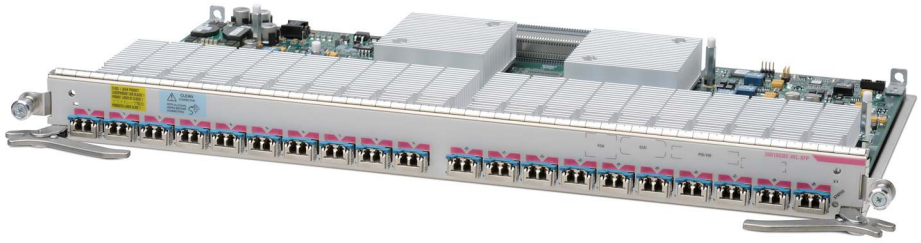
Cisco CRS-3 20-Port 10GE LAN/WAN-PHY Interface Module

The Cisco® CRS-3 Carrier Routing System offers industry-leading performance, advanced services intelligence, environmentally conscious design, and system longevity. The Cisco CRS-3 is powered by the Cisco QuantumFlow Array – a chipset architecture based on multidimensional engineering and Cisco IOS® XR Software, a unique self-healing, distributed operating system.

Packet-based data communications are being replaced by video and rich media traversing the IP Next-Generation Network (NGN) in multiple directions, straining the architectural foundations of both public and private networks serving businesses and consumers. As part of the medianet, a media-aware Cisco IP NGN, the Cisco CRS-3 delivers continuous, always-on operations and scales easily from numerous single-chassis form factors to a massive multi-chassis system. Its design provides an industry-leading efficiency consuming lowest power, cooling and rack-space resources for an intelligent service-rich bandwidth capacity. The CRS-3 builds on the CRS-1 being backward and forward compatible, protecting existing and future investments for decades to come.

This data sheet provides detailed product specifications for the Cisco CRS-3 20-Port 10GE LAN/WAN-PHY Interface Module (product number 20X10GBE-WL-XFP). For more information about the Cisco CRS Family or about other available interfaces, visit: http://www.cisco.com/go/crs.

Figure 1. Cisco CRS-3 20-Port 10GE LAN/WAN-PHY Interface Module



Product Specifications

Table 1 gives specifications for the Cisco CRS-3 20-Port 10GE LAN/WAN-PHY Interface Module.

Table 1. Product Specifications

Feature	Description
Chassis compatibility	• Compatible with all current Cisco CRS-3 line-card chassis • Compatible with all current Cisco CRS-1 line-card chassis with 140G Fabric Cards • Requires Cisco 140G Modular Services Card or 140G Forwarding Processor Card for operation
Software compatibility	Cisco IOS XR Software Release 4.0.0 or later
Port density	• Twenty ports of 10 Gigabit Ethernet per PLIM slot • Maximum card throughput = 140 Gbps
Ethernet	• 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 • 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 • 10GE Configurable LAN/WAN-PHY support • Synchronous Ethernet • IEEE 1588
Performance	• 140G Gbps line-rate Throughput • Maximum number of IM per chassis: 4 slot (4), 8 slot (8), 16 slot (16)
Reliability and availability	• Line-card online insertion and removal (OIR) support without system impact.
Network management	• Cisco IOS XR Software command-line interface (CLI) • Simple Network Management Protocol (SNMP) • Extensible Markup Language (XML) interface • CraftWorks Interface (CWI) • Cisco Active Network Abstraction (ANA)
Physical dimensions	• Occupies one-half slot on a Cisco CRS-3 and CRS-1 chassis • Weight: 8.45 lbs (3.82 kg) • Height: 20.6 in. (52.2 cm) • Depth: 11.2 in. (28.4 cm) • Width: 1.8 in. (4.49 cm)
Power	150 Watts
Environmental conditions	• Storage temperature: –40 to 70℃ (–40 to 158℉) • Operating temperature: ◦ Normal: 5 to 40℃ (41 to 104℉) ◦ Short-term: –5 to 50℃ (23 to 122℉) • 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 gives standards compliance information for the Cisco CRS-3 20-Port 10GE LAN/WAN-PHY Interface Module.

Table 2. Compliance and Agency Approvals

Feature	Description
Safety Standards	• UL/CSA/IEC/EN 60950-1 • AS/NZS 60950.1 • IEC/EN 60825 Laser Safety • FDA – Code of Federal Regulations Laser Safety
EMI	• FCC Class A • ICES 003 Class A • AS/NZS CISPR 22 Class A • CISPR 22 (EN55022) Class A • VCCI 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 (10V/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 (30A/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 Standards (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. Additional Specifications

Gigabit Ethernet XFP Optics	Maximum Distance
10 Gigabit Ethernet short-reach (SR) optics (multimode fiber)	300 meters
10 Gigabit Ethernet long-reach (LR) optics (single-mode fiber)	6.2 miles (10 km)
10 Gigabit Ethernet extended-reach (ER) optics (single-mode fiber)	25 miles (40 km)
10 Gigabit Ethernet long-haul (ZR) optics (single-mode fiber)	50 miles (80 km)
10 Gigabit DWDM fixed wavelength XFP (100-GHz ITU grid)	50 miles (80 km)
10 Gigabit DWDM Tunable XFP (50-GHz ITU grid)*	50 miles (80 km)

* Not yet qualified on this card; planned for future release

Ordering Information

To place an order, contact your local Cisco representative or visit the Cisco Ordering Home Page. Use the ordering information in Table 4.

Table 4. Ordering Information

Product Part Number	Product Name
20X10GBE-WL-XFP(=)	Cisco CRS-3 20-port 10GbE LAN/WAN-PHY Interface Module
XFP-10G-MM-SR(=)	Cisco 10 Gigabit Ethernet SR (300 meters) Optics
XFP10GLR-192SR-L(=)	Low Power multirate XFP supporting 10GBASE-LR and OC-192 SR
XFP10GER-192IR-L(=)	Low Power multirate XFP supporting 10GBASE-ER and OC-192 IR
XFP-10GZR-OC192LR(=)	Cisco 10 Gigabit Ethernet ZR (80 km) Optics
DWDM-XFP-xx.xx(=)	Cisco 10 Gigabit DWDM (80 km) Optics

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For More Information

For more information about the Cisco CRS-3 20-Port 10GE LAN/WAN-PHY Interface Module, contact your local Cisco representative or visit: http://www.cisco.com/go/crs.

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