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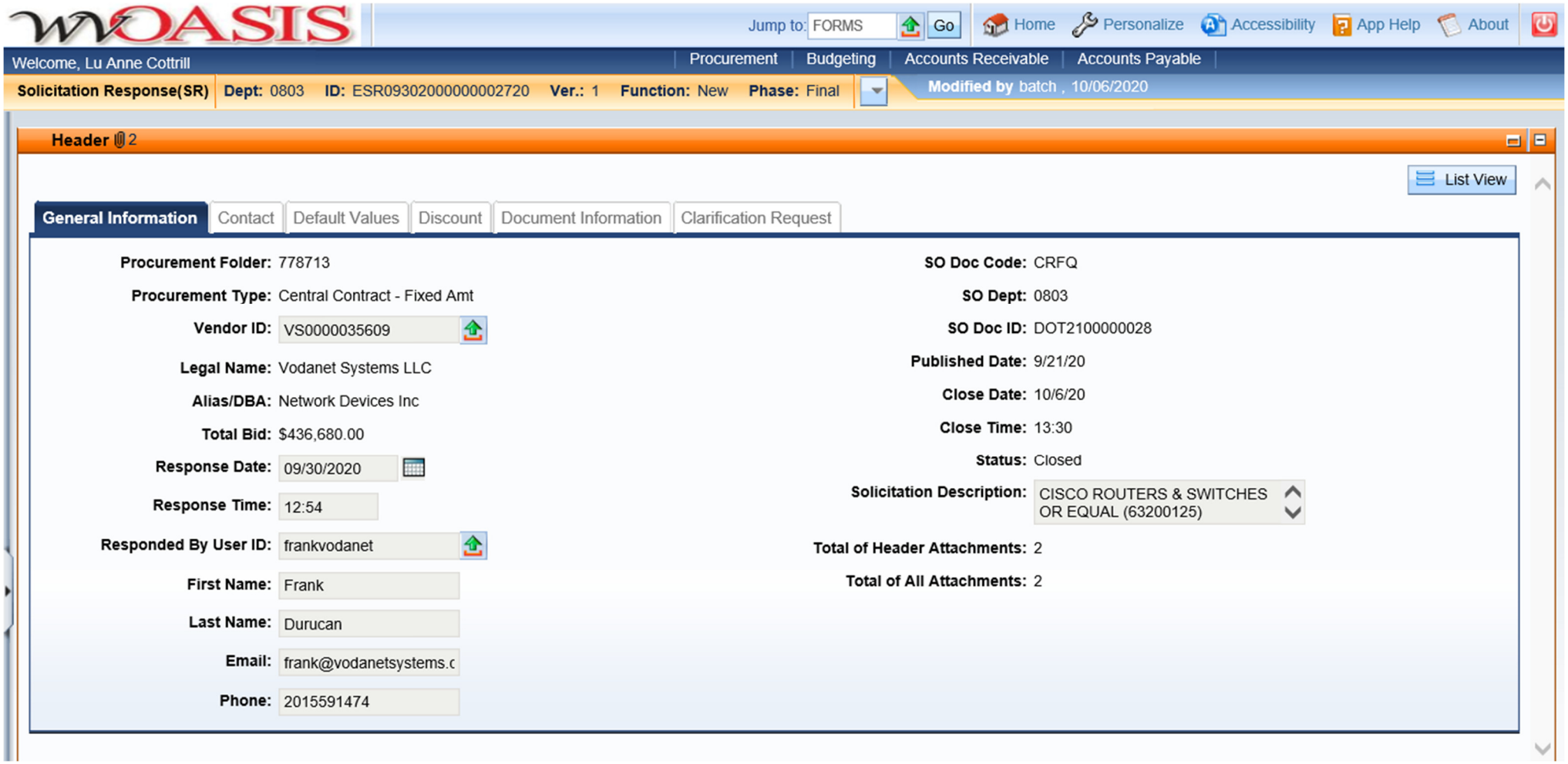
wvOASIS
Jump to: FORMS Go
Home
Personalize
Accessibility
App Help
About
Welcome, Lu Anne Cottrill
Procurement
Budgeting
Accounts Receivable
Accounts Payable
Solicitation Response(SR) Dept: 0803 ID: ESR09302000000002720 Ver.: 1 Function: New Phase: Final
Modified by batch , 10/06/2020
Header 2
List View
General Information
Contact
Default Values
Discount
Document Information
Clarification Request
Procurement Folder: 778713
Procurement Type: Central Contract - Fixed Amt
Vendor ID: VS0000035609
Legal Name: Vodanet Systems LLC
Alias/DBA: Network Devices Inc
Total Bid: $436,680.00
Response Date: 09/30/2020
Response Time: 12:54
Responded By User ID: frankvodanet
First Name: Frank
Last Name: Durucan
Email: frank@vodanetsystems.c
Phone: 2015591474
SO Doc Code: CRFQ
SO Dept: 0803
SO Doc ID: DOT2100000028
Published Date: 9/21/20
Close Date: 10/6/20
Close Time: 13:30
Status: Closed
Solicitation Description: CISCO ROUTERS & SWITCHES OR EQUAL (63200125)
Total of Header Attachments: 2
Total of All Attachments: 2

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder:	778713
Solicitation Description:	CISCO ROUTERS & SWITCHES OR EQUAL (63200125)
Proc Type:	Central Contract - Fixed Amt

Solicitation Closes	Solicitation Response	Version
2020-10-06 13:30	SR 0803 ESR09302000000002720	1

VENDOR

VS0000035609
Vodanet Systems LLC

Solicitation Number: CRFQ 0803 DOT2100000028

Total Bid: 436680 **Response Date:** 2020-09-30 **Response Time:** 12:54:32

Comments:

FOR INFORMATION CONTACT THE BUYER
John W Estep
(304) 558-7839
john.w.estep@wv.gov

Vendor
Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 1	11.00000	EA	1290.000000	14190.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX340JB-1YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 1 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
10	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 2	60.00000	EA	525.000000	31500.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX300JB-2YR. SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching). RMK not included

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 2 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
11	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 3	60.00000	EA	595.000000	35700.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX300JB-3YR. SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching). RMK not included

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 3 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
12	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 4	60.00000	EA	660.000000	39600.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX300JB-4YR. SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching). RMK not included

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 4 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
13	3.1.4 Extreme Networks 12 Port Switch or Equal	95.00000	EA	625.000000	59375.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks EX2300-C-12P Switch
EX2300 Compact Fanless 12-port 10/100/1000BaseT PoE+, 2 x 1/10G SFP/SFP+

Extended Description:

3.1.4 Extreme Networks 12 Port Switch or Equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
14	3.1.5 Extreme Networks 48 Port Switch or Equal	75.00000	EA	1485.000000	111375.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper EX2300-48P Switch
EX2300 48-port 10/100/1000BaseT PoE+, 4 x 1/10G SFP/SFP+

Extended Description:

3.1.5 Extreme Networks 48 Port Switch or Equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
15	3.1.6 Extreme Networks 24 Port Switch or Equal	20.00000	EA	860.000000	17200.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper EX2300-24P Switch
EX2300 24-port 10/100/1000BaseT PoE+, 4 x 1/10G SFP/SFP+

Extended Description:

3.1.6 Extreme Networks 24 Port Switch or Equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 2	11.00000	EA	1505.000000	16555.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX340JB-2YR.
SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 2 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 3	11.00000	EA	1705.000000	18755.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX340JB-3YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 3 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 4	11.00000	EA	1885.000000	20735.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX340JB-4YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 4 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 1	7.00000	EA	1290.000000	9030.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX340JB-1YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or Equal with Year 1 Smart Net Coverage.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 2	7.00000	EA	1505.000000	10535.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX340JB-2YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or Equal with Year 2 Smart Net Coverage.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 3	7.00000	EA	1705.000000	11935.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX340JB-3YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or equal with Year 3 Smart Net coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 4	7.00000	EA	1885.000000	13195.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX340-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX340JB-4YR. SRX340 Services Gateway includes hardware (16GE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching)

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or equal with Year 4 Smart Net coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
9	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 1	60.00000	EA	450.000000	27000.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX300JB-1YR. SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (Firewall, NAT, IPSec, Routing, MPLS and Switching), RMK not included

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 1 Smart Net Coverage

SRX300 LINE OF SERVICES GATEWAYS FOR THE BRANCH

Product Overview

The SRX300 line of services gateways combines security, SD-WAN, routing, switching, and WAN interfaces with next-generation firewall and advanced threat mitigation capabilities for cost-effective, secure connectivity across distributed enterprise locations. By consolidating fast, highly available switching, routing, security, and next-generation firewall capabilities in a single device, enterprises can remove network complexity, protect and prioritize their resources, and improve user and application experience while lowering total cost of ownership (TCO).

