

H3C CR19000-16 Core Router

Hardware Information and Specifications

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Preface

This document describes the hardware information and specifications for the H3C CR19000-16 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 CR19000-16 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 .
>	Multi-level menus are separated by angle brackets. For example, File > Create >

Convention	Description
	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

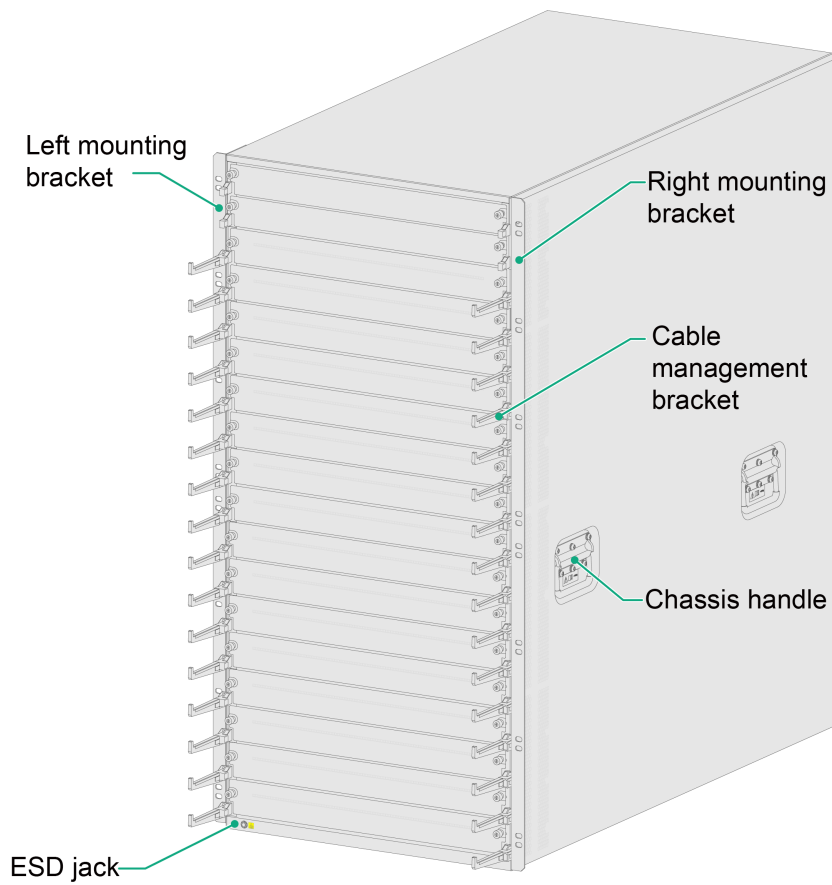
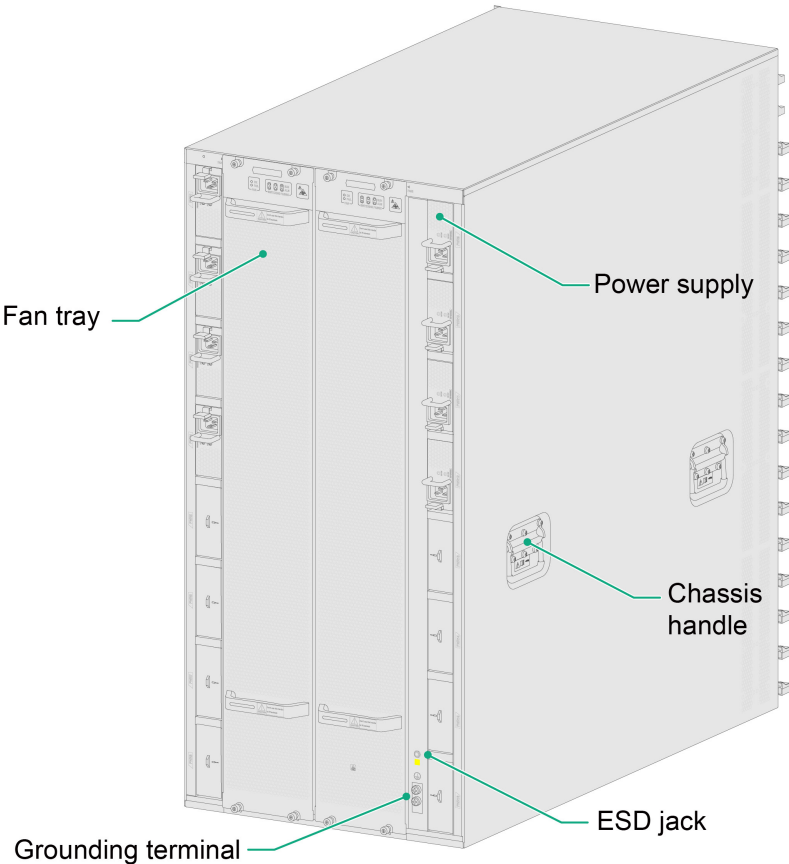


Figure1-2 Rear view



Slot arrangement

The CR19000-16 router has an MPU section, interface module section, fabric module section, power supply section, and fan tray section.

"LPU" in [Figure1-3](#) refers to an interface module and "SFU" refers to a fabric module.

Figure1-3 CR19000-16 router main sections

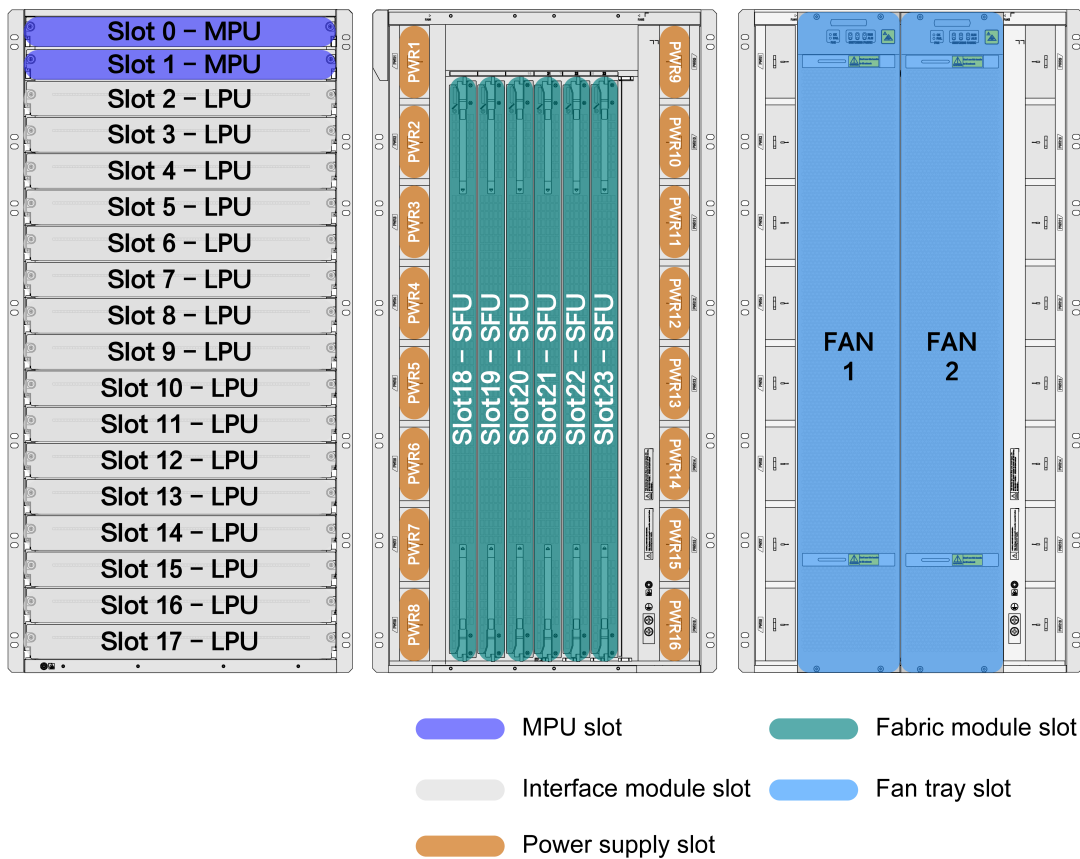


Table1-1 Descriptions for the router sections

Section	Slots	Description
MPU section	2 (slots 0 and 1)	No MPUs are provided with the router. Purchase MPUs yourself. You can install one MPU, or two MPUs for redundancy for the router.
Interface module section	16 (slots 2 to 17)	No interface modules are provided with the router. Purchase interface modules yourself.
Power supply section	16 (slots PWR 1 to PWR 16)	No power supplies are provided with the router. Purchase power supplies yourself. The power supply slots are located along the right and left edges of the rear panel.
Fabric module section	6 (slots 18 to 23)	No fabric modules are provided with the router. Purchase fabric modules yourself.
Fan tray section	2 (slots FAN 1 and FAN 2)	No fan trays are provided with the router. Purchase fan trays yourself. The fan tray slots are on the rear panel of the router. Each fan tray covers three fabric module slots.

