



## Technical Specifications

The appendix includes the following topics:



**Note**

For a complete list of cards supported in the LCC, see the [Cisco Carrier Routing System Data Sheets](#).

- [Line Card Chassis Specifications, on page 1](#)
- [Fixed Configuration Power Specifications, on page 3](#)
- [Modular Configuration Power Specifications, on page 4](#)
- [Line Card Chassis Environmental Specifications, on page 5](#)
- [Regulatory, Compliance, and Safety Specifications, on page 7](#)

## Line Card Chassis Specifications

The following table lists the specifications for the Cisco CRS Carrier Routing System 16-Slot Line Card Chassis.

**Table 1: Cisco CRS 16-Slot Line Card Chassis Specifications**

<b>Chassis Dimensions</b>	
Height	80 in. (203.2 cm) as shipped 84 in. (213.4 cm) as installed
Width	23.6 in. (60.0 cm) 26.1 in. (66.3 cm) with PDU and brackets
Depth	36 in. (91 cm) without doors and other cosmetics 39.7 in. (101 cm) with front and rear doors
Floor space requirement	Chassis: 6 sq ft (0.56 sq m) Aisle spacing to install chassis (front): 48 in. (122 cm) Aisle spacing to service FRUs (front): 36 in. (91 cm) Aisle spacing to service FRUs (rear): 36 in. (91 cm)
Chassis	

<b>Chassis Dimensions</b>	
Chassis shipping weight	1175 lb (532 kg) LCC with shipping crate and pallet
Chassis with power shelves only, no power modules	849 lb (385 kg)
Chassis with power shelves, power modules, alarm module	970 lb (440 kg)
Chassis, fully loaded with cards, without cosmetics	1585 lb (719 kg)
Chassis, fully loaded with cards and cosmetics (doors, panels, grilles, and so on)	1629 lb (739 kg)
Chassis, fully loaded with cards and cosmetics (doors, panels, grilles, and so on), AC Wye PDU, and brackets	1689 lb (766 kg)
Chassis, fully loaded with cards and cosmetics (doors, panels, grilles, and so on), AC Delta PDU, and brackets	1715 lb (778 kg)
<b>Floor Loading</b>	
Chassis footprint	4.72 sq ft (4385 sq cm)
Floor contact area	680 sq in. (4385 sq cm)
Maximum floor loading	<p>Without cosmetics and doors:  <math>1585 \text{ lb} / 4.72 \text{ sq. ft} = 335 \text{ lb/sq. ft}</math>  <math>719 \text{ kg} / 4385 \text{ sq. cm} = 0.164 \text{ kg/sq. cm}</math></p> <p>With cosmetics and doors:  <math>1695 \text{ lb} / 4.72 \text{ sq. ft} = 359 \text{ lb/sq. ft}</math>  <math>769 \text{ kg} / 4385 \text{ sq. cm} = 0.175 \text{ kg/sq. cm}</math></p>

<b>Chassis Dimensions</b>	
Cards/Ports/Slots	1-port OC-768c/STM-256c packet over Synchronous Optical Network (POS) 4-port OC-192c/STM-64c POS/Dynamic Packet Transport (DPT) 16-port OC-48c/STM-16 POS/DPT 8-port 10 Gigabit Ethernet 4-port 10 Gigabit Ethernet CRS1-SIP-800 Carrier Card 4-Port OC-3/STM-1 POS SPA 8-Port 1 Gigabit Ethernet SPA 1-port OC-768c/STM-256c Tunable WDMPOS 4-port 10GE Tunable WDMPHY
Chassis Cooling	2 fan trays, push-pull configuration
Chassis airflow	Up to 2050 cubic ft (58,050 liters) per minute
Power shelf airflow	100 to 140 cubic ft (2832 to 3964 liters) per minute
AC power cord length	167 in. (4.25 m)

## Fixed Configuration Power Specifications

The following table lists the fixed configuration power specifications for the LCC.

**Table 2: Line Card Chassis Fixed Configuration Power Specifications**

Description	Value
Power shelves	2 AC or 2 DC power shelves (Cannot mix AC and DC power shelves.)
DC power shelf	3 power entry modules (PEMs) per shelf
AC power shelf	3 PEMs per shelf
Maximum Input Power	
Fixed configuration DC, chassis fully loaded	13,895 W (13.9 kW) 95% efficiency
Fixed configuration AC, chassis fully loaded	15,000 W (15.0 kW) 88% efficiency
Maximum Output Power	
Chassis fully loaded (DC and AC)	12,744 W (12.7 kW)

Description	Value
Power Redundancy (2N)	
DC	2N: Requires 6 “A” battery plant feeds and 6 “B” battery plant feeds (up to 12 total)
AC, 3-phase	2N: Requires two independent 3-phase AC sources
DC Input	
Nominal input voltage	–48 VDC North America–60 VDC European Community(range –42 to –75 VDC)
Input current	50 A max at –48 VDC40 A max at –60 VDC
AC Input, Delta 3-phase	3W+PE (3 wire + protective earthing) <b>Note</b> Protective earthing conductor (ground wire).
Nominal input voltage	3-phase 200 to 240 VAC, phase-to-phase(range 180 to 264 VAC, phase-to-phase)
Nominal line frequency	50/60 Hz (range 47 to 63 Hz)
Recommended AC service	60 A
AC Input, Wye 3-phase	3W+N+PE (3 wire + neutral + protective earthing1)
Nominal input voltage	3-phase 200-240/346-415 VAC(range 180 to 264 VAC, phase-to-neutral)(range 311 to 456 VAC, phase-to-phase)
Nominal line frequency	50/60 Hz (range 47 to 63 Hz)
Recommended AC service	40 A (North America)32 A (International)

## Modular Configuration Power Specifications

The following table lists the modular configuration power specifications for the Cisco CRS 16-Slot Line Card Chassis.