Product Description

Juniper Networks® SRX300 line of services gateways delivers a next-generation secure SD-WAN and security solution that supports the changing needs of cloud-enabled enterprise networks. Whether rolling out new services and applications across locations, connecting to the cloud, or trying to achieve operational efficiency, the SRX300 line helps organizations realize their business objectives while providing scalable, easy to manage, secure connectivity and advanced threat mitigation capabilities. Next-generation firewall and unified threat management (UTM) capabilities also make it easier to detect and proactively mitigate threats to improve the user and application experience.

The SRX300 line consists of five models:

- **SRX300**: Securing small branch or retail offices, the SRX300 Services Gateway consolidates security, routing, switching, and WAN connectivity in a small desktop device. The SRX300 supports up to 1 Gbps firewall and 300 Mbps IPsec VPN in a single, cost-effective networking and security platform.
- **SRX320**: Securely connecting small distributed enterprise branch offices, the SRX320 Services Gateway consolidates security, routing, switching, and WAN connectivity in a small desktop device. The SRX320 supports up to 1 Gbps firewall and 300 Mbps IPsec VPN in a single, consolidated, cost-effective networking and security platform.
- **SRX340**: Securely connecting midsize distributed enterprise branch offices, the SRX340 Services Gateway consolidates security, routing, switching, and WAN connectivity in a 1 U form factor. The SRX340 supports up to 3 Gbps firewall and 600 Mbps IPsec VPN in a single, cost-effective networking and security platform.
- **SRX345**: Best suited for midsize to large distributed enterprise branch offices, the SRX345 Services Gateway consolidates security, routing, switching, and WAN connectivity in a 1 U form factor. The SRX345 supports up to 5 Gbps firewall and 800 Mbps IPsec VPN in a single, consolidated, cost-effective networking and security platform.
- **SRX380**: A high-performance and secure SD-WAN gateway, the SRX380 offers superior and reliable WAN connectivity while consolidating security, routing, and switching for distributed enterprise offices. The SRX380 features greater port density than other SRX300 models, with 16x1GbE PoE+ and 4x10GbE ports, and includes redundant dual power supplies, all in a 1 U form factor.

SRX300 Highlights

The SRX300 line of services gateways consists of secure SD-WAN routers that bring high performance and proven deployment capabilities to enterprises that need to build a worldwide network of thousands of remote sites. WAN or Internet connectivity and Wi-Fi module options include:

- Ethernet, serial, T1/E1, ADSL2/2+, and VDSL
- 3G/4G LTE wireless
- 802.11ac Wave 2 Wi-Fi

Best-in-Class Secure Connectivity

Industry best, high-performance IPsec VPN solutions provide comprehensive encryption and authentication capabilities to secure intersite communications. Multiple form factors with Ethernet switching support on native Gigabit Ethernet ports allow cost-effective choices for mission-critical deployments. Juniper Networks Junos® automation and scripting capabilities and Junos Space Security Director reduce operational complexity and simplify the provisioning of new sites.

Application Steering and Control

The SRX300 line of devices recognizes more than 3,500 Layer 3-7 applications, including Web 2.0 and evasive peer-to-peer (P2P) applications like Skype, torrents, and others. Correlating application information with user contextual information, the SRX300 line can generate bandwidth usage reports, enforce access control policies, prioritize and rate-limit traffic going out of WAN interfaces, and proactively secure remote sites. This optimizes resources in the branch office and improves the application and user experience.

Secure SD-WAN

Along with Juniper Contrail Service Orchestration, the SRX300 line delivers fully automated SD-WAN to both enterprises and service providers. A Zero-Touch Provisioning (ZTP) feature simplifies branch network connectivity for initial deployment and ongoing management. The SRX300 firewalls efficiently utilize multiple links and load-balance traffic across the enterprise WAN, blending traditional MPLS with other connectivity options such as broadband internet, leased lines, 4G/LTE, and more. Policy- and application-based forwarding capabilities enforce business rules created by the enterprise to steer application traffic towards a preferred path.

WAN Assurance

Mist WAN Assurance is a cloud service that brings AI-powered automation and service levels to Juniper SRX Series Services Gateways, complementing the Juniper Secure SD-WAN solution. It transforms IT operations from reactive troubleshooting to proactive remediation, turning insights into actions, delivering operational simplicity with seamless integration into existing deployments.

- SRX Series firewalls, deployed as secure SD-WAN edge devices, provide the rich Junos streaming telemetry that provides the insights needed for WAN health metrics and anomaly detection.
- This data is leveraged within the Mist Cloud and AI engine, driving simpler operations, reducing mean time to repair, and providing better visibility into end-user experiences.
- Insights derived from SRX Series SD-WAN gateway telemetry data allows WAN Assurance to compute unique “User Minutes” that indicate whether users are having a good experience.

Comprehensive Security Suite

For the perimeter, the SRX300 line offers a comprehensive suite of application security services, threat defenses, and intelligence services. The services consist of intrusion prevention system (IPS), application security user role-based firewall controls and cloud-based antivirus, anti-spam, and enhanced Web filtering, protecting networks from the latest content-borne threats. Integrated threat intelligence via Juniper Networks SecIntel offers adaptive threat protection against Command and Control (C&C)-related botnets and policy enforcement based on GeoIP. Customers can also leverage their own custom and third-party feeds for protection from advanced malware and other threats. Integrating the Juniper Networks Advanced Threat Protection solution, the SRX300 line detects and enforces automated protection against known malware and zero-day threats with a very high degree of accuracy.

Agile SecOps

The SRX300 line enables agile SecOps through automation capabilities that support Zero Touch Deployment, Python scripts for orchestration, and event scripting for operational management.

Industry-Certified Junos Operating System

SRX300 services gateways run the Junos operating system, a proven, carrier-hardened OS that powers the top 100 service provider networks in the world. The rigorously tested, carrier-class, rich routing features such as IPv4/IPv6, OSPF, BGP, and multicast have been proven over 15 years of worldwide deployments.

Features and Benefits

Business Requirement	Feature/Solution	SRX300 Advantages
High performance	Up to 5 Gbps of routing and firewall performance	• Best suited for small, medium and large branch office deployments • Addresses future needs for scale and feature capacity
Business continuity	Stateful high availability (HA), IP monitoring	• Uses stateful HA to synchronize configuration and firewall sessions • Supports multiple WAN interface with dial-on-demand backup • Route/link failover based on real-time link performance
SD-WAN	Better end-user application and cloud experience and lower operational costs	• ZTP simplifies remote device provisioning • Advanced Policy-Based Routing (APBR) orchestrates business intent policies across the enterprise WAN • Application quality of experience (AppQoE) measures application SLAs and improves end-user experience • Controls and prioritizes traffic based on application and user role
End-user experience	WAN assurance	• Complements the Juniper Secure SD-WAN solution with AI-powered automation and service levels • Provides visibility and insights into users, applications, WAN links, control and data plane, and CPU for proactive remediation
Highly secure	IPsec VPN, Media Access Control Security (MACsec)	• Creates secure, reliable, and fast overlay link over public internet • Employs anti-counterfeit features to protect from unauthorized hardware spares • High-performance CPU with built-in hardware assist IPsec acceleration • TPM-based protection of device secrets such as passwords and certificates
Threat protection	IPS, antivirus, anti-spam, Juniper Advanced Threat Prevention, Encrypted Traffic Analysis (ETA)	• Protects from zero-day malware and other attacks with IPS, antivirus, and ATP • Integrates open threat intelligence platform with third-party feeds • Restores visibility that was lost due to encryption without the heavy burden of full TLS/SSL decryption
Application visibility	On-box GUI, Security Director	• Detects 3500+ Layer 3-7 applications, including Web 2.0 • Inspects and detects applications inside the SSL encrypted traffic
Easy to manage and scale	On-box GUI, Security Director	• Includes centralized management for auto-provisioning, firewall policy management, Network Address Translation (NAT), and IPsec VPN deployments, or simple, easy-to-use on-box GUI for local management
Minimize TCO	Junos OS	• Integrates routing, switching, and security in a single device • Reduces operation expense with Junos automation capabilities

