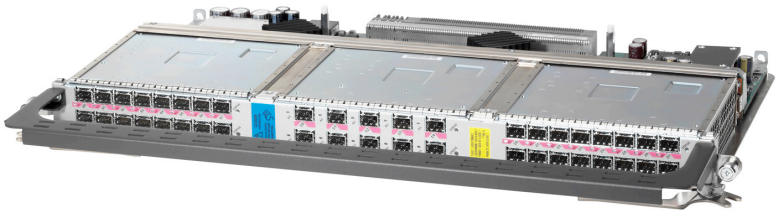
Cisco CRS-1 Series 42 port Gigabit Ethernet Interface Module

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. As part of a video-enabled IP Next-Generation Network (NGN), the Cisco CRS-1 Series delivers continuous, always-on operation that easily scales to support the massive bandwidth requirements of visual networking experiences such as high-definition IPTV and Cisco TelePresence. These services demand a platform that delivers predictable forwarding performance and efficient, intelligent fabric-based multicast replication. The Cisco CRS-1 Series enables the Internet and NGNs to handle the approaching zettabyte era of carrier IP communications while protecting network investments for decades to come.

Product Overview

The Cisco CRS-1 Series 42-Port Gigabit Ethernet Interface Module (Figure 1) provides 42 line-rate, IEEE 802.3-compliant Gigabit Ethernet interfaces. Physical interface characteristics can be selected using different modular Small Form-Factor Pluggable (SFP) optics – short, long, extra long, and copper interfaces are supported. Extensive per-port and per-VLAN counters simplify network performance monitoring and troubleshooting.

Figure 1. Cisco CRS-1 Series 42-Port Gigabit Ethernet Interface Module



Features and Benefits

- 42 line-rate Gigabit Ethernet (GE) full duplex interfaces
- Per-port flexibility for interface distance – selected using the appropriate SFP optical or copper modules
- Compatible with all CRS-1 Series chassis
- Supports in-use insertion and removal without the need to power down the chassis
- Simple configuration, monitoring, and maintenance

Product Specifications

Table 1. Product Specifications

Feature	Description
Chassis Compatibility	Compatible with both 4-slot and 8-slot Cisco CRS-1 chassis Requires one of the following forwarding engines: FP40, MSC, or MSC-B
Software Compatibility	Cisco IOS XR Software Release 3.8.1 or later
Port Density	Forty-two ports of Gigabit Ethernet per card, each using SFP physical interfaces SFPs supported: • Short wavelength (SX) • Long reach/long haul (LX/LH) • Extended distance (ZX) SFP • Copper (RJ-45) SFP-GE-T
Ethernet	Encapsulations: ARPA, IEEE 802.2/SAP, IEEE 802.3/SNAP IEEE 802.3x flow control Jumbo frames (9188 bytes) IEEE 802.1p tagging Source/destination MAC accounting and VLAN accounting Autonegotiation Full-duplex operation 802.1Q VLAN termination Per-port byte and packet counters for policy drops; oversubscription drops; cyclic redundancy check (CRC) error drops; packet sizes; and unicast, multicast, and broadcast packets Per-VLAN byte and packet counters for policy drops; oversubscription drops; and unicast, multicast, and broadcast packets Per-port byte counters for good bytes and dropped bytes
LED Indicators	SPA status: Bicolor green and amber LEDs encode the SPA status as follows: • LED off: SPA is powered off • LED amber: SPA is powered on and initializing • LED green: SPA is powered on and operational In addition to the status LED, the SPAs also have a bicolor, surface-mount, right-angle LED dedicated to each port to indicate port status. The green and amber LEDs encode the port status as follows: • LED off: Port is not enabled by software • LED: Port is enabled by software, but there is a problem with the Ethernet link • LED green: Port is enabled by software, and there is a valid Ethernet link
Reliability and Availability	Online insertion and removal (OIR) without affecting system traffic Field-replaceable SFP optical modules
Network Management	Cisco IOS XR Software command-line interface (CLI) Simple Network Management Protocol (SNMP) Extensible Markup Language (XML) interface

Feature	Description
Physical Dimensions	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)
Power	150W
Environmental Conditions	**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) **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
Safety Standards	UL/CSA/IEC/EN 60950-1 IEC/EN 60825 Laser Safety ACA TS001 AS/NZS 60950 FDA – Code of Federal Regulations Laser Safety
EMI	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
Immunity (Basic Standards)	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
ETSI and EN	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
Network Equipment Building Systems (NEBS)	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. Optical Specifications: Modular SFP Optics

Gigabit Ethernet SFP Optics	Maximum Distance
SX SFP optics	1804 ft (550m)
LX/LH SFP optics	6.2 mi (10 km)
ZX SFP optics	43.5 mi (70 km)
Copper (RJ-45) SFP optics	328 ft (100 m)

Ordering Information

To place an order, visit the Cisco Ordering Home Page.

Table 4. Ordering Information

Product Part Number	Product Name
42-1GE(=)	Cisco CRS-1 Series 42x1GE Interface Module
SFP-GE-S(=)	Cisco Extended Temperature SX SFP
SFP-GE-L(=)	Cisco Extended Temperature LX/LH SFP
SFP-GE-Z(=)	Cisco Extended Temperature ZX SFP
SFP-GE-T(=)	1000BASE-T SFP

Service and Support

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For More Information

For more information about the Cisco CRS-1 Series 42-Port Gigabit Ethernet Interface Module, contact your local account representative or visit: www.cisco.com/go/crs

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