![Juniper Networks logo]

MX SERIES 3D UNIVERSAL EDGE ROUTERS

Product Overview

With continuous technology advances and ongoing standards development, Ethernet is increasingly the technology of choice for enterprises and service providers. Ethernet bandwidth requirements continue to rise as a result of companies needing high-speed connectivity between their geographically dispersed sites. There is an increased reliance on collaborative applications across a globally distributed user base which requires sharing data across the WAN. These are often multimedia applications, including video conferencing and video streaming, and thus require extremely high bandwidth and low latency. To address these requirements, Juniper Networks has introduced the MX Series 3D Universal Edge Routers that deliver a high-performance network infrastructure that provides fast, secure and reliable delivery of the applications that drive business processes while containing cost and increasing operational efficiency.

Ethernet is rapidly becoming the technology of choice for both enterprises and service providers looking to provide connectivity and intelligent services. While in some respects the requirements may be different, today's advanced services are dictating that both enterprises and service providers build networks that meet increasingly stringent requirements regarding quality of service (QoS), network performance and availability.

In addition to these basic requirements, service providers seeking to provide a differentiated user experience are finding they must scale their networks to support increasingly higher amounts of bandwidth, services and subscribers. Scaling the network in these three dimensions will be critical to securing competitive differentiation for the next generation of services.

Scalability is further enhanced by the ability to interconnect and manage multiple chassis as a single, logical device, improving operational efficiency while lowering TCO.

Juniper Networks® MX Series 3D Universal Edge Routers are the only routers designed to provide the 3D scaling necessary to address today's advanced Ethernet requirements. Powered by Juniper Networks Junos® operating system and high-performance silicon such as the I-Chip and Junos Trio chipset, the MX Series enables service providers and enterprises to adapt to—and profit from—Ethernet services in a changing market.

Product Description

MX Series routers are a portfolio of high-performance Ethernet routers, which function as a Universal Edge platform capable of supporting all types of business, mobile and residential services. With powerful switching and security features, the MX Series delivers unmatched flexibility and reliability to support advanced services and applications. MX Series routers also separate control and forwarding functions to provide maximum scale and intelligent service delivery capabilities.

MX Series 3D Universal Edge Routers are optimized for Ethernet and address a wide range of deployments, architectures, port densities and interfaces for both service provider and enterprise environments. In both markets, the MX Series routers provide scalable, high port-density routing and switching required for applications such as data centers. For service providers, MX Series routers surpass the requirements of carrier Ethernet routing and switching as defined by the Metro Ethernet Forum, making Juniper

Networks routers the platforms of choice for service providers seeking 3D scaling in the Universal Edge. These features can also be deployed in high performance enterprise data centers and enterprise campus networks.

Powered by Junos OS, the MX Series provides a consistent operating environment that streamlines network operations and improves the availability, performance, and security of all types of services supported at the Universal Edge. It offers the most complete, advanced routing features in the industry without compromising performance which maximizes investment protection. These features include traffic segmentation and virtualization with MPLS, other sophisticated virtualization techniques such as Virtual Chassis, logical systems, ultra low-latency multicast, as well as comprehensive security and QoS implementations to accelerate delivery of time-sensitive applications and services.

The carrier-class reliability and high availability features available on the MX Series include graceful restart, nonstop routing (NSR), fast reroute (FRR), Unified In-Service Software Upgrade (ISSU) and VPLS multihoming.

The MX Series provides the 3D scale, maximum performance, availability, and service agility that enterprises and service providers need to gain a competitive advantage in today's Ethernet environment.

The MX Series 3D Universal Edge Routers are ideal for large applications requiring predictable performance for feature-rich infrastructures. In addition, this platform is ideal where SCB and RE redundancy are required. All major components are field replaceable, increasing system serviceability and reliability, and decreasing mean time to repair.

MX Series 3D Universal Edge Routers for the Midrange

Juniper Networks MX Series routers for the midrange are the most compact members of the MX Series product family. Only 2 rack units (RU) high and built to support optional redundant power supplies and fans, this platform is perfectly suited for

environments facing space or power constraints. Midrange routers include the MX5, MX10, MX40, MX80 and MX80-48T. The MX Series 3D midrange routers are software upgradeable and are very attractive to customers who enjoy the flexibility of the available 'pay-as-you-grow' software licenses. More information on the MX Series for the midrange can be found at www.juniper.net/us/en/local/pdf/datasheets/1000374-en.pdf.

