Juniper Networks M120 Multiservice Edge Router

The M120 Multiservice Edge Router features two cFPC slots for 10 GB Ethernet or OC 192 uplinks, preserving the availability of all four Flexible PIC Concentrator (FPC) slots for subscriber connectivity.

The M120 Multiservice Edge Router is the newest addition to the industry-leading Juniper Networks M-series product family. The M120 delivers support for 128 GE subscriber ports, with 10 GB Ethernet or OC 192 uplink capability in an affordable, compact form factor. Ideal for supporting high-bandwidth converged edge routing applications, the M120 platform is designed to facilitate service aggregation for the multiplay needs of service providers and enterprise users.

The M120 extends a cost-effective, Ethernet-optimized infrastructure with 10 GB networking capabilities to the network edge. Capable of supporting MPLS services at Layers 2 and 3, including Layer 3 VPNs, the M120 is designed to deliver superior redundancy and facilitate the transport of legacy Frame Relay and ATM traffic over high-bandwidth Ethernet links.

Overview

The M120 platform reaffirms the technology leadership of Juniper Networks, featuring key advancements in redundancy and scale. The M120 supports a non-disruptive migration to Ethernet services in both metro and WAN environments, while maintaining the integrity of revenue-generating legacy services based on ATM and Frame Relay.

The versatile M120 platform is ideal for a wide variety of deployments, including:

- Scalable Multiservice Edge – Well-suited for smaller to medium sized POPs and central offices.
- Small- and Medium-Core Networks – Ideal for Internet peering and route reflector applications, the M120 platform delivers sophisticated routing capabilities, multiple 10 Gigabit links, and scalable support for over one million peers.
- Collapsed POP Router – Capable of providing both edge services and backbone routing on a single platform, the M120 platform features both 10 GB uplinks and a wide range of customer-facing interfaces.
- Large Enterprises – Provides a powerful WAN gateway solution for large enterprises. Offers support for Layer 2 and Layer 3 VPNs, including enterprise MPLS and VPLS, and the advanced QoS capabilities needed to support voice, video, and a variety of data services.
- Ethernet Aggregation at the Multiservice Edge – Includes support for up to 128 Gigabit Ethernet subscriber ports, two 10 GB uplinks, and full support for Ethernet over MPLS and interworking between VPLS, MPLS, IP, Frame Relay and ATM VPNs.

The M120 platform is an integral part of the Juniper Networks M-series product family, delivering a scalable solution for providing advanced IP/MPLS and multiplay services to enterprise and service provider environments. These services include a broad array of VPNs, rich real time voice and video, bandwidth on demand, network-based security services, multicast of premium content, IPv6 capabilities, granular accounting, and much more.

New multiplay applications are driving a sophisticated new set of network requirements. Juniper Networks M120 supports these requirements via a number of key features and capabilities, including:

- Advanced quality of service and high availability features
- Enhanced Ethernet port and service density
- Flexible 10 Gigabit interfaces to support high-bandwidth configurations

This service portfolio continues to grow with every release of JUNOS operating system software, leveraging the tremendous flexibility and performance headroom of the service-built architecture. Because the scalable and production-hardened JUNOS software runs on all M-series platforms, a consistent set of capabilities is available at all network locations regardless of customer connection or serving area density. Capable of supporting the new multiplay high-bandwidth Ethernet environments of the future, JUNOS is certified in service provider networks worldwide, eliminating the potential uncertainties associated with migrating to a new operating system.

