Cisco CRS 16-Slot Line Card Chassis Route Processor B

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 16-Slot Line Card Chassis Route Processor (Figure 1). The Cisco CRS 16-Slot system supports two route processors for control plane redundancy. The Cisco CRS-1 16-Slot Line Card Chassis Route Processor B comes with a dual 1.2-GHz CPU symmetric multiprocessing (SMP) complex that controls and powers this multiterabit router. The route processor controls all shelf management functions and runs the routing protocols suite powered by Cisco IOS-XR Software designed for carrier-class networks. 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 16-Slot Line Card Chassis Route Processor

Product Specifications

Table 1 gives product specifications and Table 2 gives compliance and agency approval information.

Table 1. Product Specifications

Feature	Description
Chassis compatibility	Compatible with the Cisco CRS-1 and CRS-3 16-slot Line Card chassis
Software compatibility	Cisco IOS XR Software Release 3.3 and above for CRS-1 Cisco IOS XR Software Release 4.0.0 or later for CRS-3

Feature	Description
Protocols	Cisco Discovery Protocol
	IPv4 and IPv6 addressing
	Internet Control Message Protocol (ICMP)
	Layer 3 routing protocols, including Border Gateway Protocol Version 4 (BGPv4), Open Shortest Path First Version 2 (OSPFv2), OSPFv3, and Intermediate System-to-Intermediate System (IS-IS)
	Multicast forwarding with support for source-based and shared distribution trees and the following protocols:
	• Protocol Independent Multicast sparse mode (PIM-SM)
	• Bidirectional PIM (Bidir-PIM)
	• PIM Source Specific Multicast (PIM SSM)
	• Automatic route processing (AutoRP)
	• Internet Group Management Protocol (IGMP) Versions 1, 2, and 3
	• Multiprotocol BGP (MBGP)
	• Multicast Source Discovery Protocol (MSDP)
	Multiprotocol Label Switching (MPLS)
	• MPLS Label Distribution Protocol (LDP)
	• Resource Reservation Protocol (RSVP)
	• Differentiated Services (DiffServ)-Aware Traffic Engineering
	MPLS Traffic Engineering control plane (RFCs 2702 and 2430)
	Route Policy Language (RPL)
	Management
	• Simple Network Management Protocol (SNMP)
	• Programmatic interfaces (Extensible Markup Language [XML])
	Security
	• Message Digest Algorithm 5 (MD5)
	• IP Security (IPsec) Protocol
	• Secure Shell (SSHv2) Protocol
	• Secure FTP (SFTP)
	Secure Sockets Layer (SSL)
Connectivity	• Console port (RJ-45 connector)
	• Auxiliary port (RJ-45 connector)
	• One 10/100/1000 Ethernet port (RJ-45 connector)
	• Two 10/100/1000 Ethernet ports (1000BASE-LX Small Form-Factor Pluggable (SFP)-LC connector, 10 km) for control plane connectivity
Memory	• 4 GB of route memory
	• 64 MB of boot flash memory
	• 2 MB of nonvolatile RAM (NVRAM)
	• One 1-GB PCMCIA card (internal)
	• One 40-GB hard drive
Options	One 1-GB PCMCIA card
Performance	Two 1.2-GHz power PC SMP
Reliability and availability	Software features:
	• Cisco Nonstop Forwarding (NSF)
	• Hot Standby Router Protocol/Virtual Router Redundancy Protocol (HSRP/VRRP)
	• Online insertion and removal (OIR)
	• MPLS Fast Reroute (FRR)
MIBs	SNMP framework support:
	• SNMPv1
	• SNMPv2c
	• SNMPv3
	• MIB II, including interface extensions (RFC 1213)
	• SNMP-FRAMEWORK-MIB
	• SNMP-TARGET-MIB
	• SNMP-NOTIFICATION-MIB