Technical specifications

Item	Description
Dimensions (H x W x D)	931 x 440 x 857 mm (36.65 x 17.32 x 33.74 in) (21 RUs)
Shipping weight	119.3 kg (263.01 lb)
Weight (chassis with mounting brackets and filler panels)	86.1 kg (189.81 lb)
Weight (fully configured)	350.0 kg (771.60 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)	$0.9 \times$ (power consumption of all modules plus power consumption of all configured fan trays) $/0.9 \times 3.4121$
MTBF	12.2 years
MTTR	0.5 hours
Availability	0.9999953
Cooling method	Front-rear super-short cut-through air aisle
Sound pressure level (with two fan trays) in the acceptable temperature ranges	<ul style="list-style-type: none"> Installed with low-speed fan tray FAN-120B-6-A: ≤ 67.8 dBA Installed with high-speed fan tray LSXM116XFANH: ≤ 73.9 dBA
MPU redundancy	1:1
Fabric module redundancy	N+1
Fan tray redundancy	N+1
Rack	600 x 1200 x 2200 mm (23.62 x 47.24 x 86.61 in) (recommended)
Slide	LSXM1BSR
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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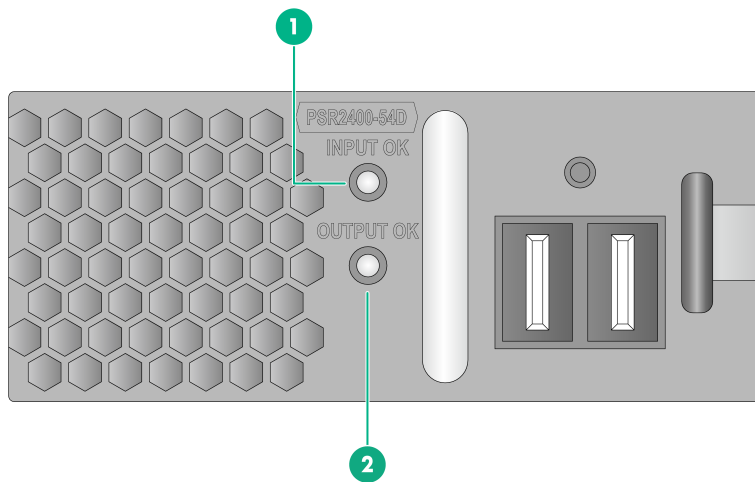
2 Power system

Power supplies

PSR2400-54D

Faceplate and LEDs

Figure2-1 PSR2400-54D power supply faceplate



(1) Power input LED (INPUT OK)

(2) Power output LED (OUTPUT OK)

Table2-1 PSR2400-54D power supply LED descriptions

LED	Status	Description
INPUT OK OUTPUT OK	INPUT OK: Steady green OUTPUT OK: Steady green	The power supply is operating correctly.
	INPUT OK: Off OUTPUT OK: Steady red	Abnormal power input.
	INPUT OK: Steady green OUTPUT 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.
	INPUT OK: Steady green OUTPUT OK: Steady amber	An overtemperature alarm has occurred.
	INPUT OK: Off OUTPUT OK: Off	No power input.

Technical specifications

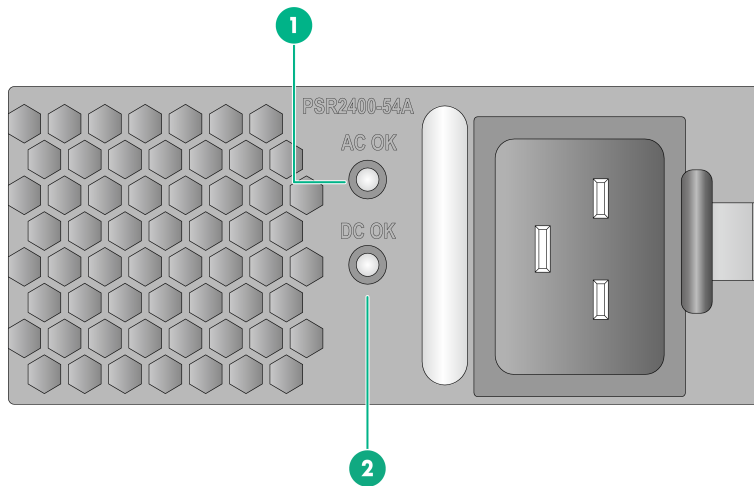
Table2-2 PSR2400-54D technical specifications

Item	Specification
Weight (without packaging)	1.9 kg (4.19 lb)
Dimensions (H × W × D, without packaging)	41 × 100 × 332 mm (1.61 × 3.94 × 13.07 in)
Rated input voltage	−48 to −60 VDC
Max. input voltage	−40 to −72 VDC
Rated input current	80 A
Rated output voltage	54 VDC
Max. output current	44.5 A
Max. output power	2400 W

PSR2400-54A

Faceplate and LEDs

Figure2-2 PSR2400-54A power supply faceplate



(1) Power input LED (AC OK)

(2) Power output LED (DC OK)

Table2-3 PSR2400-54A power supply LED descriptions

LED	Status	Description
AC OK DC OK	AC OK: Steady green DC OK: Steady green	The power supply is operating correctly.
	AC OK: Off DC OK: Steady red	Abnormal power input.
	AC OK: Steady green DC 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.

LED	Status	Description
	AC OK: Steady green DC OK: Steady amber	An overtemperature alarm has occurred.
	AC OK: Off DC OK: Off	No power input.

Technical specifications

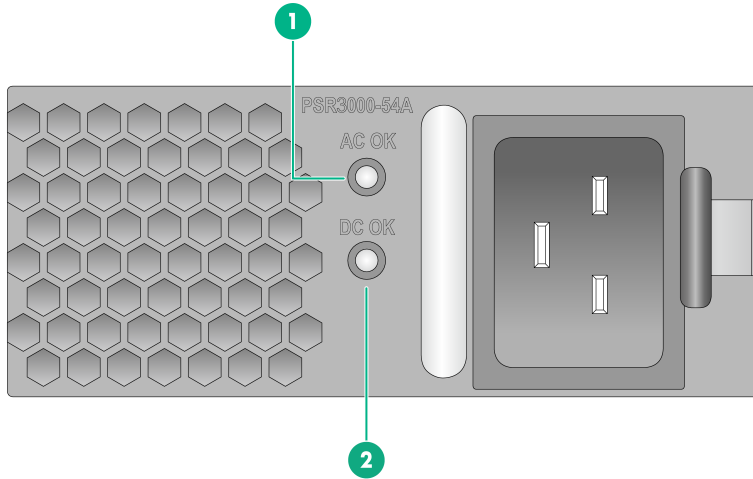
Table 2-4 PSR2400-54A technical specifications

Item	Specification
Weight (without packaging)	1.9 kg (4.19 lb)
Dimensions (H x W x D, without packaging)	41 x 100 x 332 mm (1.61 x 3.94 x 13.07 in)
Rated input voltage	AC input: <ul style="list-style-type: none"> 100 to 130 VAC @ 60 Hz 200 to 240 VAC @ 50 Hz HVDC input: 240 VDC
Max. input voltage	AC input: 90 to 264 VAC @ 47 to 63 Hz HVDC input: 190 to 320 VDC
Max. input current	16 A
Rated output voltage	54 VDC
Max. output current	44.5 A
Max. output power	<ul style="list-style-type: none"> 100 to 130 VAC @ 60 Hz: 1200 W 200 to 240 VAC @ 50 Hz: 2400 W 240 VDC: 2400 W

PSR3000-54A

Faceplate and LEDs

Figure2-3 PSR3000-54A power supply faceplate



(1) Power input LED (AC OK)

(2) Power output LED (DC OK)

Table2-5 PSR3000-54A power supply LED descriptions

LED	Status	Description
AC OK DC OK	AC OK: Steady green DC OK: Steady green	The power supply is operating correctly.
	AC OK: Off DC OK: Steady red	Abnormal power input.
	AC OK: Steady green DC 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.
	AC OK: Steady green DC OK: Steady amber	An overtemperature alarm has occurred.
	AC OK: Off DC OK: Off	No power input.

Technical specifications

Table2-6 PSR3000-54A technical specifications

Item	Specification
Weight (without packaging)	2.1 kg (4.63 lb)
Dimensions (H × W × D, without packaging)	41 × 100 × 332 mm (1.61 × 3.94 × 13.07 in)
Rated input voltage	AC input: <ul style="list-style-type: none"> 100 to 130 VAC @ 60 Hz 200 to 240 VAC @ 50 Hz

Item	Specification
	HVDC input: 240 VDC
Max. input voltage	AC input: 90 to 290 VAC @ 47 to 63 Hz HVDC input: 190 to 320 VDC
Max. 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: 1200 W 200 to 240 VAC @ 50 Hz: 3000 W 240 VDC: 3000 W

Power system technical specifications

DC

Table2-7 DC power system technical specifications

Item	Specification
Number of power supplies (fully configured)	16
Input channels (fully configured)	16
Maximum cross-sectional area of the input power cord	13 mm ² (0.02 in ²) per channel
Input voltage	-40 to -72 VDC (rated voltage: -48 to -60 VDC)
Input current	A maximum of 80 A per power supply
Front-level circuit breaker/fuse	Not less than 100 A per power supply
Output channels (fully configured)	16
Output voltage	54 VDC
Output current	44.5 A per power supply
Output power	2400 W per power supply

AC

Table2-8 AC power system technical specifications

Item	Specification
Number of power supplies (fully configured)	16
Input channels (fully configured)	16
Maximum cross-sectional area of the input power cord	3 × 1.5 mm ² (0.00231 in ²)

Item	Specification
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-level circuit breaker/fuse	20 A per power supply
Output channels (fully configured)	16
Output voltage	54 VDC
Output current	<ul style="list-style-type: none"> • PSR2400-54A: 44.5 A per power supply • PSR3000-54A: 55.6 A per power supply
Output power	<ul style="list-style-type: none"> • PSR2400-54A: 2400 W per power supply • PSR3000-54A: 3000 W per power supply

