

Cisco CRS 16-Slot Line Card Chassis Performance Route Processor

Product Overview

The Cisco® Carrier Routing System (CRS) Performance Route Processor is the next-generation route processor for the Cisco CRS-1, CRS-3, and CRS-X platforms. It is the first Cisco CRS Route Processor to offer the outstanding speed of the Intel® Xeon® quad-core processor. With 6 or 12 GB of double-data-rate 3 (DDR3) error-correcting code (ECC) memory, this performance route processor provides extremely fast routing performance at exceptional scale for the largest core and edge applications. The multicore design and speed allow you to achieve high scaling levels for applications such as Border Gateway Protocol (BGP) and Interior Gateway Protocols (IGP), Multiprotocol Label Switch Traffic Engineering (MPLS-TE), Cisco NetFlow, Lawful Intercept, Simple Network Management Protocol (SNMP), or Extensible Markup Language (XML) monitoring, without adversely affecting routing performance.

The Cisco CRS Performance Route Processor (Figure 1) uses the award-winning Cisco IOS® XR Software, which is a fully modular, fully distributed internetwork operating system that uses a memory-protected, microkernel-based architecture and control-plane distribution that allow the system to scale.

The performance route processor also includes a pair of solid-state drives (SSDs) for fast software installation and boot-up. Like the ECC memory, which protects against memory errors, the dual SSDs guard against drive failure by mirroring the boot partition that stores the Cisco IOS XR Software.

Figure 1. Cisco CRS 16-Slot Line Card Chassis Performance Route Processor



Features and Benefits

This route processor offers many advantages:

- Powered by Cisco IOS XR Software
- Designed for always-on operation, while scaling system capacity with a multichassis architecture
- High-performance Intel Xeon quad-core CPU for fast multithreaded software processing
- Redundant and fast SSD storage system

- Supported across all the Cisco CRS 16-slot and multichassis form factors
- External USB port for easy access to USB flash memory devices for software image loading and recovery
- Optimized for peer-to-peer edge and core applications

Product Specifications

Table 1 provides specifications for the Cisco CRS 16-Slot Line Card Chassis Performance Route Processor.

Table 1. Product Specifications

Feature	Description
Chassis compatibility	Compatible with all Cisco CRS 16-Slot Line Card Chassis and Multishelf Systems
Software compatibility	Cisco IOS XR Software Release 4.0.2PX, 4.1.0PX, or later for Cisco CRS-1 and CRS-3 Cisco IOS XR Release 5.1.1 and later for CRS-X.
Connectivity	<ul style="list-style-type: none"> • Console port (RJ-45 connector) • Auxiliary port (RJ-45 connector) • 10,100 and 1000 Gigabit Ethernet management port (RJ-45 connector) • Two 10,100, and 1000 Gigabit Ethernet ports (1000BASE-LX Small Form-Factor Pluggable [SFP]-LC connector, 10 km) for control plane connectivity • 10,100, and 1000 Gigabit Ethernet service port (RJ-45 connector) • Embedded USB (eUSB) 2.0 port (high speed)
Memory	<ul style="list-style-type: none"> • 6 GB or 12 GB of ECC protected DDR3 route memory (not upgradable) • Two 32 GB SSDs (internal)
Options	Third-party external USB flash drive
Performance	Intel Xeon C5528 quad-core Processor at 2.13 GHz and 64-bit microarchitecture
Reliability and availability	<p>Hardware:</p> <ul style="list-style-type: none"> • 1:1 route processor redundancy • Disk-mirrored Cisco IOS XR boot partition • ECC protected route memory <p>Software:</p> <ul style="list-style-type: none"> • Cisco Nonstop Forwarding (NSF) • Hot Standby Router Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP) • Online insertion and removal (OIR) • MPLS Fast Reroute (FRR)
MIBs	<p>SNMP framework support:</p> <ul style="list-style-type: none"> • SNMPv1 • SNMPv2c • SNMPv3 • MIB II, including interface extensions (RFC 1213) • SNMP-FRAMEWORK-MIB • SNMP-TARGET-MIB • SNMP-NOTIFICATION-MIB <p>System management:</p> <ul style="list-style-type: none"> • 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)

