

## Cisco CRS 8-Port 10 Gigabit Ethernet Interface Module

The Cisco® CRS-1 Carrier Routing System is the industry's first carrier router offering continuous system operation, unprecedented service flexibility, and system longevity. The Cisco CRS-1 is powered by Cisco IOS® XR Software – a unique self-healing, distributed operating system designed for always-on operation while scaling system capacity up to 92 Tbps. The innovative system architecture combines the Cisco Silicon Packet Processor, the first programmable 40-Gbps application-specific integrated circuit (ASIC), with the Cisco Service Separation Architecture for unprecedented service flexibility and speed to service. The Cisco CRS-1 marks a new era in carrier IP Communications by powering the foundation for network and service convergence today while protecting investments for decades to come.

This data sheet provides detailed product specifications for the Cisco CRS-1 8-Port 10 Gigabit Ethernet Interface Module. For more information about the Cisco CRS-1 or about other interfaces available for the Cisco CRS-1, visit: <http://www.cisco.com/go/crs>.

**Figure 1.** Cisco CRS-1 8-Port 10 Gigabit Ethernet Interface Module



### Product Specifications

**Table 1.** Product Specifications

Feature	Description
<b>Chassis Compatibility</b>	Compatible with all current Cisco CRS-1 and CRS-3 line-card chassis
<b>Software Compatibility</b>	Cisco IOS XR Software Release 3.0 or later for CRS-1 Cisco IOS XR Software Release 4.0.0 or later for CRS-3
<b>Port Density</b>	Eight ports of 10 Gigabit Ethernet per PLIM slot
<b>Ethernet</b>	Encapsulations: ARPA, IEEE 802.2/SAP, IEEE 802.3/SNAP IEEE 802.x flow control 802.1q VLAN support, jumbo frames IEEE 802.1p tagging Source/destination MAC accounting and VLAN accounting
<b>Reliability and Availability</b>	Online insertion and removal (OIR) without affecting system traffic

Feature	Description
<b>Network Management</b>	Cisco IOS XR Software command-line interface (CLI) Simple Network Management Protocol (SNMP) Extensible Markup Language (XML) interface CraftWorks Interface (CWI)
<b>Physical Dimensions</b>	Occupies one PLIM slot Weight: 8.4 lb (3.8 kg) Height: 20.6 in. (52.2 cm) Depth: 11.2 in. (28.4 cm) Width: 1.8 in. (4.49 cm)
<b>Power</b>	150W
<b>Environmental Conditions</b>	Storage Temperature: –40 to 70°C (–40 to 158°F) Operating Temperature: Normal: 5 to 40°C (41 to 104°F) Short-term: –5 to 50°C (23 to 122°F) short-term Relative Humidity: Normal: 5% to 85% Short-term: 5% to 90% but not to exceed 0.024 kg water/kg of dry air 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.)

## Approvals and Compliance

**Table 2.** Compliance and Agency Approvals

Feature	Description
<b>Safety Standards</b>	UL/CSA/IEC/EN 60950-1 IEC/EN 60825 Laser Safety ACA TS001 AS/NZS 60950 FDA – Code of Federal Regulations Laser Safety
<b>EMI</b>	FCC Class A ICES 003 Class A AS/NZS 3548 Class A CISPR 22 (EN55022) Class A VCCI Class A BSMI Class A IEC/EN 61000-3-2: Power Line Harmonics IEC/EN 61000-3-3: Voltage Fluctuations and Flicker
<b>Immunity (Basic Standards)</b>	IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8 kV Contact, 15 kV Air) IEC/EN-61000-4-3: Radiated Immunity (10 V/m) IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2 kV Power, 1 kV Signal) IEC/EN-61000-4-5: Surge AC Port (4 kV CM, 2 kV DM) IEC/EN-61000-4-5: Signal Ports (1 kV) IEC/EN-61000-4-5: Surge DC Port (1 kV) IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10 Vrms) IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m) IEC/EN-61000-4-11: Voltage DIPS, Short Interruptions, and Voltage Variations
<b>ETSI and EN</b>	EN300 386: Telecommunications Network Equipment (EMC) EN55022: Information Technology Equipment (Emissions) EN55024: Information Technology Equipment (Immunity) EN50082-1/EN-61000-6-1: Generic Immunity Standard
<b>Network Equipment Building Systems (NEBS)</b>	This product is designed to meet the following requirements (qualification in progress): SR-3580: NEBS Criteria Levels (Level 3) GR-1089-CORE: NEBS EMC and Safety GR-63-CORE: NEBS Physical Protection

## Additional Specifications

**Table 3.** Additional Specifications

Parameter	Long Reach 1310 nm (LR/LR+)	Extended Reach 1550 nm (ER+)	DWDM 1530.33-1560.61 nm
Connector Type	SC	SC	SC
Target Distance	10 km	40 km	80 km
<b>Transmitter</b>			
Power out (maximum)	0.5 dBm	4 dBm	3 dBm
Power out (minimum)	−8.2 dBm	−4.7 dBm	−1.0 dBm
<b>Receiver</b>			
P (RMax) (overload)	0.5 dBm	−1.0 dBm	−7.0 dBm
P (RMin) (sensitivity)	−14.4 dBm	−15.8 dBm	−24.0 dBm
<b>Optical Link</b>			
Fiber type	G.652 (single-mode fiber [SMF])	G.652 (SMF)	G.652 (SMF)
Optical path penalty	3.2 dB	4.1 dB	3.0 dB
Compliance	IEEE 802.3ae 10GBASE-LR	IEEE 802.3ae 10GBASE-ER	IEEE 802.3ae 10GBASE

## Ordering Information

To place an order, visit: [Cisco Ordering Home Page](#).

**Table 4.** Ordering Information

Product Part Number	Product Name
8-10GBE(=)	Cisco CRS-1 Carrier Routing System 8-port 10 Gigabit Ethernet Interface Card
CRS-XENPAK-10GB-LR(=)	XENPAK 10GBASE-LR Optics Module
XENPAK-10GB-LR+(=)	XENPAK 10GBASE-LR+ Optics Module
XENPAK-10GB-ER+(=)	XENPAK 10GBASE-ER+ Optics Module
DWDM-XENPAK-60.61= to DWDM-XENPAK-30.33=	XENPAK 10GBASE DWDM Modules (32 ITU 100-GHz wavelengths)

## Service and Support

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## For More Information

For more information about the Cisco CRS-1 8-Port 10 Gigabit Ethernet Interface Module, contact your local account representative or visit: <http://www.cisco.com/go/crs>.



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