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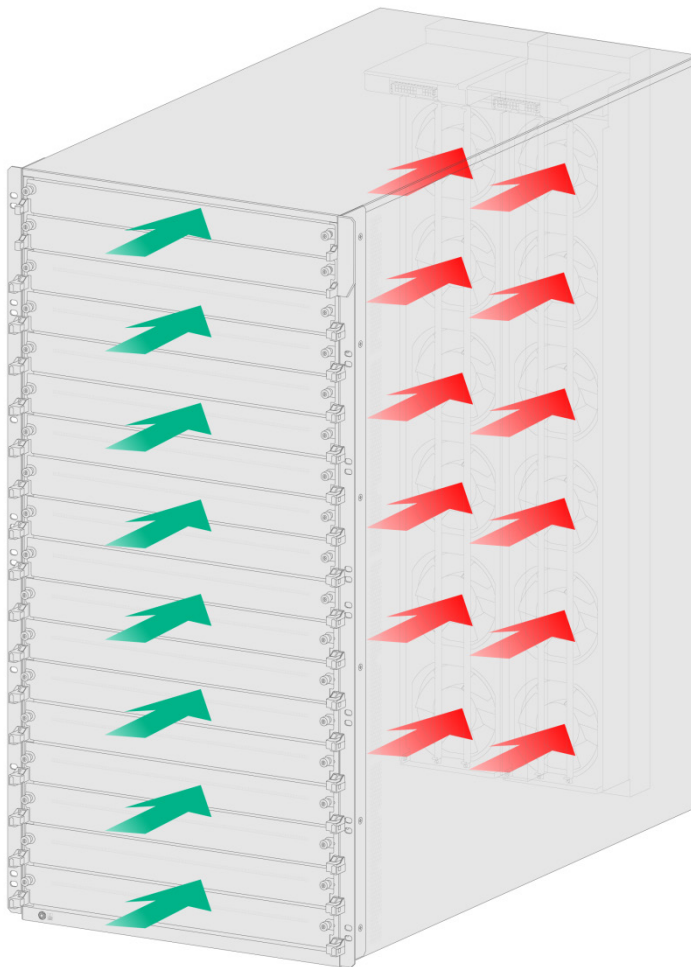
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3 Cooling system

Airflow

Fan trays on a CR19000-16 router draw ambient air into the chassis through the air vents in the MPU and interface module panels, pull the air through the fabric module panels, and exhaust the air carrying heat through the air vents in the fan tray panel.

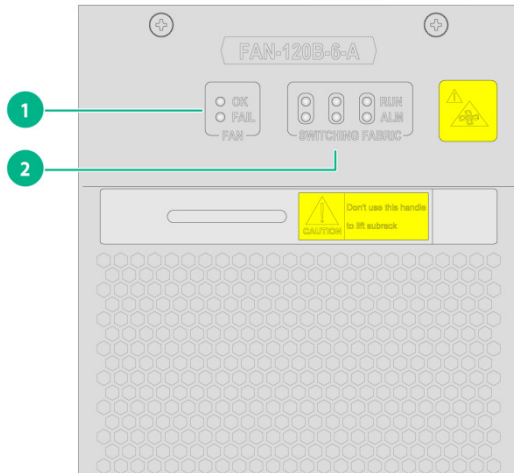
Figure3-1 Airflow of the CR19000-16 router



FAN-120B-6-A

Panel and LEDs

Figure3-2 FAN-120B-6-A fan tray panel and LEDs



(1) Fan tray status LEDs (OK and FAIL) (2) Fabric module LEDs (RUN and ALM pairs)

Table3-1 FAN-120B-6-A fan tray LED description

LED	Status	Description
OK	Off	The fan tray is faulty.
	Steady green	The fan tray is in normal state.
FAIL	Off	The fan tray is operating correctly.
	Steady red	The fan tray is faulty.
RUN	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.
	Off	The fabric module is faulty or no fabric module is present.
ALM	Off	No alarm has occurred on the fabric module, or no fabric module is present.
	Steady red	An alarm is present on the fabric module.

Technical specifications

Table3-2 FAN-120B-6-A technical specifications

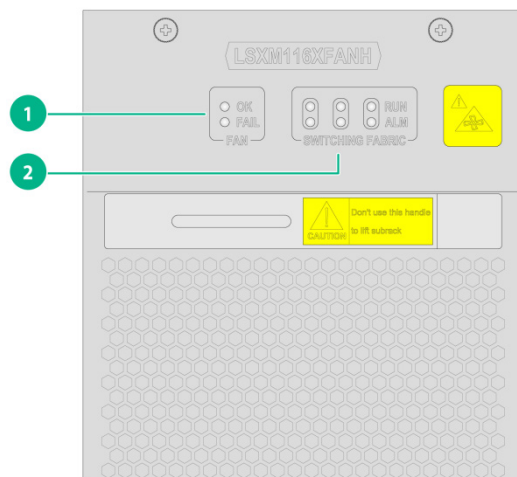
Item	Specification
Weight (without packaging)	6.4 kg (14.11 lb)

Item	Specification
Dimensions (H × W × D) (Lying flat on a workbench, including the handle)	144 × 927 × 183 mm (5.67 × 36.50 × 7.20 in)
Typical power consumption	206 W
Number of fans	6 per fan tray

LSXM116XFANH

Panel and LEDs

Figure3-3 LSXM116XFANH fan tray panel and LEDs



(1) Fan tray status LEDs (OK and FAIL)

(2) Fabric module LEDs (RUN and ALM pairs)

Table3-3 LSXM116XFANH fan tray LED description

LED	Status	Description
OK	Steady green	The fan tray is in normal state.
	Off	The fan tray is faulty.
FAIL	Off	The fan tray is operating correctly.
	Steady red	The fan tray is faulty.
RUN	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.
	Off	The fabric module is faulty or no fabric module is present.
ALM	Off	No alarm has occurred on the fabric module, or no fabric module is present.

LED	Status	Description
	Steady red	An alarm is present on the fabric module.

Technical specifications

Table3-4 LSXM116XFANH technical specifications

Item	Specification
Weight (without packaging)	8.4 kg (18.52 lb)
Dimensions (H x W x D) Lying flat on a workbench, including the handle	144 x 927 x 183 mm (5.67 x 36.50 x 7.20 in)
Typical power consumption	725 W
Number of fans	6 per fan tray
Restrictions and guidelines	Use LSXM116XFANH fan trays when the router is installed with CR-19K-LPU-CDQ04, CR-19K-LPU-CQ18, CR-19K-LPU-CQ16, CR-19K-LPU-CQ12B, or CR-19K-LPU-CQ12C interface modules

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4 Modules

Interface numbering

Conventions

ⓘ IMPORTANT:

The management port on the MPU is numbered 1/0/0/0.

The interfaces on the router are numbered in the *interface-type W/X/Y/Z* format.

- *interface-type*—Interface type, for example, Gigabit Ethernet.
- *W*—Chassis ID of the router in the cluster. The number is 1.
- *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.

Example

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, the 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, the 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-SFU-16C	CR-SFU-16E
CR-19K-LPU-CDQ04	x	N + 1 (N ≥ 3)
CR-19K-LPU-CDQ02	N + 1 (N ≥ 4)	N + 1 (N ≥ 2)
CR-19K-LPU-CQ18	N + 1 (N ≥ 5)	N + 1 (N ≥ 4)
CR-19K-LPU-CQ16	x	N + 1 (N ≥ 3)

Interface module model	CR-19K-SFU-16C	CR-SFU-16E
CR-19K-LPU-CQ12	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CQ12B	N + 1 (N ≥ 4)	N + 1 (N ≥ 3)
CR-19K-LPU-CQ12C	N + 1 (N ≥ 5)	N + 1 (N ≥ 2)
CR-19K-LPU-CQ06B	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CC08	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CC04	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-CC04B	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP72	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP48	N + 1 (N ≥ 4)	N + 1 (N ≥ 3)
CR-19K-LPU-XP40	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-XP20CC02	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-8004	N + 1 (N ≥ 4)	N + 1 (N ≥ 3)
CR-19K-LPU-8004B	N + 1 (N ≥ 4)	N + 1 (N ≥ 3)
CR-19K-LPU-4004	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-4004B	N + 1 (N ≥ 4)	N + 1 (N ≥ 4)
CR-19K-LPU-2002	N + 1 (N ≥ 2)	N + 1 (N ≥ 2)
CR-19K-LPU-2002B	N + 1 (N ≥ 2)	N + 1 (N ≥ 2)



IMPORTANT:

When you install the CR-19K-SFU-16C fabric modules together with the CR-19K-LPU-8004B interface modules, make sure the maximum capacity of compatible interface subcards does not exceed 600G.

NOTE:

The mark x indicates that the CR-19K-SFU-16C is incompatible with the interface module.

Interface subcard compatibility with interface modules

Install interface subcards on 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-2002B	CR-19K-LP U-2002
CR-HIC-C LGQ04F	√	√	×	×	×	×
CR-HIC-C Q02	√	√	×	×	×	×
CR-HIC-C Q01	√	√	√	√	√	√

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-2002B	CR-19K-LP U-2002
CR-HIC-C C01	x	x	√	x	√	√
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*.

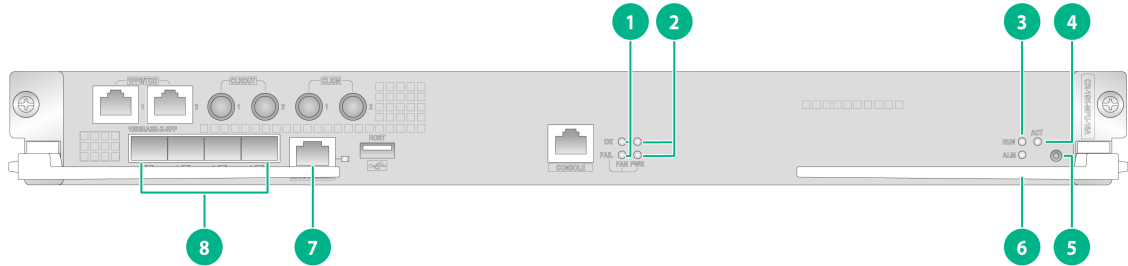
MPUs

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

CR-19K-MPU-16A

Panel and LEDs


Figure4-1 CR-19K-MPU-16A panel and LEDs



(1) Fan tray status LEDs (FAN OK and FAIL)	(2) Power supply status LEDs (PWR OK and FAIL)
(3) Module status LEDs (RUN)	(4) MPU active/standby status LED (ACT)
(5) Reset button	(6) System alarm LED (ALM)
(7) Management port LED (MANAGEMENT)	(8) 1000BASE-X-SFP port LEDs 1 to 4

Table4-3 CR-19K-MPU-16A MPU LED description

LED		Status	Description
1000BASE-X-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 green (0.5 Hz)	The modules are operating correctly.	