Feature	Description
	<ul style="list-style-type: none"> • SNMP-USM-MIB • SNMP-VACM-MIB <p>Chassis:</p> <ul style="list-style-type: none"> • ENTITY-MIB (RFC 2737) • CISCO-entity-asset-MIB • CISCO-entity-sensor-MIB • CISCO-FRU-MIB (Cisco-Entity-FRU-Control-MIB) <p>Fabric:</p> <ul style="list-style-type: none"> • CISCO-Fabric-HFR-MIB • CISCO-Fabric-Mcast-MIB • CISCO-Fabric-Mcast-Appl-MIB <p>Routing protocols:</p> <ul style="list-style-type: none"> • 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 <p>QoS:</p> <ul style="list-style-type: none"> • MQC-MIB (Cisco Class-Based QoS MIB) • CISCO-PING-MIB <p>MPLS:</p> <ul style="list-style-type: none"> • MPLS-LDP-MIB • MPLS-LSR-MIB • MPLS-TE-MIB <p>Traps:</p> <ul style="list-style-type: none"> • RFC 1157 • Authentication • Linkup • Linkdown • Coldstart • Warmstart
Network management	<ul style="list-style-type: none"> • Cisco IOS XR Software command-line interface (CLI) • SNMP • XML interface • Cisco Active Network Abstraction (ANA)
Programmatic interfaces	XML schema support
Physical dimensions	<ul style="list-style-type: none"> • Weight: 12.90 lb (5.85 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	Maximum 275W
Environmental conditions	<p>Storage temperature: -40 to 158°F (-40 to 70°C)</p> <p>Operating temperature:</p> <ul style="list-style-type: none"> • Normal: 41 to 104°F (5 to 40°C) • Short-term: 23 to 122°F (-5 to 50°C) <p>Relative humidity:</p> <ul style="list-style-type: none"> • Normal: 5 to 85% • Short-term: 5 to 90% but not to exceed 0.024 kg water per kg of dry air <p>Short-term refers to a period of not more than 96 consecutive hours or a total of 360 hours but not more than 15 instances in 1 year.</p>

Feature	Description
Approvals and compliance	<p>Safety standards:</p> <ul style="list-style-type: none"> • UL/CSA/IEC/EN 60950-1 • AS/NZS 60950.1 • IEC/EN 60825 Laser Safety • FDA Code of Federal Regulations Laser Safety <p>EMI:</p> <ul style="list-style-type: none"> • 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 <p>Immunity (basic standards):</p> <ul style="list-style-type: none"> • 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 <p>ETSI and EN:</p> <ul style="list-style-type: none"> • 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 <p>Network Equipment Building Standards (NEBS); this product is designed to meet the following requirements (qualification in progress):</p> <ul style="list-style-type: none"> • SR-3580: NEBS Criteria Levels (Level 3) • GR-1089-CORE: NEBS EMC and Safety • GR-63-CORE: NEBS Physical Protection

System Requirements

Table 2 lists the system requirements for the route processor.

Table 2. System Requirements

Description	Specification
Disk space	Two 32-GB SSDs
Hardware	Cisco CRS-1 or CRS-3 16-Slot Line Card Chassis or Cisco CRS-1 or CRS-3 Multishelf System
Memory	6 or 12 GB of route processor memory (not upgradeable)
Software	Cisco IOS XR Software 4.0.2PX, 4.1.0PX, or later for CRS-1 and CRS-3 Cisco IOS XR Software 5.1.1 or later for CRS-X

Warranty Information

Find warranty information on Cisco.com at the [Product Warranties](#) page.

Ordering Information

Table 3 provides ordering information. To place an order, visit the [Cisco Ordering homepage](#). To download software, visit the [Cisco Software Center](#).

Table 3. Ordering Information

Product Name	Part Number
Cisco CRS Series 16-Slot Performance Route Processor (6 GB)	CRS-16-PRP-6G
Cisco CRS Series 16-Slot Performance Route Processor (6 GB, spare)	CRS-16-PRP-6G=
Cisco CRS Series 16-Slot Performance Route Processor (12 GB)	CRS-16-PRP-12G
Cisco CRS Series 16-Slot Performance Route Processor (12 GB, spare)	CRS-16-PRP-12G=
Cisco Gigabit Interface Small Form-Factor Pluggable; with DOM	GLC-LH-SMD
Cisco Gigabit Interface Small Form-Factor Pluggable; with DOM (spare)	GLC-LH-SMD=
Cisco CRS Performance Route Processor Upgrade Cable	CRS-PRP-UPG-CAB

End-of-sale and end-of-life announcement for selected Cisco Gigabit Ethernet SFP modules:

http://www.cisco.com/en/US/prod/collateral/modules/ps5455/eol_c51-698060.html.

Cisco Services

Cisco Services help networks, applications, and the people who use them work together more effectively. Today, the network is a strategic platform in a world that demands better integration between people, information, and ideas. The network works better when services, together with products, create solutions aligned with business needs and opportunities.

The unique Cisco Lifecycle approach to services defines the required activities at each phase of the network lifecycle to help ensure service excellence. With a collaborative delivery methodology that joins the forces of Cisco, our skilled network of partners, and our customers, we can achieve the best results.

For More Information

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



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
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