Cisco CRS 4-, 8-, and 16-Slot Line Card Chassis Performance Route Processors

Product Overview

The Cisco® Carrier Routing System (CRS) performance route processors provide speed and scale for the evolving needs of the network. The Cisco CRS route processor comes with the speed of the Intel® Xeon® dual-core processor and has 6 or 12 GB of double data rate type three (DDR3) error-correcting code (ECC) memory for fast routing performance and exceptional scale for the largest core and edge applications. The multicore design and speed allow you to achieve high scaling levels for all 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 Mark-up Language (XML) monitoring, without adversely affecting routing performance.

The Cisco CRS performance route processors (Figures 1 and 2) run on Cisco IOS® XR Software, a fully modular and 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 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 4/8-Slot Line Card Chassis Performance Route Processor

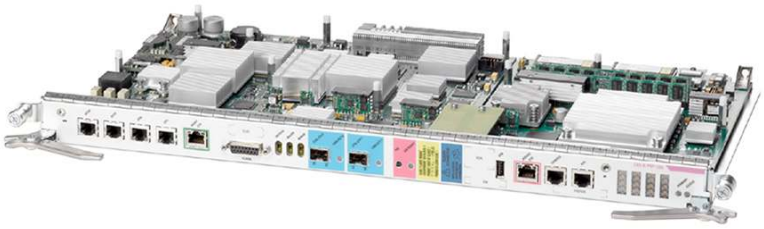
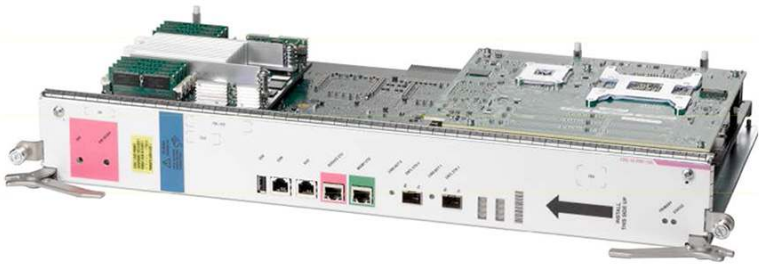


Figure 2. Cisco CRS 16-Slot Line Card Chassis Performance Route Processor



Features and Benefits

Both route processors offer many advantages:

- Powered by Cisco IOS XR Software
- Designed for always-on operation
- High-performance Intel Xeon dual-core CPU for fast multithreaded software processing
- Redundant and fast SSD storage system
- Supported across all the Cisco CRS 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 Cisco CRS 4-slot, 8-slot, and 16-slot line card chassis performance route processors.

Table 1. Product Specifications

Feature	Description	
	Cisco CRS 4 -and 8-Slot Line Card Chassis Performance Route Processor	**Cisco CRS 16-Slot Line Card Chassis Performance Route Processor**
Chassis compatibility	Compatible with all Cisco CRS 4-slot and 8-slot line card chassis	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 Software Release 5.1.1 for Cisco CRS-X	
Connectivity	• 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	• 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 C3528 dual-core processor at 1.73 GHz (64-bit microarchitecture)	Intel Xeon C5528 quad-core processor at 2.13 GHz and 64-bit microarchitecture
Reliability and availability	Hardware: • 1:1 route processor redundancy • Disk-mirrored Cisco IOS XR boot partition • ECC-protected route memory Software: • Cisco nonstop forwarding (NSF) • Hot Standby Router Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP) • Online insertion and removal (OIR) • Multiprotocol Label Switching (MPLS) fast reroute (FRR)	

Feature	Description	
	Cisco CRS 4 -and 8-Slot Line Card Chassis Performance Route Processor	Cisco CRS 16-Slot Line Card Chassis Performance Route Processor
MIBs	SNMP framework support: • SNMPv1 • SNMPv2c • SNMPv3 • MIB II, including interface extensions (RFC 1213) • SNMP-FRAMEWORK-MIB • SNMP-TARGET-MIB • SNMP-NOTIFICATION-MIB 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 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	

Feature	Description	
	Cisco CRS 4 -and 8-Slot Line Card Chassis Performance Route Processor	Cisco CRS 16-Slot Line Card Chassis Performance Route Processor
Network management	• Cisco IOS XR Software command-line interface (CLI) • SNMP • XML interface • Cisco Active Network Abstraction (ANA)	
Programmatic interfaces	XML schema support	
Physical dimensions	• Weight: 8.75 lb (3.96 kg) • Height: 20.6 in. (52.2 cm) • Width: 1.3875 in. (3.524 cm) • Depth: 11.2 in. (28.4 cm)	• 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 175W	Maximum 275W
Environmental conditions	Storage temperature: -40 to 158℉ (-40 to 70℃) Operating temperature: • Normal: 41 to 104℉ (5 to 40℃) • Short-term: 23 to 122℉ (-5 to 50℃) Relative humidity: • Normal: 5 to 85% • Short-term: 5 to 90% but not to exceed 0.024 kg water per kg of dry air 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.	
Approvals and compliance	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 • ISPR 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	

System Requirements

Table 2 lists the system requirements for the route processors.

Table 2. System Requirements

Feature	Description	
	Cisco CRS 4 -and 8-Slot Line Card Chassis Performance Route Processor	Cisco CRS 16-Slot Line Card Chassis Performance Route Processor
Disk space	Two 32-GB SSDs	
Hardware	All Cisco CRS 4-slot or 8-slot line card chassis (Cisco CRS-1, CRS-3, or CRS-X)	All Cisco CRS 16-slot line card chassis (Cisco CRS-1, CRS-3, or CRS-X) and multichassis
Memory	6 or 12 GB of route processor memory (not upgradable)	
Software	Cisco IOS XR Software Release 4.0.2PX, 4.1.0PX or later for Cisco CRS-1 and CRS-3 Cisco IOS XR Software Release 5.1.1 for Cisco CRS-X	

Warranty Information

Warranty information is available 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 4/8-Slot Line Card Chassis Performance Route Processor (6 GB)	CRS-8-PRP-6G
Cisco CRS Series 4/8-Slot Line Card Chassis Performance Route Processor (6 GB, spare)	CRS-8-PRP-6G=
Cisco CRS Series 4/8-Slot Line Card Chassis Performance Route Processor (12 GB)	CRS-8-PRP-12G
Cisco CRS Series 4/8-Slot Line Card Chassis Performance Route Processor (12 GB, spare)	CRS-8-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
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

Cisco Services

Services from Cisco and our partners help you get the most value from your investments in Cisco's converged IP and optical solution, quickly and cost effectively. We can help you:

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For More Information

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