**Table 3: Line Card Chassis Modular Configuration Power Specifications**

Description	Value
Power shelves	2 AC or 2 DC power shelves (Cannot mix AC and DC power shelves.)
DC power shelf	Supports up to 8 DC power modules (PMs) 6 PMs are shipped per shelf
AC power shelf	Supports up to 6 DC power modules (PMs) 5 PMs are shipped per shelf

Description	Value
Maximum Input Power	
Modular configuration, DC, chassis fully loaded	14,667 watts (14.7 kW) 88% efficiency
Modular configuration, AC, chassis fully loaded	14,348 watts (14.4 kW) 92% efficiency
Maximum Output Power	
Chassis fully loaded (DC and AC)	13,200 W (13.2 kW)
Power Redundancy	
DC	2N: Up to 8 “A” battery plant feeds and up to 8 “B” battery plant feeds
AC	2N: Up to 6 “A” AC single-phase power sources and up to 6 “B” single-phase AC power sources required.
DC Input	
Nominal input voltage	–48 VDC North America–60 VDC InternationalRange: 40 to –72 VDC
Input current	40 A max at –48 VDC30 A max at –60 VDC50 A at –40 VDC (maximum)
AC Input	Single-phase
Nominal input voltage	200 to 240 VAC (range 180 to 264 VAC)
Nominal line frequency	50/60 Hz (range 47 to 63 Hz)
Recommended AC service	20 A (North America) dedicated branch circuit16 A (International) dedicated branch circuit

## Line Card Chassis Environmental Specifications

The following table lists the environmental specifications for the line card chassis.

**Table 4: Line Card Chassis Environmental Specifications**

Description	Value
Temperature	<p>Operating, nominal: 41° to 104°F (5° to 40°C)</p> <p>Operating, short-term: 23° to 122°F (–5° to 50°C)</p> <p><b>Note</b> Short-term refers to a period of not more than 96 consecutive hours and a total of not more than 15 days in 1 year. This refers to a total of 360 hours in any given year, but no more than 15 occurrences during that 1-year period.</p> <p>Nonoperating: –40° to 158°F (–40° to 70°C)</p>
Humidity	<p>Operating: 5 to 85% noncondensing</p> <p>Nonoperating: 5 to 90% noncondensing, short-term operation</p>
Altitude	<p>–197 to 5906 ft (–60 to 1800 m) at 122°F (50°C), short-term</p> <p>Up to 13,123 ft (4000 m) at 104°F (40°C) or below</p>
Heat dissipation	<p>47,408 BTU per hour (maximum) fixed configuration DC</p> <p>Heat dissipation from the fixed configuration DC power system based on maximum output power capacity at 95% efficiency.</p> <p>51,180 BTU per hour—(maximum) fixed configuration AC</p> <p>Heat dissipation from the fixed configuration AC power system based on maximum output power capacity at 88% efficiency.</p> <p>50,042 BTU per hour (maximum) modular configuration DC</p> <p>Heat dissipation from the modular configuration DC power system based on maximum output power capacity at 90% efficiency.</p> <p>48,955 BTU per hour—(maximum) modular configuration AC</p> <p>Heat dissipation from the modular configuration AC power system based on maximum output power capacity at 92% efficiency. Depending on the hardware deployed at your site, your system may not consume or be capable of consuming the maximum power supplied by the power system.</p>
Air exhaust temperature	<p>129°F (54°C)—at room temperatures of 95 to 102°F (35 to 39°C)</p> <p>149°F (65°C)—maximum exhaust temperature on a fully loaded system during worst-case operating conditions (50°C and 6000 ft altitude)</p> <p>Air temperature rise is 59°F (15°C) on a fully loaded system with fans running at maximum speed (5150 RPM).</p> <p>At room temperatures below 95°F (35°C), exhausted air is 66.2°F (19°C) higher than room temperature. At temperatures above 102°F (39°C), exhausted air is 59°F (15°C) higher than room temperature.</p>

Description	Value
Air velocity (at exhaust)	1400 ft per minute (426.7 m per minute) at normal room temperature, low fan speed (4000 RPM)  1800 ft per minute (548.6 m per minute) at high temperature or altitude, maximum fan speed (5150 RPM)  Software controls the speed of the fans based on measurements from the chassis thermal sensors.
Sound power level(fixed configuration power)	Room temp 27°C, sound power, 76.2dB with Arctic Room temp 40°C, sound power, 88 dB with Arctic Room temp 27°C, sound power, 82.2dB with TDI AC Room temp 27°C, sound power, 77.2dB with TDI DC Room temp 40°C, sound power, 89dB with TDI AC Room temp 40°C, sound power, 88dB with TDI
Sound power level(modular configuration power)	Fan speed 3300 RPM, temperature 80°F (27°C): 76.2 dB—modular configuration power Fan speed 5150 RPM, temperature 104°F (40°C): 88.0 dB—modular configuration power
Shock and vibration	Designed and tested to meet the NEBS shock and vibration standards defined in GR-63-CORE (Issue 2, April 2002).

## Regulatory, Compliance, and Safety Specifications

For information about the regulatory, compliance, and safety standards to which the Cisco CRS Series system conforms, see the [Regulatory Compliance and Safety Information for the Cisco CRS Carrier Routing System](#)

