

H3C CR19000-20 Core Router

Hardware Information and Specifications

New H3C Technologies Co., Ltd.
<http://www.h3c.com>

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Preface

This document describes the hardware information and specifications for the H3C CR19000-20 core router, including chassis views, technical specifications, FRU compatibility and specifications, and LEDs.

This preface includes the following topics about the documentation:

- [Audience](#).
- [Conventions](#).
- [Documentation feedback](#).

Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the CR19000-20 core router.

Conventions

The following information describes the conventions used in the documentation.

Command conventions





Convention	Description
Boldface	Bold text represents commands and keywords that you enter literally as shown.
<i>Italic</i>	<i>Italic</i> text represents arguments that you replace with actual values.
[]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x y ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x y ...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x y ... } *	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[x y ...] *	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions













Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the New User window opens; click OK .

Convention	Description
>	Multi-level menus are separated by angle brackets. For example, File > Create > Folder .

Symbols

Convention	Description
 WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
 CAUTION:	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
 IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
 TIP:	An alert that provides helpful information.

Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

Examples provided in this document

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

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1 About the router

Unless otherwise stated, MPUs, interface modules, and fabric modules are collectively referred to as "modules" in this document.

Chassis views

Figure1-1 Front view

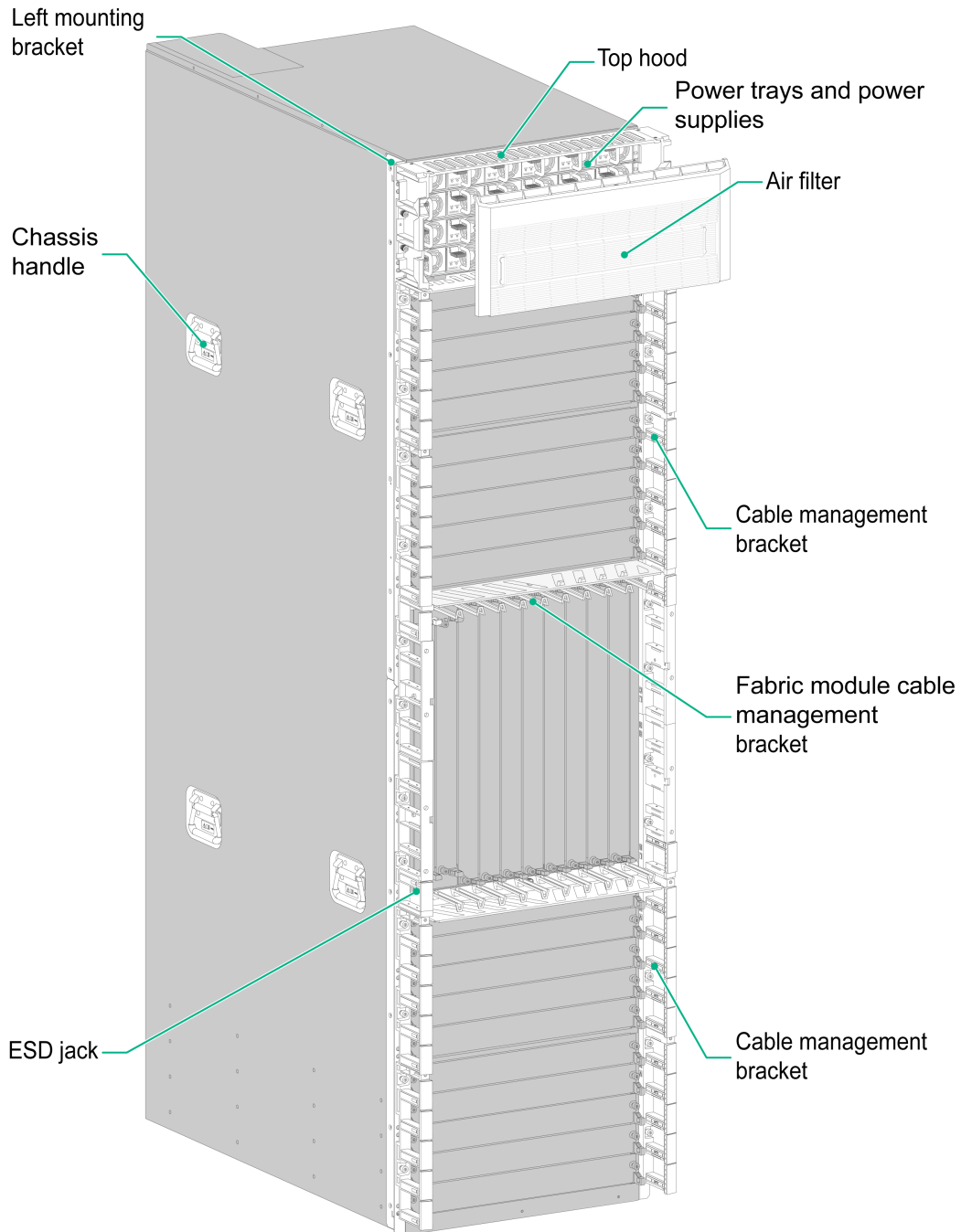
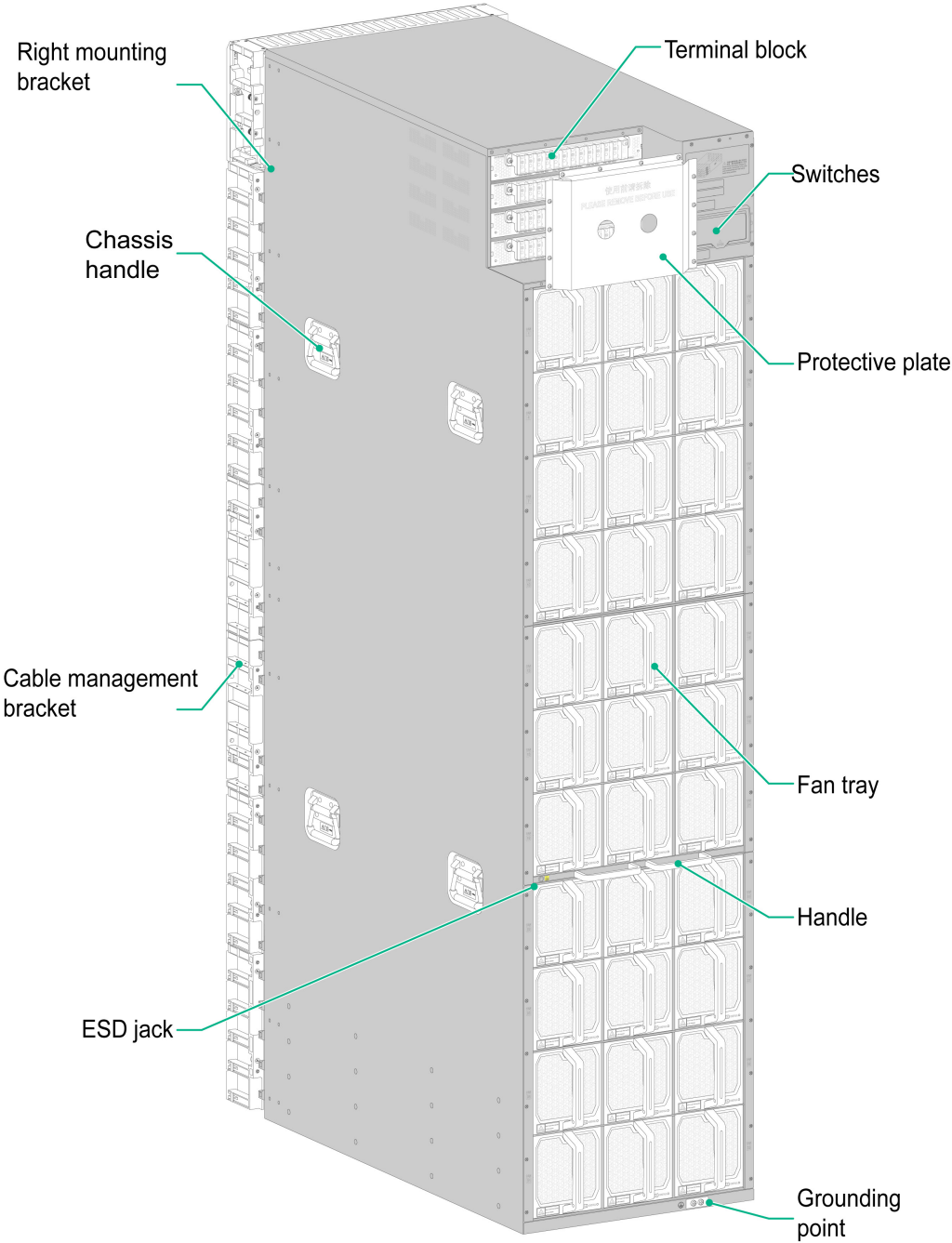


Figure1-2 Rear view



Slot arrangement

"LPU" in Figure1-3 refers to an interface module, "SFU" refers to a single-chassis fabric module, "MSFU" refers to a multi-chassis fabric module, and "PEM" refers to a power tray.

Figure1-3 Main sections of the router

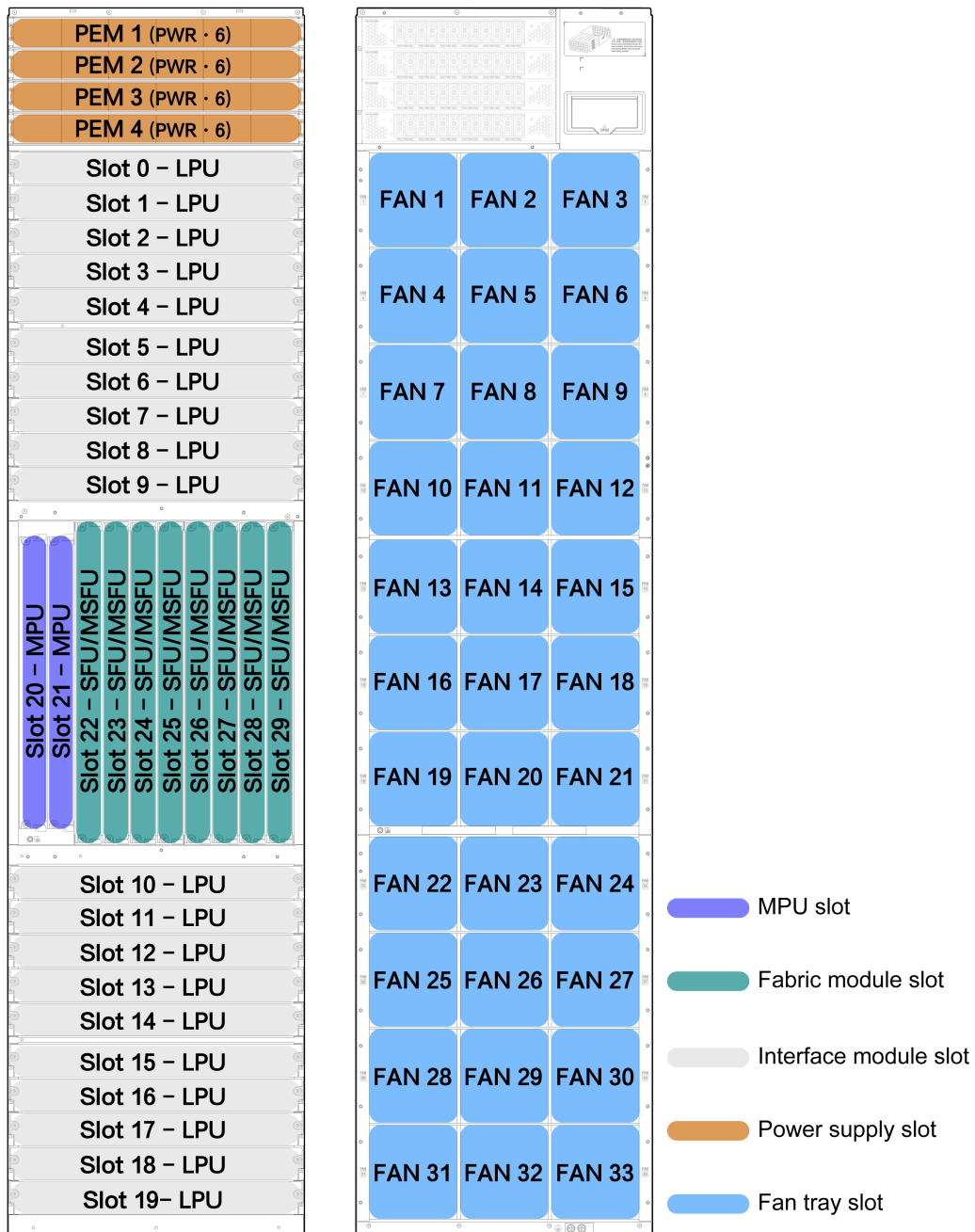


Table1-1 Descriptions for the router sections

Section	Slots	Description
Interface module section	20 interface module slots (slots 0 to 9 and slots 10 to 19)	Determine the interface module models and quantities as required. The router allows mixture of different models of interface modules.
MPU section	2 MPU slots (slots 20 and 21)	You can install one MPU, or two MPUs for redundancy for the router. The router does not allow mixture of different models of MPUs.

Section	Slots	Description
Fabric module section	8 fabric module slots (slots 22 to 29)	Typically, install fabric modules in slots 22 to 27. Choose slots 28 and 29 based on the interface module requirements. The router does not allow mixture of different models of fabric modules.
Power supply section	4 power tray slots, each providing 6 power supply slots	You can install a power supply in any power supply slot.
Fan tray section	33 fan tray slots at the rear of the chassis	The 33 fan tray slots are arranged in 11 rows, with each row having 3 fan tray slots. Before starting the router, make sure each fan tray slot has a fan tray installed. You can operate the router only when it is fully configured with fan trays.

Technical specifications

Item	Description
Dimensions (H x W x D)	1820 x 440 x 850 mm (71.65 x 17.32 x 33.46 in) (41 RUs)
Shipping weight	416.0 kg (917.11 lb)
Weight (chassis with mounting brackets and filler panels)	198.0 kg (436.51 lb)
Weight (fully configured)	600.0 kg (1322.75 lb)
Router weight	Chassis weight (including mounting brackets and filler panels) plus removable component weight (including modules, power supplies, fan trays, and other removable components)
System power consumption	Sum of the power consumption of all modules and the power consumption of all configured fan trays
Heat dissipation (per hour)	$0.9 \times (\text{power consumption of all modules plus power consumption of all configured fan trays}) / 0.9 \times 3.4121$
MTBF	13.40 years
MTTR	0.5 hours
Availability	0.9999958
Cooling method	Front-rear super-short cut-through air aisle
Sound pressure level (fully configured with 33 fan trays) in the acceptable temperature ranges	≤ 78 dBA
MPU redundancy	1:1
Fabric module redundancy	N+1
Fan tray redundancy	N+1
Rack	2200 x 600 x 1200 mm (86.61 x 23.62 x 47.24 in) As a best practice, purchase the RACK-47U612-AX rack.
Slide	LSXM1BSR

Item	Description
Temperature	<ul style="list-style-type: none"> • Operating: 0°C to 45°C (32°F to 113°F) • Storage: -40°C to +70°C (-40°F to +158°F)
Relative humidity	<ul style="list-style-type: none"> • Operating: 5% RH to 95% RH (noncondensing) • Storage: 5% RH to 95% RH (noncondensing)
Altitude	-60 m to +5000 m (-196.85 ft to +16404.20 ft)

NOTE:

- Rack height is measured in RUs. One RU is 44.45 mm (1.75 in).
- Dimensions in the table are for the chassis only, excluding the mounting brackets, cable management brackets, modules, and power supplies.
- Heat dissipation is measured in BTU/h. 1 W equals 3.4121 BTU/h.
- The sound pressure levels are measured based on the method specified in ISO 7779 at bystander positions.