MX240 3D Universal Edge Router

Juniper Networks MX240 3D Universal Edge Router design delivers increased port density over traditional Ethernet platforms as well as performance of 960 Gbps throughput, scalability and reliability in a space-efficient package. The MX240 offers fully redundant hardware options that include a redundant Switch Control Board (SCB) and Routing Engines (REs) to increase system availability.

MX480 3D Universal Edge Router

Juniper Networks MX480 3D Universal Edge Router provides a dense, highly redundant platform primarily targeted for medium to large enterprise campus and data centers and dense dedicated access aggregation and provider edge services in medium and large Points of Presence (POPs). The MX480 offers common hardware redundancy options including the SCBs, REs, fan trays and power supplies.

MX960 3D Universal Edge Router

Juniper Networks MX960 3D Universal Edge Router is a high density Layer 2 and Layer 3 Ethernet platform designed for deployment in a number of enterprise and service provider Ethernet scenarios. For service providers, the wide range of Universal Edge applications supported by the MX960 include VPLS services for multi-point connectivity, Virtual Leased Line for point-to-point services, full support for MPLS VPNs throughout the Ethernet network, Ethernet aggregation at the campus/enterprise edge, and Ethernet aggregation at the multiservice edge. In the enterprise, the MX960 can be used for campus and data center core and aggregation as well as a WAN Gateway.

Table 1: MX Series 3D Universal Edge Routers

ROUTER	MX240	MX480	MX960
System capacity	960 Gbps	1.92 Tbps	3.84 Tbps
Throughput per slot	160 Gbps per slot	160 Gbps per slot	160 Gbps per slot
Switch fabric capacity per slot	240 Gbps	240 Gbps	240 Gbps
Packet forwarding capacity	660 Mpps	1.32 Bpps	2.64 Bpps
DPCs and/or MPCs per chassis	3	6	12
Chassis per rack	9	6	3

Features and Benefits

MX Series 3D Universal Edge Routers

Key components of each MX Series 3D Universal Edge Router are the Dense Port Concentrators (DPCs), Modular Port Concentrators (MPCs), the Routing Engine, and the Switch Control Board (SCB).

The DPCs are optimized for Ethernet density and are capable of supporting up to 40 GbE or four 10GbE Ethernet ports. The DPC assembly combines packet forwarding and Ethernet interfaces on a single board, with 40 Gbps of packet forwarding capacity.

Designed for flexibility, MPCs leverage the Junos Trio chipset to deliver the industry's highest density GbE, 10GbE and TDM interfaces as well as the flexibility of modular interfaces, across the MX Series portfolio. These advanced capabilities allow customers to flexibly mix and match interfaces to create service-specific and "pay as you grow" configurations. The MPC houses the PFEs to deliver comprehensive Layer 3 routing (IPv4 and IPv6), MPLS and Layer 2 switching. These MPCs also support inline services and advanced Heirarchical QoS (H-QoS) per MX Series slot.

The RE provides control plane functions and runs Junos OS. Software processes that run on the RE maintain the routing tables, manage the routing protocols used on the router, control the router interfaces, control some chassis components, and provide the interface for system management and user access to the router.

REs communicate with DPCs and MPCs via dedicated out-of-band management channels, providing a clear distinction between the control and forwarding planes.

Integrated into the SCB is the switch fabric, which interconnects all of the DPCs and MPCs within the chassis. The RE installs directly into the SCB.

Ethernet-based services present a significant new revenue opportunity for service providers across all market segments. These business, mobile and residential services include VPNs, point-to-point connectivity, high-speed Internet access, and video-based offerings. With continuous technology advances and ongoing standards development, Ethernet is increasingly the technology of choice at the service provider edge—and the MX Series 3D Universal Edge Routers are capable of supporting all these services. As an example of Juniper's commitment to delivering a Universal Edge solution to meet the needs of next-generation networks and services, the MX Series offers unmatched scalability, performance, reliability, and QoS for all types of business, mobile and residential services. MX Series 3D routers are the only high-density Layer 2 and Layer 3 Ethernet platforms designed with 3D scaling for deployment in a number of service provider Ethernet edge scenarios.