Feature	Description
	System management: • CISCO- BULK-FILE-MIB • CISCO-CONFIG-COPY-MIB • CISCO-CONFIG-MAN-MIB • CISCO-FLASH-MIB • CISCO-MEMORY-POOL-MIB • Cisco FTP Client MIB • Cisco Process MIB • Cisco Syslog MIB • CISCO-SYSTEM-MIB • CISCO-CDP-MIB • IF-MIB (RFC 2233/RFC 2863) • SNMP-USM-MIB • SNMP-VACM-MIB Chassis: • ENTITY-MIB (RFC 2737) • CISCO-entity-asset-MIB • CISCO-entity-sensor-MIB • CISCO-FRU-MIB (Cisco-Entity-FRU-Control-MIB) Fabric: • CISCO-Fabric-HFR-MIB • CISCO-Fabric-Mcast-MIB • CISCO-Fabric-Mcast-Appl-MIB Routing protocols: • BGP4-MIB Version 1 • OSPFv1-MIB (RFC 1253) • CISCO-IETF-IP-FORWARDING-MIB • IP-MIB (was RFC 2011-MIB) • TCP-MIB (RFC 2012) • UDP-MIB • CISCO-HSRP-EXT-MIB • CISCO-HSRP-MIB Quality of service (QoS): • MQC-MIB (Cisco Class-Based QoS MIB) • CISCO-PING-MIB MPLS: • MPLS-LDP-MIB • MPLS-LSR-MIB • MPLS-TE-MIB Traps: • RFC 1157 • Authentication • Linkup • Linkdown • Coldstart • Warmstart
Network management	• Enhanced command-line interface (CLI) • XML interface • XML schemas • Craft Works Interface (CWI) • SNMP and MIB support
Programmatic interfaces	XML schema support

Feature	Description
Physical dimensions	• Weight: 12.15 lb (5.5 kg) • Height: 20.6 in. (52.2 cm) • Width (occupies a single slot): 2.8 in. (7.1 cm) • Depth: 11.2 in. (28.4 cm)
Power	140W

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, KN22: 2005) 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 (KN 61000-4-2: 05): Electrostatic Discharge Immunity (8kV Contact, 15kV Air) • IEC/EN-61000-4-3 (KN 61000-4-3:05): Radiated Immunity (10V/m) • IEC/EN-61000-4-4 (KN 61000-4-4:2005): Electrical Fast Transient Immunity (2kV Power, 1kV Signal) • IEC/EN-61000-4-5: Surge AC Port (4kV CM, 2kV DM) • IEC/EN-61000-4-5: Signal Ports (1kV) • IEC/EN-61000-4-5: Surge DC Port (1kV) • IEC/EN-61000-4-6 (KN 61000-4-6:2005): Immunity to Conducted Disturbances (10Vrms) • 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

Ordering Information

To place an order, visit: Cisco Ordering Home Page and refer to Table 3.

Table 3.   Ordering Information

Product Part Number	Product Name
GLC-LH-SM(=)	Cisco Gigabit Ethernet SFP LC connector LX/LH transceiver (spare)
GLC-LH-SMD(=)	Cisco Gigabit Ethernet SFP LC connector LX/LH transceiver; with DOM (spare)
CRS-16-RP-B(=)	Cisco CRS-1 16-Slot Line Card Chassis Route Processor B (spare)

End-of-Sale and End-of-Life Announcement for the Select Cisco Gigabit Ethernet SFP Modules:
http://www.cisco.com/en/US/prod/collateral/modules/ps5455/eol_c51-698060.html

To Download the IOS XR Software, visit: Cisco Software Center.

Service and Support

Cisco Systems® offers numerous innovative services programs to accelerate customer success. These programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, visit: Cisco Technical Support Services or Cisco Advanced Services.

For More Information

For more information about the Cisco CRS-1 16-Slot Line Card Chassis Route Processor, contact your local Cisco account representative or visit Cisco at: http://www.cisco.com/go/crs.