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2 Power system

Overview

"Power tray" and "PEM" are used interchangeably in this document.

About the power system

The power system of the router is located at the top of the chassis. It includes the power supplies at the front, power trays (also called PEMs) at the rear, and power switches.

Figure2-1 Power system main components

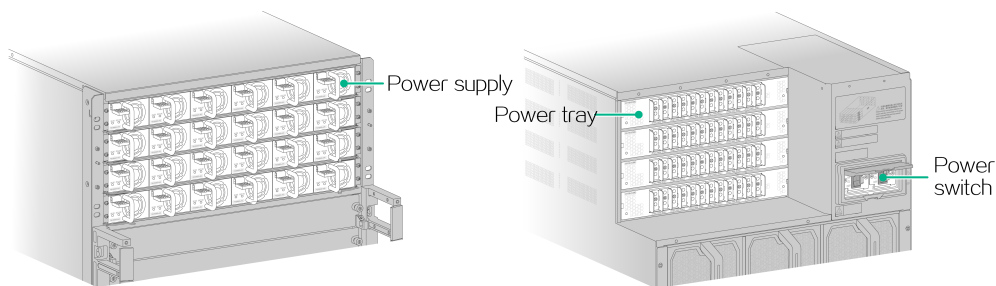


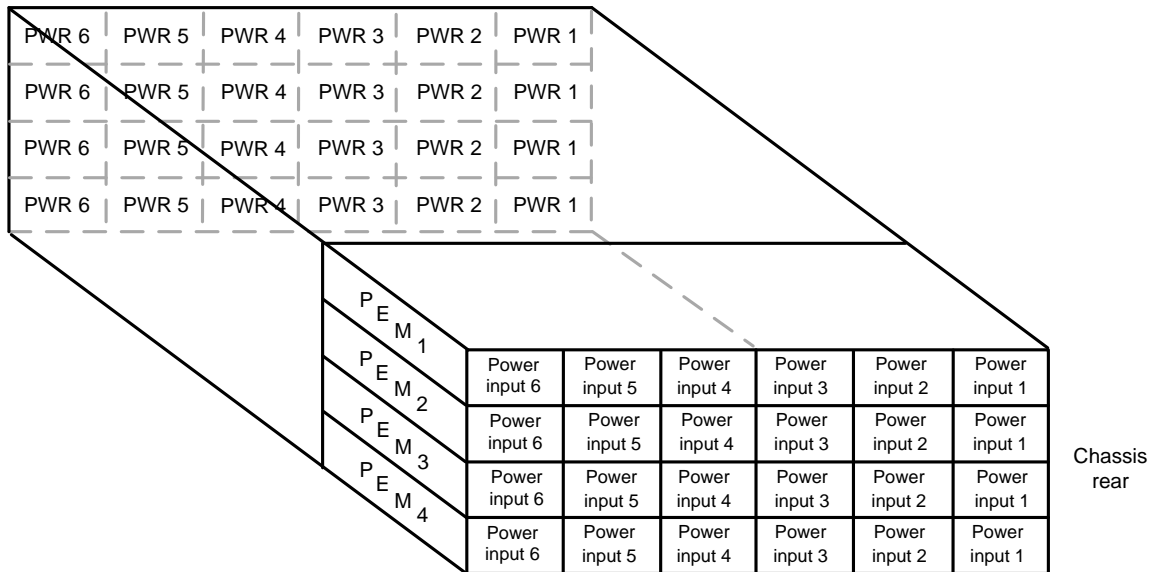
Table2-1 Main components of the power system

Component	Description
Power supply	Convert the power input from the PEM and supply the converted power to the entire device through the backplane.
PEM	Connect to the external power distribution system and input power for the device.
Power switch	Control the power output of the power supplies. The two power switches back up each other. When one or two of the switches are turned on, the power supplies output power. When both switches are turned off, the power supplies do not output power.

Power trays and power supplies

The power supplies are installed in the power trays. Power supplies at the front correspond to the power input ends at the rear as shown in [Figure2-2](#).

Figure2-2 Power supplies and power input ends



Power supply configuration guidelines

You can configure power supplies for the router based on the power consumption of the router.

For example, in a scenario where AC power is used, if the output power of an AC power supply is 3000 W and the power supplies are configured in N+N redundancy, make sure $N \times 3000$ W is greater than the system power consumption. [Table2-2](#) shows the power supply configuration examples for this scenario.

Table2-2 Power supply configuration examples

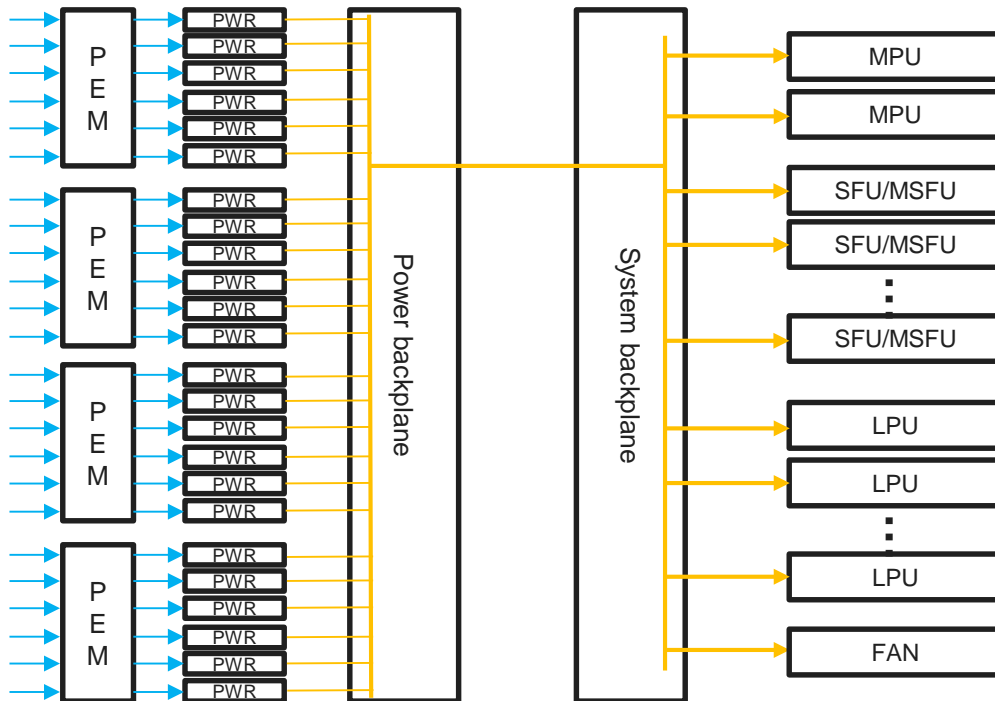
System power consumption	Power supply configuration example	N+N redundancy
8000 W	Three power supply groups in PEM 1: (PWR1, PWR6) + (PWR2, PWR5) + (PWR3, PWR4)	3+3
9000 W	Three power supply groups in PEM 1: (PWR1, PWR6) + (PWR2, PWR5) + (PWR3, PWR4)	3+3
16000 W	Three power supply groups in PEM 1: (PWR1, PWR6) + (PWR2, PWR5) + (PWR3, PWR4) and three power supply groups in PEM 2: (PWR1, PWR6) + (PWR2, PWR5) + (PWR3, PWR4)	6+6
...
36000 W	24 power supplies in total from PEM1 to PEM4.	12+12

Power system architecture

The CR19000-20 router uses non-partitioned power supply architecture.

As shown in [Figure2-3](#), the power input from the PEMs are passed directly to the power supplies, which perform power conversion internally and then output the converted power to the power backplane.

Figure2-3 Power system architecture



Power supply and power tray compatibility

Table2-3 Power supply and power tray compatibility

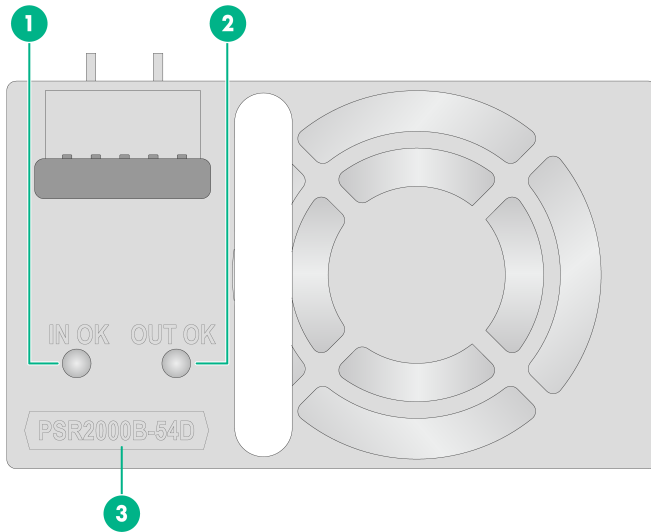
Power supply model	Power tray model
PSR2000B-54D	CR-PEM-DC2000
PSR3000B-54AHD	<ul style="list-style-type: none"> AC power input: Compatible with the CR-PEM-AC3000 and CR-PEM-HVDC3000 240 VDC power input: Compatible with the CR-PEM-AC3000 and CR-PEM-HVDC3000 336 VDC input: Compatible with the CR-PEM-HVDC3000

Power supplies

PSR2000B-54D

Faceplate and LEDs

Figure2-4 PSR2000B-54D DC power supply faceplate



- | | |
|--|-------------------------------|
| (1) Power input LED (IN OK) | (2) Power output LED (OUT OK) |
| (3) Power supply identifier (PSR2000B-54D) | |

Table2-1 PSR2000B-54D power supply LED descriptions

LED	Status	Description
IN OK OUT OK	IN OK: Steady green OUT OK: Steady green	The power supply is operating correctly.
	IN OK: Steady red OUT OK: Steady red	Input undervoltage or overvoltage or no power input.
	IN OK: Steady green OUT OK: Steady red	<ul style="list-style-type: none"> The power supply has entered output overvoltage, output overcurrent, or overtemperature protection state. The fans of the power supply are faulty. The power switch of the chassis is turned off.
	IN OK: Off OUT OK: Off	No power input.

Technical specifications

Item	Specification
Weight (without packaging)	2.0 kg (4.41 lb)
Dimensions (H x W x D, without packaging)	41 x 68 x 440 mm (1.61 x 2.68 x 17.32 in)
Rated input voltage	-48 to -60 VDC

Technical specifications

Table2-3 PSR3000B-54AHD technical specifications

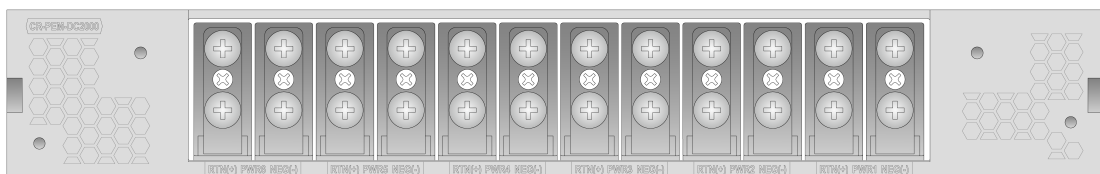
Item	Specification
Weight (without packaging)	2.1 kg (4.63 lb)
Dimensions (H x W x D, without packaging)	41 x 68 x 440 mm (1.61 x 2.68 x 17.32 in)
Rated input voltage	<ul style="list-style-type: none"> • 100 to 130 VAC @ 60 Hz • 200 to 240 VAC @ 50 Hz • 240 VDC • 336 VDC
Input voltage range	<ul style="list-style-type: none"> • 90 to 150 VAC @ 47 to 63 Hz • 176 to 290 VAC @ 47 to 63 Hz • 180 to 290 VDC • 260 to 400 VDC
Rated input current	16 A
Rated output voltage	54 VDC
Max. output current	55.6 A
Max. output power	<ul style="list-style-type: none"> • 100 to 130 VAC @ 60 Hz: 1500 W • 200 to 240 VAC @ 50 Hz: 3000 W • 240 VDC: 3000 W • 336 VDC: 3000 W
Cooling method	Using built-in fans for cooling

Power trays

CR-PEM-DC2000

The CR-PEM-DC2000 is a DC PEM. It inputs DC power and each PEM provides six power input channels.

Faceplate



Front-end input requirements

Provide protective facilities for the front-end power distribution panel or header cabinet. Make sure the rate current of each channel is less than 63 A.

Technical specifications

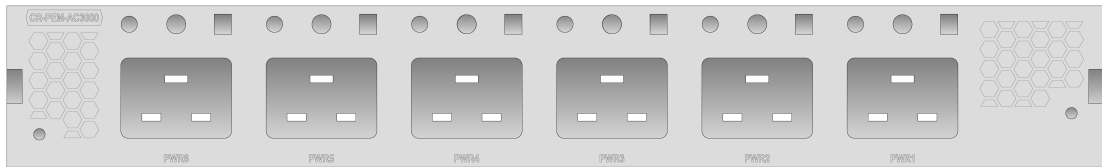
Table2-4 CR-PEM-DC2000 technical specifications

Item	Specification
Weight (without packaging)	6.6 kg (14.55 lb)
Dimensions (H x W x D, without packaging)	46.5 x 422 x 730 mm (1.83 x 16.61 x 28.74 in)

CR-PEM-AC3000

The CR-PEM-AC3000 is an AC PEM. It inputs AC power and each PEM provides six power input channels.

Faceplate



Front-end input requirements

Provide protective facilities for the front-end power distribution panel or header cabinet. Make sure the rate current of each channel is less than 16 A.

Technical specifications

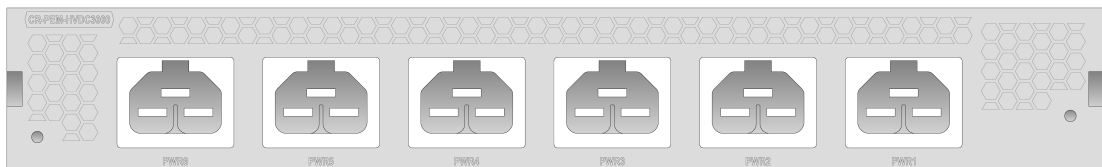
Table2-5 CR-PEM-AC3000 technical specifications

Item	Specification
Weight (without packaging)	6.8 kg (14.99 lb)
Dimensions (H x W x D, without packaging)	46.5 x 422 x 730 mm (1.83 x 16.61 x 28.74 in)

CR-PEM-HVDC3000

The CR-PEM-AC3000 is an HVDC PEM. It inputs HVDC power and each PEM provides six power input channels.