Examples of the wide range of applications enabled by the MX Series in the Universal Edge include:

- VPLS for multipoint connectivity—high scale BGP and LDP support
- Virtual leased line for point-to-point services—native support for point-to-point services
- RFC 2547.bis IP/MPLS VPN (L3VPN)—full support for MPLS VPNs throughout the Ethernet network
- Video distribution for IPTV services with advanced capabilities such as multicast MPLS VPNS
- Ethernet aggregation at the multiservice edge—supporting up to 480 GbE ports or 192 10GbE ports in a single platform
- WAN interfaces for the multi service edge—support for most widely used multiservice interfaces including OC3, OC12 and OC48 facilitating service delivery with a single versatile platform
- Residential multiplay services—with subscriber management capabilities as well as high-density Ethernet aggregation, the MX Series can fulfill multiple roles in the delivery of residential services
- Cloud computing—the MX Series provides the perfect platform for connectivity to and between clouds
- Data center consolidation—with advanced multicasting and unicast capabilities, the MX Series can provide data center connectivity and server live-mirroring and migration
- VPLS and MPLS help enable multiple services thereby improving network utilization.
- Mobile backhaul and aggregation—providing cost-effective transport and backhaul of mobile data traffic
- Application monitoring—with integrated performance monitoring systems such as StreamScope eRM and Telchemy Embedded Performance Monitor (TePM), the MX Series can provide advanced application layer diagnostics help service providers deliver a superior user experience for voice, video and other multimedia services

MPLS

MPLS has traditionally been deployed in network backbones, where it provides traffic engineering and allows efficient transport of Layer 2 and Layer 3 traffic such as IP, Frame Relay and ATM. MPLS in Ethernet networks provides complementary capabilities to help deal with more traffic types, provide greater resiliency and QoS, restoration techniques, Operations, Administration & Management (OA&M) diagnostic capabilities. This further enables users to consolidate traffic types on a single, common IP/MPLS network.

As an industry leader in the development and deployment of MPLS, Juniper Networks leads the way in making it possible for enterprises and service providers to implement network architectures and services based on MPLS. The MX Series provides a wide range of MPLS features and functionality powered by Junos OS. The feature richness of Junos OS provides the MX Series an advantage over other operating systems that are either too immature to support the required MPLS feature breadth or architected in a monolithic fashion, making them too complicated or unwieldy to efficiently manage. Additionally, the MX Series is designed to lead the industry in the following areas:

Interface Scalability—each MX Series chassis scales in size with choices of 3, 6 or 12 slots that can be populated with line cards for access or network interfaces. With up to 12 line card slots, the MX960 3D Universal Edge Router supports up to 192 10GbE ports or 480 Gigabit Ethernet ports.

Advanced Packet Processing Performance—MX Series supports up to 2.64 billion pps forwarding.

Service Flexibility—Juniper is an industry leader in both MPLS and VPLS, and the MX Series 3D Universal Edge Routers leverage Junos OS, which is deployed in the leading services providers and Fortune 500 enterprise worldwide. Junos OS provides the MX Series feature richness, stability and service breadth not typically found in Ethernet platforms.

Advanced Hierarchical QoS—the MX Series features superior QoS across the platform, which enables service providers to ensure that applications and services receive the appropriate level of service regardless of traffic conditions. Hierarchical QoS enables traffic shaping at the port, shaping and scheduling among a group of VLANs, and priority-based scheduling at the queue level.

High Availability—the MX Series delivers the full Junos OS continuous systems advantage, ensuring non-stop operations and maximum uptime. As the only carrier Ethernet platform that supports Unified ISSU, the MX Series can be upgraded with new Junos OS features and versions with minimal risk or downtime. The MX Series also provide features such as Graceful Routing Engine Switchover (GRES), and Non-Stop Active Routing (NSR), to provide rapid recovery and network convergence in the event of link or node failures.

Service Protection— detecting failures in the network and rerouting traffic around failures while honoring the SLA requirements with end users. Some of the features available on the MX Series for service protection include: MPLS link, node, path protection; granular BFD hellos (10 msecs) for link failure detection; Ethernet OAM (802.1AG, 802.3AH); ITU G.8032 for Ethernet ring protection and SONET/SDH APS. A combination of these features can be used to provide local or end-end service protection of services configured on the MX Series.

Simplified Management—leveraging Junos OS tools such as J-Web and Junos Script, the MX Series reduces the time and expense of provisioning new services. The Commit Scripts feature provides automated rollback capabilities that virtually eliminate the possibility of downtime based on human configuration errors. With the J-Web web-based GUI, the MX Series provides users with simple to use tools to administer and manage routers.

