

Cisco Route Processor Module PR

The Cisco® Route Processor Module (RPM-PR) is an integrated IP/Multiprotocol Label Switching (MPLS) service route processing module for the carrier class Cisco MGX® 8880 Media Gateway and Cisco MGX 8950/88x0 family of Advanced ATM Multiservice Switches.

The Cisco RPM-PR based on the NPE-400 processor allows service providers to quickly enable new, high-margin IP services using Cisco IOS® Software. The Cisco RPM-PR provides high-quality, scalable, IP and ATM integration using MPLS technology to create scalable Internet solutions.

The Cisco RPM-PR enables the switch to provide integrated IP/MPLS-based VPN and quality-of-service (QoS) services along with ATM and other multiservice capabilities using Cisco IOS® Software. The Cisco RPM-PR can expand the switch's capabilities to offer Layer 3 services and enable migration from Layer 2 to Layer 3 networks. The Cisco RPM-PR is used by Cable, Wireline, and Wireless service providers as well as enterprise customers.

Applications

- IP/MPLS-enabled multiservice networks for service provider and enterprise networks
- Differentiated IP Radio Access Network (IPRAN) voice and data service aggregation using MLPPP and PPPMUX protocols
- Support for IPv4 Multicast and Multicast VPN
- Bandwidth savings through Routing Table Protocol (RTP) header compression for IP services
- Highly secure RTP stream transport with IPSec
- Voice-over-IP (VoIP) services with no service interruption due to failure
- New IP Next-Generation Network converged wireline and wireless services



Product Specifications

The Cisco RPM-PR is a hot-swappable full-height card for the Cisco MGX 8830, MGX 8850, MGX 8880, and MGX 8950 switches. The Cisco RPM-PR supports the following half-height backcards:

- Half-height four-port Ethernet (10BASE-T)
- Half-height one-port Fast Ethernet (full duplex)
- Half-height one-port Fast Ethernet (full duplex) along with accelerated cRTP
- Half-height five-port auto sensing to Ethernet, Fast Ethernet, or Gigabit Ethernet speed

Note that I/F speed and effective throughput is determined by the performance of the packet processing engine in the RPM-PR.

The Cisco RPM-PR along with Cisco IOS Software offers network intelligence for business-critical solutions. The following tables provide product highlights addressing:

- Table 1: Primary software services
- Table 2: Front card technical specifications
- Table 3: Back card technical specifications
- Table 4: Ordering information

Table 1. Features of Cisco IOS Software Operating System

Services	Features
Routing	<ul style="list-style-type: none"> • Border Gateway Protocol Version 4 (BGPv4) • Open Shortest Path First (OSPF) • Routing Information Protocol (RIP) Versions 1 and 2 • Interior Gateway Routing Protocol (IGRP) • Enhanced IGRP (EIGRP) • Intermediate System-to-Intermediate System (IS-IS)
MPLS	<p>Switching</p> <ul style="list-style-type: none"> • Label edge router (LER) • Label switch router (LSR) • MPLS class of service (CoS) over permanent virtual circuits (PVCs) with per-VC RED and per-VC WFQ • MPLS CoS over multiple label VC (LVC) <p>MPLS-VPN</p> <ul style="list-style-type: none"> • Multiprotocol BGP extensions • VPN "route-target" extended BGP community attributes • MPLS forwarding across backbone • Multiple routing/forwarding instances on the provider edge router • Multicast VPN <p>MPLS-QoS</p> <ul style="list-style-type: none"> • Single ABR VC per destination model • Multiple Label VCs per destination model • MPLS traffic engineering (Resource Reservation Protocol Traffic Engineering [RSVP-TE])

Services	Features
QoS	<ul style="list-style-type: none"> • Modular QoS command-line interface • Classification/marketing • Policy-based routing • QoS policy propagation over BGP • Committed access rate (CAR) • Congestion management: <ul style="list-style-type: none"> ◦ First in first out (FIFO) queuing ◦ Priority queuing (PQ) ◦ Custom queuing (CQ) ◦ Weighted fair queuing (WFQ)/class-based WFQ (CBWFQ) • Congestion avoidance: <ul style="list-style-type: none"> ◦ Weighted random early detection (WRED)
Ethernet	<ul style="list-style-type: none"> • 802.1Q VLAN • Virtual Router Redundancy Protocol (VRRP) • Hot Standby Routing Protocol (HSRP) • Internet Routing and Bridging (IRB) • ATM Routed Bridge Encapsulation (RBE)
High availability	<ul style="list-style-type: none"> • 1:N redundancy • ECC support for DRAM for error detection/correction and high speed packet processing
ATM	<ul style="list-style-type: none"> • Adaptive bit rate (ABR) • Non-real time variable bit rate (VBR-nrt) • Unspecified bit rate (UBR) • Virtual-circuit shaping • Per-virtual circuit queues • Private Network-Network Interface (PNNI) soft permanent virtual circuit (SPVC) • Multiservice Switching Forum (MSF)-compliant architecture (Cisco Virtual Switch Architecture)
Network management	<ul style="list-style-type: none"> • Simple Network Management Protocol Version 1, 2 and 3 (SNMPv1, SNMPv2, and SNMPv3) support • Cisco WAN Manager (element management, Layer 2 connection management GUI, SNMP) • Cisco IP Solution Center (MPLS VPN service management) • Cisco Information Center
IETF standards compliance (not comprehensive)	<ul style="list-style-type: none"> • RFCs 3063, 3037, 3036, 3035, 3032, 3031, 2858, 2796, 2702, 2684, 2598, 2597, 2547, 2475, 2453, 2364, 2328, 2205, 1966, and 1583