Faceplate



Front-end input requirements

Provide protective facilities for the front-end power distribution panel or header cabinet. Make sure the rate current of each channel is less than 16 A and HVDC power requirements (such as HVDC certification and bipolar protection for positive and negative poles) are met.

Technical specifications

Table2-6 CR-PEM-HVDC3000 technical specifications

Item	Specification
Weight (without packaging)	6.6 kg (14.55 lb)
Dimensions (H x W x D, without packaging)	46.5 x 422 x 730 mm (1.83 x 16.61 x 28.74 in)

Power system technical specifications

DC

Table2-7 DC power system technical specifications

Item	Specification
Number of power supplies (fully configured)	24
Input channels (fully configured)	24
Maximum cross-sectional area of the input power cord	35 mm ² (0.054 in ²) per channel
Input voltage	-39 to -72 VDC (rated voltage: -48 to -60 VDC)
Input current	A maximum of 60 A per power supply
Front-end circuit breaker/fuse	Not less than 63 A per power supply
Output channels (fully configured)	24
Output voltage	54 VDC
Output current	37 A per power supply
Output power	2000 W per power supply

AC

Table2-8 AC power system technical specifications

Item	Specification
Number of power supplies (fully configured)	24
Input channels (fully configured)	24
Maximum cross-sectional area of the input power cord	3 x 1.5 mm ² (0.00231 in ²)

Input voltage	90 to 290 VAC <ul style="list-style-type: none"> Rated voltage range on the 110V power grid: 100 to 130 VAC Rated voltage range on the 220V power grid: 200 to 240 VAC
Input current	16 A per power supply
Front-end circuit breaker/fuse	16 A per power supply
Output channels (fully configured)	24
Output voltage	54 VDC
Output current	55.6 A per power supply
Output power	3000 W per power supply

HVDC

Table2-9 HVDC power system technical specifications

Item	Specification
Number of power supplies (fully configured)	24
Input channels (fully configured)	24
Maximum cross-sectional area of the input power cord	3 × 1.5 mm ² (0.00231 in ²)
Input voltage	180 to 400 VDC (rated voltage: 240 V/336 V)
Input current	16 A per power supply
Front-end circuit breaker/fuse	16 A per power supply
Output channels (fully configured)	24
Output voltage	54 VDC
Output current	55.6 A per power supply
Output power	3000 W per power supply

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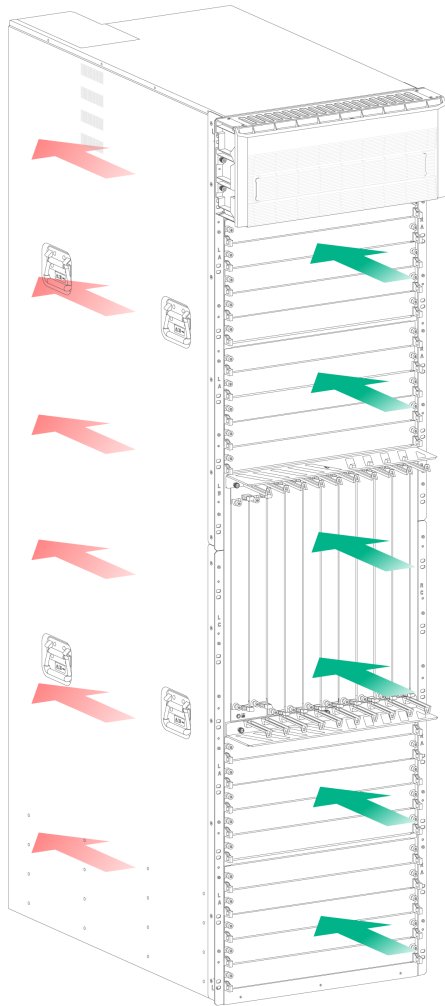
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3 Cooling system

Airflow

Fan trays on a CR19000-20 router draw ambient air into the chassis through the air vents in the MPU, fabric module, and interface module front panels and exhaust the air carrying heat through the air vents in the fan tray panel.

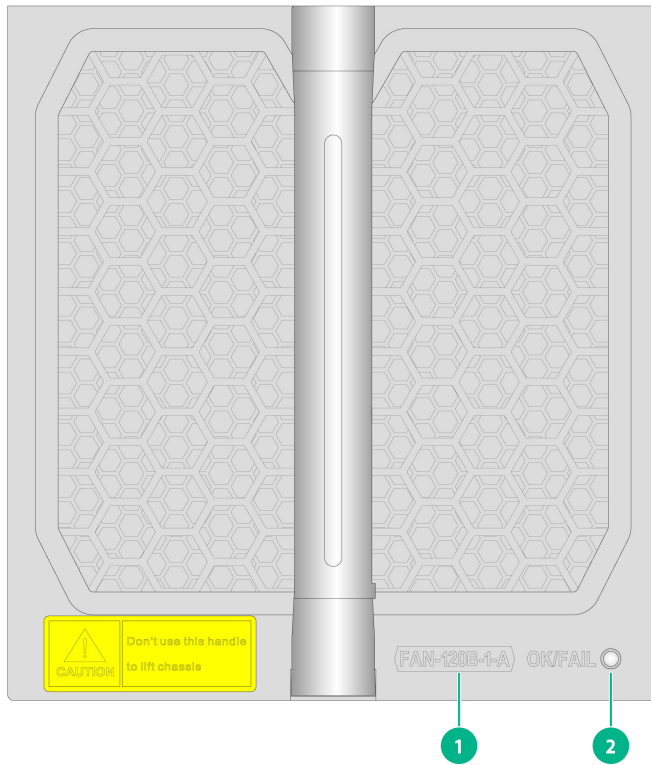
Figure3-1 Airflow of the CR19000-20 router



FAN-120B-1-A

Panel and LEDs

Figure3-2 FAN-120B-1-A fan tray panel and LEDs



(1) Fan tray identifier (FAN-120B-1-A)

(2) Status LED (OK/FAIL)

Table3-1 FAN-120B-1-A fan tray LED description

LED	Status	Description
OK/FAIL	Off	The fan tray is faulty, or no power is present on the fan tray.
	Steady green	The fan tray is operating correctly.
	Steady red	The fan tray is faulty.

Technical specifications

Table3-2 FAN-120B-1-A technical specifications

Item	Specification
Weight (without packaging)	1.6 kg (3.53 lb)
Dimensions (H x W x D, without packaging)	139 x 129 x 171 mm (5.47 x 5.08 x 6.73 in)
Typical power consumption	17 W

Number of fans	1
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CR-19K-LPU-CQ12C	4-21
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4 Modules

Interface numbering

Conventions

The interfaces on the router are numbered in the *interface-type W/X/Y/Z* format. The management port number on the MPU is 1/0/0/0.

Where,

- *interface-type*—Interface type, for example, Gigabit Ethernet.
- *W*—Chassis ID of the router in the cluster. In single-chassis mode, the number is 1. In back-to-back cluster mode, the numbers are 1 and 2.
- *X*—Number of the slot where the module resides.
- *Y*—Number of the slot where the interface subcard resides on the interface module. If the interface module does not have any interface subcard slot, the number is 0.
- *Z*—Number of the interface on the interface subcard or interface module.

Examples

The router is in single-chassis mode. A CR-HIC-GP12 interface subcard is installed on a CR-19K-LPU-4004 interface module in slot 3 of the router.

- If the CR-HIC-GP12 subcard is installed in subslot 1 of the CR-19K-LPU-4004 interface module, Gigabit Ethernet ports 1 to 12 on the CR-HIC-GP12 subcard are numbered GigabitEthernet 1/3/1/1 to GigabitEthernet 1/3/1/12, respectively.
- If the CR-HIC-GP12 subcard is installed in subslot 2 of the CR-19K-LPU-4004 interface module, Gigabit Ethernet ports 1 to 12 on the CR-HIC-GP12 subcard are numbered GigabitEthernet 1/3/2/1 to GigabitEthernet 1/3/2/12, respectively.

FRU compatibility matrixes

Interface module compatibility with fabric modules

The interface modules offer line-rate forwarding.

The router supports interface modules of different models.

[Table4-1](#) describes the interface module compatibility with fabric modules.

Table4-1 Interface module compatibility with fabric modules

Interface module model	CR-19K-MSFU-20B	CR-19K-MSFU-20C	CR-19K-SFU-20C
CR-19K-LPU-CDQ04	x	N + 1 (N ≥ 7)	N + 1 (N ≥ 7)
CR-19K-LPU-CDQ02	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CQ18	x	N + 1 (N ≥ 5)	N + 1 (N ≥ 5)

Interface module model	CR-19K-MSFU-20B	CR-19K-MSFU-20C	CR-19K-SFU-20C
CR-19K-LPU-CQ16	x	N + 1 (N ≥ 7)	N + 1 (N ≥ 7)
CR-19K-LPU-CQ12	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CQ12B	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CQ12C	x	N + 1 (N ≥ 5)	N + 1 (N ≥ 5)
CR-19K-LPU-CQ06B	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CC08	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CC04	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CC04B	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP72	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP48	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP40	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP20CC02	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-8004	x	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-8004B	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-4004	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-4004B	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-2002	N + 1 (N ≥ 2)	N + 1 (N ≥ 2)	N + 1 (N ≥ 2)
CR-19K-LPU-2002B	N + 1 (N ≥ 2)	N + 1 (N ≥ 2)	N + 1 (N ≥ 2)
CR-19K-LPU-SP	N + 1 (N ≥ 1)	N + 1 (N ≥ 1)	N + 1 (N ≥ 1)

NOTE:

The mark x indicates that the fabric module is incompatible with the interface module.

Interface subcard compatibility with interface modules

Table4-2 describes the interface subcard compatibility with interface modules.

Table4-2 Interface subcard compatibility with interface modules

Interface subcard model	CR-19K-LP U-8004	CR-19K-LP U-8004B	CR-19K-LP U-4004	CR-19K-LP U-4004B	CR-19K-LP U-2002	CR-19K-LP U-2002B
CR-HIC-C LGQ04F	√	√	x	x	x	x
CR-HIC-C Q02	√	√	x	x	x	x
CR-HIC-C Q01	√	√	√	√	√	√
CR-HIC-C C01	x	x	√	x	√	√

Interface subcard model	CR-19K-LP U-8004	CR-19K-LP U-8004B	CR-19K-LP U-4004	CR-19K-LP U-4004B	CR-19K-LP U-2002	CR-19K-LP U-2002B
CR-HIC-Q Q03	√	√	√	√	√	√
CR-HIC-X P12B	√	√	√	√	√	√
CR-HIC-X P12	√	√	√	√	√	√
CR-HIC-X P10	√	√	√	√	√	√
CR-HIC-G P12	x	√	√	√	√	√
CR-HIC-P U02	x	x	√	x	√	√
CR-HIC-P S04	x	x	√	x	√	√
CR-HIC-P HP08	x	x	√	x	√	√
CR-HIC-C LP04	x	x	√	x	√	√
CR-HIC-E T16	x	x	√	x	√	√

NOTE:

- The mark √ indicates that the interface subcard is compatible with the interface module.
- The mark x indicates that the interface subcard is incompatible with the interface module.

Module compatibility with transceiver modules and cables

For information about transceiver modules and cables available for the modules, see *H3C CR19000 Core Routers Modules and Transceivers Compatibility Matrixes*.

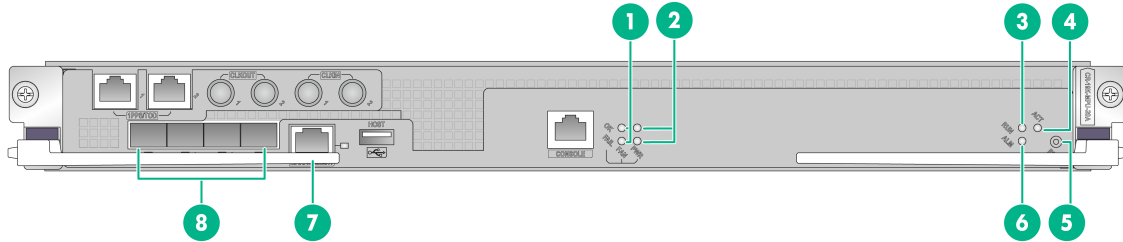
MPUs

The router uses MPUs for system configuration and monitoring, including route calculation, forwarding table maintenance, and device monitoring. They can also provide high-precision timer and time synchronization.

CR-19K-MPU-20A

Panel and LEDs

Figure4-1 CR-19K-MPU-20A MPU



(1) Fan tray status LEDs (FAN OK and FAIL)	(2) Power supply status LEDs (PWR OK and FAIL)
(3) Module status LED (RUN)	(4) MPU active/standby status LED (ACT)
(5) Reset button	(6) System alarm LED
(7) Management port LED (MANAGEMENT)	(8) 10GBASE-R-SFP+ port LEDs 1 to 4

NOTE:

The 10GBASE-R-SFP+ ports on the MPU can be used for cluster control plane connections.

Table4-3 CR-19K-MPU-20A MPU LED descriptions

LED		Status	Description
10GBASE-R-SFP+ 1 to 4	LINK/ACT	Off	No link is present on the port.
		Steady green	A link is present on the port.
		Flashing green	The port is sending or receiving data.
MANAGEMENT	LINK/ACT	Off	No link is present on the port.
		Steady green	A 1000 Mbps link is present on the port.
		Flashing green	The port is sending or receiving data at 1000 Mbps.
		Steady yellow	A 10/100 Mbps link is present.
		Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
FAN	OK	Steady green	All fan trays are operating correctly.
		Off	<ul style="list-style-type: none"> A minimum of one fan tray is faulty. No fan tray is present in a minimum of one fan tray slot.
	FAIL	Off	All fan trays are operating correctly.
		Steady red	<ul style="list-style-type: none"> A minimum of one fan tray is faulty. No fan tray is present in a minimum of one fan tray slot.
PWR	OK	Steady green	All present power supplies are operating correctly.
		Off	A minimum of one power supply is faulty.
	FAIL	Off	All present power supplies are operating correctly.
		Steady red	A minimum of one power supply is faulty.
RUN	Off	A minimum of one module is faulty.	
	Slow flashing	The modules are operating correctly.	

LED	Status	Description
	green (0.5 Hz)	
	Fast flashing green (4 Hz)	The modules are loading software. ⚠ CAUTION: To avoid module damage, do not power off the router or hot swap a module when the modules are loading software.
ALM	Off	No alarm has occurred on the system.
	Steady red	An alarm is present on the system.
ACT	Off	The router is in single chassis mode, and the MPU is in standby mode.
	Flashing green (0.5 Hz)	The router is in cluster mode, and the MPU is in standby mode.
	Steady green	The MPU is the active MPU of the chassis or the cluster.