LED	Status	Description
	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 MPU is in standby mode.
	Steady green	The MPU is in active mode.

Ports

Table4-4 Port description

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 × 1000BASE-X-SFP ports
SMB clock input port	2
SMB clock output port	2
1PPS/ToD time synchronization port	2

Technical specifications

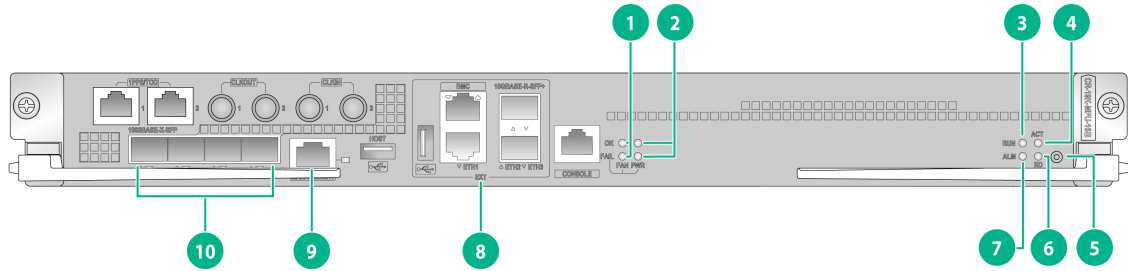
Table4-5 Technical specifications

Item	Specification
Weight (without packaging)	5.8 kg (12.79 lb)
Dimensions (H × W × D, without packaging)	44 × 433 × 512 mm (1.73 × 17.05 × 20.16 in)
Typical power consumption	59 W
Typical thermal consumption	201.31 BTU/h
Processor	4 cores, 1.2 GHz
Memory capacity	16 GB
Redundancy	1:1
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MPU-16A MPU together with MPUs of other models on the same router.

CR-19K-MPU-16B

Panel and LEDs

Figure4-2 CR-19K-MPU-16B panel and LEDs



(1) Fan tray status LEDs (FAN OK and FAIL)	(2) Power supply status LEDs (PWR OK and FAIL)
(3) Module status LEDs (RUN)	(4) MPU active/standby status LED (ACT)
(5) Reset button	(6) Hard disk status LED (HD)
(7) System alarm LED (ALM)	(8) EXT port LEDs (EXT)
(9) Management port LED (MANAGEMENT)	(10) 1000BASE-X-SFP port LEDs 1 to 4

Table4-6 CR-19K-MPU-16B MPU LED description

LED	Status	Description	
1000BASE-X-SFP 1 to 4	LINK/ACT	Off	No link is present on the port.
	LINK/ACT	Steady green	A link is present on the port.
	LINK/ACT	Flashing green	The port is sending or receiving data.
MANAGEMENT	LINK/ACT	Off	No link is present on the port.
	LINK/ACT	Steady green	A 1000 Mbps link is present on the port.
	LINK/ACT	Flashing green	The port is sending or receiving data at 1000 Mbps.
	LINK/ACT	Steady yellow	A 10/100 Mbps link is present.
	LINK/ACT	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.
	LINK/ACT	Steady green	A link is present on the port.
	LINK/ACT	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.
PWR	OK	Steady green	All present power supplies are operating correctly.
		Off	A minimum of one power supply is faulty.

LED		Status	Description
	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		Off	The hard disk is faulty, no hard disk is present, or the hard disk is not powered on.
		Steady green	The hard disk is present and in idle state.
		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 from and writing to the hard disk.
ACT		Off	The MPU is in standby mode.
		Steady green	The MPU is in active mode.

Ports

Table4-7 Port description

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 × 1000BASE-X-SFP ports
EXT port	BMC port	1 × 10/100/1000BASE-T BMC port (RJ-45)
	ETH port	1 × 10/100/1000BASE-T port (RJ-45) and 2 × 10GBASE-R-SFP+ ports
	USB port	1, Type A
SMB clock input port		2
SMB clock output port		2
1PPS/ToD time synchronization port		2

Technical specifications

Table4-8 Technical specifications

Item	Specification
Weight (without packaging)	6.9 kg (15.21 lb)
Dimensions (H x W x D, without packaging)	44 x 433 x 512 mm (1.73 x 17.05 x 20.16 in)
Typical power consumption	130 W
Typical thermal consumption	443.57 BTU/h
Processor	6 cores, 1.9 GHz
Memory capacity	32 GB
Hard disk capacity	240 GB
Redundancy	1:1
Hot swapping	Supported
Restrictions and guidelines	Do not install the CR-19K-MPU-16B MPU together with MPUs of other models on the same router.

Fabric modules

Fabric modules switch data between interface modules.

CR-19K-SFU-16C

Panel and LEDs

Figure4-3 CR-19K-SFU-16C panel and LEDs



(1) RUN/ALM LED

Table4-9 CR-19K-SFU-16C fabric module LED description

LED	Status	Description
RUN/ALM	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.
	Off	The fabric module is faulty.

Technical specifications

Table4-10 Technical specifications

Item	Specification
Weight (without packaging)	7.5 kg (16.53 lb)
Dimensions (H × W × D, without packaging)	40 × 853 × 279 mm (1.57 × 33.58 × 10.98 in)
Typical power consumption	280 W
Typical thermal consumption	955.39 BTU/h
Redundancy	N+1 redundancy. The value for N varies by interface module model. For more information, see Table4-1 .
Hot swapping	Supported

CR-SFU-16E

Panel and LEDs

Figure4-4 CR-SFU-16E panel and LEDs



(1) RUN/ALM LED

Table4-11 CR-SFU-16E fabric module LED description

LED	Status	Description
RUN/ALM	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.
	Off	The fabric module is faulty.

Technical specifications

Table4-12 Technical specifications

Item	Specification
Weight (without packaging)	11.1 kg (24.47 lb)
Dimensions (H × W × D, without packaging)	40 × 853 × 279 mm (1.57 × 33.58 × 10.98 in)
Typical power consumption	235 W

Item	Specification
Typical thermal consumption	801.84 BTU/h
Redundancy	N+1 redundancy. The value for N varies by interface module model. For more information, see Table4-1 .
Hot swapping	Supported

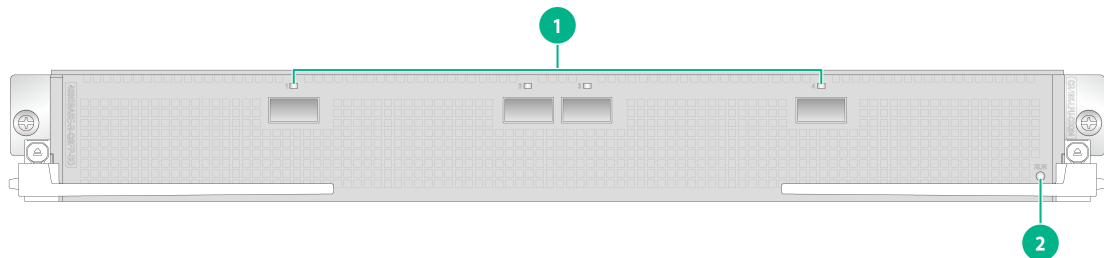
Interface modules

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

Figure4-5 CR-19K-LPU-CDQ04 panel and LEDs



(1) 400G Ethernet port LEDs 1 to 4

(2) Running status LED (RUN)

Table4-13 CR-19K-LPU-CDQ04 interface module LED description

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

Table4-14 Port description

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

Technical specifications

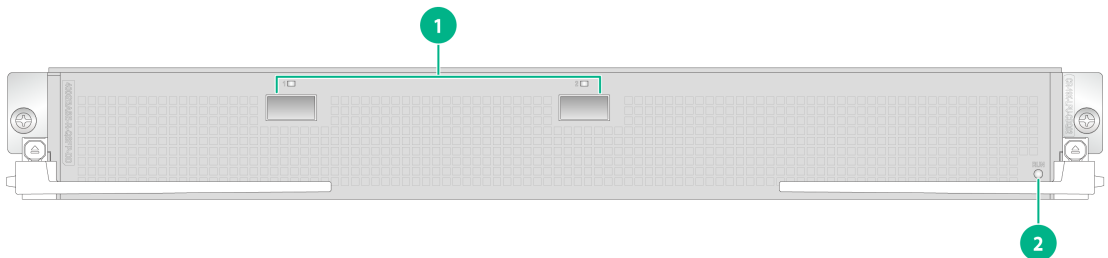
Table4-15 Technical specifications

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

CR-19K-LPU-CDQ02

Panel and LEDs

Figure4-6 CR-19K-LPU-CDQ02 panel and LEDs



(1) 400G Ethernet port LEDs 1 and 2

(2) Running status LED (RUN)

Table4-16 CR-19K-LPU-CDQ02 interface module LED description

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 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

Table4-17 Port description

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

Technical specifications

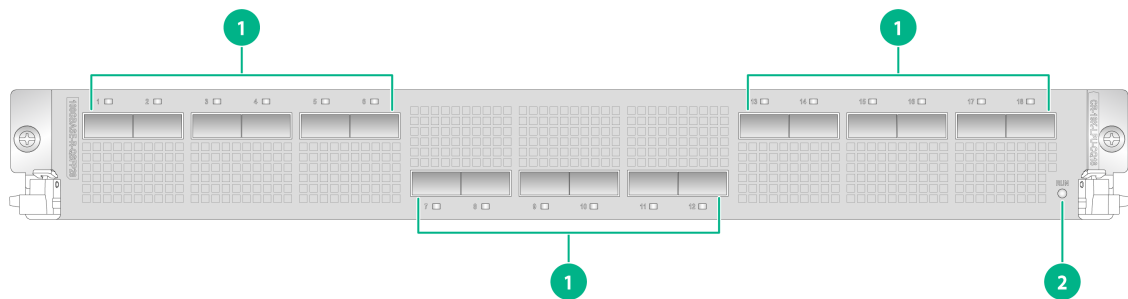
Table4-18 Technical specifications

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

Figure4-7 CR-19K-LPU-CQ18 panel and LEDs



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

(2) Running status LED (RUN)