Table 2. Front Card Technical Specifications

Description	Specification
Front card	Cisco MGX-RPM-PR-256 and MGX-RPM-PR-512
Card dimensions	15.65 x 15.83 in. (full-height) (39.75 x 40.21 cm)
Weight	6.75 lb
Mean time between failure (MTBF)	>100,000 hr
Operational temperature	0° to 50°C (32° to 122°F)
Processor	350 MHz R7000A processor
Processing performance	More than 350,000 pps IP routing
Power	48 VDC, 46W
MGX Platform controller	PXM45, PXM1E, or PXM1
Memory	256 or 512 MB DRAM, and 32 MB flash memory
Backcards	<ul style="list-style-type: none"> • Five-port auto sensing card for E, FE, or GE I/F • Four-port Ethernet • One-port Fast Ethernet • One-port Fast Ethernet along with RTP Header compression

Description	Specification
Electrical, safety, and standards compliance	<ul style="list-style-type: none"> • EMI/ESD compliance • FCC Part 15 • Bellcore GR1089-CORE • IEC 801-2 • EN55022 • Safety compliance • EN 60950 • UL 60950-1 • Bellcore Network Equipment Building Standards (NEBS): Level 3 compliant
Telcordia CLEI	<ul style="list-style-type: none"> • GR-485-CORE – CLEI coding • GR-383-CORE – CLEI code label • GR-209-CORE – PCN Process

Table 3. Backcards Technical Specifications

	4-Port Ethernet	1 Port Fast Ethernet with Accelerated cRTP	1 Port Fast Ethernet	5 Port Auto Sensing Card
Card dimensions (H x W x D)	7 x 1 x 4.5 in. (17.78 x 2.54 x 11.43 cm)	7 x 1 x 4.5 in. (17.78 x 2.54 x 11.43 cm)	7 x 1 x 4.5 in. (17.78 x 2.54 x 11.43 cm)	7 x 1 x 4.5 in. (17.78 x 2.54 x 11.43 cm)
Weight	0.5 lb	0.8 lb	0.75 lb	0.9 lb
MTBF	>100,000 hr	>100,000 hr	>100,000 hr	>100,000 hr
Operational temperature	0° to 50°C (32° to 122°F)	0° to 50°C (32° to 122°F)	0° to 50°C (32° to 122°F)	0° to 50°C (32° to 122°F)
Power	1.4W	3.3W	3.3W	7.4W
Interface specifications	<ul style="list-style-type: none"> • IEEE 802.3 Ethernet 10BASE-T interfaces 	<ul style="list-style-type: none"> • RJ45 type for Category 5 UTP for 100BASE-TX 	<ul style="list-style-type: none"> • MII connector • RJ45 type for Category 5 UTP for 100BASE-TX 	<ul style="list-style-type: none"> • Each port can operate independently at Ethernet, Fast Ethernet, and Gigabit Ethernet speeds • Supports Auto-Negotiation as per 802.3ab. Processing capacity is shared among all ports and determines effective throughput of interfaces • Auto Cross-over (Auto MDIX) • 802.1Q VLAN supported (Upto 4096 VLAN IDs)
Connector	<ul style="list-style-type: none"> • 4 RJ-45 connector 	<ul style="list-style-type: none"> • 1 RJ45 connector 	<ul style="list-style-type: none"> • 1 MII connector • 1 RJ45 connector 	<ul style="list-style-type: none"> • 5 RJ45 connector
Functions	<ul style="list-style-type: none"> • Trunk Interface card 	<ul style="list-style-type: none"> • Trunk Interface card • Increase backhaul bandwidth efficiency of low-speed lines 	<ul style="list-style-type: none"> • Trunk Interface card 	<ul style="list-style-type: none"> • Trunk Interface card

	4-Port Ethernet	1 Port Fast Ethernet with Accelerated cRTP	1 Port Fast Ethernet	5 Port Auto Sensing Card
Electrical, safety, and standards compliance	<ul style="list-style-type: none"> • EMI/ESD compliance <ul style="list-style-type: none"> ◦ FCC Part 15 ◦ IEC 801-2 ◦ EN55022 • Safety compliance <ul style="list-style-type: none"> ◦ UL 60950-1 • Bellcore NEBS: Level 3 compliant • Optical safety: IEC 825-1 (Class 1) – applicable to 1 Port Fast Ethernet only. 			
Telcordia CLEI	<ul style="list-style-type: none"> • GR-485-CORE – CLEI coding • GR-383-CORE – CLEI code label • GR-209-CORE – PCN Process 			

Table 4. Ordering Information

Part Number	Part Description
MGX-RPM-PR-256	Route Processor Module- PR, 256 MB
MGX-RPM-PR-512	Route Processor Module- PR, 512 MB
MGX-RJ45-4E/B	4 port Ethernet Backcard for the RPM-PR - revision B
MGX-RPM-1FE-CP	Single Port FE Coprocessor for RPM-PR
MGX-RJ45-FE	Fast Ethernet Backcard for the RPM-PR, RJ45 connector
MGX-RJ45-5-ETH	5 E/FE/GE auto-sensing ports backcard for RPM-PR

For More Information

For more information about Cisco service and support programs and benefits, go to:

<http://www.cisco.com/>.



Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: +31 0 800 020 0791
Fax: +31 0 20 357 1100

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