Ports

Table4-4 CR-19K-MPU-20A MPU port descriptions

Port type	Description
Console port	1 × RJ-45 console port, 9600 bps (default) to 115200 bps
Management port	1 × 10/100/1000BASE-T management port (RJ-45)
USB port	1, Type A, host mode
Ethernet port	4 × 10GBASE-R-SFP+ Ethernet ports
SMB clock input port	2
SMB clock output port	2
1PPS/ToD time synchronization port	2

Technical specifications

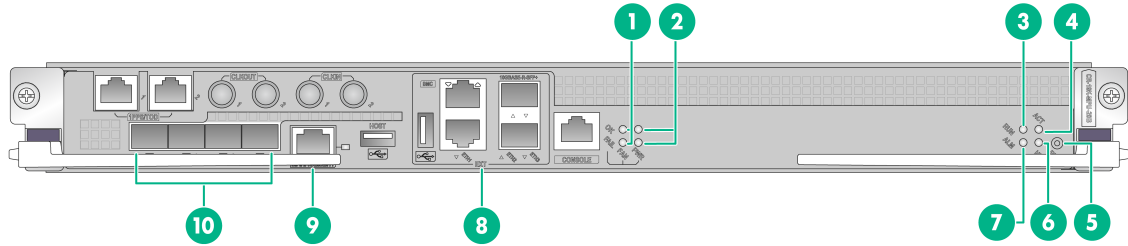
Table4-5 CR-19K-MPU-20A MPU technical specifications

Item	Specification
Weight (without packaging)	6.0 kg (13.23 lb)
Dimensions (H × W × D, without packaging)	40 × 433 × 512 mm (1.57 × 17.05 × 20.16 in)
Typical power consumption	70 W
Typical thermal consumption	238.85 BTU/h
Processor	4 cores, 1.2 GHz
Memory capacity	16 GB
Redundancy	1+1 redundancy
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MPU-20A MPU together with MPUs of other models on the same router.

CR-19K-MPU-20B

Panel and LEDs

Figure4-2 CR-19K-MPU-20B MPU



(1) Fan tray status LEDs (FAN OK and FAIL)	(2) Power supply status LEDs (PWR OK and FAIL)
(3) Module status LED (RUN)	(4) MPU active/standby status LED (ACT)
(5) Reset button	(6) Hard disk status LED (HD)
(7) System alarm LED	(8) EXT port LEDs
(9) Management port LED (MANAGEMENT)	(10) 10GBASE-R-SFP+ port LEDs 1 to 4

NOTE:

- The 10GBASE-R-SFP+ ports on the MPU can be used for cluster control plane connections.
- EXT ports are used for loading third-party operating systems and applications. The EXT ports include a USB port, a BMC port, a 10/100/1000BASE-T port, and two 10GBASE-R ports.

Table4-6 CR-19K-MPU-20B MPU LED description

LED		Status	Description
10GBASE-R-SFP+ 1 to 4	LINK/ACT	Off	No link is present on the port.
		Steady green	A link is present on the port.
		Flashing green	The port is sending or receiving data.
MANAGEMENT	LINK/ACT	Off	No link is present on the port.
		Steady green	A 1000 Mbps link is present on the port.
		Flashing green	The port is sending or receiving data at 1000 Mbps.
		Steady yellow	A 10/100 Mbps link is present.
		Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
EXT: BMC, ETH 1 to 3	LINK/ACT	Off	No link is present on the port.
		Steady green	A link is present on the port.
		Flashing green	The port is sending or receiving data.
FAN	OK	Steady green	All fan trays are operating correctly.
		Off	<ul style="list-style-type: none"> • A minimum of one fan tray is faulty. • No fan tray is present in a minimum of one fan tray slot.
	FAIL	Off	All fan trays are operating correctly.
		Steady red	<ul style="list-style-type: none"> • A minimum of one fan tray is faulty. • No fan tray is present in a minimum of one fan tray slot.

LED		Status	Description
			slot.
PWR	OK	Steady green	All present power supplies are operating correctly.
		Off	A minimum of one power supply is faulty.
	FAIL	Off	All present power supplies are operating correctly.
		Steady red	A minimum of one power supply is faulty.
RUN		Off	A minimum of one module is faulty.
		Slow flashing green (0.5 Hz)	The modules are operating correctly.
		Fast flashing green (4 Hz)	The modules are loading software. ⚠ CAUTION: To avoid module damage, do not power off the router or hot swap a module when the modules are loading software.
ALM		Off	No alarm has occurred on the system
		Steady red	An alarm is present on the system.
HD		Flashing green (4 Hz)	The system is reading data from and writing data to the hard disk. ⚠ IMPORTANT: To avoid data loss, do not power off the router or hot swap the hard disk when the system is reading data from and writing data to the hard disk.
ACT		Off	The router is in single chassis mode, and the MPU is in standby mode.
		Flashing green (0.5 Hz)	The router is in cluster mode, and the MPU is in standby mode.
		Steady green	The MPU is the active MPU of the chassis or the cluster.

Ports

Table4-7 CR-19K-MPU-20B MPU port descriptions

Port type		Description
Console port		1 × RJ-45 console port, 9600 bps (default) to 115200 bps
Management port		1 × 10/100/1000BASE-T management port (RJ-45)
USB port		1, Type A, host mode
Ethernet port		4 × 10GBASE-R-SFP+ Ethernet ports
EXT ports	BMC port	1 × 10/100/1000BASE-T BMC port (RJ-45)
	ETH port	1 × 10/100/1000BASE-T port and 2 × 10GBASE-R-SFP+ ports
	USB port	1, Type A
SMB clock input port		2
SMB clock output port		2
1PPS/ToD time		2

Port type	Description
synchronization port	

Technical specifications

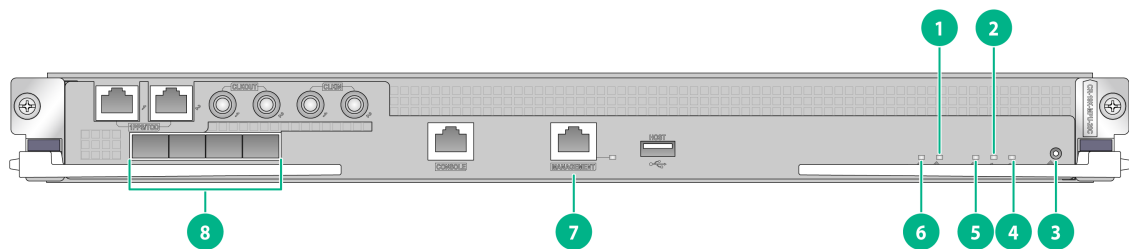
Table4-8 CR-19K-MPU-20B MPU technical specifications

Item	Specification
Weight (without packaging)	7.2 kg (15.87 lb)
Dimensions (H x W x D, without packaging)	40 x 433 x 512 mm (1.57 x 17.05 x 20.16 in)
Typical power consumption	130 W
Typical thermal consumption	443.57 BTU/h
Processor	8 cores, 2.6 GHz
Memory capacity	32 GB
Hard disk capacity	240 GB
Redundancy	1+1 redundancy
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MPU-20B MPU together with MPUs of other models on the same router.

CR-19K-MPU-20C

Panel and LEDs

Figure4-3 CR-19K-MPU-20C MPU



(1) Power supply status LED	(2) System alarm LED
(3) Reset button	(4) MPU active/standby status LED (ACT)
(5) Module status LED (RUN)	(6) Fan tray status LED
(7) Management port LED (MANAGEMENT)	(8) 10GBASE-R-SFP+ port LEDs 1 to 4

NOTE:

The 10GBASE-R-SFP+ ports on the MPU can be used for cluster control plane connections.

Table4-9 CR-19K-MPU-20C MPU LED description

LED	Status	Description
10GBASE-R- LINK/ACT	Off	No link is present on the port.

LED		Status	Description
SFP+ 1 to 4		Steady green	A link is present on the port.
		Flashing green	The port is sending or receiving data.
MANAGEMENT	LINK/ACT	Off	No link is present on the port.
		Steady green	A 1000 Mbps link is present on the port.
		Flashing green	The port is sending or receiving data at 1000 Mbps.
		Steady yellow	A 10/100 Mbps link is present.
		Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
FAN		Off	<ul style="list-style-type: none"> A minimum of one fan tray is faulty. No fan tray is present in a minimum of one fan tray slot.
		Steady green	All fan trays are operating correctly.
		Steady red	<ul style="list-style-type: none"> A minimum of one fan tray is faulty. No fan tray is present in a minimum of one fan tray slot.
PWR		Off	A minimum of one power supply is faulty.
		Steady green	All present power supplies are operating correctly.
		Steady red	A minimum of one power supply is faulty.
RUN		Off	A minimum of one module is faulty.
		Slow flashing green (0.5 Hz)	The modules are operating correctly.
		Fast flashing green (4 Hz)	<p>The modules are loading software.</p> <p>⚠ CAUTION:</p> <p>To avoid module damage, do not power off the router or hot swap a module when the modules are loading software.</p>
ALM		Off	No alarm has occurred on the system.
		Steady red	An alarm is present on the system.
ACT		Off	The router is in single chassis mode, and the MPU is in standby mode.
		Flashing green (0.5 Hz)	The router is in cluster mode, and the MPU is in standby mode.
		Steady green	The MPU is the active MPU of the chassis or the cluster.

Ports

Table4-10 CR-19K-MPU-20C MPU port descriptions

Port type	Description
Console port	1 × RJ-45 console port, 9600 bps (default) to 115200 bps
Management port	1 × 10/100/1000BASE-T management port (RJ-45)
USB port	1, Type A, host mode
Ethernet port	4 × 10GBASE-R-SFP+ Ethernet ports

Port type	Description
SMB clock input port	2
SMB clock output port	2
1PPS/ToD time synchronization port	2

Technical specifications

Table4-11 CR-19K-MPU-20C MPU technical specifications

Item	Specification
Weight (without packaging)	6.2 kg (13.67 lb)
Dimensions (H x W x D, without packaging)	40 x 433 x 512 mm (1.57 x 17.05 x 20.16 in)
Typical power consumption	118 W
Typical thermal consumption	402.63 BTU/h
Processor	12 cores, 2.0 GHz
Memory capacity	32 GB
Redundancy	1+1 redundancy
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MPU-20C MPU together with MPUs of other models on the same router.

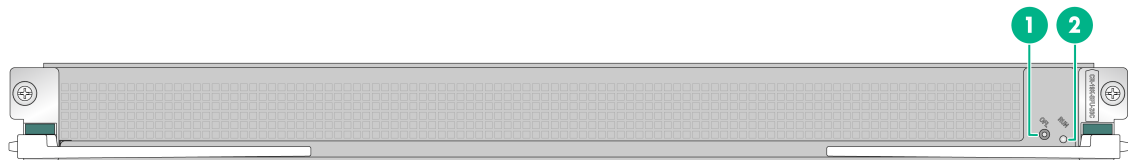
Fabric modules

Fabric modules switch data between interface modules.

CR-19K-SFU-20C

Panel and LEDs

Figure4-4 CR-19K-SFU-20C fabric module



(1) OFL button

(2) Running status LED (RUN)

Table4-12 CR-19K-SFU-20C LED descriptions

LED	Status	Description
RUN	Off	The fabric module is faulty.
	Slow flashing green (0.5 Hz)	The fabric module is operating correctly.

LED	Status	Description
	Fast flashing green (4 Hz)	The fabric module is loading software. ⚠ CAUTION: To avoid damaging the fabric module, do not power off the router or hot swap the fabric module when the fabric module is loading software.
	Steady red	An alarm is present on the fabric module.
	Flashing red (8 Hz)	After you press the OFL button, the LED flashes red at 8 Hz for 3 seconds. You can remove the fabric module after the LED is off.

Technical specifications

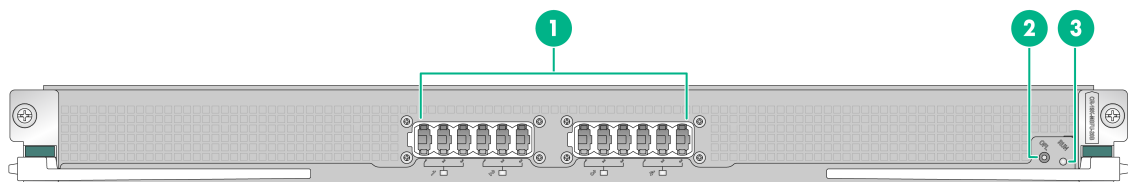
Table4-13 CR-19K-SFU-20C technical specifications

Item	Specification
Weight (without packaging)	6.5 kg (14.33 lb)
Dimensions (H x W x D, without packaging)	40 x 475 x 519 mm (1.57 x 18.70 x 20.43 in)
Typical power consumption	300 W
Typical thermal consumption	1023.63 BTU/h
Redundancy	N+1 redundancy. The value for N varies by fabric module model. For more information, see " Interface module compatibility with fabric modules. "
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-SFU-20C fabric module together with fabric modules of other models on the same router.

CR-19K-MSFU-20B

Panel and LEDs

Figure4-5 CR-19K-MSFU-20B fabric module



(1) Cluster port LEDs 1 to 4 (2) OFL button (3) Running status LED (RUN)

Table4-14 CR-19K-MSFU-20B LED descriptions

LED	Status	Description
RUN	Off	The fabric module is faulty.
	Slow flashing green (0.5 Hz)	The fabric module is operating correctly.
	Fast flashing green (4 Hz)	The fabric module is loading software.

LED	Status	Description
		<p>CAUTION:</p> <p>To avoid damaging the fabric module, do not power off the router or hot swap the fabric module when the fabric module is loading software.</p>
	Steady red	An alarm is present on the fabric module.
	Flashing red (8 Hz)	After you press the OFL button, the LED flashes red at 8 Hz for 3 seconds. You can remove the module after the LED is off.
LINK (1 to 4)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Technical specifications

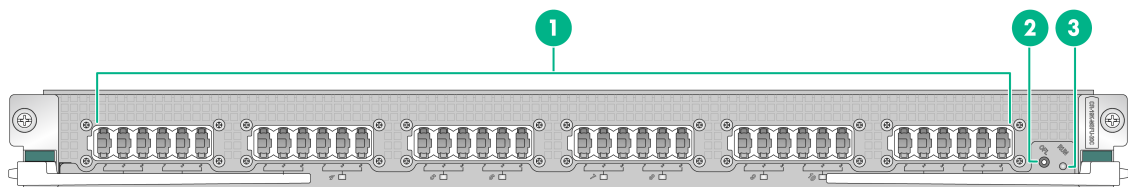
Table4-15 CR-19K-MSFU-20B technical specifications

Item	Specification
Weight (without packaging)	6.8 kg (14.99 lb)
Dimensions (H x W x D, without packaging)	40 x 475 x 519 mm (1.57 x 18.70 x 20.43 in)
Typical power consumption	280 W
Typical thermal consumption	955.39 BTU/h
Redundancy	N+1 redundancy. The value for N varies by fabric module model. For more information, see " Interface module compatibility with fabric modules. "
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MSFU-20B fabric module together with fabric modules of other models on the same router.