The MX Series Extends Junos OS in the Network

Junos OS is a world-class operating system with proven stability coupled with industrial-strength routing protocols, flexible policy language and leading MPLS implementation. When building your Ethernet-centric infrastructure, Junos OS can be a tremendous asset as a flexible and reliable operating system.

Junos OS runs on Juniper Networks MX Series 3D Universal Edge Routers, M Series Multiservice Edge Routers, T Series Core Routers, as well as EX Series Ethernet Switches, J Series Services Routers and SRX Series Services Gateways. Junos OS—the first routing operating system developed specifically for the Internet—is especially designed for large production networks. With native support for both IPv4 and IPv6, as well as advanced interworking capabilities, Junos OS also eases the transition to IPv6, and ensures long-term investment protection.

Junos OS offers XML interfaces for advanced scripting capabilities, and has been designed to configure the routing protocols that run on the MX Series and the properties of its interfaces. After a software configuration is activated, Junos OS has been designed to monitor the protocol traffic passing through the MX Series, as well as troubleshooting protocol and network connectivity problems.

Virtual Chassis Technology

Virtual Chassis technology allows up to eight interconnected physical chassis to be monitored and managed as a single logical device. Virtual Chassis offers the following benefits:

· Simplifies manageability by providing a unified control plane for all physical chassis
· Improves resource utilization by intelligently employing interfaces and service line cards on physically different chassis, providing customers with a "pay-as-you-grow" model.
· Protects user sessions across physical chassis, line card or port failure, using stateful redundancy so users are completely unaware of failures.
· Supports sophisticated resiliency techniques within the Virtual Chassis.

MX Series VPNs

Junos OS supports of the industry's richest portfolio of VPNs:.

· **MPLS Layer 2 VPNs**—the MX Series offers full support for both LDP and BGP-based Virtual Private LAN Services (VPLS), as well as LDP and BGP based pseudowires. With support for up to 1 million MAC addresses and 128,000 VLANs, the MX Series delivers industry-leading scale for Layer 2 VPNs.
· **MPLS Layer 3 VPNs**—with support for all types of IPv4 VPNs, as well as IPV6 VPNs such as 6PE and 6VPE, the MX Series expands the range of services carriers can offer customers. The MX Series supports VPNs with advanced, application-layer features such as Session Border Controller, Dynamic Application Awareness, Intrusion Prevention System and Stateful Firewall Services.
· **Carrier-of-Carrier VPNs**—the MX Series allows a VPN service provider to supply VPN service to a customer who is also a service provider. The latter service provider supplies Internet or VPN service to the end customer.
· **Interprovider VPNs**—Juniper supports standards-based Interprovider VPNs, enabling customers to supply connectivity between two VPNs in separate autonomous systems (ASs). This functionality could be used by a VPN customer with connections to several Internet service providers (ISPs), or different connections to the same ISP in various geographic regions.
· **Virtual router-based VPNs**—with the virtualization capabilities in Junos OS, the MX Series can be divided into multiple virtual or logical routing instances, each supporting an individual VPN. This opens up new possibilities for VPN services or enterprise network segmentation.