Table4-19 CR-19K-LPU-CQ18 interface module LED description

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 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

Table4-20 Port description

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

Technical specifications

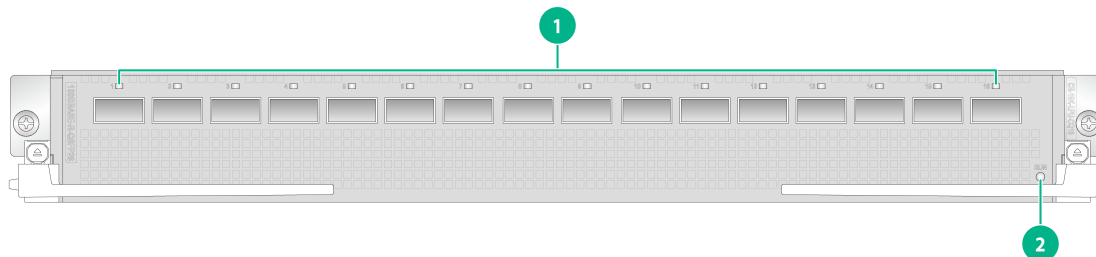
Table4-21 Technical specifications

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

Figure4-8 CR-19K-LPU-CQ16 panel and LEDs



(1) 100G Ethernet port LEDs 1 to 16

(2) Running status LED (RUN)

Table4-22 CR-19K-LPU-CQ16 interface module LED description

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 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

Table4-23 Port description

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

Technical specifications

Table4-24 Technical specifications

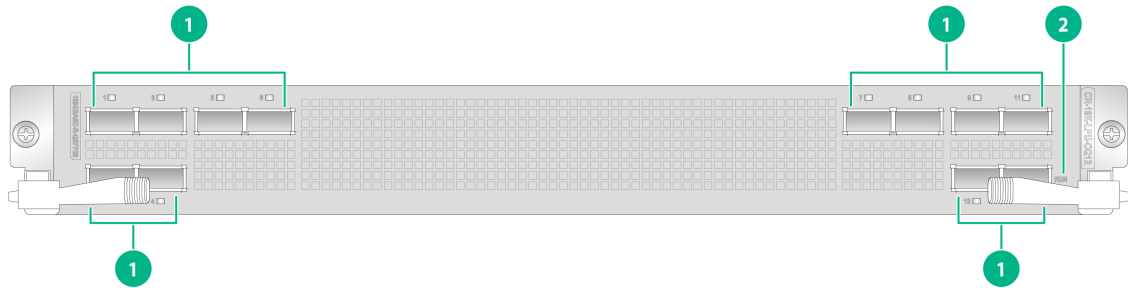
Item	Specification
Weight (without packaging)	11.6 kg (25.57 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)

Item	Specification
Typical power consumption	911 W
Typical thermal consumption	3108.42 BTU/h
Hot swapping	Supported

CR-19K-LPU-CQ12

Panel and LEDs

Figure4-9 CR-19K-LPU-CQ12 panel and LEDs



(1) 100GBASE-R-QSFP28 Ethernet port LEDs 1 to 12

(2) Running status LED (RUN)

Table4-25 CR-19K-LPU-CQ12 interface module LED description

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

Table4-26 Port description

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

Technical specifications

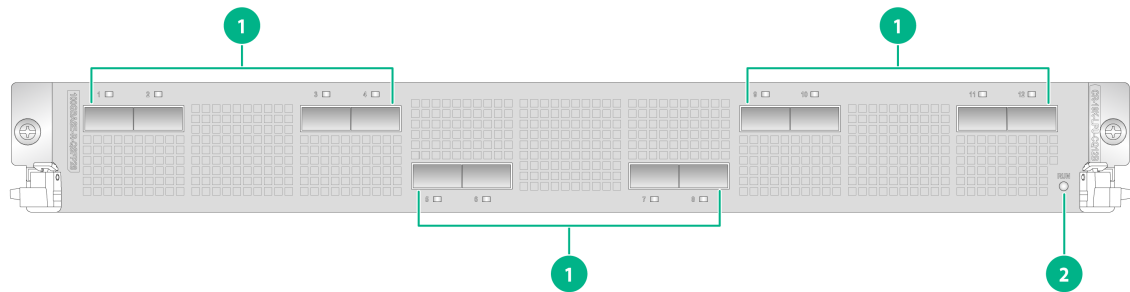
Table4-27 Technical specifications

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

Figure4-10 CR-19K-LPU-CQ12B panel and LEDs



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

Table4-28 CR-19K-LPU-CQ12B interface module LED description

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

Table4-29 Port description

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

Technical specifications

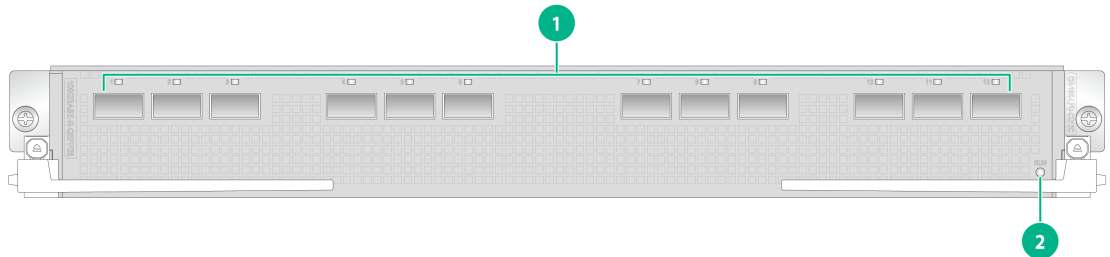
Table4-30 Technical specifications

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

CR-19K-LPU-CQ12C

Panel and LEDs

Figure4-11 CR-19K-LPU-CQ12C panel and LEDs



(1) 100G Ethernet port LEDs 1 to 12

(2) Running status LED (RUN)

Table4-31 CR-19K-LPU-CQ12C interface module LED description

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 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

Table4-32 Port description

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

Technical specifications

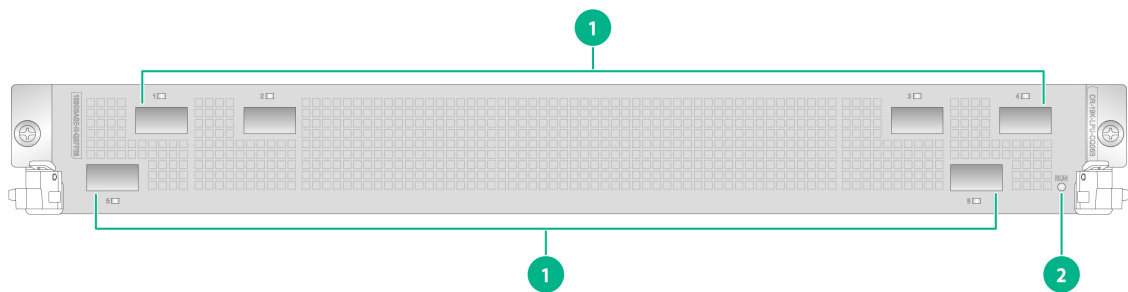
Table4-33 Technical specifications

Item	Specification
Weight (without packaging)	11.2 kg (24.69 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 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

Figure4-12 CR-19K-LPU-CQ06B panel and LEDs



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

(2) Running status LED (RUN)

Table4-34 CR-19K-LPU-CQ06B interface module LED description

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 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

Table4-35 Port description

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

Technical specifications

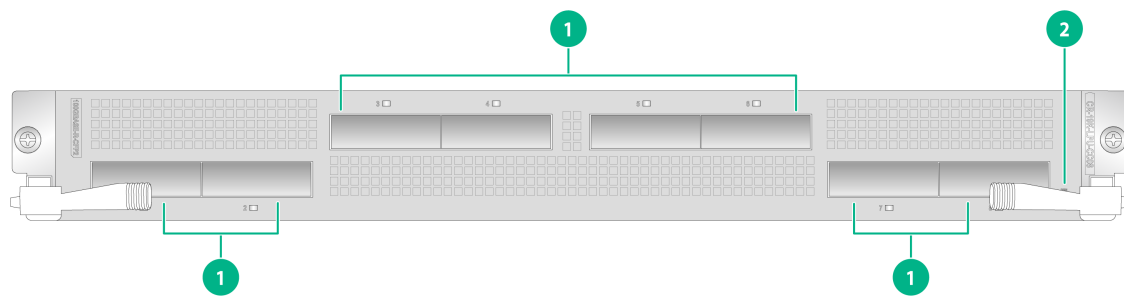
Table4-36 Technical specifications

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

Figure4-13 CR-19K-LPU-CC08 panel and LEDs



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

(2) Running status LED (RUN)

Table4-37 CR-19K-LPU-CC08 interface module LED description

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 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

Table4-38 Port description

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

Technical specifications

Table4-39 Technical specifications

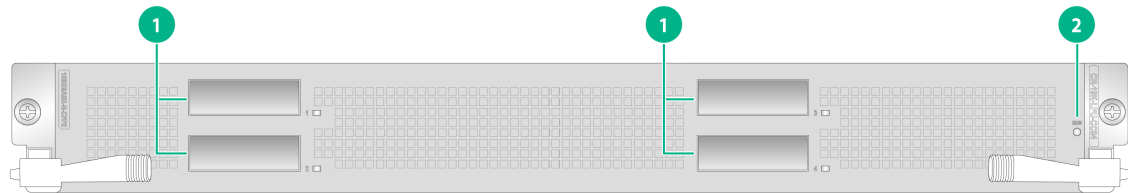
Item	Specification
Weight (without packaging)	10.1 kg (22.27 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)