CR-19K-MSFU-20C

Panel and LEDs

Figure4-6 CR-19K-MSFU-20C fabric module



(1) Cluster port LEDs 1 to 12

(2) OFL button

(3) Running status LED (RUN)

Table4-16 CR-19K-MSFU-20C LED descriptions

LED	Status	Description
RUN	Off	The fabric module is faulty.
	Slow flashing green (0.5 Hz)	The fabric module is operating correctly.
	Fast flashing green (4 Hz)	The fabric module is loading software. ⚠ CAUTION: To avoid damaging the fabric module, do not power off the router or hot swap the fabric module when the fabric module is loading software.
	Steady red	An alarm is present on the fabric module.
	Flashing red (8 Hz)	After you press the OFL button, the LED flashes red at 8 Hz for 3 seconds. You can remove the fabric module after the LED is off.
LINK (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	A link is being established on the port.

Technical specifications

Table4-17 CR-19K-MSFU-20C technical specifications

Item	Specification
Weight (without packaging)	10.0 kg (22.05 lb)
Dimensions (H x W x D, without packaging)	40 x 475 x 519 mm (1.57 x 18.70 x 20.43 in)
Typical power consumption	850 W
Typical thermal consumption	2900.29 BTU/h
Redundancy	N+1 redundancy. The value for N varies by fabric module model. For more information, see " Interface module compatibility with fabric modules. "
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MSFU-20C fabric module together with fabric modules of other models on the same router.

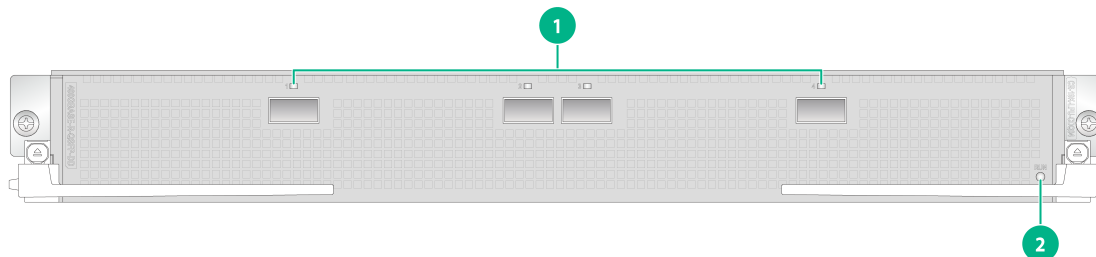
Interface modules

The interface modules offer line-rate forwarding. They provide different types of Ethernet fiber ports. Each port is a Layer 3 interface and supports varieties of features, including IP routing, forwarding, MPLS, security, QoS, multicasting, traffic statistics, and IPv6.

CR-19K-LPU-CDQ04

Panel and LEDs

Figure4-7 CR-19K-LPU-CDQ04 interface module



(1) 400G Ethernet port LEDs 1 to 4

(2) Running status LED (RUN)

Table4-18 CR-19K-LPU-CDQ04 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 4)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-19 CR-19K-LPU-CDQ04 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	4 × 400GBASE-R-QSFP-DD fiber ports
Port speed	400 Gbps

Technical specifications

Table4-20 CR-19K-LPU-CDQ04 interface module technical specifications

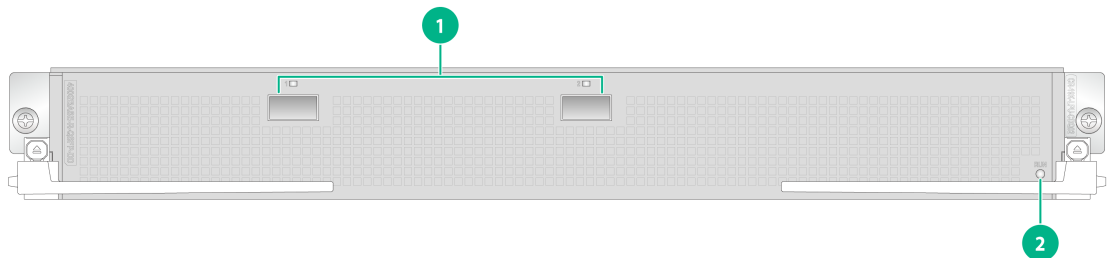
Item	Specification
Weight (without packaging)	11.5 kg (25.35 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)

Item	Specification
Typical power consumption	917 W
Typical thermal consumption	3128.9 BTU/h
Hot swapping	Supported

CR-19K-LPU-CDQ02

Panel and LEDs

Figure4-8 CR-19K-LPU-CDQ02 interface module



(1) 400G Ethernet port LEDs 1 and 2

(2) Running status LED (RUN)

Table4-21 CR-19K-LPU-CDQ02 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 and 2)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-22 CR-19K-LPU-CDQ02 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	2 × 400GBASE-R-QSFP-DD fiber ports
Port speed	400 Gbps

Technical specifications

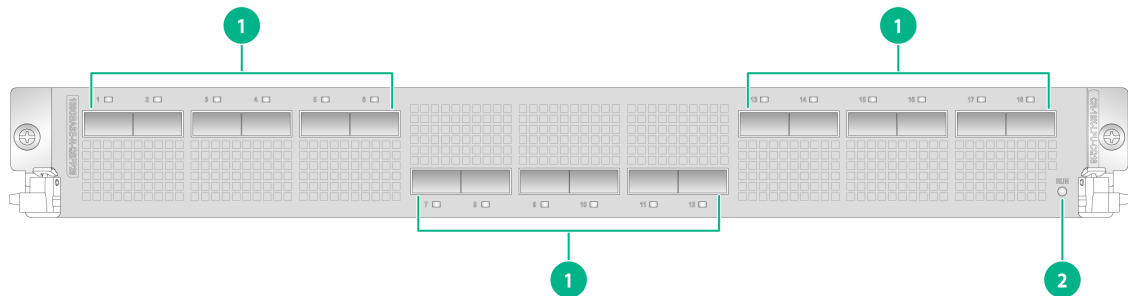
Table4-23 CR-19K-LPU-CDQ02 interface module technical specifications

Item	Specification
Weight (without packaging)	10.3 kg (22.71 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	591 W
Typical thermal consumption	2016.55 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ18

Panel and LEDs

Figure4-9 CR-19K-LPU-CQ18 interface module



(1) 100GBASE-R-QSFP28 Ethernet port LEDs 1 to 18

(2) Running status LED (RUN)

Table4-24 CR-19K-LPU-CQ18 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 18)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-25 CR-19K-LPU-CQ18 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	18 × 100GBASE-R-QSFP28 fiber ports
Port speed	100 Gbps

Technical specifications

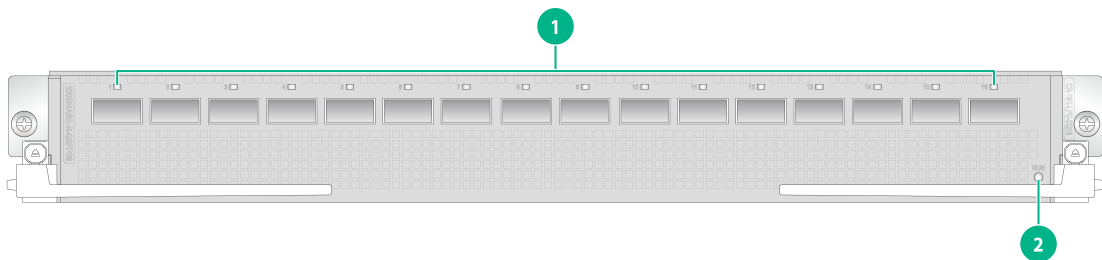
Table4-26 CR-19K-LPU-CQ18 interface module technical specifications

Item	Specification
Weight (without packaging)	11.6 kg (25.57 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	1149 W
Typical thermal consumption	3920.5 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ16

Panel and LEDs

Figure4-10 CR-19K-LPU-CQ16 interface module



(1) 100G Ethernet port LEDs 1 to 16

(2) Running status LED (RUN)

Table4-27 CR-19K-LPU-CQ16 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

LED	Status	Description
LINK/ACT (1 to 16)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-28 CR-19K-LPU-CQ16 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	16 × 100GBASE-R-QSFP28 fiber ports
Port speed	100 Gbps

Technical specifications

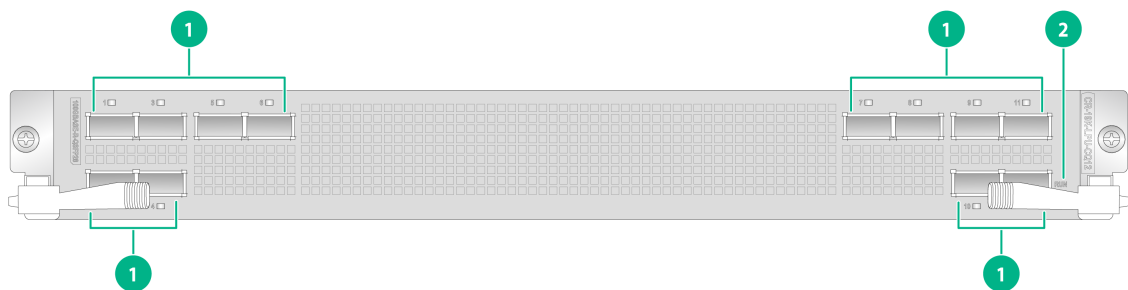
Table4-29 CR-19K-LPU-CQ16 interface module technical specifications

Item	Specification
Weight (without packaging)	11.6 kg (25.57 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	911 W
Typical thermal consumption	3108.42 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ12

Panel and LEDs

Figure4-11 CR-19K-LPU-CQ12 interface module



(1) 100GBASE-R-QSFP28 Ethernet port LEDs 1 to 12 (2) Running status LED (RUN)

Table4-30 CR-19K-LPU-CQ12 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.

LED	Status	Description
	Fast flashing green (4 Hz)	The module is loading software. △ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-31 CR-19K-LPU-CQ12 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	12 × 100GBASE-R-QSFP28 fiber ports
Port speed	100 Gbps

Technical specifications

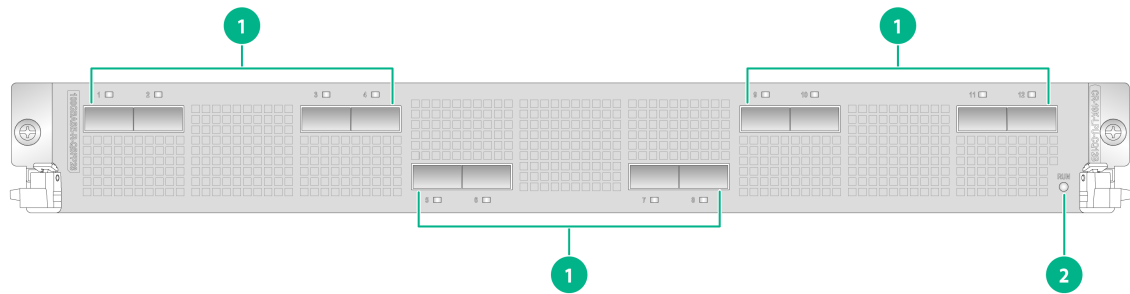
Table4-32 CR-19K-LPU-CQ12 interface module technical specifications

Item	Specification
Weight (without packaging)	11.5 kg (25.35 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	896 W
Typical thermal consumption	3057.24 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ12B

Panel and LEDs

Figure4-12 CR-19K-LPU-CQ12B interface module



(1) 100GBASE-R-QSFP28 Ethernet port LEDs 1 to 12 (2) Running status LED (RUN)

Table4-33 CR-19K-LPU-CQ12B interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-34 CR-19K-LPU-CQ12B interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	12 × 100GBASE-R-QSFP28 fiber ports
Port speed	100 Gbps

Technical specifications

Table4-35 CR-19K-LPU-CQ12B interface module technical specifications

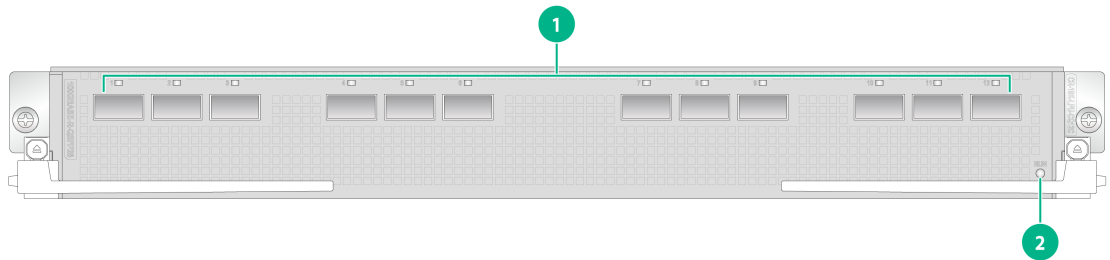
Item	Specification
Weight (without packaging)	11.4 kg (25.13 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)

Item	Specification
Typical power consumption	1067 W
Typical thermal consumption	3640.71 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ12C

Panel and LEDs

Figure4-13 CR-19K-LPU-CQ12C interface module



(1) 100G Ethernet port LEDs 1 to 12

(2) Running status LED (RUN)

Table4-36 CR-19K-LPU-CQ12C interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-37 CR-19K-LPU-CQ12C interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	12 × 100GBASE-R-QSFP28 fiber ports
Port speed	100 Gbps

Technical specifications

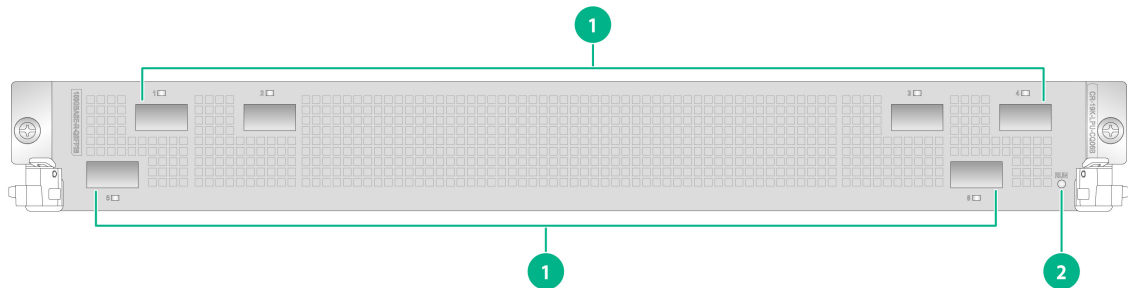
Table4-38 CR-19K-LPU-CQ12C interface module technical specifications

Item	Specification
Weight (without packaging)	11.2 kg (24.69 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	895 W
Typical thermal consumption	3053.83 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ06B

Panel and LEDs

Figure4-14 CR-19K-LPU-CQ06B interface module



(1) 100GBASE-R-QSFP28 port LEDs 1 to 6

(2) Running status LED (RUN)

Table4-39 CR-19K-LPU-CQ06B interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 6)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-40 CR-19K-LPU-CQ06B interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	6 × 100GBASE-R-QSFP28 fiber ports
Port speed	100 Gbps

Technical specifications

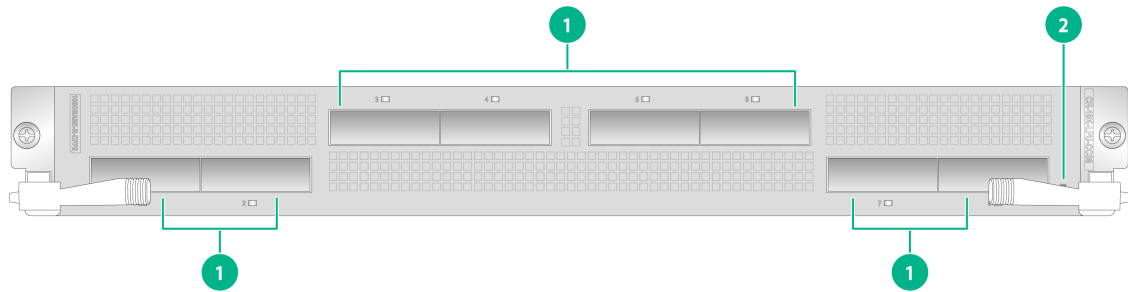
Table4-41 CR-19K-LPU-CQ06B interface module technical specifications

Item	Specification
Weight (without packaging)	11.4 kg (25.13 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	817 W
Typical thermal consumption	2787.69 BTU/h
Hot swapping	Supported

CR-19K-LPU-CC08

Panel and LEDs

Figure4-15 CR-19K-LPU-CC08 interface module



(1) 100GBASE-R-CFP2 port LEDs 1 to 8

(2) Running status LED (RUN)

Table4-42 CR-19K-LPU-CC08 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.

