# Cisco CRS 16-Slot Line-Card Chassis Route Processor

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. 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



## Product Specifications

**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 2.0 & 3.0 or higher for CRS-1 |
| | Cisco IOS XR Software Release 4.0.0 or later for CRS-3 |
| **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, Intermediate System-to-Intermediate System Protocol (IS-IS) |
| | Multicast forwarding with support for source-based and shared distribution trees and the following protocols: |
| | • Protocol Independent Multicast sparse mode (PIM-SM) |
| | • Bi-directional 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) |

| Feature | Description | |
|---|---|---|
| | • Diffserv Aware TE<br>MPLS Traffic Engineering control plane (RFCs 2702 and 2430)<br>Route Policy Language (RPL)<br>Management<br>• Simple Network Management Protocol (SNMP)<br>• Programmatic interfaces (XML)<br>Security<br>• Message Digest Algorithm (MD5)<br>• IP Security (IPSec) Protocol<br>• Secure Shell (SSHv2)<br>• Secure FTP (SFTP)<br>• Secure Sockets Layer (SSL) | |
| **Connectivity** | • Console port (RJ-45 connector)<br>• Auxiliary port (RJ-45 connector)<br>• One 10/100/1000 Ethernet port (RJ-45 connector)<br>• Two 10/100/1000 Ethernet ports (1000BASE-LX SFP-LC connector, 10 km) for control plane connectivity | |
| **Memory** | • 4 GB of route memory<br>• 64 MB of boot Flash<br>• 2 MB of nonvolatile RAM (NVRAM)<br>• One 1-GB PCMCIA card (internal)<br>• One 40-GB hard drive | |
| **Options** | One 1-GB PCMCIA card | |
| **Performance** | Two 800-MHz Power PC symmetric multiprocessing (SMP) | |
| **Reliability and Availability** | Software features:<br>• Cisco Nonstop Forwarding (NSF)<br>• Hot Standby Router Protocol/Virtual Router Redundancy Protocol (HSRP/VRRP)<br>• Online insertion and removal (OIR)<br>• MPLS Fast Reroute (FRR) | |
| **MIBs** | SNMP Framework Support:<br>• SNMPv1<br>• SNMPv2c<br>• SNMPv3<br>• MIB II, including interface extensions (RFC 1213)<br>• SNMP-FRAMEWORK-MIB<br>• SNMP-TARGET-MIB<br>• SNMP-NOTIFICATION-MIB<br>System Management:<br>• CISCO- BULK-FILE-MIB<br>• CISCO-CONFIG-COPY-MIB<br>• CISCO-CONFIG-MAN-MIB<br>• CISCO-FLASH-MIB<br>• CISCO-MEMORY-POOL-MIB<br>• Cisco FTP Client MIB<br>• Cisco Process MIB<br>• Cisco Syslog MIB<br>• CISCO-SYSTEM-MIB<br>• CISCO-CDP-MIB<br>• IF-MIB (RFC 2233/RFC 2863) | • SNMP-USM-MIB<br>• SNMP-VACM-MIB<br>Chassis:<br>• ENTITY-MIB (RFC 2737)<br>• CISCO-entity-asset-MIB<br>• CISCO-entity-sensor-MIB<br>• CISCO-FRU-MIB (Cisco-Entity-FRU-Control-MIB)<br>Fabric:<br>• CISCO-Fabric-HFR-MIB<br>• CISCO-Fabric-Mcast-MIB<br>• CISCO-Fabric-Mcast-Appl-MIB<br>Routing Protocols:<br>• BGP4-MIB Version 1<br>• OSPFv1-MIB (RFC 1253)<br>• CISCO-IETF-IP-FORWARDING-MIB<br>• IP-MIB (was RFC 2011-MIB)<br>• TCP-MIB (RFC 2012)<br>• UDP-MIB<br>• CISCO-HSRP-EXT-MIB<br>• CISCO-HSRP-MIB |
| | Quality of Service (QoS):<br>• MQC-MIB (Cisco Class-Based QoS MIB)<br>• CISCO-PING-MIB<br>MPLS:<br>• MPLS-LDP-MIB<br>• MPLS-LSR-MIB<br>• MPLS-TE-MIB | Traps:<br>• RFC 1157<br>• Authentication<br>• Linkup<br>• Linkdown<br>• Coldstart<br>• Warmstart |
| **Network Management** | • Enhanced command-line interface (CLI) | |

| Feature | Description |
|---|---|
| | • Extensible Markup Language (XML) interface<br>• XML schemas<br>• Craft Works Interface (CWI)<br>• Simple Network Management Protocol (SNMP) and MIB support |
| **Programmatic Interfaces** | XML Schema support |
| **Physical Dimensions** | • Weight: 12.8 lb (5.8 kg)<br>• Height: 20.6 in. (52.2 cm)<br>• Width (occupies a single, thin slot): 2.8 in. (7.1 cm)<br>• Depth: 11.2 in. (28.4 cm) |
| **Power** | 166W |

## Approvals and Compliance

**Table 2.**　　Compliance and Agency Approvals

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

## Ordering Information

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

**Table 3.** Ordering Information

| Product Part Number | Product Name |
|---|---|
| GLC-LH-SM(=) | GbE LX SFP |
| CRS-16-RP (=) | Cisco CRS-1 16-Slot Line-Card Chassis Route Processor |

### To Download the Software

To download Cisco IOS Software, visit: Cisco Software Center.

## Service and Support

Cisco 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 to protect your network investment, optimize network operations, and prepare the 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 CRS-1 16-Slot Line-Card Chassis Route Processor, contact your local account representative or visit Cisco at: http://www.cisco.com/go/crs.