SRX300

SRX320

SRX340

SRX345

SRX380

SRX300 Specifications

Software Specifications

Routing Protocols

- IPv4, IPv6, ISO, Connectionless Network Service (CLNS)
- Static routes
- RIP v1/v2
- OSPF/OSPF v3
- BGP with Route Reflector
- IS-IS
- Multicast: Internet Group Management Protocol (IGMP) v1/v2, Protocol Independent Multicast (PIM) sparse mode (SM)/dense mode (DM)/source-specific multicast (SSM), Session Description Protocol (SDP), Distance Vector Multicast Routing Protocol (DVMRP), Multicast Source Discovery Protocol (MSDP), Reverse Path Forwarding (RPF)
- Encapsulation: VLAN, Point-to-Point Protocol (PPP), Frame Relay, High-Level Data Link Control (HDLC), serial, Multilink Point-to-Point Protocol (MLPPP), Multilink Frame Relay (MLFR), and Point-to-Point Protocol over Ethernet (PPPoE)
- Virtual routers
- Policy-based routing, source-based routing
- Equal-cost multipath (ECMP)

QoS Features

- Support for 802.1p, DiffServ code point (DSCP), EXP
- Classification based on VLAN, data-link connection identifier (DLCI), interface, bundles, or multifield filters
- Marking, policing, and shaping
- Classification and scheduling
- Weighted random early detection (WRED)
- Guaranteed and maximum bandwidth
- Ingress traffic policing
- Virtual channels
- Hierarchical shaping and policing

Switching Features

- ASIC-based Layer 2 Forwarding
- MAC address learning
- VLAN addressing and integrated routing and bridging (IRB) support
- Link aggregation and LACP
- LLDP and LLDP-MED
- STP, RSTP, MSTP
- MVRP
- 802.1X authentication

Firewall Services

- Stateful and stateless firewall
- Zone-based firewall
- Screens and distributed denial of service (DDoS) protection
- Protection from protocol and traffic anomaly
- Integration with Pulse Unified Access Control (UAC)
- Integration with Aruba Clear Pass Policy Manager
- User role-based firewall
- SSL Inspection (Forward-proxy)

Network Address Translation (NAT)

- Source NAT with Port Address Translation (PAT)
- Bidirectional 1:1 static NAT
- Destination NAT with PAT
- Persistent NAT
- IPv6 address translation

VPN Features

- Tunnels: Generic routing encapsulation (GRE)3, IP-IP3, IPsec
- Site-site IPsec VPN, auto VPN, group VPN
- IPsec crypto algorithms: Data Encryption Standard (DES), triple DES (3DES), Advanced Encryption Standard (AES-256), AES-GCM
- IPsec authentication algorithms: MD5, SHA-1, SHA-128, SHA-256
- Pre-shared key and public key infrastructure (PKI) (X.509)
- Perfect forward secrecy, anti-reply
- IPv4 and IPv6 IPsec VPN
- Multi-proxy ID for site-site VPN
- Internet Key Exchange (IKEv1, IKEv2), NAT-T
- Virtual router and quality-of-service (QoS) aware
- Standard-based dead peer detection (DPD) support
- VPN monitoring

Network Services

- Dynamic Host Configuration Protocol (DHCP) client/server/relay
- Domain Name System (DNS) proxy, dynamic DNS (DDNS)
- Juniper real-time performance monitoring (RPM) and IP-monitoring
- Juniper flow monitoring (J-Flow)[1]
- Bidirectional Forwarding Detection (BFD)
- Two-Way Active Measurement Protocol (TWAMP)
- IEEE 802.3ah Link Fault Management (LFM)
- IEEE 802.1ag Connectivity Fault Management (CFM)

High Availability Features

- Virtual Router Redundancy Protocol (VRRP)[1]
- Stateful high availability
- Dual box clustering
- Active/passive
- Active/active
- Configuration synchronization
- Firewall session synchronization
- Device/link detection
- In-Band Cluster Upgrade (ICU)
- Dial on-demand backup interfaces
- IP monitoring with route and interface failover

Management, Automation, Logging, and Reporting

- SSH, Telnet, SNMP
- Smart image download
- Juniper CLI and Web UI
- Junos Space and Security Director
- Python
- Junos OS event, commit, and OP script
- Application and bandwidth usage reporting
- Auto installation
- Debug and troubleshooting tools
- Zero-Touch Provisioning with Contrail Service Orchestration

Advanced Routing Services

- Packet mode
- MPLS (RSVP, LDP)
- Circuit cross-connect (CCC), translational cross-connect (TCC)
- L2/L3 MPLS VPN, pseudowires
- Virtual private LAN service (VPLS), next-generation multicast VPN (NG-MVPN)
- MPLS traffic engineering and MPLS fast reroute

Application Security Services[2]

- Application visibility and control
- Application-based firewall
- Application QoS
- Application-based advanced policy-based routing
- Application quality of experience (AppQoE)

Enhanced SD-WAN Services

- Application-based advanced policy-based routing (APBR)
- Application-based link monitoring and switchover with Application quality of experience (AppQoE)

Threat Defense and Intelligence Services[2]

- Intrusion prevention
- Antivirus
- Antispam
- Category/reputation-based URL filtering
- SecIntel to provide threat intelligence
- Protection from botnets (command and control)
- Adaptive enforcement based on GeoIP
- Juniper Advanced Threat Prevention to detect and block zero-day attacks
- Encrypted Traffic Analysis (ETA)

[1]GRE, IP-IP, J-Flow monitoring, and VRRP are not supported in stateful high-availability mode.
[2]Offered as advanced security services subscription licenses.

Hardware Specifications

Specification	SRX300	SRX320	SRX340	SRX345	SRX380
Connectivity					
Total onboard ports	8x1GbE	8x1GbE	16x1GbE	16x1GbE	20 (16x1GbE, 4x10GbE)
Onboard RJ-45 ports	6x1GbE	6x1GbE	8x1GbE	8x1GbE	16x1GbE
Onboard small form-factor pluggable (SFP) transceiver ports	2x1GbE	2x1GbE	8x1GbE	8x1GbE	4x10GbE SFP+
MACsec-capable ports	2x1GbE	2x1GbE	16x1GbE	16x1GbE	16x1GbE 4x10GbE
Out-of-band (OOB) management ports	0	0	1x1GbE	1x1GbE	1x1GbE
Mini PIM (WAN) slots	0	2	4	4	4
Console (RJ-45 + miniUSB)	1	1	1	1	1
USB 3.0 ports (type A)	1	1	1	1	1
PoE+ ports	N/A	6[3]	0	0	16
Memory and Storage					
System memory (RAM)	4 GB	4 GB	4 GB	4 GB	4GB
Storage	8 GB	8 GB	8 GB	8 GB	100GB SSD
SSD slots	0	0	1	1	1
Dimensions and Power					
Form factor	Desktop	Desktop	1 U	1 U	1U
Size (WxHxD)	12.63 x 1.37 x 7.52 in. (32.08 x 3.47 x 19.10 cm)	11.81 x 1.73 x 7.52 in. (29.99 x 4.39 x 19.10 cm)	17.36 x 1.72 x 14.57 in. (44.09 x 4.36 x 37.01 cm)	17.36 x 1.72 x 14.57 in. (44.09 x 4.36 x 37.01 cm) / 17.36 x 1.72 x 18.7 in. (44.09 x 4.36 x 47.5 cm)[4]	17.36 x 1.72 x 18.7 in. (44.09 x 4.37 x 47.5 cm) / 17.36 x 1.72 x 20.47 in. (44.09 x 4.37 x 52 cm)
Weight (device and PSU)	4.38 lb (1.98 kg)	3.28 lb (1.51 kg)[5] / 3.4 lb (1.55 kb)[6]	10.80 lb (4.90 kg)	10.80 lb (4.90 kg) / 11.02 lb (5 kg)[7]	15 lb (6.8 kg) with 1xPSU / 16.76 lb (7.6 kg) with 2xPSU
Redundant PSU	No	No	No	Yes	Yes
Power supply	AC (external)	AC (external)	AC (internal)	AC (internal) / DC (internal)[7]	1+1 hot-swappable AC PSU
DC Input	N/A	N/A	N/A	-40.8 VDC to -72 VDC[7]	N/A
Maximum PoE power	N/A	180 W[6]	N/A	N/A	480W
Average power consumption	24.9 W	46 W[5]/221 W[6]	122 W	122 W	150 W (without PoE) 510 W (with PoE)
Average heat dissipation	85 BTU/h	157 BTU/h[5]/755 BTU/h[6]	420 BTU/h	420 BTU/h	511.5 BTU/hr (without PoE)
Maximum current consumption	0.346 A	0.634 A[5]/2.755 A[6]	1.496 A	1.496 A / 6A @ -48 VDC[7]	1.79A/7.32A
Acoustic noise level	0dB (fanless)	37 dBA[5]/40 dBA[6]	45.5 dBA	45.5 dBA	< 50dBA @ room temperature 27C
Airflow/cooling	Fanless	Front to back	Front to back	Front to back	Front to back