LED	Status	Description
	Off	The module is faulty.
LINK/ACT (1 to 8)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-43 CR-19K-LPU-CC08 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	8 × 100GBASE-R-CFP2 fiber ports
Port speed	100 Gbps

Technical specifications

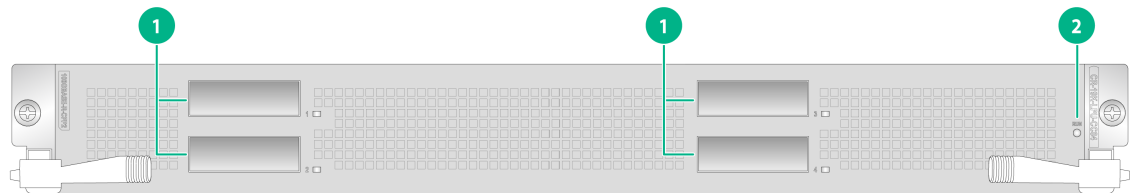
Table4-44 CR-19K-LPU-CC08 interface module technical specifications

Item	Specification
Weight (without packaging)	10.1 kg (22.27 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	623 W
Typical thermal consumption	2125.74 BTU/h
Hot swapping	Supported

CR-19K-LPU-CC04

Panel and LEDs

Figure4-16 CR-19K-LPU-CC04 interface module




(1) 100GBASE-R-CFP2 port LEDs 1 to 4

(2) Running status LED (RUN)

Table4-45 CR-19K-LPU-CC04 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software.

LED	Status	Description
		 CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 4)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-46 CR-19K-LPU-CC04 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	4 × 100GBASE-R-CFP2 fiber ports
Port speed	100 Gbps

Technical specifications

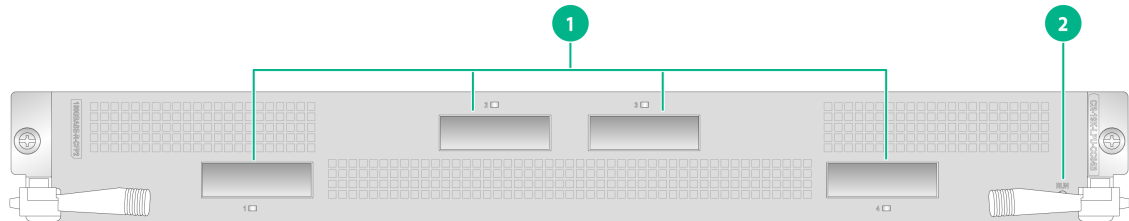
Table4-47 CR-19K-LPU-CC04 interface module technical specifications

Item	Specification
Weight (without packaging)	9.9 kg (21.83 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	428 W
Typical thermal consumption	1460.38 BTU/h
Hot swapping	Supported

CR-19K-LPU-CC04B

Panel and LEDs

Figure4-17 CR-19K-LPU-CC04B interface module



(1) 100GBASE-R-CFP2 port LEDs 1 to 4

(2) Running status LED (RUN)

Table4-48 CR-19K-LPU-CC04B interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 4)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-49 CR-19K-LPU-CC04B interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	4 × 100GBASE-R-CFP2 fiber ports
Port speed	100 Gbps

Technical specifications

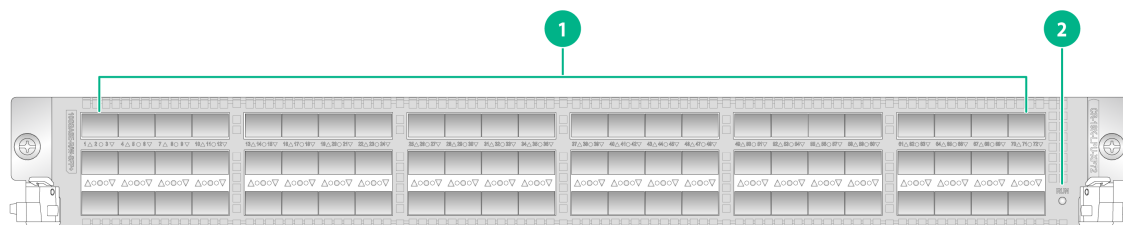
Table4-50 CR-19K-LPU-CC04B interface module technical specifications

Item	Specification
Weight (without packaging)	10.0 kg (22.05 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	623 W
Typical thermal consumption	2125.74 BTU/h
Hot swapping	Supported

CR-19K-LPU-XP72

Panel and LEDs

Figure4-18 CR-19K-LPU-XP72 interface module



(1) 10GBASE-R/W-SFP+ port LEDs 1 to 72

(2) Running status LED (RUN)

Table4-51 CR-19K-LPU-XP72 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 72)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-52 CR-19K-LPU-XP72 interface module port descriptions

Item	Description
Connector type	LC
Port type and quantity	72 × 10GBASE-R/W-SFP+ fiber ports
Port speed	<ul style="list-style-type: none"> LAN: 10 Gbps WAN: 9.29419 Gbps

Technical specifications

Table4-53 CR-19K-LPU-XP72 interface module technical specifications

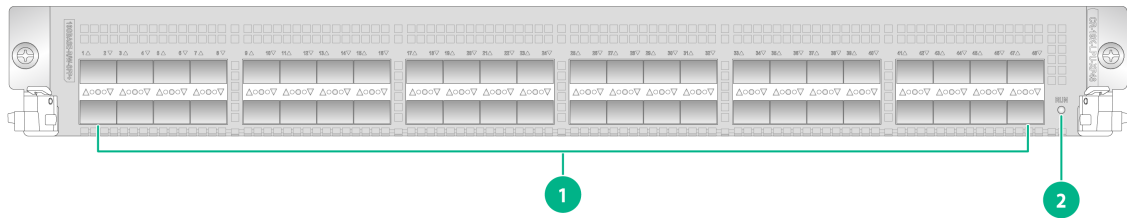
Item	Specification
Weight (without packaging)	10.6 kg (23.37 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)

Item	Specification
Typical power consumption	710 W
Typical thermal consumption	2422.59 BTU/h
Hot swapping	Supported

CR-19K-LPU-XP48

Panel and LEDs

Figure4-19 CR-19K-LPU-XP48 interface module



(1) 10GBASE-R/W-SFP+ port LEDs 1 to 48

(2) Running status LED (RUN)

Table4-54 CR-19K-LPU-XP48 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 48)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-55 CR-19K-LPU-XP48 interface module port descriptions

Item	Description
Connector type	LC
Port type and quantity	48 × 10GBASE-R/W-SFP+ fiber ports
Port speed	<ul style="list-style-type: none"> LAN: 10 Gbps WAN: 9.29419 Gbps

Technical specifications

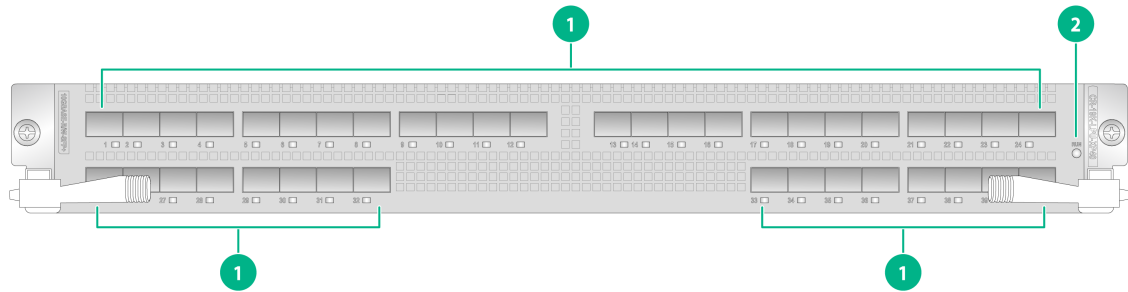
Table4-56 CR-19K-LPU-XP48 interface module technical specifications

Item	Specification
Weight (without packaging)	10.5 kg (23.15 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	653 W
Typical thermal consumption	2228.1 BTU/h
Hot swapping	Supported

CR-19K-LPU-XP40

Panel and LEDs

Figure4-20 CR-19K-LPU-XP40 interface module



(1) 10GBASE-R/W-SFP+ port LEDs 1 to 40

(2) Running status LED (RUN)

Table4-57 CR-19K-LPU-XP40 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 40)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-58 CR-19K-LPU-XP40 interface module port descriptions

Item	Description
Connector type	LC
Port type and quantity	40 × 10GBASE-R/W-SFP+ fiber ports
Port speed	<ul style="list-style-type: none"> LAN: 10 Gbps WAN: 9.29419 Gbps

Technical specifications

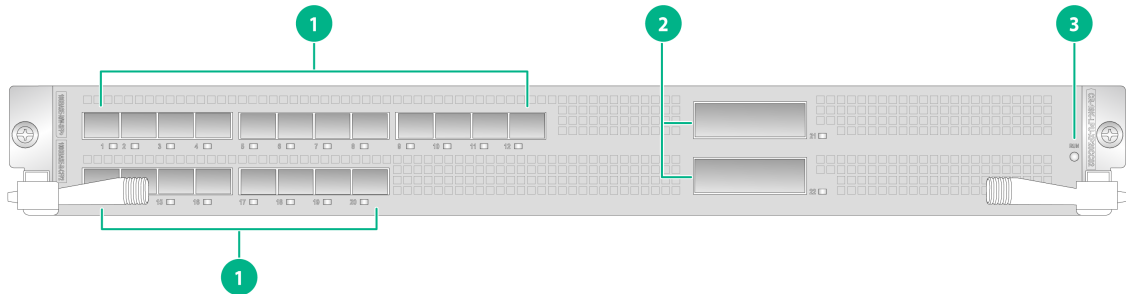
Table4-59 CR-19K-LPU-XP40 interface module technical specifications

Item	Specification
Weight (without packaging)	9.7 kg (21.38 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	547 W
Typical thermal consumption	1866.42 BTU/h
Hot swapping	Supported

CR-19K-LPU-XP20CC02

Panel and LEDs

Figure4-21 CR-19K-LPU-XP20CC02 interface module



(1) 10GBASE-R/W-SFP+ port LEDs 1 to 20

(2) 100GBASE-R-CFP2 port LEDs 21 and 22

(3) Running status LED (RUN)

Table4-60 CR-19K-LPU-XP20CC02 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.

LED	Status	Description
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.
LINK/ACT (1 to 22)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending or receiving data.

Ports

Table4-61 CR-19K-LPU-XP20CC02 interface module port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	<ul style="list-style-type: none"> 20 × 10GBASE-R/W-SFP+ fiber ports 2 × 100GBASE-R-CFP2 fiber ports
Port speed	<ul style="list-style-type: none"> SFP+ port: <ul style="list-style-type: none"> LAN: 10 Gbps WAN: 9.29419 Gbps CFP2 port: 100 Gbps

Technical specifications

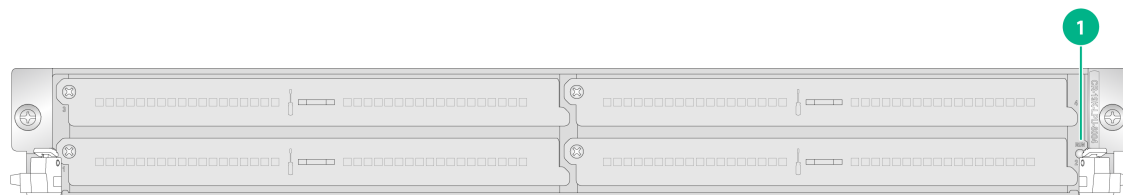
Table4-62 CR-19K-LPU-XP20CC02 interface module technical specifications

Item	Specification
Weight (without packaging)	9.7 kg (21.38 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	488 W
Typical thermal consumption	1665.1 BTU/h
Hot swapping	Supported

CR-19K-LPU-8004

Panel and LEDs

Figure4-22 CR-19K-LPU-8004 interface module



(1) Running status LED (RUN)

Table4-63 CR-19K-LPU-8004 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

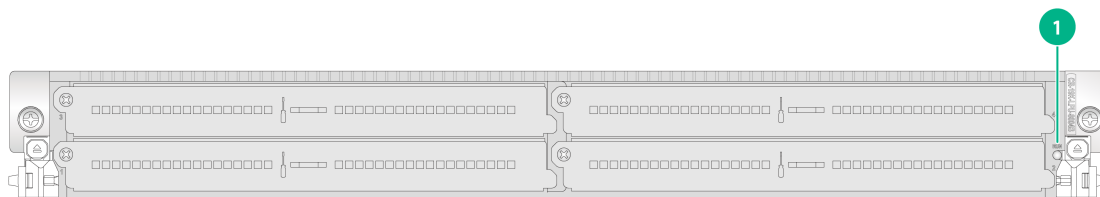
Table4-64 Technical specifications for CR-19K-LPU-8004 (without interface subcards)