Table 2: MX Series Features and Benefits

ADVANTAGE	FEATURES	BENEFITS
High availability	· Fully redundant hardware (cooling, power supplies, Routing Engines, SCBs) · Modular operating system · Separate data and control planes · Graceful restart · Nonstop routing · MPLS fast reroute · VPLS multihoming	· The MX Series design provides the highest level of redundancy and resiliency to ensure that critical services and customers stay connected. · Enables service providers to maximize revenues and ensure customer satisfaction.
High performance	Powered by Juniper's I-Chip ASIC and Junos Trio chipset, the MX Series features include: · Enhanced QoS capabilities · Additional packet processing flexibility · Scaling enhancements that include route lookup, next hop, logical interface scaling, and interface accounting · Enhanced multicast performance	Industry-leading performance enables the MX Series to satisfy critical applications at the edge, including voice, video, and data.
Service flexibility	Simultaneous support for Layer 2 and Layer 3 3D Universal Edge: VPLS, RFC 2547bis IP/MPLS VPNs, Triple Play services	Provides enterprise and residential services from a common platform increases service breadth and optimizes OpEx and CapEx.
Virtualization	The MX Series has a myriad of virtualization features and technologies to address enterprise and service provider requirements. · Network Service Virtualization (Virtualize access to services such as security): Services-such as L2VPN, L3VPN and VPLS allow layering of services on MPLS network. · Chassis Virtualization (Many devices virtualize to One Device): Virtual Chassis · Device Virtualization (One device virtualizes to many devices): Virtual Router, Logical Systems, Virtual Switch - virtualize physical router as multiple logical entities. · Link Virtualization: (Virtualize Physical Links) VLAN, LAG, GRE and MPLS LSP virtualize physical links.	Improves network utilization, device utilization, scalability, and resiliency.
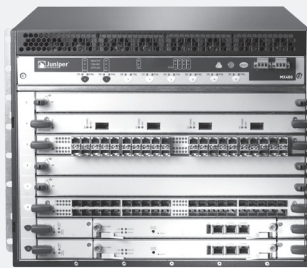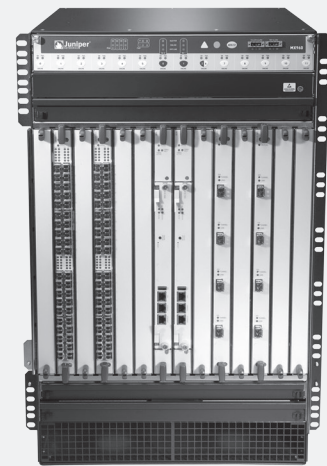
MX240   MX480   MX960

Specifications

This section lists basic specifications by platform. For further details, please refer to the hardware installation manuals on www.juniper.net/techpubs/hardware. For more information on the MX5, MX10, MX40, and MX80 midrange routers, please refer to www.juniper.net/us/en/local/pdf/datasheets/1000374-en.pdf.

SPECIFICATION	MX240	MX480	MX960
Dimensions and Power			
Physical dimensions (W x H x D)	17.5 x 8.7 x 23.8 in (44.5 x 22.1 x 60.5 cm)	17.5 x 14 x 23.8 in (44.5 x 35.6 x 60.5 cm)	17.5 x 27.8 x 23.5 in (44.5 x 70.5 (16 RU) x 59.7 cm)
Weight (lb/kg) fully configured	130 lb / 59 kg	180 lb / 81.7 kg	334 lb / 151.6 kg
Mounting	Front or center	Front or center	Front or center
Power (DC/AC)	–40 to -72 VDC 100 to 240 VAC	–40 to -72 VDC 100 to 240 VAC	–40 to -72 VDC 200 to 240 VAC
AC power consumption (theoretical maximum at 55° C)	2006 W	3955 W	7341 W
DC power consumption (theoretical maximum at 55° C)	1821 W	3592 W	7512 W
Operating temperature	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)
Humidity	5% to 90% noncondensing humidity		
Altitude	No performance degradation to 13,000 ft/4,000 m		

Note: For an MX960 3D Universal Edge Router with 176 10GbE ports, the actual energy consumption measured under ATIS/Juniper Energy Consumption Rating (ECR) methodology is 6306 W. For more information on power provisioning please refer to the MX Series Router Hardware Guide.

Agency Approvals

Safety

- CAN/CSA-22.2 No. 60950-00/UL 1950 Third Edition, Safety of Information Technology Equipment
- EN 60825-1 Safety of Laser Products - Part 1: Equipment Classification, Requirements and User's Guide
- EN 60950 Safety of Information Technology Equipment

EMC

- AS/NZS 3548 Class A (Australia/New Zealand)
- EN 55022 Class A Emissions (Europe)
- FCC Part 15 Class A (USA)
- VCCI Class A (Japan)

NEBS

- GR-63-Core: NEBS, Physical Protection
- GR-1089-Core: EMC and Electrical Safety for Network Telecommunications Equipment

ETSI

- ETS-300386-2 Telecommunication Network Equipment Electromagnetic Compatibility Requirements

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 1000-4-11 Voltage Dips and Sags

Management

Element Management

- Juniper Networks J-Web Software graphical user interface

Policy Management

- Juniper Networks Junos Scope
- Juniper Networks Session and Resource Control Portfolio

Third-Party Management Applications

- HP, IBM, InfoVista, Intelliden, WANDL

SNMP

- SNMP v2/v3 bilingual agent support

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit **www.juniper.net/us/en/products-services.**

