management port indicator	Green	Steady off	No link is established on the port.
		Green	Steady on	A link is established on the port.
		Yellow	Blinking	The port is sending or receiving data.
USB	USB-based deployment indicator	Green	Steady off	USB-based deployment is disabled (default state).
		Green	Steady on	USB-based deployment has been completed.
		Green	Blinking	The system is reading data from a USB flash drive.

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Silkscreen	Name	Color	Status	Description
		Red	Steady on	USB-based deployment fails.
ID	ID indicator	Blue	Steady off	The ID indicator is disabled (default status).
		Blue	Steady on	The ID indicator can be turned on or off remotely to help field engineers find the device to maintain.

Ports

Table 4-307 Ports on the CE9860-4C-EI-A

Port	Connector Type	Description	Available Components
Console port	RJ45	Connects to the console for onsite configuration.	Console cable
ETH management port	RJ45	You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.	Category-5 or higher category Ethernet cable

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Port	Connector Type	Description	Available Components
USB port	USB	The USB port can have a USB flash drive connected to back up and upload logs and system software, and supports USB-based deployment.	USB flash drive

Heat Dissipation System

CloudEngine 9800 series switches use back-to-front airflow. Typically, cabinets in a data center have cold air flowing in from the front and hot air exhausted from the back. If a switch is installed with the port side facing the front and the power supply side facing the back, the switch needs to adopt fan modules and power modules with back-to-front airflow.

NOTE

- Back-to-front airflow: Power modules and fan modules with back-to-front airflow are identified by  or 

. Air flows into the chassis from the port side and is exhausted from the power supply side, as shown in **Figure 4-322** (using a CE5800 chassis as an example).
- Power modules and fan modules using forced air cooling on a switch must have the same airflow direction. If a switch adopts power modules with back-to-front airflow, the switch must use fan modules with back-to-front airflow as well.

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Figure 4-322 Back-to-front airflow for port-side intake



Technical Specifications

Table 4-308 Technical specifications of the CE9860-4C-EI-A

Item	Specification
Dimensions with packaging (H x W x D) [mm (in.)]	370 mm x 635 mm x 1025 mm (14.57 in. x 25 in. x 40.35 in.)

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Item	Specification
Dimensions without packaging (H x W x D) [mm (in.)]	• Basic dimensions (excluding the parts protruding from the body): 175 mm x 442 mm x 765 mm (6.89 in. x 17.4 in. x 30.12 in.) • Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 175 mm x 442 mm x 817.5 mm (6.89 in. x 17.4 in. x 32.19 in.)
Weight without packaging [kg (lb)]	26.9 kg (59.30 lb) (excluding fan modules, power modules, and cards)
Weight without packaging (full configuration) [kg (lb)]	43.2 kg (95.24 lb) (with four power modules, four fan modules, and four cards) 33.04 kg (72.84 lb) (with four power modules and four fan modules)
Weight with packaging [kg (lb)]	51.9 kg (114.42 lb) (excluding fan modules, power modules, and cards)
Weight with packaging (full configuration) [kg (lb)]	68.2 kg (150.36 lb) (with four power modules, four fan modules, and four cards) 58.04 kg (127.96 lb) (with four power modules and four fan modules)
Installation Type	Cabinet installation
CPU	16-core, 2 GHz
Memory	DRAM: 16 GB
NOR Flash	64 MB x 2
SSD Flash	8 GB
USB	Supported
Power supply mode	• AC • DC • HVDC
Console port	RJ45

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Item	Specification
Downlink Service interface	The device does not have fixed ports and provides four card slots. Currently, the device supports the following cards: CE98-D32CQ-A: 32 x 100GE QSFP28 (Each 100GE QSFP28 port can be configured to work at 40 Gbit/s. A 100GE QSFP28 port cannot be split into 4x25GE and 4x10GE ports. 100GE and 40GE 1/3/5 m copper cables are supported, but auto-negotiation of copper cables is not supported. 100GE and 40GE copper cables can only be used on M-LAG peer-link ports.) CE98-D8DQ: 8 x 400GE QSFP-DD (In V200R021C00, such ports can only work at 400 Gbit/s, cannot be used as 200GE, 100GE, or 40GE ports, and cannot be split. Auto-negotiation of 400GE copper cables is not supported and such cables can be used only for peer-link. In V200R021C10, such a 400GE port can be dynamically split into two 200GE ports. Currently, only 2*200GE 5 m AOCs and 2.5 m copper cables are supported. By default, negotiation is disabled and cannot be enabled for copper cables. If an unsupported module is inserted into such a port, the system displays a message indicating a medium mismatch.)
Service port supporting the stack function	Not supported
RTC	Supported
Typical power consumption [W]	Configured with four CE98-D32CQ-A cards: 1291 W (50% throughput, short-distance QSFP28 optical modules on 64 ports and long-distance QSFP28 optical modules on 64 ports, double power modules) Configured with four CE98-D8DQ cards: 953 W (50% throughput, short-distance QSFPDD optical modules on 32 ports, double power modules)