Item	Specification
Weight (without packaging)	10.2 kg (22.49 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	683 W
Typical thermal consumption	2330.46 BTU/h
Hot swapping	Supported

CR-19K-LPU-8004B

Panel and LEDs

Figure4-23 CR-19K-LPU-8004B interface module



(1) Running status LED (RUN)

Table4-65 CR-19K-LPU-8004B interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

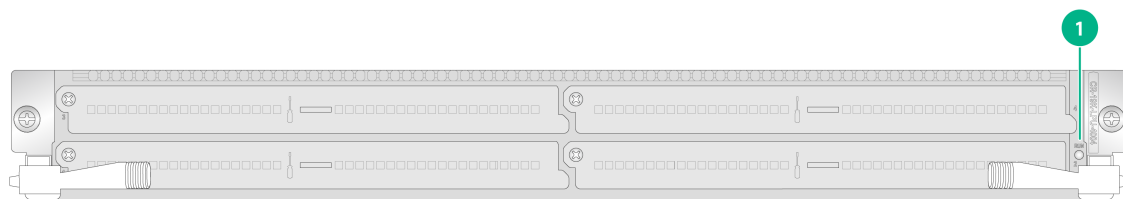
Table4-66 Technical specifications for CR-19K-LPU-8004B (without interface subcards)

Item	Specification
Weight (without packaging)	8.7 kg (19.18 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	469 W
Typical thermal consumption	1600.27 BTU/h
Hot swapping	Supported

CR-19K-LPU-4004

Panel and LEDs

Figure4-24 CR-19K-LPU-4004 interface module



(1) Running status LED (RUN)

Table4-67 CR-19K-LPU-4004 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

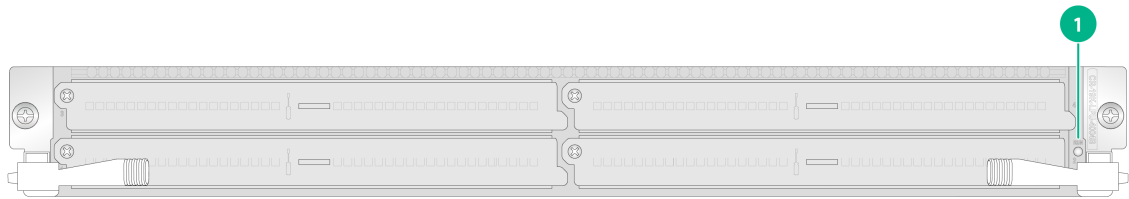
Table4-68 Technical specifications for CR-19K-LPU-4004 (without interface subcards)

Item	Specification
Weight (without packaging)	7.5 kg (16.53 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	330 W
Typical thermal consumption	1125.99 BTU/h
Hot swapping	Supported

CR-19K-LPU-4004B

Panel and LEDs

Figure4-25 CR-19K-LPU-4004B interface module



(1) Running status LED (RUN)

Table4-69 CR-19K-LPU-4004B interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

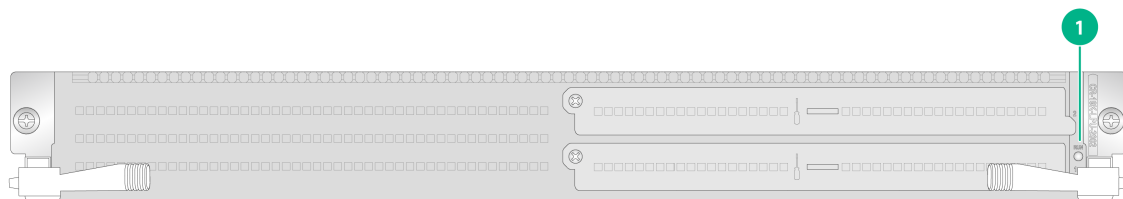
Table4-70 Technical specifications for CR-19K-LPU-4004B (without interface subcards)

Item	Specification
Weight (without packaging)	7.5 kg (16.53 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	288 W
Typical thermal consumption	982.68 BTU/h
Hot swapping	Supported

CR-19K-LPU-2002

Panel and LEDs

Figure4-26 CR-19K-LPU-2002 interface module



(1) Running status LED (RUN)

Table4-71 CR-19K-LPU-2002 interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

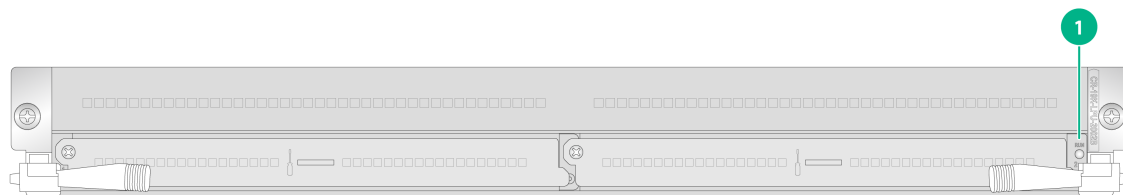
Table4-72 Technical specifications for CR-19K-LPU-2002 (without interface subcards)

Item	Specification
Weight (without packaging)	6.8 kg (14.99 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	232 W
Typical thermal consumption	791.61 BTU/h
Hot swapping	Supported

CR-19K-LPU-2002B

Panel and LEDs

Figure4-27 CR-19K-LPU-2002B interface module



(1) Running status LED (RUN)

Table4-73 CR-19K-LPU-2002B interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

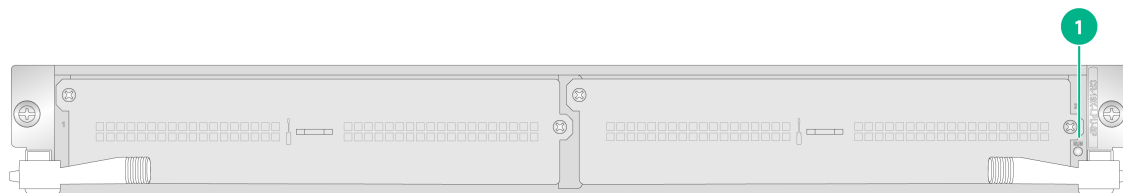
Table4-74 Technical specifications for CR-19K-LPU-2002B (without interface subcards)

Item	Specification
Weight (without packaging)	7.4 kg (16.31 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	330 W
Typical thermal consumption	1125.99 BTU/h
Hot swapping	Supported

CR-19K-LPU-SP

Panel and LEDs

Figure4-28 CR-19K-LPU-SP interface module



(1) Running status LED (RUN)

Table4-75 CR-19K-LPU-SP interface module LED descriptions

LED	Status	Description
RUN	Slow flashing green (0.5 Hz)	The module is operating correctly.
	Fast flashing green (4 Hz)	The module is loading software. ⚠ CAUTION: To avoid damaging the module, do not power off the router or hot swap the module when the module is loading software.
	Steady red	An alarm is present on the module.
	Off	The module is faulty.

Technical specifications

Table4-76 CR-19K-LPU-SP interface module technical specifications

Item	Specification
Weight (without packaging)	6.2 kg (13.67 lb)
Dimensions (H x W x D, without packaging)	50 x 433 x 520 mm (1.97 x 17.05 x 20.47 in)
Typical power consumption	135 W
Typical thermal consumption	460.63 BTU/h
Hot swapping	Supported
Restrictions and guidelines	You must install the CR-19K-LPU-SP interface module together with the CR-19K-MPU-20C MPU.

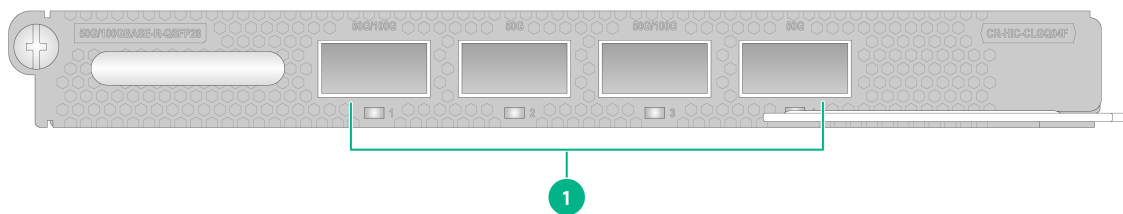
Interface subcards

You must install interface subcards on interface modules.

CR-HIC-CLGQ04F

Panel and LEDs

Figure4-29 CR-HIC-CLGQ04F interface subcard



(1) 50G/100GBASE-R-QSFP28 port LEDs 1 to 4 (LINK/ACT)

Table4-77 CR-HIC-CLGQ04F interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 to 4)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-78 CR-HIC-CLGQ04F interface subcard port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	4 x 50GBASE-R-QSFP28 ports or 2 x 100GBASE-R-QSFP28 ports
Port speed	50 Gbps or 100 Gbps

Technical specifications

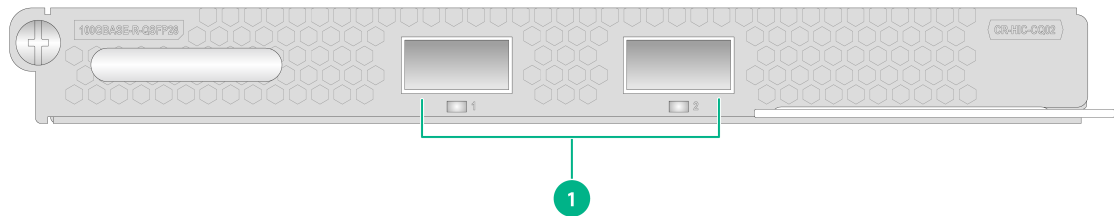
Table4-79 CR-HIC-CLGQ04F interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.8 kg (1.76 lb)
Dimensions (H x W x D, without packaging)	21 x 195 x 162 mm (0.83 x 7.68 x 6.38 in)
Typical power consumption	108 W
Typical thermal consumption	368.51 BTU/h
Hot swapping	Supported

CR-HIC-CQ02

Panel and LEDs

Figure4-30 CR-HIC-CQ02 interface subcard



(1) 100GBASE-R-QSFP28 port LEDs 1 and 2 (LINK/ACT)

Table4-80 CR-HIC-CQ02 interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 and 2)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-81 CR-HIC-CQ02 interface subcard port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	2 x 100GBASE-R-QSFP28 ports
Port speed	100 Gbps

Technical specifications

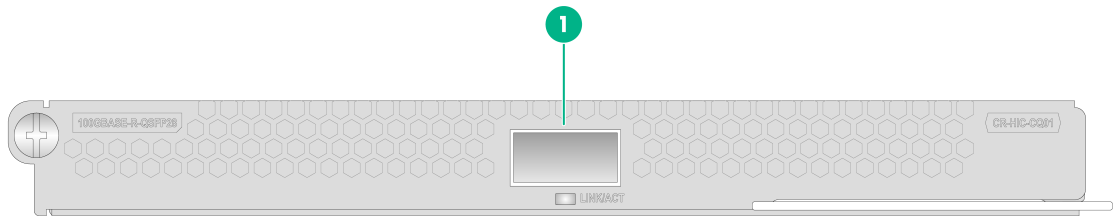
Table4-82 CR-HIC-CQ02 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H x W x D, without packaging)	21 x 195 x 162 mm (0.83 x 7.68 x 6.38 in)
Typical power consumption	13 W
Typical thermal consumption	44.36 BTU/h
Hot swapping	Supported

CR-HIC-CQ01

Panel and LEDs

Figure4-31 CR-HIC-CQ01 interface subcard



(1) 100GBASE-R-QSFP28 port LED (LINK/ACT)

Table4-83 CR-HIC-CQ01 interface subcard LED descriptions

LED	Status	Description
LINK/ACT	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-84 CR-HIC-CQ01 interface subcard port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	1 × 100GBASE-R-QSFP28 port
Port speed	100 Gbps

Technical specifications

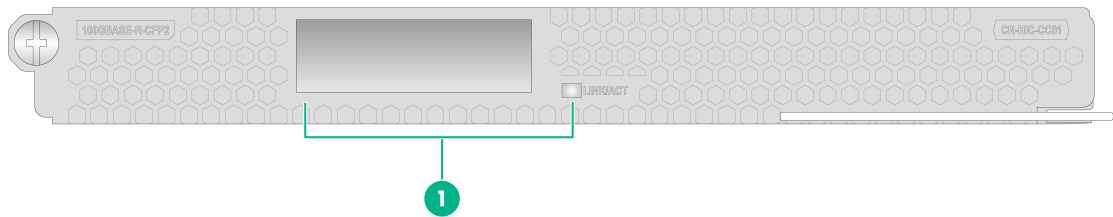
Table4-85 CR-HIC-CQ01 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.5 kg (1.10 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	11 W
Typical thermal consumption	37.53 BTU/h
Hot swapping	Supported

CR-HIC-CC01

Panel and LEDs

Figure4-32 CR-HIC-CC01 interface subcard



(1) 100GBASE-R-CFP2 Ethernet port LED (LINK/ACT)

Table4-86 CR-HIC-CC01 interface subcard LED descriptions

LED	Status	Description
LINK/ACT	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-87 CR-HIC-CC01 interface subcard port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	1 × 100GBASE-R-CFP2 port
Port speed	100 Gbps

Technical specifications

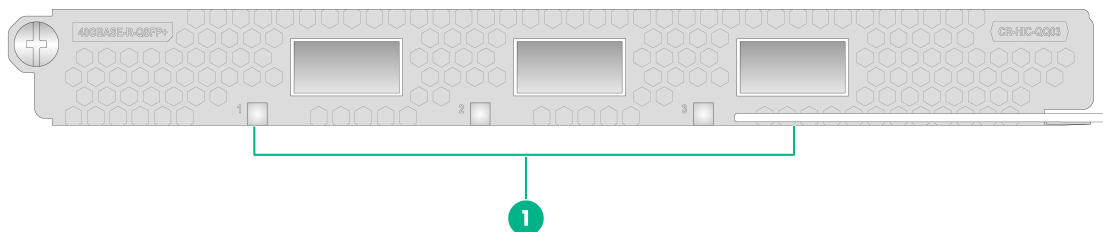
Table4-88 CR-HIC-CC01 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	24 W
Typical thermal consumption	81.89 BTU/h
Hot swapping	Supported

CR-HIC-QQ03

Panel and LEDs

Figure4-33 CR-HIC-QQ03 interface subcard



(1) 40GBASE-R-QSFP+port LEDs 1 to 3

Table4-89 CR-HIC-QQ03 interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 to 3)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-90 CR-HIC-QQ03 interface subcard port descriptions

Item	Description
Connector type	LC, MPO
Port type and quantity	3 × 40GBASE-R-QSFP+ ports
Port speed	40 Gbps