Item	Specification
Typical power consumption	623 W
Typical thermal consumption	2125.74 BTU/h
Hot swapping	Supported

CR-19K-LPU-CC04

Panel and LEDs

Figure4-14 CR-19K-LPU-CC04 panel and LEDs



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

(2) Running status LED (RUN)

Table4-40 CR-19K-LPU-CC04 interface module LED description

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

Table4-41 Port description

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

Technical specifications

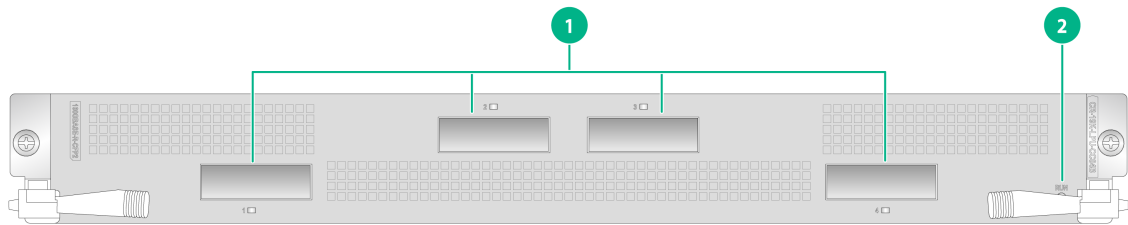
Table4-42 Technical specifications

Item	Specification
Weight (without packaging)	9.9 kg (21.83 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	428 W
Typical thermal consumption	1460.38 BTU/h
Hot swapping	Supported

CR-19K-LPU-CC04B

Panel and LEDs

Figure4-15 CR-19K-LPU-CC04B panel and LEDs



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

(2) Running status LED (RUN)

Table4-43 CR-19K-LPU-CC04B interface module LED description

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

Table4-44 Port description

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

Technical specifications

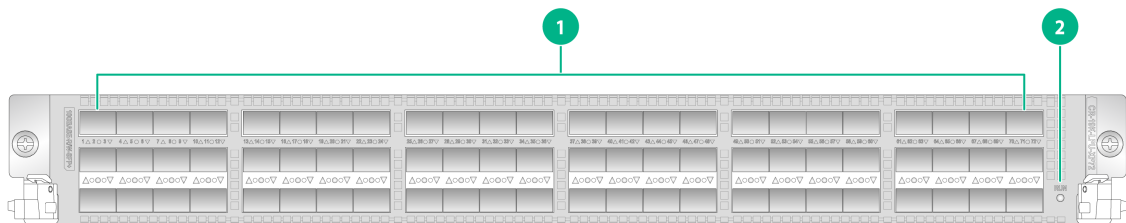
Table4-45 Technical specifications

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

Figure4-16 CR-19K-LPU-XP72 panel and LEDs



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

(2) Running status LED (RUN)

Table4-46 CR-19K-LPU-XP72 interface module LED description

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 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

Table4-47 Port description

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

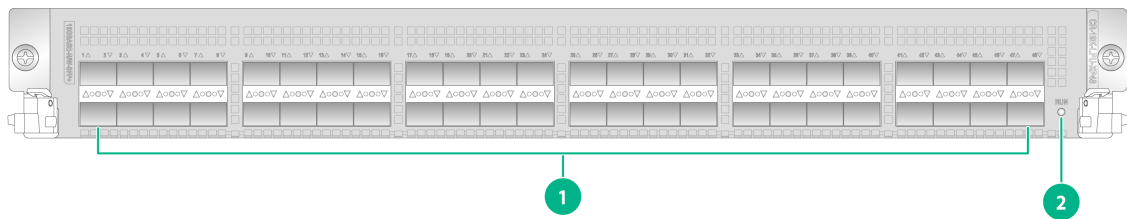
Table4-48 Technical specifications

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

CR-19K-LPU-XP48

Panel and LEDs

Figure4-17 CR-19K-LPU-XP48 panel and LEDs




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

(2) Running status LED (RUN)

Table4-49 CR-19K-LPU-XP48 interface module LED description

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 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

Table4-50 Port description

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

Technical specifications

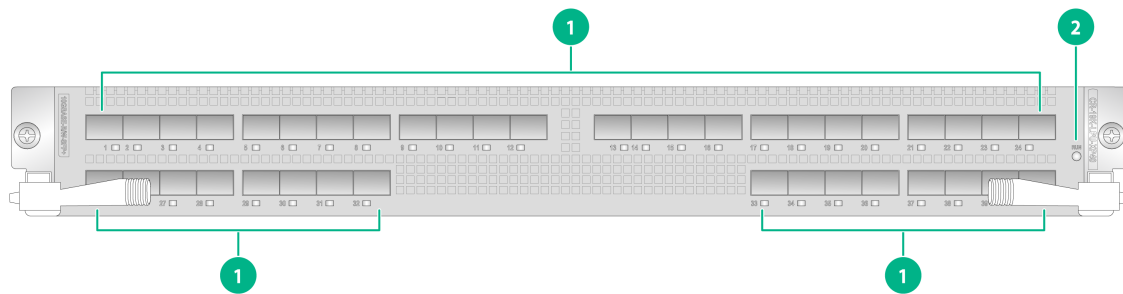
Table4-51 Technical specifications

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

Figure4-18 CR-19K-LPU-XP40 panel and LEDs



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

(2) Running status LED (RUN)

Table4-52 CR-19K-LPU-XP40 interface module LED description

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

Table4-53 Port description

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

Table4-54 Technical specifications

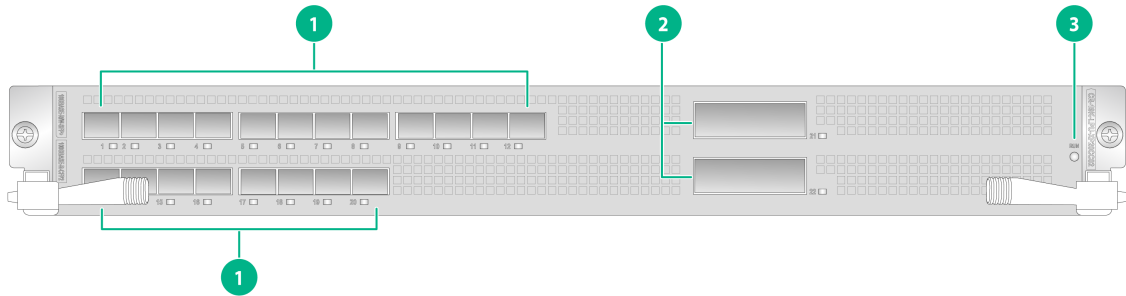
Item	Specification
Weight (without packaging)	9.7 kg (21.38 lb)

Item	Specification
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	547 W
Typical thermal consumption	1866.42 BTU/h
Hot swapping	Supported

CR-19K-LPU-XP20CC02

Panel and LEDs

Figure4-19 CR-19K-LPU-XP20CC02 panel and LEDs



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

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

(3) Running status LED (RUN)

Table4-55 CR-19K-LPU-XP20CC02 interface module LED description

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 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

Table4-56 Port description

Item	Description
Connector type	LC, MPO

Item	Description
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

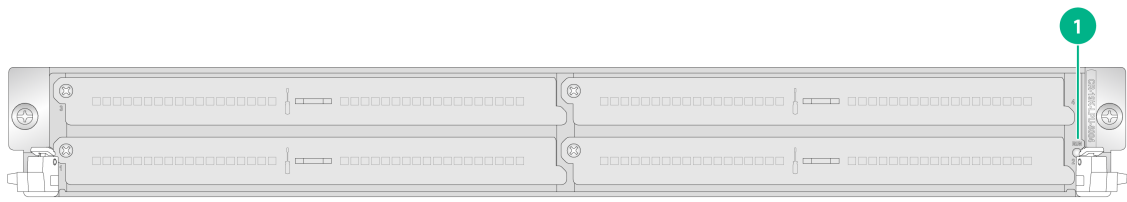
Table4-57 Technical specifications

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

Figure4-20 CR-19K-LPU-8004 panel and LEDs



(1) Running status LED (RUN)

Table4-58 CR-19K-LPU-8004 interface module LED description

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

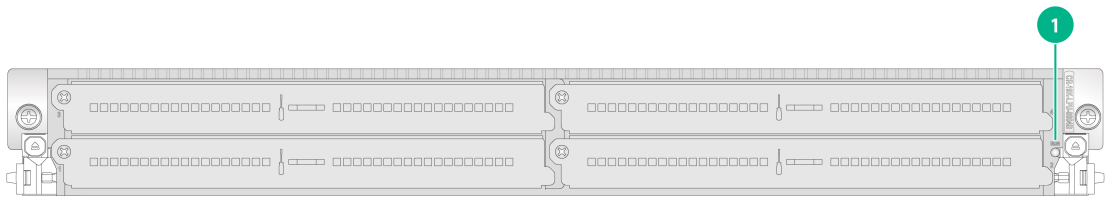
Table4-59 Technical specifications for the CR-19K-LPU-8004 (without interface subcards)

Item	Specification
Weight (without packaging)	10.2 kg (22.49 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 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

Figure4-21 CR-19K-LPU-8004B panel and LEDs



(1) Running status LED (RUN)

Table4-60 CR-19K-LPU-8004B interface module LED description

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

Table4-61 Technical specifications for the CR-19K-LPU-8004B (without interface subcards)