Specification	SRX300	SRX320	SRX340	SRX345	SRX380
Environmental, Compliance, and Safety Certification					
Operational temperature	-4° to 140° F (-20° to 60° C)[8]	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C) with MPIMs 32° to 122° F (0° to 50° C) without MPIMs
Nonoperational temperature	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)
Operating humidity	10% to 90% noncondensing	10% to 90% noncondensing	10% to 90% noncondensing	10% to 90% noncondensing	10% to 90% noncondensing
Nonoperating humidity	5% to 95% noncondensing	5% to 95% noncondensing	5% to 95% noncondensing	5% to 95% noncondensing	5% to 95% noncondensing
Meantime between failures (MTBF)	44.5 years	32.5 years[5]/ 26 years[6]	27 years	27.4 years	28.1 years
FCC classification	Class A	Class A	Class A	Class A	Class A
RoHS compliance	RoHS 2	RoHS 2	RoHS 2	RoHS 2	RoHS 2
FIPS 140-2	Level 2 (Junos 15.1X49-D60)	Level 1 (Junos 15.1X49-D60)	Level 2 (Junos 15.1X49-D60)	Level 2 (Junos 15.1X49-D60)	N/A
Common Criteria certification	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	N/A

[5]SRX320 with PoE+ ports available as a separate SKU: SRX320-POE.
[4]SRX345 with dual AC PSU model.
[5]SRX320 non PoE model.
[6]SRX320-POE with 6 ports PoE+ model.
[7]SRX345 with DC power supply (operating temperature as per GR-63 Issue 4 2012 test criteria).
[8]As per GR63 Issue 4 (2012) test criteria.

Performance and Scale

Parameter	SRX300	SRX320	SRX340	SRX345	SRX380
Routing with packet mode (64 B packet size) in Kpps[9]	300	300	550	750	1700
Routing with packet mode (IMIX packet size) in Mbps[9]	800	800	1,600	2,300	5000
Routing with packet mode (1,518 B packet size in Mbps[9]	1,500	1,500	3,000	5,500	10,000
Stateful firewall (64 B packet size) in Kpps[9]	200	200	350	550	1700
Stateful firewall (IMIX packet size) in Mbps[9]	500	500	1,100	1,700	4,000
Stateful firewall (1,518 B packet size) in Mbps[9]	1,000	1,000	3,000	5,000	10,000
IPsec VPN (IMIX packet size) in Mbps[9]	100	100	200	300	1,000
IPsec VPN (1,400 B packet size) in Mbps[9]	300	300	600	800	3,500
Application visibility and control in Mbps[10]	500	500	1,000	1,700	6,000
Recommended IPS in Mbps[10]	200	200	400	600	2,000
Next-generation firewall in Mbps[10]	100	100	200	300	1,000
Route table size (RIB/FIB) (IPv4 or IPv6)	256,000/256,000	256,000/256,000	1 million/600,000[11]	1 million/600,000[11]	1 million/600,000[11]
Maximum concurrent sessions (IPv4 or IPv6)	64,000	64,000	256,000	375,000	380,000
Maximum security policies	1,000	1,000	2,000	4,000	4,000
Connections per second	5,000	5,000	10,000	15,000	50,000
NAT rules	1,000	1,000	2,000	2,000	3,000
MAC table size	15,000	15,000	15,000	15,000	16,000
IPsec VPN tunnels	256	256	1,024	2,048	2,048
Number of remote access uses	25	50	150	250	500
GRE tunnels	256	256	512	1,024	2,048
Maximum number of security zones	16	16	64	64	128
Maximum number of virtual routers	32	32	64	128	128
Maximum number of VLANs	1,000	1,000	2,000	3,000	3,000
AppID sessions	16,000	16,000	64,000	64,000	64,000
IPS sessions	16,000	16,000	64,000	64,000	64,000
URLF sessions	16,000	16,000	64,000	64,000	64,000

[9]Throughput numbers based on UDP packets and RFC2544 test methodology.
[10]Throughput numbers based on HTTP traffic with 44 KB transaction size.
[11]Route scaling numbers are with enhanced route-scale features turned on.

WAN and Wi-Fi Interface Support Matrix

WAN and Wi-Fi Interface	SRX300	SRX320	SRX340	SRX345	SRX380
1 port T1/E1 MPIM (SRX-MP-1T1E1-R)	No	Yes	Yes	Yes	Yes
1 port VDSL2 Annex A/M MPIM (SRX-MP-1VDSL2-R)	No	Yes	Yes	Yes	Yes
1 port serial MPIM (SRX-MP-1SERIAL-R)	No	Yes	Yes	Yes	Yes
4G / LTE MPIM (SRX-MP-LTE-AA and SRX-MP-LTE-AE)	No	Yes	Yes	Yes	Yes
802.11ac Wave 2 Wi-Fi MPIM	No	Yes	Yes	Yes	Yes

WAN and Wi-Fi Interface Module Performance Data

Interface Module	Description	Performance
4G/LTE	Dual SIM 4G/LTE-A CAT 6	Up to 300 Mbps download and 50 Mbps upload
Wi-Fi MPIM	Dual band 802.11 a/b/g/n/ac Wave 2 (2x2 MIMO)	Up to 866 Mbps at 5GHz / 300 Mbps at 2.4GHz

Ordering Information

To order Juniper Networks SRX Series Services Gateways, and to access software licensing information, please visit the How to Buy page at https://www.juniper.net/us/en/how-to-buy/

	SRXnnn-SYS-JB
Hardware	Included
Management (CLI, JWEB, SNMP, Telnet, SSH)	•
Ethernet switching (L2 Forwarding, IRB, LACP etc)	•
L2 Transparent, Secure Wire	•
Routing (RIP, OSPF, BGP, Virtual router)	•
Multicast (IGMP, PIM, SSDP, DMVRP)	•
Packet Mode	•
Overlay (GRE, IP-IP)	•
Network Services (J-Flow, DHCP, QOS, BFD)	•
Stateful Firewall, Screens, ALGs	•
NAT (static, SNAT, DNAT)	•
IPSec VPN (Site-Site VPN, Auto VPN, Group VPN)	•
Firewall policy enforcement (UAC, Aruba CPPM)	•
Remote Access VPN (2 free licenses)	L
Chassis Cluster, VRRP, ISSU / ICU	•
Automation (Junos scripting, auto-installation)	•
MPLS, LDP, RSVP, L3 VPN, pseudo-wires, VPLS	•

L = Per-user license-based; two free user licenses included.