Constructed with clean separations among the control plane, the forwarding plane, and the services plane, Juniper Networks M-series routers support multiple services without compromise on a single platform – maximizing revenue and minimizing operational and capital costs. The innovative platform architecture provides superior investment protection, with full interoperability across the product line. The M-series and T-series product lines have been designed for interchangeability of physical interface cards (PICs) and flexible PIC concentrators (FPCs), and M120 interfaces are compatible with the M40e, M320, and T-series platforms.
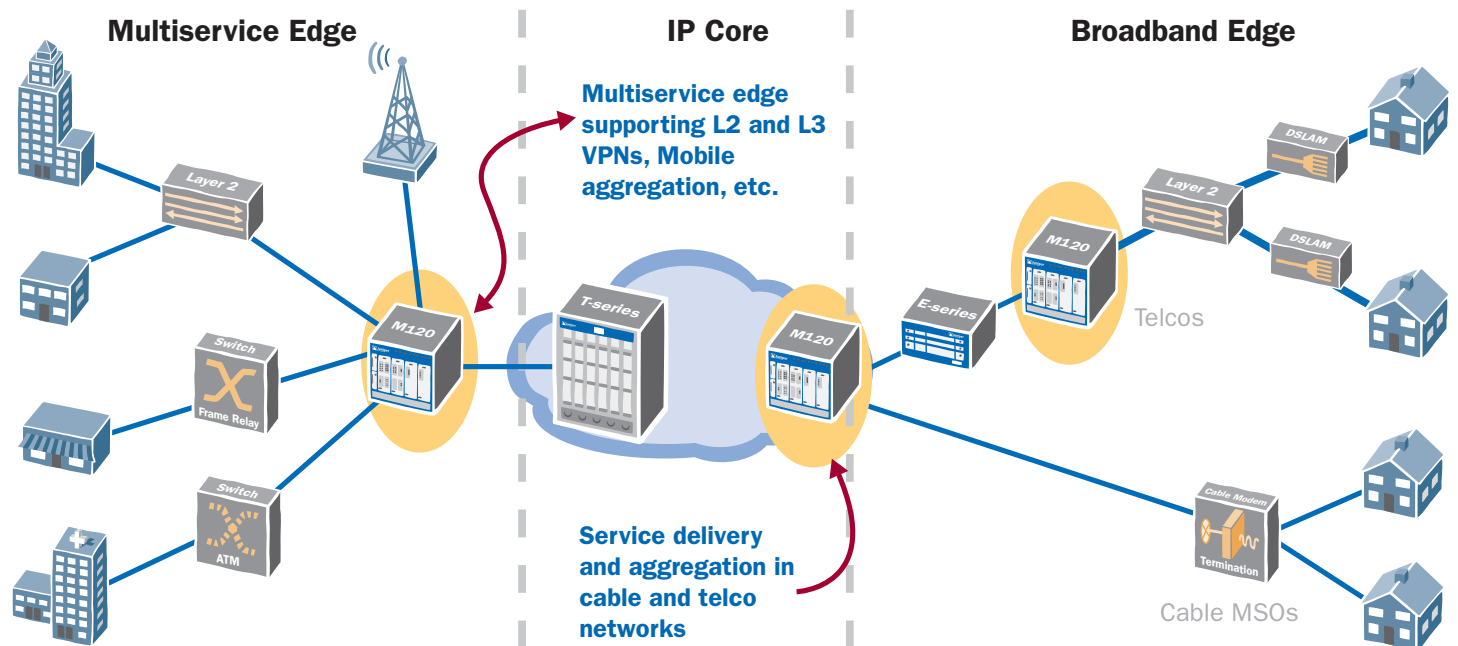
Key Features and Benefits

Highly available, redundant solution guarantees service continuity	· Enables service providers to maximize revenues and ensure customer satisfaction · System stability supports non-stop forwarding and prevents disruption of routing links and adjacencies · 1+1 fast failover and N:1 standby failover redundancy options improve system availability and forwarding engine resiliency · Enables customers to choose the level of Forwarding Engine Board (FEB) redundancy that matches their service requirements and budget parameters · Eliminates single points of failure through comprehensive hardware system redundancy
In-service software upgrade capability	· Accomplishes system additions and changes without disrupting current services and revenues · Maintains services with five nines availability while upgrading a complete JUNOS software package from one release to another
10 GB interface capability, with a broad portfolio of interfaces supporting DS0 to 10 Gigabit speeds	· Delivers connectivity to remote edge and core nodes via high bandwidth 10 GB interfaces · Supports termination of 10 GB customer-facing links from Metro Ethernet systems and SONET transport devices · Supports existing and new Layer 2 and Layer 3 services over virtually any access technology, including Ethernet, Frame Relay, ATM and TDM at any speed from DS0 to 10 Gbps

