



## Technical Specifications

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## Technical Specifications

The following table lists the technical specifications for the Cisco CRS 8-Slot Line Card Chassis Enhanced router.

**Table 1: Cisco CRS 8-Slot Line Card Chassis Enhanced Router Component and Power Specifications**

<b>Supported Cards and Modules</b>	<b>8 modular services cards (MSCs), forwarding processor (FP) cards, or label switch processor (LSP) cards (line cards)</b> <b>8 physical layer interface modules (PLIMs), one for each MSC, FP, or LSP</b> <b>4 switch fabric cards (SFCs)</b> <b>2 route processor (RP) cards or 2 performance route processor (PRP) cards</b> <b>2 fan trays</b> <b>1 air filter</b>
Power Shelves	2 AC or 2 DC power shelves (cannot mix AC and DC power shelves in the chassis)
DC power shelf	Accepts up to 4 DC PMs
AC power shelf	Accepts up to 3 AC PMs
Maximum Power Consumption	This represents total input power.
Maximum DC	9.5 kW (assuming 88% efficiency)
Maximum AC	9.8 kW (assuming 92% efficiency)

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	<b>Note</b> Proper grounding is also required at the site to ensure that equipment is not damaged by lightning or power surges.
DC Power Lug Torque Ranges	
Minimum torque	20 in-lb (2.2 N-m)
Maximum torque	30 in-lb (3.3 N-m)
Power Redundancy	
DC	2N: Up to four A battery plant feeds and up to four B battery plant feeds required.
AC	2N: Up to three A AC single-phase power sources and up to three B AC single-phase power sources required.
<b>Inrush current</b>	
DC	90 Apk max
AC	30 Apk max
DC Input	
Nominal input voltage	–48 VDC North America–60 VDC International(range –40 to –72 VDC)
Input current	50 A max @ –48 VDC40 A max @ –60 VDC60 A at –40 VDC (maximum)
AC Input	
Input voltage	Single-phase 200 to 240 VAC (nominal)(range 180 to 264 VAC)
Line frequency	50 to 60 Hz (nominal)(range 47 to 63 Hz)

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Recommended AC service	16 A

The following table lists the environmental specifications for the Cisco CRS 8-Slot Line Card Chassis Enhanced router.

**Table 2: Cisco CRS 8-Slot Line Card Chassis Enhanced Router Environmental Specifications**

<b>Description</b>	<b>Value</b>
Temperature	Operating, nominal: 41° to 104°F (5° to 40°C) Operating, short-term: 23° to 122°F (-5° to 50°C) Nonoperating: -40° to 158°F (-40° to 70°C)
Humidity	Operating: 5 to 85% noncondensing Nonoperating: 5 to 90% noncondensing, short-term operation
Altitude	1 to 5,906 ft (-60 to 1,800 m) at 122°F (50°C), short-term Up to 13,123 ft (4,000 m) at 104°F (40°C) or below
Heat dissipation	27,350 BTUs/hr
External cooling requirements	2.3 tons
Acoustic noise	74 dB at 3.28 ft. (1 meter) in front of chassis (nominal reading at room temperature)
Shock	Operating: 5 to 500 Hz, 0.5g <sup>1</sup> (0.1 oct/min) <sup>2</sup> Nonoperating: 5 to 100 Hz, 1 g (0.1 oct/min) 100 to 500 Hz, 15 g (0.2 oct/min) 500 to 1000 Hz, 1.5 g (0.2 oct/min)
Vibration	Operating: 0.35 Grms <sup>3</sup> from 3 to 500 Hz Nonoperating: 1.0 Grms from 3 to 500 Hz

<sup>1</sup> g = Gravity

<sup>2</sup> oct/min = Octave per minute

<sup>3</sup> Grms = The root mean square value of acceleration, where 1G equals 32.17 ft/sec (9.81 m/sec). Table A-3 lists the physical specifications for the Cisco CRS 8-Slot Line Card Chassis Enhanced router .

**Table 3: Cisco CRS 8-Slot Line Card Chassis Enhanced Router and Equipment Rack Specifications**

<b>Cisco CRS 8-Slot Line Card Chassis Enhanced Router Specifications</b>	
Chassis Dimensions	
Height	38.5 in. (97.8 cm)
Width	17.5 in. (44.5 cm) 18.9 in. (48.0 cm) mounting rail flange, outside to outside
Depth	36.6 in. (93.0 cm) without cosmetics 40.5 in. (102.9 cm) with full cosmetics
Chassis Weight	
Chassis shipping weight	418.3 lb. (189.7 kg) chassis with shipping crate and pallet 330.8 lb. (138 kg) chassis with fans, PDUs, and blanks (as shipped)
Chassis with all cards and power modules, no cosmetics	600 lb. (272.2 kg)
Chassis, fully loaded with line cards and full cosmetics	650 lb. (294.8 kg)
Equipment Rack Specifications	
Rack Dimensions	
Height	Available aperture in rack for two chassis in a single rack: <ul style="list-style-type: none"> <li>• 78.6 in. (199.6 cm)</li> </ul>
Width	Vertical posts: <ul style="list-style-type: none"> <li>• 19.5 in. (49.5 cm) inside-to-inside minimum</li> <li>• 23.6 in. (60.0 cm) outside-to-outside maximum</li> </ul>
Depth	Exterior of four-post rack: <ul style="list-style-type: none"> <li>• Optimal: 27 in. (68.6 cm), for best access to mounting hardware</li> <li>• Optional: 30, 36, or 42 in. (76.2, 91.4, or 106.7 cm) and other standard depths allowed, allow less space for cable management</li> </ul>