Base System Model Numbers

Product Number	Description
SRX300-SYS-JB	SRX300 Services Gateway includes hardware (8GbE, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching). RMK not included.
SRX320-SYS-JB	SRX320 Services Gateway includes hardware (8GbE, 2x MPIM slots, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching). RMK not included.
SRX320-SYS-JB-P	SRX320 Services Gateway includes hardware (8GbE, 6-port POE+, 2x MPIM slots, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching). RMK not included.
SRX340-SYS-JB	SRX340 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX345-SYS-JB	SRX345 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX345-SYS-JB-2AC	SRX345 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, dual AC power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX345-SYS-JB-DC	SRX345 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, single DC power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX380-P-SYS-JB-AC	SRX380 Services Gateway includes hardware (16GbE PoE+, 4x10GbE, 4x MPIM slots, 4GB RAM, 100GB SSD, single AC power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)

Software Licenses

Product Number	Description
S-SRXnnn-A1-1	SRXnnn Advanced 1 - JSE/SD-WAN, includes SD-WAN features App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack) and IPS; 1-year subscription (example: S-SRX380-A1-1)
S-SRXnnn-A1-3	SRXnnn Advanced 1 - JSE/SD-WAN, includes SD-WAN features App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack) and IPS; 3-year subscription (example: S-SRX380-A1-3)
S-SRXnnn-A1-5	SRXnnn Advanced 1 - JSE/SD-WAN, includes SD-WAN features App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack) and IPS; 5-year subscription (example: S-SRX380-A1-5]
S-SRXnnn-P1-1	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Juniper ATP; 1-year subscription (example: S-SRX380-P1-1)
S-SRXnnn-P1-3	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Juniper ATP; 3-year subscription (example: S-SRX380-P1-3)
S-SRXnnn-P1-5	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Juniper ATP; 5-year subscription (example: S-SRX380-P1-5)
S-SRXnnn-A2-1	SRXnnn Advanced 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Content Security (UTM, Cloud AV, URLF and AS); 1-year subscription (example: S-SRX380-A2-1)
S-SRXnnn-A2-3	SRXnnn Advanced 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Content Security (UTM, Cloud AV, URLF and AS); 3-year subscription (example: S-SRX380-A2-3)
S-SRXnnn-A2-5	SRXnnn Advanced 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Content Security (UTM, Cloud AV, URLF and AS); 5-year subscription (example: S-SRX380-A2-5)
S-SRXnnn-P2-1[12]	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS, Content Security (UTM, Cloud AV, URLF and AS) and Juniper Sky ATP; 1-year subscription (example: S-SRX380-P2-1)
S-SRXnnn-P2-3[12]	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS, Content Security (UTM, Cloud AV, URLF and AS) and Juniper Sky ATP; 3-year subscription (example: S-SRX380-P2-3)
S-SRXnnn-P2-5[12]	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS, Content Security (UTM, Cloud AV, URLF and AS) and Juniper Sky ATP; 5-year subscription (example: S-SRX380-P2-5)

[12]The S-SRXnnn-P2-1/3/5 year SKUs are only available for the SRX340, SRX345, and SRX380 models.

Remote Access VPN (Dynamic VPN) Licenses

Product Number	Description
SRX-RAC-5-LTU	Dynamic VPN service: 5 simultaneous Access Manager users
SRX-RAC-10-LTU	Dynamic VPN service: 10 simultaneous Access Manager users
SRX-RAC-25-LTU	Dynamic VPN service: 25 simultaneous Access Manager users
SRX-RAC-50-LTU	Dynamic VPN service: 50 simultaneous Access Manager users
SRX-RAC-100-LTU	Dynamic VPN service: 100 simultaneous Access Manager users
SRX-RAC-150-LTU	Dynamic VPN service: 150 simultaneous Access Manager users
SRX-RAC-250-LTU	Dynamic VPN service: 250 simultaneous Access Manager users

Interface Modules

Product Number	Description
SRX-MP-1T1E1-R	1 port T1E1, MPIM form factor supported on SRX320, SRX340, SRX345, SRX380, and SRX550M. ROHS complaint
SRX-MP-1VDSL2-R	1 port VDSL2 (backward compatible with ADSL / ADSL2+), MPIM form factor supported on SRX320, SRX340, SRX345, SRX380, and SRX550M. ROHS complaint
SRX-MP-1SERIAL-R	1 port Synchronous Serial, MPIM form factor supported on SRX320, SRX340, SRX345, SRX380, and SRX550M. ROHS complaint
SRX-MP-LTE-AA	4G / LTE MPIM support 1, 3, 5, 7-8, 18-19, 21, 28, 38-41 LTE bands (for Asia and Australia). Supported on SRX320, SRX340, SRX345, SRX380, and SRX550M
SRX-MP-LTE-AE	4G / LTE MPIM support 1-5, 7-8, 12-13, 30, 25-26, 29-30, 41 LTE bands (for Americas and EMEA). Supported on SRX320, SRX340, SRX345, SRX380, and SRX550M
SRX-MP-WLAN-US	Wireless access point (Wi-Fi) MPIM for SRX320, SRX34x, SRX380, and SRX550M. Supported for U.S. regulatory bands only.
SRX-MP-WLAN-WW	Wireless access point (Wi-Fi) MPIM for SRX320, SRX34x, SRX380, and SRX550M. Supported for worldwide regulatory bands (excluding U.S. and Israel).
SRX-MP-WLAN-IL	Wireless access point (Wi-Fi) MPIM for SRX320, SRX34x, SRX380, and SRX550M. Supported for Israel regulatory bands only.
SRX-MP-ANT-EXT	Antenna extension cable for WLAN MPIM on SRX Series platforms

Accessories

Product Number	Description
SRX300-RMK0	SRX300 rack mount kit with adaptor tray
SRX300-RMK1	SRX300 rack mount kit without adaptor tray
SRX300-WALL-KIT0	SRX300 wall mount kit with brackets
SRX320-P-RMK0	SRX320-POE rack mount kit with adaptor tray
SRX320-P-RMK1	SRX300-POE rack mount kit without adaptor tray
SRX320-RMK0	SRX320 rack mount kit with adaptor tray
SRX320-RMK1	SRX320 rack mount kit without adaptor tray
SRX320-WALL-KIT0	SRX320 wall mount kit with brackets
SRX34X-RMK	SRX340 and SRX345 rack mount kit
EX-4PST-RMK	SRX380 rack rount kit
JSU-SSD-MLC-100	Juniper Storage Unit, SSD, MLC, 100GB
JPSU-600-AC-AFO	SRX380 power supply

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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EX2300 ETHERNET SWITCH

Product Overview

The Juniper Networks EX2300 Ethernet Switch offers an economical, entry-level, standalone solution for access-layer deployments in branch and remote offices, as well as enterprise campus networks. Both 1 Gbps and 2.5 Gbps access port options are available to provide higher-speed options, especially when connecting to 802.11ac Wave 2 access points.

For small networks, up to four EX2300 switches can be interconnected in a Virtual Chassis configuration, allowing them to be managed as a single switch.

The EX2300 is onboarded, provisioned, and managed in the Juniper Mist Cloud Architecture. Mist Wired Assurance delivers better experiences for connected devices through AI-powered automation and service levels.

Product Description

The Juniper Networks® EX2300 line of Ethernet switches offers a compact, high-performance solution for supporting today's converged network access deployments.

Each EX2300 switch includes an ASIC-based Packet Forwarding Engine (PFE) with an integrated CPU to consistently deliver wire-rate forwarding, even with all control plane features enabled. Based on existing, field-proven Juniper Networks technology, the PFE brings the same level of carrier-class performance and reliability to the EX2300 switches that Juniper Networks routers bring to the world's largest service provider networks.

Select EX2300 models also support the 802.3af Class 3 Power over Ethernet (PoE) and 802.3at PoE+ standards for supporting networked devices such as telephones, video cameras, IEEE 802.11ac WLAN access points, and videophones in converged networks. The PoE-enabled EX2300 switches include a maximum system budget of 750 watts to deliver up to 30 watts to select ports.

Multiple EX2300 models are available, including versions offering multigigabit (up to 2.5 Gbps) PoE+ access ports that can accommodate higher-speed IEEE 802.11ac Wave 2 access points, enabling the switches to support more wireless users.

The EX2300 fixed-configuration Ethernet switches provide exceptional value to enterprise customers by supporting the following key technologies:

- Virtual Chassis technology enables up to four interconnected EX2300 switches to form a single logical device.
- Flexible 1GbE SFP/10GbE SFP+ uplinks provide high-speed connectivity to aggregation layer switches or other upstream devices.
- Up to 48 10/100/1000BASE-T ports are available with or without PoE/PoE+.
- Models offering 24 and 48 multigigabit ports support 1GbE/2.5GbE on 8 and 16 ports, respectively
- Energy Efficient Ethernet (EEE) support is provided on 1GbE ports.
- Complete Layer 2 and basic Layer 3 switching capabilities are available.
- Simplified onboarding and management with Juniper Mist Wired Assurance.

Additional features include:

- PoE-enabled EX2300 switches can simultaneously deliver up to 15.4 watts of standards-based 802.3af Class 3 PoE to a maximum of 48 ports or 30 watts of standards-based 802.3at PoE+ to a maximum of 24 ports, based on a total system budget of 750 watts.
- Uplink ports can be configured as Virtual Chassis interfaces and connected via standard 10GbE optics interfaces (optional Virtual Chassis license required).