The M120 design separates the packet forwarding engine functionality from the interface circuitry for increased resiliency, availability, and cost-effective redundancy. This next-generation approach leverages the new Juniper Networks I-Chip to provide rich traffic management and QoS capabilities (Layers 2 and 3, and MPLS) with 10 Gigabit uplinks in a compact edge routing platform.
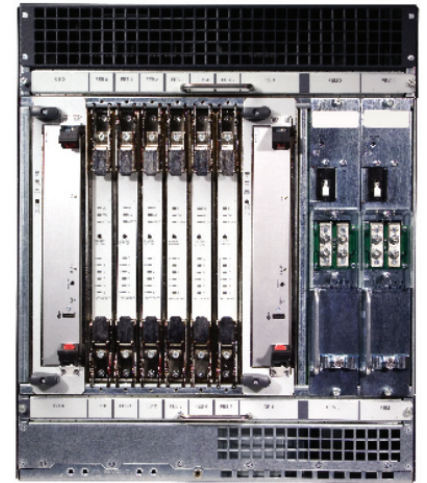
Six rear-mounted Forwarding Engine Boards (FEBs) supply redundant forwarding capability to all PICs installed in the chassis without requiring standby interface modules.

Multiservice Edge

IP Core

Broadband Edge

Layer 2

Switch

Frame Relay

Switch

ATM

M120

Multiservice edge supporting L2 and L3 VPNs, Mobile aggregation, etc.

T-series

M120

Service delivery and aggregation in cable and telco networks

E-series

M120

Layer 2

DSLAM

DSLAM

Telcos

Cable Modem

Termination

Cable MSOs

Up to six Forwarding Engine Boards (FEBs) can be installed, offloading packet forwarding from customer interface modules to deliver a unique solution for enhanced redundancy. Customers maintain control over all chassis slots and avoid the expense of purchasing interfaces or forwarding engines until needed.

When used in conjunction with the IQ2 ESE PIC family, the M120 is ideal for addressing the most challenging Ethernet applications faced by service providers and enterprises. The M120 and the IQ2 ESE PICs provide increased scalability and enhanced QoS capabilities including hierarchical queuing and oversubscription capabilities. As a result, the M120 platform is the most scalable and feature-rich mid-range product offering in the multiservice edge market.

Thanks to an extremely flexible architecture, the M120 platform is capable of supporting numerous configurations designed to address the needs of a large and diverse set of customers. The I-Chip packet forwarding complex is physically separated from the interface cards and is stored on the FEBs. This separation of the PIC carrier assembly (PICs and FPCs) from the PFE assembly allows for a redundancy solution that is unique in the industry.

Capable of supporting thousands of customers and multiple services per customer, the M120 platform delivers a robust, scalable, carrier-class edge routing solution. The M120 supports a full range of access technologies: Ethernet, Frame Relay, ATM, SONET, and channelized TDM. Featuring the industry's most comprehensive VPN and VPN-aware services portfolio, including MPLS, VPLS and IP VPNs, the M120 leverages the feature-rich, production-proven JUNOS network operating system to deliver a broad set of consistent services and full interoperability with all Juniper Networks M-series and T-series platforms.

Product Specifications

Physical Dimensions

(WXHXD)	17.5 X 20.75 (approximately 12 RU, quarter rack) X 25.7 (enclosable in 800 mm cabinet) in (44.5 X 52.7 X 65.3 cm)
Weight	
- Chassis	110 lbs (50 kg) (includes chassis, midplane, and fan trays only)
- Fully Configured	230 lbs (105 kg) (includes chassis, midplane, fan trays, front panel display, 2 cFPCs, 4 FPCs with 4 PICs each, 6 M120-FEB's, 2 CBs with REs, and 2 PEMs)
Power (AC, DC)	DC power: 40-60V DC AC power: 100-240 VAC Maximum Power Draw – 2200 watts
Operating Temperature	32 to104 degrees F / 0 to 40 degrees C 5 to 90 percent non condensing humidity