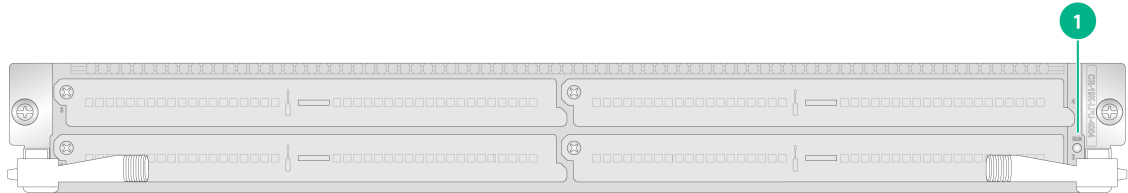
Item	Specification
Weight (without packaging)	8.7 kg (19.18 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 20.47 in)
Typical power consumption	469 W
Typical thermal consumption	1600.27 BTU/h

Item	Specification
Hot swapping	Supported

CR-19K-LPU-4004

Panel and LEDs

Figure4-22 CR-19K-LPU-4004 panel and LEDs



(1) Running status LED (RUN)

Table4-62 CR-19K-LPU-4004 interface module LED description

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

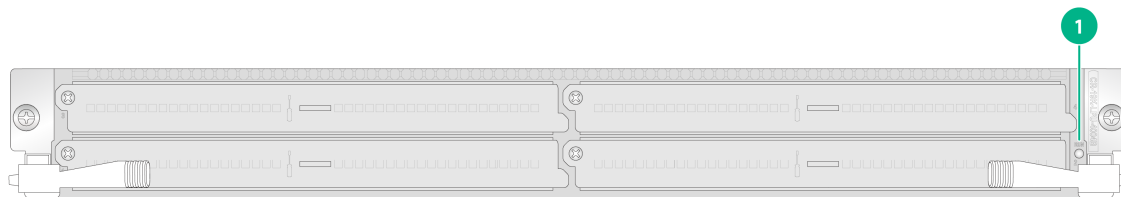
Table4-63 Technical specifications for the CR-19K-LPU-4004 (without interface subcards)

Item	Specification
Weight (without packaging)	7.5 kg (16.53 lb)
Dimensions (H × W × D, without packaging)	50 × 433 × 520 mm (1.97 × 17.05 × 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

Figure4-23 CR-19K-LPU-4004B panel and LEDs



(1) Running status LED (RUN)

Table4-64 CR-19K-LPU-4004B interface module LED description

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

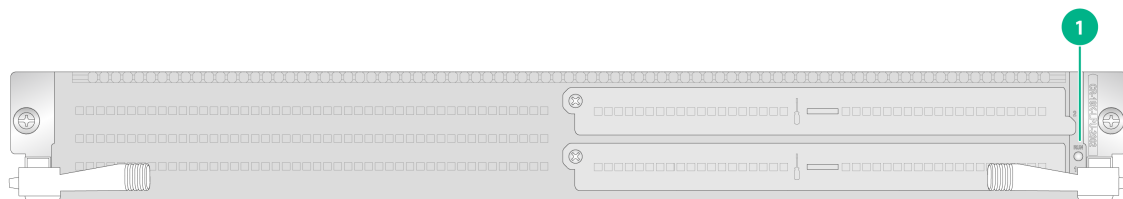
Table4-65 Technical specifications for the CR-19K-LPU-4004B (without interface subcards)

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

Figure4-24 CR-19K-LPU-2002 panel and LEDs



(1) Running status LED (RUN)

Table4-66 CR-19K-LPU-2002 interface module LED description

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

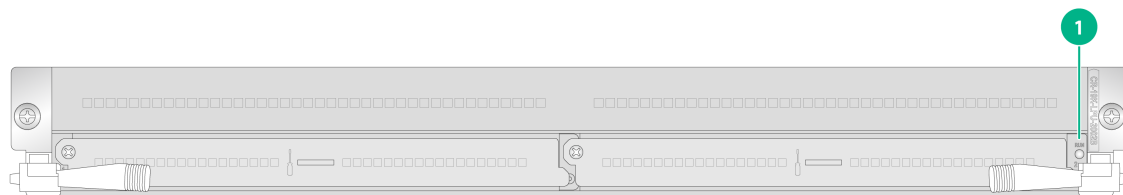
Table4-67 Technical specifications for the CR-19K-LPU-2002 (without interface subcards)

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

Figure4-25 CR-19K-LPU-2002B panel and LEDs



(1) Running status LED (RUN)

Table4-68 CR-19K-LPU-2002B interface module LED description

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

Table4-69 Technical specifications for the 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

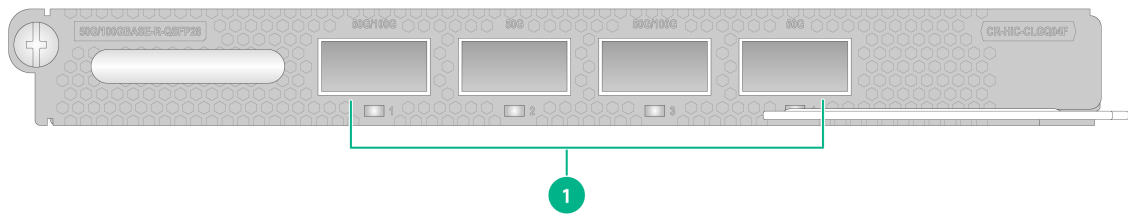
Interface subcards

You must install interface subcards on interface modules.