- Fixed power supply and uplink ports ensure operational simplicity.
- Low power consumption, low acoustic fans, and a small 10-inch deep footprint enable flexible, environmentally friendly deployment.
- Support for L2 protocols as well as L3 protocols like RIP and static routing are included in the base license.
- Support is available for IPv6 management, including neighbor discovery, telnet, SSH, DNS, system log, and NTP.
- A single release train for Juniper Networks Junos operating system is supported to ensure a consistent control plane feature implementation.
- Modular Junos OS prevents a switch reboot if a single protocol feature fails.
- Built-in Web interface (Juniper Networks J-Web Software) is provided.
- RJ-45 serial console port is available.
- USB mini console port is included on 1GbE access switch models.
- Out-of-band Ethernet management port is provided.
- Reduction of Hazardous Waste (RoHS) is certified.

Architecture and Key Components

The EX2300 occupies a single rack unit, delivering a compact solution for crowded wiring closets and access locations where space and power are at a premium. The EX2300 switch's 10-inch/12-inch depth and low acoustics also make it ideal for open office deployments. For silent operation requirements, please see the EX2300-C, a c ompact, fanless version of the EX2300.

Each EX2300 switch supports four fixed front-panel 1GbE/10GbE uplink ports (six 1/10GbE uplink ports on the 48-port multigigabit model) with pluggable optics (purchased separately) for high-speed backbone or link aggregation connections between wiring closets and upstream aggregation switches. The 1GbE EX2300 access switch models also feature a front-panel mode button that offers a simple interface for bringing devices up and selecting LED modes.

A dedicated rear panel RJ-45 Ethernet port is available for outof-band management, while a rear panel USB port can be used to easily upload the Junos OS and configuration files.

Cloud Management with Juniper Mist Wired Assurance

Juniper Mist Wired Assurance, a cloud-based service driven by Mist AI to claim, configure, manage, and troubleshoot the EX2300, delivers AI-powered automation and service levels to ensure a better experience for connected devices. Wired Assurance leverages rich Junos switch telemetry data to simplify operations, reduce mean time to repair, and improve visibility. Wired Assurance offers the following features.

Day 0/Day 1: Simplified Onboarding and Provisioning

- Single-click activation adds true plug-and-play capabilities to the cloud-ready, zero-touch provisioning (ZTP)-enabled EX2300 driven by Mist AI.
- Configuration models use global templates for bulk rollouts while retaining the flexibility to apply custom site- or switch-specific attributes.
- Device, port, and interface profiles allows for the manual provisioning of colored ports or auto-provisioning of colorless ports.
- Open APIs support third-party integrations such as ServiceNow and Splunk to automate troubleshooting, ticketing, and more.

Day 2 and Beyond: AI-Driven Operations

- Wired service level expectation (SLEs) allow you to set, monitor, and measure wired user experiences such as throughput, successful connections, and switch health with pre- and post-connection performance metrics.
- AI-driven switch insights reveal exactly how switches are performing, including detailed device-level metrics such as CPU, memory utilization, and Virtual Chassis status.

The addition of Marvis, a complementary Virtual Network Assistant driven by Mist AI, lets you start building a self-driving network that simplifies network operations and streamlines troubleshooting via automatic fixes for EX Series switches or recommended actions for external systems.

Virtual Chassis Technology

The EX2300 supports Juniper's unique Virtual Chassis technology, enabling up to four interconnected EX2300 switches to be managed as a single logical device, delivering a scalable, pay-as-you-grow solution for expanding network environments.

While EX2300 switches can be interconnected over any of the front-panel uplink ports using standard 10GbE SFP+ transceivers (sold separately), these ports can also be configured as 1GbE/10GbE uplinks to aggregation devices by disabling the Virtual Chassis technology.

When deployed in a Virtual Chassis configuration, the EX2300 switches elect a primary and a backup switch based on a set of preconfigured policies or criteria. The primary switch automatically creates and updates the switching and optional routing tables on all other Virtual Chassis switch members. Switches can be added to or removed from the Virtual Chassis configuration without service disruption.

EX2300 Virtual Chassis configurations operate as highly resilient unified systems, providing simplified management using a single IP address, single telnet session, single command-line interface (CLI), automatic version checking, and automatic configuration. The EX2300 switches are also capable of local switching, so packets coming into a port destined for another port on the same switch do not have to traverse the Virtual Chassis, increasing forwarding capacities.

EX2300 Virtual Chassis configurations implement the same slot/module/port numbering schema as other Juniper Networks chassis-based products, providing true chassis-like operations. By using a consistent operating system and a single configuration file, all switches in a Virtual Chassis configuration are treated as a single device, simplifying overall system maintenance and management.

Multigigabit Switches

IEEE 802.11ac Wave 2 access points require switch ports capable of handling up to 2.5 Gbps in order to support the growing number of wireless devices and the amount of traffic they produce. To address this need, specific multigigabit EX2300 models now offer 1 Gbps and 2.5 Gbps access ports to support these increased bandwidth requirements over existing Category 5e cabling. These switches run the same Junos image and support all the same software features as other EX2300 models.

The EX2300 multigigabit switches can interoperate with other EX Series switches in Virtual Chassis deployments, protecting existing customer investments by enabling them to add multigigabit support to their existing Juniper network deployments.

The EX2300 multigigabit switches support PoE+ on all access ports, provided the power demand is within the PoE budget.

Table 1: EX2300 multigigabit switches

Model	1 Gbps Ports	1/2.5 Gbps Ports	PoE/ PoE+	Uplinks	Fans	Air Flow
EX2300- 24MP	8-23	0-7	All access ports	4 SFP+	3	Side-side
EX2300- 48MP	0-15; 32-47	16-31	All access ports	6 SFP+	4	Side-side

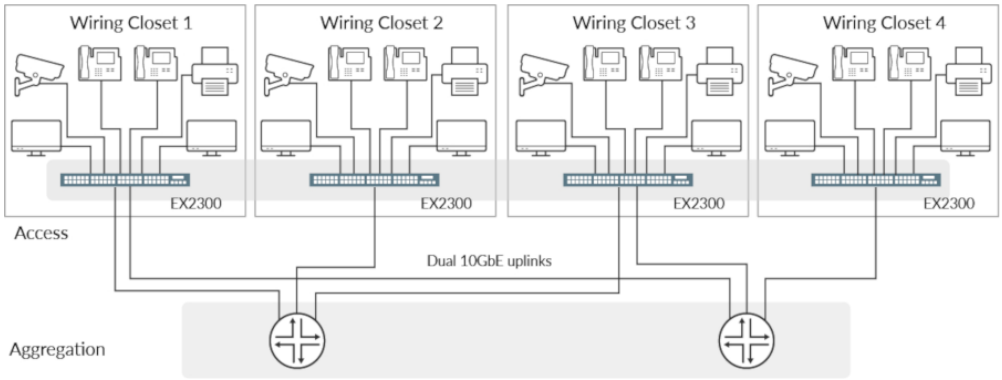


Figure 1: EX2300 switches support Virtual Chassis technology, which enables up to four interconnected switches to operate as a single, logical device.

Simplified Operations

Virtual Chassis technology simplifies network management for smaller deployments. Up to four interconnected EX2300 switches can be managed as a single device utilizing a single Junos OS image and a single configuration file, reducing the overall number of units to monitor and manage. When the Junos OS is upgraded on the primary switch in an EX2300 Virtual Chassis configuration, the software is automatically upgraded on all other member switches at the same time.

The EX2300 includes port profiles that allow network administrators to automatically configure ports with security, QoS, and other parameters based on the type of device connected to the port. Six preconfigured profiles are available, including default, desktop, desktop plus IP phone, WLAN access point, routed uplink, and Layer 2 uplink. Users can select from the existing profiles or create their own and apply them through the command-line interface (CLI), J-Web Software interface, or management system.

In addition, a feature called system snapshot makes a copy of all software files used to run the switch—including the Junos operating system, the active configuration, and the rescue configuration. These files can be used to reboot the switch at the next power-up or as a backup boot option. The Junos OS software can also be preinstalled on a flash drive and used to boot the EX2300 at any time.