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Item	Specification
Typical heat dissipation [BTU/hour]	Configured with four CE98-D32CQ-A cards: 4205 BTU/hr (50% throughput, short-distance QSFP28 optical modules on 64 ports and long-distance QSFP28 optical modules on 64 ports, double power modules) Configured with four CE98-D8DQ cards: 3252 BTU/hr (50% throughput, short-distance QSFPDD optical modules on 32 ports, double power modules)
Static power consumption [W]	Configured with four CE98-D32CQ-A cards: 900 W Configured with four CE98-D8DQ cards: 621 W
Static heat dissipation [BTU/hour]	Configured with four CE98-D32CQ-A cards: 3071 BTU/hour Configured with four CE98-D8DQ cards: 2119 BTU/hour
Maximum power consumption [W]	Configured with four CE98-D32CQ-A cards: 2253 W (when the ambient temperature is 40°C (104 °F), the fan speed is 100% of the full speed.) Configured with four CE98-D8DQ cards: 1677 W (when the ambient temperature is 40°C (104 °F), the fan speed is 100% of the full speed.)
Maximum heat dissipation	Configured with four CE98-D32CQ-A cards: 7688 BTU/hour (when the ambient temperature is 40°C (104 °F), the fan speed is 100% of the full speed.) Configured with four CE98-D8DQ cards: 5722 BTU/hour (when the ambient temperature is 40°C (104 °F), the fan speed is 100% of the full speed.)
Number of power modules	4
Redundant power supply	2+2 backup

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Item	Specification
Rated input voltage [V]	• 1200 W AC&240 V DC power module: 100 V AC to 240 V AC, 50/60 Hz; 240 V DC • 1200 W DC power module: –48 V DC: –48 V DC to –60 V DC; +48 V DC: +40 V DC to +57 V DC
Input voltage range [V]	• 1200 W AC&240 V DC power module: AC: 90 V AC to 290 V AC, 45 Hz to 65 Hz; DC: 190 V DC to 290 V DC • 1200 W DC power module: -48 V DC: -38.4 V DC to -72 V DC; +48 V DC: +38.4 V DC to +60 V DC
Maximum input current [A]	• 1200 W AC&240 V DC power module: 10 A (100 V AC to 130 V AC); 8 A (200 V AC to 240 V AC); 8 A (240 V DC) • 1200 W DC power module: 38 A (–48 V DC to –60 V DC); 38 A (+48 V DC)
Rated output power [W]	• 1200 W AC&240 V DC power module: 1200 W • 1200 W DC power module: 1200 W
Certification	• Complies with safety standards. • Complies with EMC standards. • Complies with environmental protection standards.
Power supply surge protection [kV]	AC: 6 kV in common mode and 6 kV in differential mode DC: 4 kV in common mode and 2 kV in differential mode HVDC: 4 kV in common mode and 2 kV in differential mode
Types of fans	Pluggable
Number of fans	4
Redundant fans	Supports 3+1 backup. Fan modules work in hot backup mode. If a fan module fails, the system can still work properly for a short period of time. However, you are advised to replace the faulty fan module immediately.
Heat dissipation mode	Air cooling

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Item	Specification
Airflow direction	Back-to-front airflow: Air flows into the chassis from the port side and flows out from the power supply side.
Availability	0.999997861
MTBF [year]	42.79 year
MTTR [hour]	1.73 hour
Noise at normal temperature (27°C, sound pressure) [dB(A)]	Back-to-front airflow: < 66 dB(A)
Noise at high temperature (40°C, sound pressure) [dB(A)]	Back-to-front airflow: < 81 dB(A)
Long-term operating altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating temperature [°C (°F)]	0°C to 40°C (32°F to 104°F) at an altitude of 0–1800 m (0–5906 ft.) **NOTE** When the altitude is 1800–5000 m (5096–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage altitude [m (ft.)]	≤ 5000 m (16404 ft.)
Storage relative humidity [RH]	5% to 95% RH, non-condensing
Storage temperature [°C (°F)]	-40°C to +70°C (-40°F to +158°F)

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