CR-HIC-CLGQ04F

Panel and LEDs

Figure4-26 CR-HIC-CLGQ04F panel and LEDs



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

Table4-70 CR-HIC-CLGQ04F interface subcard LED description

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

Table4-71 Port description

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

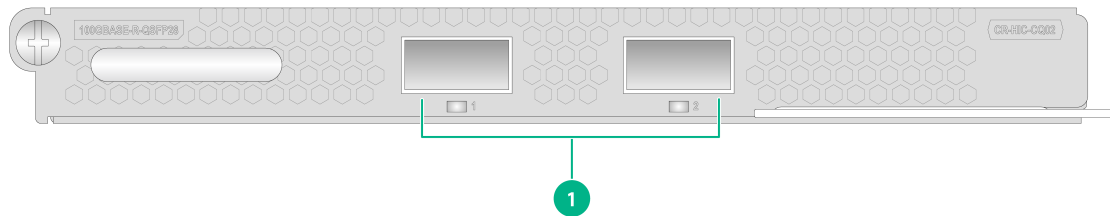
Table4-72 Technical specifications

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

Figure4-27 CR-HIC-CQ02 panel and LEDs



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

Table4-73 CR-HIC-CQ02 interface subcard LED description

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

Table4-74 Port description

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

Technical specifications

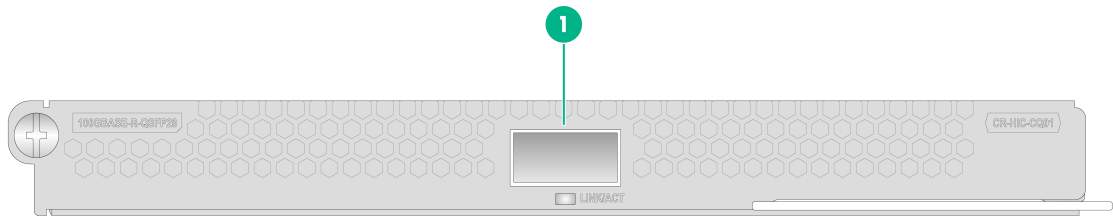
Table4-75 Technical specifications

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

Figure4-28 CR-HIC-CQ01 panel and LEDs



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

Table4-76 CR-HIC-CQ01 interface subcard LED description

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

Table4-77 Port description

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

Technical specifications

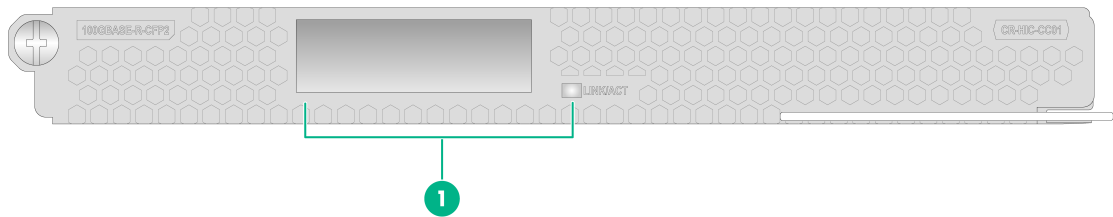
Table4-78 Technical specifications

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

Figure4-29 CR-HIC-CC01 panel and LEDs



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

Table4-79 CR-HIC-CC01 interface subcard LED description

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

Table4-80 Port description

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

Technical specifications

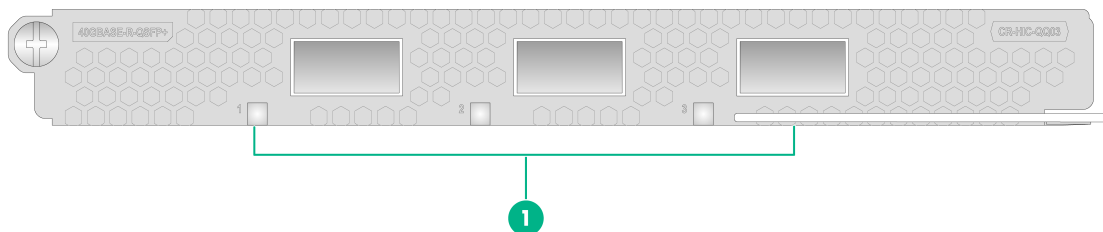
Table4-81 Technical specifications

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

Figure4-30 CR-HIC-QQ03 panel and LEDs



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

Table4-82 CR-HIC-QQ03 interface subcard LED description

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

Table4-83 Port description

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

Technical specifications

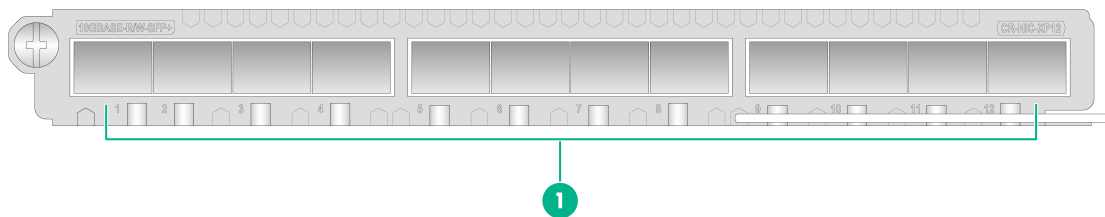
Table4-84 Technical specifications

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

Figure4-31 CR-HIC-XP12 panel and LEDs



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

Table4-85 CR-HIC-XP12 interface subcard LED description

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

Table4-86 Port description

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

Technical specifications

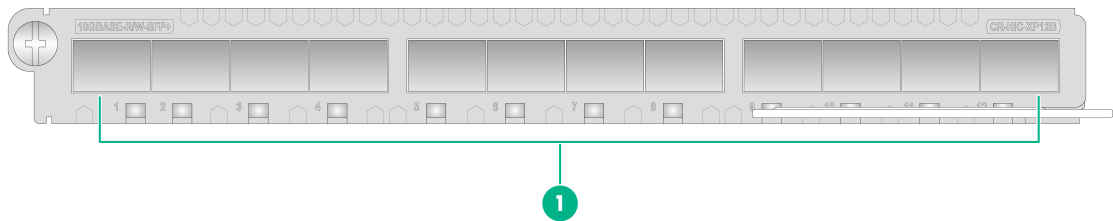
Table4-87 Technical specifications

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	54 W
Typical thermal consumption	184.25 BTU/h
Hot swapping	Supported

CR-HIC-XP12B

Panel and LEDs

Figure4-32 CR-HIC-XP12B panel and LEDs



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

Table4-88 CR-HIC-XP12B interface subcard LED description

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

Table4-89 Port description

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

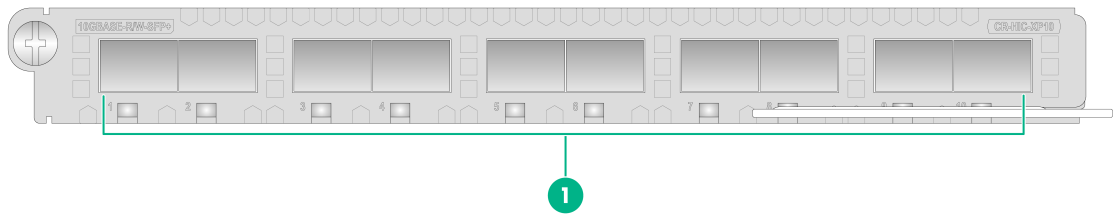
Table4-90 Technical specifications

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

Figure4-33 CR-HIC-XP10 panel and LEDs



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

Table4-91 CR-HIC-XP10 interface subcard LED description

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

Table4-92 Port description

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

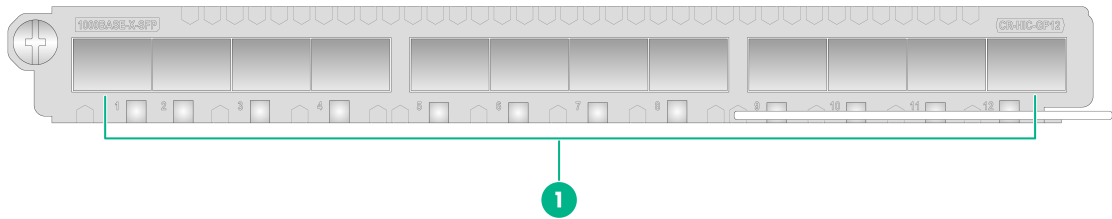
Table4-93 Technical specifications

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

Figure4-34 CR-HIC-GP12 panel and LEDs



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

Table4-94 CR-HIC-GP12 interface subcard LED description

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

Table4-95 Port description

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

Technical specifications

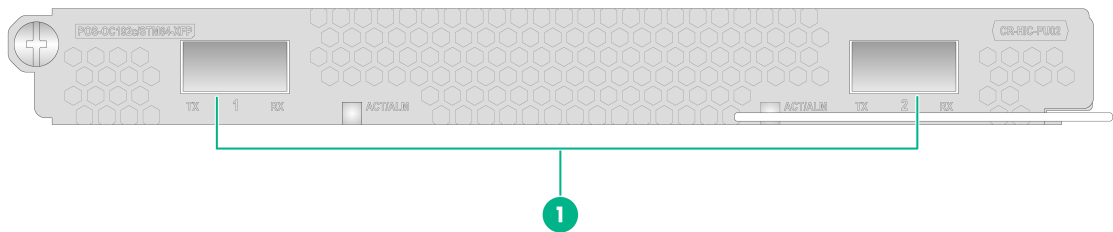
Table4-96 Technical specifications

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	26 W
Typical thermal consumption	88.71 BTU/h
Hot swapping	Supported

CR-HIC-PU02

Panel and LEDs

Figure4-35 CR-HIC-PU02 panel and LEDs



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

Table4-97 CR-HIC-PU02 interface subcard LED description

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

Table4-98 Port description

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

Technical specifications

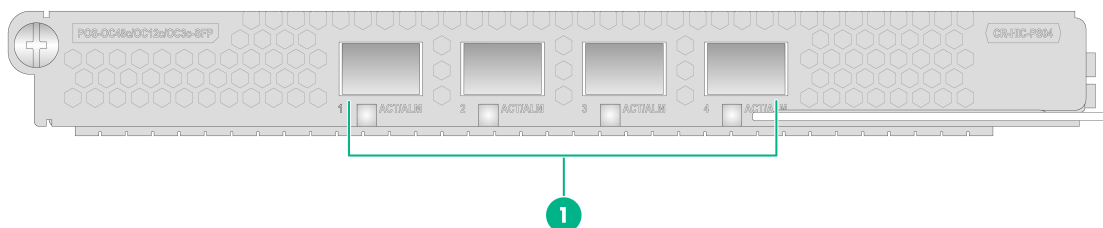
Table4-99 Technical specifications

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

Figure4-36 CR-HIC-PS04 panel and LEDs



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

Table4-100 CR-HIC-PS04 interface subcard LED description

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

Table4-101 Port description

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

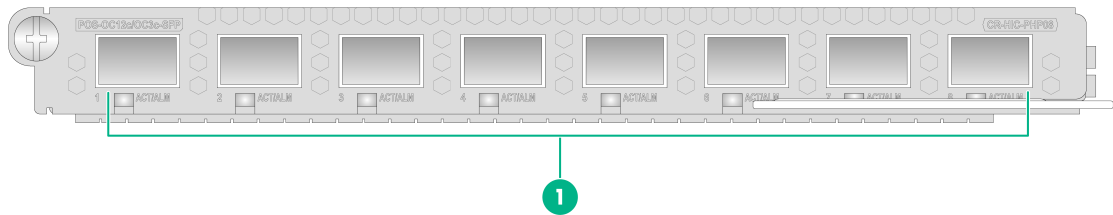
Table4-102 Technical specifications

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

Figure4-37 CR-HIC-PHP08 panel and LEDs



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

Table4-103 CR-HIC-PHP08 interface subcard LED description

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

Table4-104 Port description

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

Technical specifications

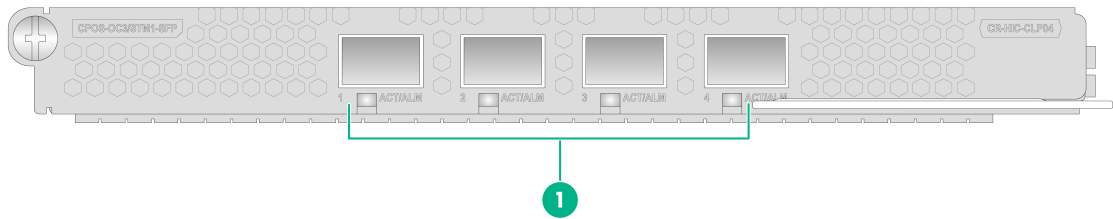
Table4-105 Technical specifications

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	20 W
Typical thermal consumption	68.24 BTU/h
Hot swapping	Supported

CR-HIC-CLP04

Panel and LEDs

Figure4-38 CR-HIC-CLP04 panel and LEDs



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

Table4-106 CR-HIC-CLP04 interface subcard LED description

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

Table4-107 Port description

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

Technical specifications

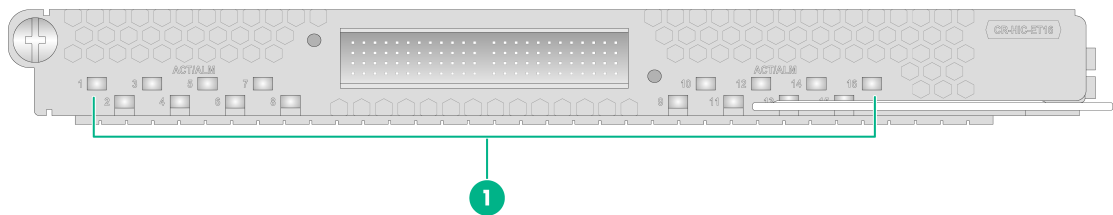
Table4-108 Technical specifications

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

Figure4-39 CR-HIC-ET16 panel and LEDs



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

Table4-109 CR-HIC-ET16 interface subcard LED description

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

Table4-110 Port description

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

Technical specifications

Table4-111 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 panels 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.
- The router came with empty fabric module slots. To ensure adequate heat dissipation, purchase and install the LSXM1BFP16A fabric module filler panels in empty fabric module slots.

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.