Another feature, called automatic software download, enables network administrators to easily upgrade the EX2300 using the DHCP message exchange process to download and install software packages. Users simply configure the automatic software download feature on EX2300 switches acting as DHCP clients and establish a path to the server where the software package file is installed. The server then communicates the path to the software package file through DHCP server messages.

The ZTP feature allows a DHCP server to push configuration details and software images to multiple switches at boot-up time.

Features and Benefits

Wired Service-Level Expectations

The Wired Assurance feature provides operational visibility into the wired experience with service-level expectations (SLEs) for EX Series Switches. Pre- and post-connection performance metrics help you monitor successful connects and switch health throughout the system, using Mist AI to measure and manage networks and simplify troubleshooting.

High Availability Features

To avoid the complexities of the Spanning Tree Protocol (STP) without sacrificing network resiliency, the EX2300 employs a redundant trunk group (RTG) to provide the necessary port redundancy and simplify switch configuration. It also supports cross-member link aggregation, which allows redundant link aggregation connections between devices in a single Virtual Chassis configuration, providing an additional level of reliability and availability.

Junos Operating System

The EX2300 switches run the same Junos OS that is used by other Juniper Networks EX Series Ethernet Switches, QFX Series Switches, Juniper Routers, Juniper SRX Firewalls, and the Juniper NFX Series Network Services Platform. By utilizing a common operating system, Juniper delivers a consistent implementation and operation of control plane features across all products. To maintain that consistency, the Junos OS adheres to a highly disciplined development process that uses a single source code, and it employs a highly available modular architecture that prevents isolated failures from bringing down an entire system.

These attributes are fundamental to the core value of the software, enabling all Junos OS-powered products to be updated simultaneously with the same software release. All features are fully regression-tested, making each new release a true superset of the previous version. Customers can deploy the software with complete confidence that all existing capabilities are maintained and operate in the same way.

Converged Environments

The EX2300 provides the highest levels of flexibility and features in its class for the most demanding converged data, voice, and video environments, delivering a reliable platform for unifying enterprise communications.

By providing a full 15.4 watts of Class 3 PoE to VoIP telephones, closed-circuit security cameras, wireless access points, and other IP-enabled devices, the EX2300 delivers a future-proofed solution for converging disparate networks onto a single IP infrastructure. The EX2300 PoE switches also support 802.3at standards-based PoE+, delivering 30 watts for powering networked devices such as IEEE

802.11ac wireless access points, and videophones that might require more power than available with IEEE 802.3af.

To ease deployment, the EX2300 supports the industrystandard Link Layer Discovery Protocol (LLDP) and LLDPMedia Endpoint Discovery (LLDP-MED) protocol, enabling the switches to automatically discover Ethernet-enabled devices, determine their power requirements, and assign virtual LAN (VLAN) membership. LLDP-MED-based granular PoE management allows the EX2300 to negotiate PoE usage down to a fraction of a watt on powered devices, enabling more efficient PoE utilization across the switch.

In addition, the EX2300 supports rich quality-of-service (QoS) functionality for prioritizing data, voice, and video traffic. The switches support eight class-of-service (CoS) queues on every port, enabling them to maintain multilevel, end-to-end traffic prioritizations. The EX2300 also supports a wide range of policy options, including strict priority, low latency, weighted random early detection (WRED), and shaped-deficit weighted roundrobin (SDWRR) queuing.

Security

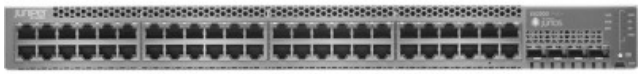
Working as an enforcement point in Access Policy Infrastructure, the EX2300 provides both standards-based 802.1X portlevel access control for multiple devices per port, as well as Layer 2-4 policy enforcement based on user identity, location, device, or a combination of these. A user's identity, device type, machine posture check, and location can be used to determine whether access should be granted and for how long. If access is granted, the switch provides access to the network based on authorization attributes sent by the authentication server. The switch can also apply security policies, QoS policies, or both, or it can mirror user traffic to a central location for logging, monitoring, or threat detection by intrusion prevention systems.

The EX2300 also provides a full complement of integrated port security and threat detection features, including Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection (DAI), and media access control (MAC) limiting to defend against internal and external spoofing, and man-in-themiddle and denial of service (DoS) attacks.

Enhanced Limited Lifetime Warranty

The EX2300 includes an enhanced limited lifetime hardware warranty that provides return-to-factory switch replacement for as long as the original purchaser owns the product. The warranty includes lifetime software updates, advanced shipping of spares within one business day, and 24x7 Juniper Networks Technical Assistance Center (JTAC) support for 90 days after the purchase date. Power supplies and fan trays are covered for a period of five years. For complete details, please visit www.juniper.net/support/warranty.

EX2300-24T/24P



EX2300-48T/48P

EX2300-24MP

EX2300-48MP

Physical Specifications

Power Options

Model	Max. System Power Consumption (Input Power without PoE)	Total PoE Power Budget
EX2300-24T	55 W AC	0
EX2300-24P	80 W AC	370 W
EX2300-24MP	55 W AC	380 W
EX2300-48T	70 W AC	0
EX2300-48P	100 W AC	750 W
EX2300-48MP	90 W AC	750 W

Dimensions (W x H x D)

- Width:
  - 17.4 in (44.19 cm) for desktop installations
  - 17.5 in (44.6 cm) with rack-mount brackets
- Height: 1.75 in (4.45 cm) for 1U installations
- Depth:
  - EX2300-24T: 10.2 in (25.9 cm)
  - EX2300-24P: 12.2 in (30.98 cm)
  - EX2300-24MP: 10 in (25.4 cm)
  - EX2300-48T: 10.2 in (25.9 cm)
  - EX2300-48P: 12.2 in (30.98 cm)
  - EX2300-48MP: 14.5 in (36.83 cm)

Backplane

- 80 Gbps Virtual Chassis interconnect to link up to four switches as a single logical device (EX2300-24/48T/P and EX2300-24/48 MP models)

System Weight

- EX2300-24T: 7.25 lb (3.29 kg)
- EX2300-24P: 9.89 lb (4.49 kg)
- EX2300-24MP: 8.82 lb (4 kg)
- EX2300-48T: 8.29 lb (3.76 kg)

- EX2300-48P: 11.07 lb (5.02 kg)
- EX2300-48MP: 14.33 lb (6.5 kg)

Environmental Ranges

- Operating temperature: 32° to 113° F (0° to 45° C)
- Storage temperature: -40° to 158° F (-40° to 70° C)
- Operating altitude: up to 13,000 ft (3962 m) at 40° C according to GR-63
- Non-operating altitude: up to 15,000 ft (4572 m)
- Relative humidity operating: 10% to 85% (noncondensing)
- Relative humidity non-operating: 0% to 95% (noncondensing)

Cooling

- Airflow:
  - EX2300-24T: 25 cfm
  - EX2300-24P: 23 cfm
  - EX2300-48T: 24 cfm
  - EX2300-48P: 25 cfm

Hardware Specifications

Switching Engine Model

- Store and forward

DRAM

- 2 GB (EX2300-24/48T/P)

Flash

- 2 GB (EX2300 non-multigigabit models)
- 8 GB (EX2300-24MP, EX2300-48MP)

CPU

- 1.25GHz ARM CPU

GbE Port Density per System

- EX2300-24P/24T/24MP: 28 (24 host ports + four-port SFP/SFP+ uplinks)
- EX2300-48P/48T: 52 (48 host ports + four-port SFP/SFP+ uplinks)
- EX2300-48MP: 54 (48 host ports + six-port SFP/SFP+ uplinks)

Supported Optics

- 10/100/1000BASE-T connector type RJ-45
- GbE SFP optic/connector type: RJ-45, or LC SFP fiber supporting 1000BASE-T SFP, SX (multimode), LX (singlemode), or LH (single-mode)

Physical Layer

- Physical port redundancy: Redundant trunk group (RTG)
- Cable diagnostics for detecting cable breaks and shorts
- Auto MDI/MDIX (medium-dependent interface/ mediumdependent interface crossover) support
- Port speed downshift/setting maximum advertised speed on 10/100/1000BASE-T ports
- Digital optical monitoring for optical ports

Packet-Switching Capacities (Maximum with 64-Byte Packets)