Approvals

Safety Approvals	- CAN/CSA-C22.2 No.60950-00/UL 60950 Third Edition, Safety of Information Technology Equipment
	- EN 60950 Safety of Information Technology Equipment
	- EN 60825-1 Safety of Laser Products - Part 1: Equipment Classification, Requirements and User's Guide
Immunity	- EN-61000-3-2 Power Line Harmonics
	- EN-61000-3-3 Voltage Fluctuations and Flicker
	- EN-61000-4-2 ESD
	- EN-61000-4-3 Radiated Immunity
	- EN-61000-4-4 EFT
	- EN-61000-4-5 Surge
	- EN-61000-4-6 Low Frequency Common Immunity
	- EN-61000-4-11 Voltage Dips and Sags

EMC	- AS/NZS 3548 Class A (Australia/New Zealand)
	- EN55022 Class A (Europe)
	- FCC Part 15 Class A (USA)
	- VCCI Class A (Japan)
	- BSMI Class A (Taiwan)
NEBS	- SR-3580 NEBS Criteria Levels (Level 3 Compliance)
	- GR-63-CORE: NEBS, Physical Protection
	- GR-1089-CORE: EMC and Electrical Safety for Network Telecommunications Equipment
ETSI	- ETSI EN-300386-2 Telecommunication Network Equipment. Electromagnetic Compatibility Requirements

Management

Element Management	J-Web graphical user interface
Policy Management	SDX-300 Service Deployment System, JUNOScope IP Service Manager
Third party Management Applications	Dorado, InfoVista, Micromuse, and WANDL
SNMP	SNMP v2/v3 Bilingual Agent support

JUNIPER your Net™

Ordering Information

Model Number	Module Name and Description
M120BASE-AC	M120 AC Base Unit – includes 1 Control Board, 1 Routing Engine with 1 GHz Processor and 2.048 MB DRAM, 40 GB hard disk drive, Control Interface Panel, and 1 AC Power Entry Module
M120BASE-DC	M120 DC Base Unit – includes 1 Control Board, 1 Routing engine with 1 GHz Processor and 2.048 MB DRAM, 40 GB hard disk drive, Control Interface Panel, and 1 DC Power Entry Module
M120-FPC-1	Flexible PIC Concentrator, Type 1, M120 (for 4 Type 1 PICs)
M120-FPC-2	Flexible PIC Concentrator, Type 2, M120 (for 4 Type 2 PICs)
M120-FPC-3	Flexible PIC Concentrator, Type 3, M120 (for 1 Type 3 PIC)
M120-cFPC-1OC192-XFP	M120 Compact FPC with 1 OC192 interface port, XFP connector
M120-cFPC-1XGE-XFP	M120 Compact FPC with 1 10 Gigabit Ethernet port, XFP connector
FEB-M120	M120 Forwarding Engine Board
RE-A-1000-2048-BB	Standard M120 Routing Engine, Base Bundle
RE-A-1000-2048-R	Standard M120 Routing Engine, Redundant
RE-A-1000-2048-S	Standard M120 Routing Engine, Spare
RE-A-1000-2048-WW-S	Standard M120 Routing Engine World-Wide, Spare
RE-A-2000-4096-UPG-BB	Upgraded M120 Routing Engine, Base Bundle
RE-A-2000-4096-R	Upgraded M120 Routing Engine, Redundant
RE-A-2000-4096-S	Upgraded M120 Routing Engine, Spare
RE-A-2000-4096-WW-S	Upgraded M120 Routing Engine World-Wide, Spare
CB-M120-BB	M120 Control Board, Base Bundle
CB-M120-R	M120 Control Board, Redundant
CB-M120-S	M120 Control Board, Spare
CHAS-MP-M120-S	M120 Base Chassis, Spare
CRAFT-M120-S	M120 Front Panel Display, Spare
FFANTRAY-M120-S	M120 Front Fan Tray, Spare
RFANTRAY-M120-S	M120 Rear Fan Tray, Spare
PWR-M120-AC-R	PEM – AC Power Entry Module, Redundant
PWR-M120-AC-S	PEM – AC Power Entry Module, Spare
PWR-M120-DC-R	PEM – DC Power Entry Module, Redundant
PWR-M120-DC-S	PEM – DC Power Entry Module Spare
PKG-M120-S	M120 Packaging, Spare

About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at www.juniper.net.

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To purchase Juniper Networks solutions, please contact your Juniper Networks sales representative at 1-866-298-6428 or authorized reseller.