Ordering Information

COMPONENT	MODEL NUMBER	MX240	MX480	MX960
Base unit	DC Chassis AC Chassis	MX240BASE-DC MX240BASE-AC	MX480BASE-DC MX480BASE-AC	MX960BASE-DC MX960BASE-AC
DPC	DPCE-R-40GE-SFP DPCE-R-4XGE-XFP DPCE-X-40GE-SFP DPCE-X-4XGE-XFP DPCE-X-Q-40GE-SFP DPCE-X-Q-4XGE-XFP DPCE-R-Q-20GE-SFP DPCE-R-40GE-TX MX-FPC2 MX-FPC3 MS-DPC	40x1GbE L2/L3 capable 4x10GbE L2/L3 capable 40x1GbE L2+ capable 4x10GbE L2+ capable 40x1GbE L2+ capable board with enhanced queuing 4x10GbE L2+ capable board with enhanced queuing 20x1GbE L2/L3 capable with enhanced queuing 40x 10/100/1000 Ethernet L2/L3 capable with RJ45 DPC with 2 slots for type 2 PICs DPC with 2 slots for type 3 PICs IP services line card for MX Series		
MPC	MX-MPC1-3D MX-MPC2-3D MX-MPC1-3D-Q MX-MPC2-3D-Q MX-MPC2-3D-EQ MPC-3D-16XGE-SFPP	1 Trio PFE, port queue, 64 K IFLs 2 Trio PFE, port queue, 64 K IFLs 1 Trio PFE, rich queue, 128 K queues (max 64 K egress), 32 K IFLs 2 Trio PFE, rich queue, 256 K queues (max 128 K egress), 64 K IFLs 2 Trio PFE, enhanced queue, 512 K egress (or 256 K ingress/egress), 64 K IFLs 16 port 10GbE MPC requires small form-factor pluggable transceiver (SFP+) interfaces		
MIC	MIC-3D-20GE-SFP MIC-3D-2XGE-XFP MIC-3D-4XGE-XFP MIC-3D-40GE-TX MIC-3D-8OC3OC12-4OC48 MIC-3D-4OC3OC12-1OC48	20 ports of 10/100/1000 Ethernet with small form-factor pluggable transceiver (SFP) interfaces 2 10GbE modular interface card with XFP interfaces 4 10GbE modular interface card with XFP interfaces 40 ports of 10/100/1000 Ethernet with Tx interfaces High-density multi-rate MIC, 8-port non-channelized OC3-OC12/4-port non-channelized OC48 MIC Low-density multi-rate MIC, 4-port non-channelized OC3-OC12/1-port non-channelized OC48 MIC		
Routing Engine	RE-S-1300-2048-BB RE-S-2000-4096-UPG-BB RE-S-1300-2048-R RE-S-2000-4096-R RE-S-1800X2-8G-R RE-S-1800X2-16G-R RE-S-1800X4-8G-R RE-S-1800X4-16G-R RE-S-1800X2-8G-UPG-BB RE-S-1800X2-16G-UPG-BB RE-S-1800X4-8G-UPG-BB RE-S-1800X4-16G-UPG-BB	1.3 GHz CPU and 2 GB memory, Base Bundle 2 GHz CPU and 4 GB memory, Base Bundle 1.3 GHz CPU and 2 GB memory, Redundant 2 GHz CPU and 4 GB memory, Redundant Dual core 1.8 GHz CPU and 8 GB memory, redundant Dual core 1.8 GHz CPU and 16 GB memory, redundant Quad core 1.8 GHz CPU and 8 GB memory, redundant Quad core 1.8 GHz CPU and 16 GB memory, redundant Dual core 1.8 GHz CPU and 8 GB memory, upgrade for base bundle Dual core 1.8 GHz CPU and 16 GB memory, upgrade for base bundle Quad core 1.8 GHz CPU and 8 GB memory, upgrade for base bundle Quad core 1.8 GHz CPU and 16 GB memory, upgrade for base bundle		
DPC support	DPCE-Q DPCE-X DPCE-R	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Routing Engine	1300 2000 1800X	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
SCB	Primary Redundant	Yes Yes	Yes Yes	Yes Yes
Junos OS	USA Worldwide	Junos OS Junos-WW	Junos OS Junos-WW	Junos OS Junos-WW

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at **www.juniper.net**.

1000208-014-EN Nov 2011   ♻ Printed on recycled paper