

Cisco CRS Modular Services Card Revision 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 Modular Services Card Revision B. For more information about the Cisco CRS-1 or about other interfaces available for the Cisco CRS-1, visit: www.cisco.com/go/crs.

Key Features and Benefits

The MSC-B offers many advantages-

- Supported across 4-slot, 8-slot, 16-slot and Multi-chassis CRS-3 chassis
- Supported across all the CRS-1 form factors: 4-slot, 8-slot, 16-slot and Multi-chassis
- Powered by the Silicon Packet Processor (SPP), one of the world's most sophisticated 40 Gbps ASIC
- Features two Silicon Packet Processors (SPP)- one for ingress, one for egress packet handling
- Always paired with Interface Module (IM) through the chassis mid-plane, thus occupying one-half of a slot.
- Can be paired with a variety of Interface Modules (IM) providing deployment flexibility
- Layer 3 forwarding engine of the CRS-1 with an industry leading wire rate performance at 40 Gbps
- Additional services of Class of Service (COS) processing, Multicast, Traffic Engineering (TE), including statistics gathering, are also performed at 40Gbps line rate
- Supports several forwarding protocols, including IPv4, IPv6, and MPLS
- Enhanced performance with hardware based prefix lookup for IPv4, IPv6, and MPLS
- Better environmental features with a lower power and weight profile

Product Specifications

Table 1. Product Specifications

Feature	Description
Chassis Compatibility	<ul style="list-style-type: none"> • Compatible with 4-slot, 8-slot, 16-slot and Multi-chassis CRS-3 chassis • Compatible with all current Cisco CRS-1 Line-Card Chassis • Always paired with an interface module (IM)

Feature	Description
Software Compatibility	Cisco IOS XR Software Release 3.6 or higher for CRS-1 Cisco IOS XR Software Release 4.0.0 or later for CRS-3
Features	<p>IP Features:</p> <ul style="list-style-type: none"> • IPv4 unicast services • IPv6 unicast services • IPv4/IPv6 ECMP • IPv4/IPv6 Load Balancing <p>Forwarding Features:</p> <ul style="list-style-type: none"> • Access control lists (ACLs/xACLs) • Quality of service/class of service (QoS/CoS) using Modular QoS CLI (MQC) • IP packet classification/marketing • Queuing (both ingress and egress) • Policing (both ingress and egress) • Diagnostic and network management support <p>IPv4 Multicast Features:</p> <ul style="list-style-type: none"> • Multicast Reverse Path Forwarding (RPF) • Multicast Nonstop Forwarding (NSF) • Multicast Forwarding Information Base (MFIB) <p>MPLS Features:</p> <ul style="list-style-type: none"> • MPLS forwarding • MPLS load balancing • UNI • LMP <p>Security Features:</p> <ul style="list-style-type: none"> • Control packet policing • Dynamic control plane protection • GTSM RFC 3682 (Formally BTSH)
Memory	<ul style="list-style-type: none"> • Configurable with 2GB of route table memory • 1 GB of packet buffer memory per side (2 GB total per line card [ingress and egress])
Performance	40 Gbps line rate performance
Reliability and Availability	<ul style="list-style-type: none"> • Line-card online insertion and removal (OIR) support • Out of resource management • Process Re-startability • MPLS Fast Reroute (FRR)
MIBs	<ul style="list-style-type: none"> • CISCO-MEMORY-POOL-MIB • Cisco Process MIB • CISCO-CDP-MIB • IF-MIB (RFC 2233/RFC 2863)
Network Management	<ul style="list-style-type: none"> • Enhanced command-line interface (CLI) • Extensible Markup Language (XML) interface • XML schemas • Craft Works Interface (CWI) • Simple Network Management Protocol (SNMP) and MIB support
Programmatic Interfaces	XML Schema support
Physical Dimensions	<ul style="list-style-type: none"> • Occupies one slot • Weight: 12 lb (5.44 kg) • Height: 20.6 in. (52.2 cm) • Depth: 18.62 in. (47.25 cm) • Width: 1.8 in. (4.49 cm)
Power	375W

Feature	Description
Environmental Conditions	<ul style="list-style-type: none"> • Storage Temperature: –40°C to 70°C (–40°F to 158°F) • Operating Temperature: <ul style="list-style-type: none"> ◦ Normal: 5°C to 40°C (41°F to 104°F) ◦ Short term: –5°C to 50°C (23°F to 122°F) short term • Relative Humidity: <ul style="list-style-type: none"> ◦ Normal: 5% to 85% ◦ Short-term: 5% to 90% but not to exceed 0.024 kg water/kg of dry air <p>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.)</p>

Approvals and Compliance

Table 2. Compliance and Agency Approvals

Feature	Description
Safety Standards	<ul style="list-style-type: none"> • UL/CSA/IEC/EN 60950-1 • IEC/EN 60825 Laser Safety • ACA TS001 • AS/NZS 60950 • FDA – Code of Federal Regulations Laser Safety
EMI	<ul style="list-style-type: none"> • FCC Class A • ICES 003 Class A • AS/NZS 3548 Class A • CISPR 22 (EN55022) Class A • VCCI Class A • BSMI Class A • IEC/EN 61000-3-2: Power Line Harmonics • IEC/EN 61000-3-3: Voltage Fluctuations and Flicker
Immunity (Basic Standards)	<ul style="list-style-type: none"> • IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8kV Contact, 15kV Air) • IEC/EN-61000-4-3: Radiated Immunity (10V/m) • IEC/EN-61000-4-4: 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: 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	<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
Network Equipment Building Systems (NEBS)	<p>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

Ordering Information

To place an order, visit: [Cisco Ordering Home Page](#).

Table 3. Ordering Information

Product Part Number	Product Name
CRS-MSC-40G-B (=)	Cisco CRS-1 Modular Services Card Revision B 40G
CRS-MSC-20G-B(=)	Cisco CRS-1 Modular Service Card Revision B 20G

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 Cisco CRS-1 Modular Services Card, contact your local account representative or visit Cisco at: www.cisco.com/go/crs.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

CCDE, CCENT, CCSI, Cisco Eos, Cisco Explorer, Cisco HealthPresence, Cisco IronPort, the Cisco logo, Cisco Nurse Connect, Cisco Pulse, Cisco SensorBase, Cisco StackPower, Cisco StadiumVision, Cisco TelePresence, Cisco TrustSec, Cisco Unified Computing System, Cisco WebEx, DCE, Flip Channels, Flip for Good, Flip Mino, Flipshare (Design), Flip Ultra, Flip Video, Flip Video (Design), Instant Broadband, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn, Cisco Capital, Cisco Capital (Design), Cisco-Financed (Stylized), Cisco Store, Flip Gift Card, and One Million Acts of Green are service marks; and Access Registrar, Aironet, AllTouch, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Lumin, Cisco Nexus, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, Continuum, EtherFast, EtherSwitch, Event Center, Explorer, Follow Me Browsing, GainMaker, iLYNX, IOS, iPhone, IronPort, the IronPort logo, Laser Link, LightStream, Linksys, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, PCNow, PIX, PowerKEY, PowerPanels, PowerTV, PowerTV (Design), PowerVu, Prisma, ProConnect, ROSA, SenderBase, SMARTnet, Spectrum Expert, StackWise, WebEx, and the WebEx logo are registered trademarks of Cisco and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1002R)