Technical specifications

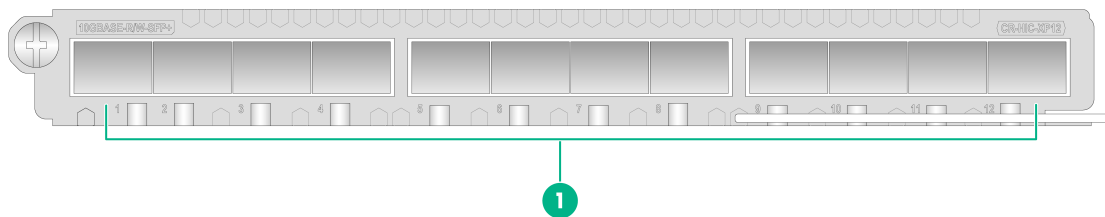
Table4-91 CR-HIC-QQ03 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.5 kg (1.10 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	12 W
Typical thermal consumption	40.95 BTU/h
Hot swapping	Supported

CR-HIC-XP12

Panel and LEDs

Figure4-34 CR-HIC-XP12 interface subcard



(1) 10GBASE-R/W-SFP+ port LEDs 1 to 12

Table4-92 CR-HIC-XP12 interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-93 CR-HIC-XP12 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	12 × 10GBASE-R/W-SFP+ ports
Port speed	<ul style="list-style-type: none"> LAN: 10 Gbps WAN: 9.29419 Gbps

Technical specifications

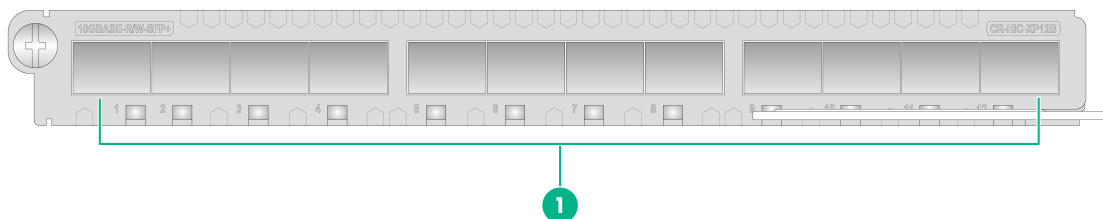
Table4-94 CR-HIC-XP12 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	54 W
Typical thermal consumption	184.25 BTU/h
Hot swapping	Supported

CR-HIC-XP12B

Panel and LEDs

Figure4-35 CR-HIC-XP12B interface subcard



(1) 10GBASE-R/W-SFP+ port LEDs 1 to 12

Table4-95 CR-HIC-XP12B interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-96 CR-HIC-XP12B interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	12 × 10GBASE-R/W-SFP+ ports
Port speed	<ul style="list-style-type: none">LAN: 10 GbpsWAN: 9.29419 Gbps

Technical specifications

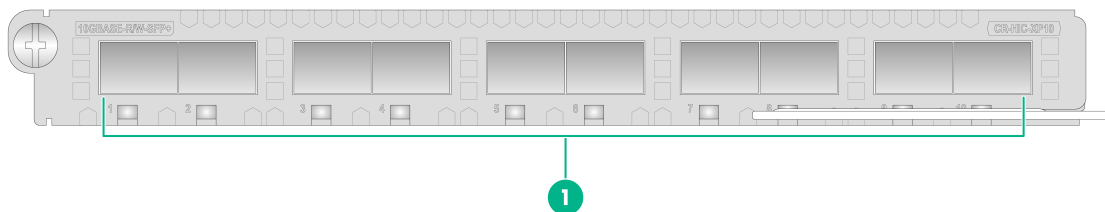
Table4-97 CR-HIC-XP12B interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	33 W
Typical thermal consumption	112.6 BTU/h
Hot swapping	Supported

CR-HIC-XP10

Panel and LEDs

Figure4-36 CR-HIC-XP10 interface subcard



(1) 1000BASE-X-SFP or 10GBASE-R/W-SFP+ port LEDs 1 to 10

Table4-98 CR-HIC-XP10 interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 to 10)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-99 CR-HIC-XP10 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	10 × 1000BASE-X-SFP ports or 10GBASE-R/W-SFP+ ports
Port speed	<ul style="list-style-type: none"> • SFP port: 1 Gbps • SFP+ port: <ul style="list-style-type: none"> ○ LAN: 10 Gbps ○ WAN: 9.29419 Gbps

Technical specifications

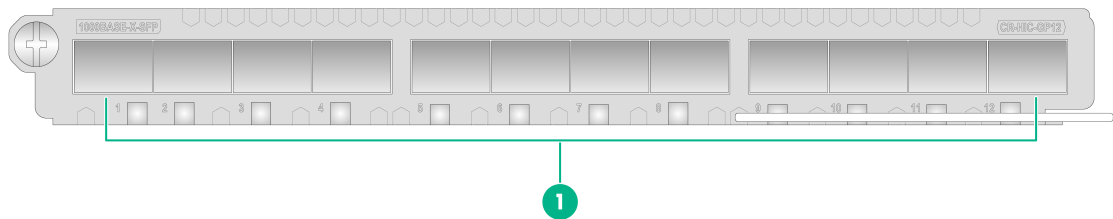
Table4-100 CR-HIC-XP10 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.7 kg (1.54 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	40 W
Typical thermal consumption	136.48 BTU/h
Hot swapping	Supported

CR-HIC-GP12

Panel and LEDs

Figure4-37 CR-HIC-GP12 interface subcard



(1) 1000BASE-X-SFP port LEDs 1 to 12

Table4-101 CR-HIC-GP12 interface subcard LED descriptions

LED	Status	Description
LINK/ACT (1 to 12)	Off	No link is present on the port.
	Steady green	A link is present on the port.
	Flashing green	The port is sending and receiving data.

Ports

Table4-102 CR-HIC-GP12 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	12 x 1000BASE-X-SFP ports
Port speed	1 Gbps

Technical specifications

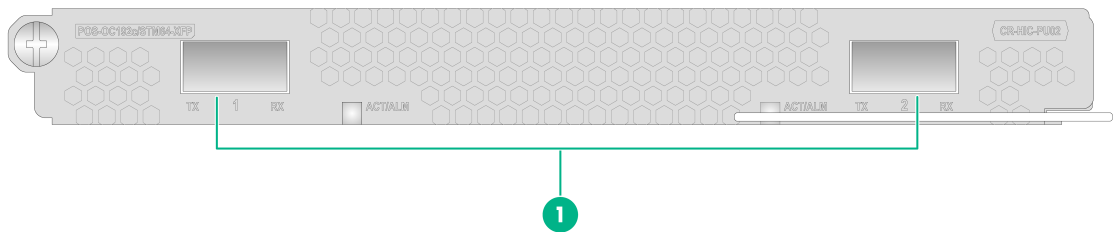
Table4-103 CR-HIC-GP12 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H x W x D, without packaging)	21 x 195 x 162 mm (0.83 x 7.68 x 6.38 in)
Typical power consumption	26 W
Typical thermal consumption	88.71 BTU/h
Hot swapping	Supported

CR-HIC-PU02

Panel and LEDs

Figure4-38 CR-HIC-PU02 interface subcard



(1) POS-OC192c/STM64-XFP port LEDs 1 and 2 (ACT/ALM)

Table4-104 CR-HIC-PU02 interface subcard LED descriptions

LED	Status	Description
ACT/ALM (1 and 2)	Off	The port is down.
	Steady green	The port is up and is sending and receiving data correctly.
	Steady red	A loss of signal (LOS) alarm has occurred on the port.

Ports

Table4-105 CR-HIC-PU02 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	2 × 10G POS XFP ports
Port speed	9.29419 Gbps

Technical specifications

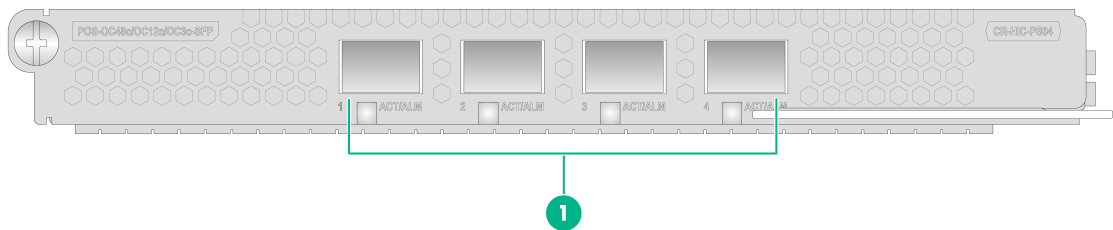
Table4-106 CR-HIC-PU02 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.5 kg (1.10 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	21 W
Typical thermal consumption	71.65 BTU/h
Hot swapping	Supported

CR-HIC-PS04

Panel and LEDs

Figure4-39 CR-HIC-PS04 interface subcard



(1) 155M/622M/2.5G POS port LEDs 1 to 4 (ACT/ALM)

Table4-107 CR-HIC-PS04 interface subcard LED descriptions

LED	Status	Description
ACT/ALM (1 to 4)	Off	The port is down.
	Steady green	The port is up and is sending and receiving data correctly.
	Steady red	A LOS alarm has occurred on the port.

Ports

Table4-108 CR-HIC-PS04 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	4 × 155M/622M/2.5G POS SFP ports
Port speed	155/622/2488.32 Mbps

Technical specifications

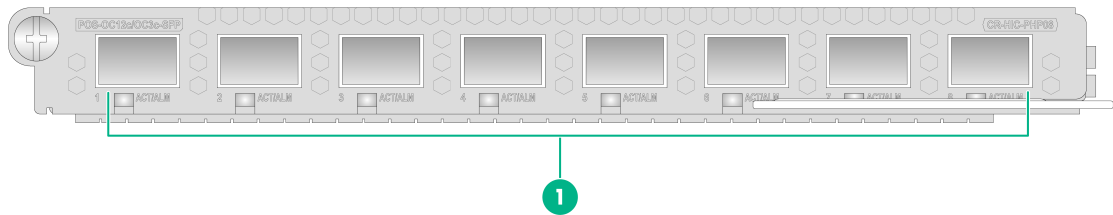
Table4-109 CR-HIC-PS04 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	17 W
Typical thermal consumption	58.01 BTU/h
Hot swapping	Supported

CR-HIC-PHP08

Panel and LEDs

Figure4-40 CR-HIC-PHP08 interface subcard



(1) 155M/622M POS port LEDs 1 to 8 (ACT/ALM)

Table4-110 CR-HIC-PHP08 interface subcard LED descriptions

LED	Status	Description
ACT/ALM (1 to 8)	Off	The port is down.
	Steady green	The port is up and is sending and receiving data correctly.
	Steady red	A LOS alarm has occurred on the port.

Ports

Table4-111 CR-HIC-PHP08 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	8 × 155M/622M POS SFP ports
Port speed	155/622 Mbps

Technical specifications

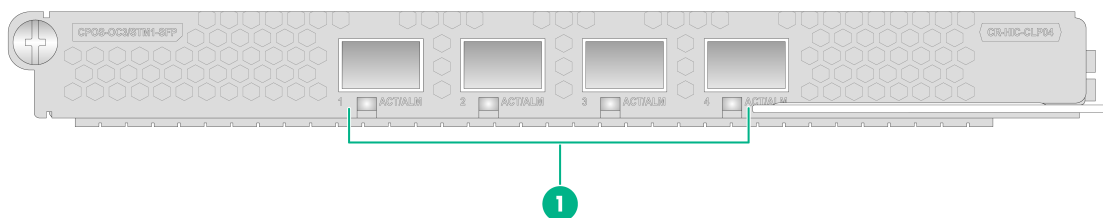
Table4-112 CR-HIC-PHP08 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.6 kg (1.32 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	20 W
Typical thermal consumption	68.24 BTU/h
Hot swapping	Supported

CR-HIC-CLP04

Panel and LEDs

Figure4-41 CR-HIC-CLP04 interface subcard



(1) 155M CPOS port LEDs 1 to 4 (ACT/ALM)

Table4-113 CR-HIC-CLP04 interface subcard LED descriptions

LED	Status	Description
ACT/ALM (1 to 4)	Off	The port is down.
	Steady green	The port is up but no data is transmitted on the port.
	Flashing green	The port is up and is sending and receiving data correctly.
	Steady red	An alarm is present on the port.

Ports

Table4-114 CR-HIC-CLP04 interface subcard port descriptions

Item	Description
Connector type	LC
Port type and quantity	4 × 155M CPOS SFP ports
Port speed	155 Mbps

Technical specifications

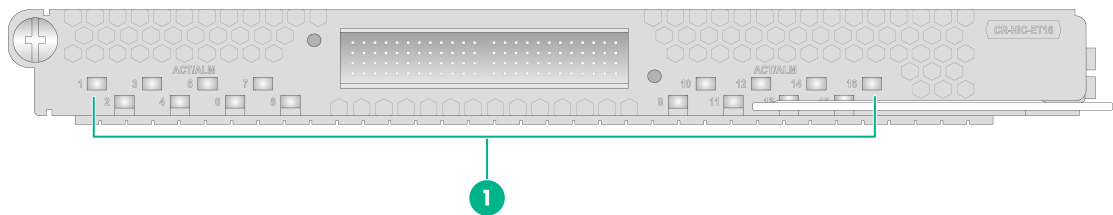
Table4-115 CR-HIC-CLP04 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.5 kg (1.10 lb)
Dimensions (H × W × D, without packaging)	21 × 195 × 162 mm (0.83 × 7.68 × 6.38 in)
Typical power consumption	16 W
Typical thermal consumption	54.59 BTU/h
Hot swapping	Supported

CR-HIC-ET16

Panel and LEDs

Figure4-42 CR-HIC-ET16 interface subcard



(1) E1 interface LEDs 1 to 16 (ACT/ALM)

Table4-116 CR-HIC-ET16 interface subcard LED descriptions

LED	Status	Description
ACT/ALM (1 to 16)	Off	The port is down.
	Steady green	The port is up but no data is transmitted on the port.
	Flashing green	The port is up and is sending and receiving data correctly.
	Steady red	An alarm is present on the port.

Ports

Table4-117 CR-HIC-ET16 interface subcard port descriptions

Item	Description
Connector type	HM96
Port type and quantity	16 x E1 ports
Port speed	2.048 Mbps

Technical specifications

Table4-118 CR-HIC-ET16 interface subcard technical specifications

Item	Specification
Weight (without packaging)	0.5 kg (1.10 lb)
Dimensions (H x W x D, without packaging)	21 x 195 x 162 mm (0.83 x 7.68 x 6.38 in)
Typical power consumption	10 W
Typical thermal consumption	34.12 BTU/h
Hot swapping	Supported

Filler panels

Filler panel are used to install in empty module slots or subcard slots to ensure normal and safe operation of the device.

Restrictions and guidelines

- Keep the filler panel in the module slot if you are not to install a module in the slot.
- Select filler panels based on the slot size when you install filler panels.

Functionalities

Filler panels provide the following functionalities:

- Provide electromagnetic shielding to make sure the chassis meets the electromagnetic radiation requirements.
- Ensure normal airflows for the chassis cooling system.
- Prevent dust or object intrusions from entering the chassis.
- Prevent exposure of internal circuits.