<b>Cisco CRS 8-Slot Line Card Chassis Enhanced Router Specifications</b>	
Equipment Rack Specifications (continued)	
Load (weight) rating	<p>The rack must support the following weights and specifications:</p> <ul style="list-style-type: none"> <li>• 650 lb. (294.8 kg) single chassis with full cosmetics</li> <li>• 1300 lb. (589.7 kg) two chassis, each with full cosmetics</li> <li>• 95 lb. (43.0 kg) or more for each chassis for cabling</li> <li>• Additional weight of other components in rack</li> </ul> <p><b>Note</b> ANSI specification T1.336 (2003), which defines static load and safety margins, recommends that racks be designed to support at least two times the anticipated load.</p> <p><b>Note</b> See ANSI specification T1.329 (2002) for dynamic load requirements and earthquake resistance specifications.</p>
Chassis and rack footprint(floor contact area)	<p>5.9 sq. ft. (0.55 sq. m), 23.6 in. rack width by 36 in. chassis depth</p> <p>(60 cm rack width by 91.4 cm chassis depth)</p>
Maximum floor loading	<p>600 lb/4.5 sq. ft. = 133 lb/sq. ft. (without cosmetics)272.2 kg/4134.2 sq. cm = 0.07 kg/sq. cm</p> <p>650 lb/4.9 sq. ft. = 132.7 lb/sq. ft. (with cosmetics)294.8 kg/4580.1 sq. cm = 0.06 kg/sq. cm</p> <p><b>Note</b> Be sure to include the weight of the rack when you consider floor loading requirements. The above numbers do not include rack weight.</p>
Rack Anchoring	

<b>Cisco CRS 8-Slot Line Card Chassis Enhanced Router Specifications</b>	
General considerations	<ul style="list-style-type: none"> <li>• The rack must be bolted to the floor. For more information, see the <i>Cisco CRS Carrier Routing System 8-Slot Line Card Chassis Enhanced Router Unpacking, Moving, and Securing Guide</i>.</li> <li>• Consider floor and overhead anchoring requirements for the site, and size and load capacity of anchors and floor structure.</li> <li>• Make sure that floor mounting bolts are accessible, especially if annual retorquing of bolts is required.</li> </ul>
Floor mounting holes	<ul style="list-style-type: none"> <li>• Outrigger L-brackets: Depends on chosen rack</li> <li>• Internal frame holes: Depends on chosen rack</li> </ul>
Chassis Clearances	
Two chassis in a single rack	0.5-in. (1.27 cm) between chassis for horizontal shelf brackets
Front and rear of chassis	40.4-in. (102.6 cm) for chassis installation 36-in. (91.4 cm) for service access and airflow
Inlet and exhaust openings on chassis and power modules	6-in. (15.2 cm)
Top of chassis	No overhead clearance for a single chassis. Two chassis in a rack requires 0.5-inch (1.27 cm) between chassis for mounting rails.
Mounting Rails and Hardware	
Rail openings (aperture)	<ul style="list-style-type: none"> <li>• 17.75 in. (45.1 cm), side to side</li> <li>• 22.8 in. (57.9 cm), front to back (adjustable or fixed)</li> </ul>

Cisco CRS 8-Slot Line Card Chassis Enhanced Router Specifications	
Horizontal mounting rails	<p>The equipment rack should contain horizontal mounting rails to place the chassis on. The mounting rails, which must be able to hold at least 650 lb (294.8 kg), support the weight of the chassis.</p> <ul style="list-style-type: none"> <li>A set of brackets is included in the chassis installation kit, which is available as an option (CRS-8-INSTALL-KT=). Install these brackets and place the chassis on them. For details, see the <i>Cisco CRS Carrier Routing System 8-Slot Line Card Chassis Enhanced Router Unpacking, Moving, and Securing Guide</i>.</li> </ul> <p><b>Note</b> In addition to supporting the chassis, the mounting rails are also designed to space adjustable rack rails at 22.8-inches (front to back) for chassis installation.</p>
Mounting holes	<p>EIA standard mounting-hole spacing:</p> <ul style="list-style-type: none"> <li>18.25-inches to 18.31-inches (46.36 to 46.51 cm), center-to-center horizontal spacing</li> <li>0.5 + 0.625 + 0.625-inches (1.27 + 1.59 + 1.59 cm), vertical-hole-spacing pattern; repeats on 1.75-inch (4.45 cm) pitch ETSI racks have mounting rails with EIA standard spacing.</li> </ul>
Mounting screws	<ul style="list-style-type: none"> <li>48 screws for each chassis, 12 screws in each of 4 vertical rails, installed in holes with tick marks</li> <li>Number 10-32 x 5/8 in. long socket head cap screws (sixty screws provided with the chassis)</li> </ul> <p><b>Note</b> If you plan to use mounting screws other than the ones shipped with the chassis, you can use 10-32, 10-24, 12-24, or M5 screws. (M6 and 1/4-20 screws do not fit.)</p>
Compliance	<p>Make sure that the rack complies with all appropriate standards for your geographical area—for example, NEBS Seismic Zone 4 (GR-63-CORE, Sections 4.4.1 and 4.4.2).</p>
Additional Rack Considerations	
Interface cables	<p>When choosing a rack, consider cabling needs (chassis front). Allow at least 95 lb (43.1 kg) weight for each chassis for cables.</p>