- EX2300-24P/24T: 64 Gbps (unidirectional)/128 Gbps (bidirectional)
- EX2300-24MP: 76 Gbps (unidirectional)/ 152 Gbps (bidirectional)
- EX2300-48P/48T: 88 Gbps (unidirectional)/176 Gbps (bidirectional)
- EX2300-48MP: 132 Gbps (unidirectional)/264 Gbps (bidirectional)

Software Specifications

Layer 2/Layer 3 Throughput (Mpps) (Maximum with 64 Byte Packets)

- EX2300-24P/24T/24MP: 95 Mpps (wire speed)
- EX2300-48P/48T/48MP: 130 Mpps (wire speed)

Layer 2 Features

- Maximum MAC addresses in hardware: 16,000
- Jumbo frames: 9216 bytes
- Number of VLANs supported: 4093 (2044 active VLAN)
- Range of possible VLAN IDs: 1-4094
- Port-based VLAN
- MAC-based VLAN
- Voice VLAN
- Layer 2 Protocol Tunneling (L2PT)
- IEEE 802.1ak: Multiple VLAN Registration Protocol (MVRP)
- Compatible with Per-VLAN Spanning Tree Plus (PVST+)
- RVI (Routed VLAN Interface)
- IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
- LLDP-MED with VoIP integration
- IEEE 802.1ad Q-in-Q tunneling
- IEEE 802.1br: Bridge Port Extension
- IEEE 802.1D: Spanning Tree Protocol
- IEEE 802.1p: CoS Prioritization
- IEEE 802.1Q: VLAN Tagging
- IEEE 802.1Q-in-Q: VLAN Stacking
- IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)
- Number of MST instances supported: 64
- Number of VSTP instances supported: 253
- IEEE 802.1w: Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1X: Port Access Control
- IEEE 802.3: 10BASE-T
- IEEE 802.3u: 100BASE-T
- IEEE 802.3ab: 1000BASE-T
- IEEE 802.3z: 1000BASE-X
- IEEE 802.3af: PoE
- IEEE 802.3at: PoE+

- IEEE 802.3ad: Link Aggregation Control Protocol (LACP)
- IEEE 802.3x: Pause Frames/Flow Control
- IEEE 802.3az: Energy Efficient Ethernet

Layer 3 Features: IPv4

- Maximum number of ARP entries: 1,500
- Maximum number of IPv4 unicast routes in hardware: 512 prefixes; 4,096 host routes
- Maximum number of IPv4 multicast routes in hardware: 2,048 groups; 2,048 multicast routes
- Routing Protocols: RIP v1/v2, OSPF v1/v2
- Static routing
- Routing policy
- Bidirectional Forwarding Detection (BFD) with slow timers (> 3 sec)
- IP directed broadcast

Layer 3 Features: IPv6

- Maximum number of Neighbor Discovery (ND) entries: 1,500
- Maximum number of IPv6 unicast routes in hardware: 512 prefixes; 2,048 host routes
- Maximum number of IPv6 multicast routes in hardware: 1,024 groups; 1,024 multicast routes
- Neighbor discovery, system logging, Telnet, SSH, SNMP, Network Time Protocol (NTP), Domain Name System (DNS)
- Static routing
- Routing protocols: RIPng, OSPF v3, Multicast Listener Discovery, Multicast Listener Discovery v2

Access Control Lists (ACLs) (Junos OS Firewall Filters)

- Port-based ACL (PACL)—256 ingress; 256 egress
- VLAN-based ACL (VACL)— 256 ingress; 256 egress
- Router-based ACL (RACL)—256 ingress; 512 egress
- ACL entries (ACE) in hardware per system: 2,000
- ACL counter for denied packets
- ACL counter for permitted packets
- Ability to add/remove/change ACL entries in middle of list (ACL editing)
- L2-L4 ACL

Access Security

- MAC limiting
- Allowed MAC addresses—configurable per port
- Sticky MAC (persistent MAC address learning)
- Dynamic ARP inspection (DAI)
- Proxy ARP
- Static ARP support
- DHCP snooping
- 802.1X port-based
- 802.1X multiple supplicants
- 802.1X with VLAN assignment
- 802.1X with authentication bypass access (based on host MAC address)
- 802.1X with VoIP VLAN support
- 802.1X dynamic ACL based on RADIUS attributes
- 802.1X Supported EAP types: Message Digest 5 (MD5), Transport Layer Security (TLS), Tunneled Transport Layer Security (TTLS), Protected Extensible Authentication Protocol (PEAP)
- IPv6 RA Guard
- IPv6 Neighbor Discovery Inspection
- Captive Portal
- Static MAC authentication
- MAC-RADIUS
- Control plane DoS protection
- Fallback authentication
- Trusted Network Connect (TNC) certified

High Availability

- Link aggregation
- 802.3ad (LACP) support:
  - Number of LAGs supported: 128
  - Maximum number of ports per LAG: 8
- Tagged ports support in LAG
- Uplink Failure Detection

Quality of Service (QoS)

- Layer 2 QoS
- Layer 3 QoS
- Ingress policing: one-rate two-color; two-rate three-color markers
- Hardware queues per port: 8
- Scheduling methods (egress): Strict Priority (SP), shapeddeficit weighted round-robin (SDWRR)
- 802.1p, DSCP /IP precedence trust and marking
- L2-L4 classification criteria: Interface, MAC address, EtherType, 802.1p, VLAN, IP address, DSCP/IP precedence, TCP/UDP port numbers
- Congestion avoidance capabilities: Tail drop and WRED

Multicast

- IGMP snooping entries: 2,000
- IGMP: v1, v2, v3
- IGMP snooping
- PIM-SM, PIM-SSM, PIM-DM
- MLD snooping

Services and Manageability

- Juniper Mist Wired Assurance
- Junos OS CLI
- Junos Web interface (J-Web)
- Junos Space Management Applications
- Junos Space Network Director
- Out-of-band management: Serial, 10/100BASE-T Ethernet
- ASCII configuration
- Rescue configuration
- Configuration rollback
- Image rollback
- Simple Network Management Protocol (SNMP): v1, v2c, v3
- Remote monitoring (RMON) (RFC 2819) Groups 1, 2, 3, 9
- Network Time Protocol (NTP)
- DHCP server
- DHCP client and DHCP proxy
- DHCP relay and helper
- RADIUS authentication
- TACACS+ authentication
- SSHv2
- Secure copy
- HTTP/HTTPs
- DNS resolver
- System log logging
- Temperature sensor
- Configuration backup via FTP/secure copy
- Interface range

Supported RFCs

- RFC 768 UDP
- RFC 783 Trivial File Transfer Protocol (TFTP)
- RFC 791 IP
- RFC 792 Internet Control Message Protocol (ICMP)
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet client and server
- RFC 894 IP over Ethernet
- RFC 903 Reverse ARP (RARP)
- RFC 906 Bootstrap Loading using TFTP
- RFC 951, 1542 BootP
- RFC 1027 Proxy ARP
- RFC 1058 RIP v1
- RFC 1122 Requirements for Internet Hosts
- RFC 1256 IPv4 ICMP Router Discovery (IRDP)
- RFC 1492 TACACS+
- RFC 1519 Classless Interdomain Routing (CIDR)
- RFC 1591 Domain Name System (DNS)
- RFC 1812 Requirements for IP Version 4 routers
- RFC 2030 Simple Network Time Protocol (SNTP)
- RFC 2068 HTTP/1.1
- RFC 2131 BOOTP/DHCP relay agent and DHCP server
- RFC 2138 RADIUS Authentication
- RFC 2139 RADIUS Accounting
- RFC 2267 Network Ingress Filtering
- RFC 2453 RIP v2
- RFC 2474 DiffServ Precedence, including 8 queues/port
- RFC 2597 DiffServ Assured Forwarding (AF)
- RFC 2598 DiffServ Expedited Forwarding (EF)
- RFC 2710 Multicast Listener Discovery Version (MLD) for IPv6
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
- RFC 3176 sFlow
- RFC 3579 RADIUS Extensible Authentication Protocol (EAP) support for 802.1X
- RFC 5176 Dynamic Authorization Extensions to RADIUS
- LLDP Media Endpoint Discovery (LLDP-MED), ANSI/TIA1057, draft 08

Supported MIBs

- RFC 1155 Structure of Management Information (SMI)
- RFC 1157 SNMPv1
- RFC 1212, RFC 1213, RFC 1215 MIB-II, Ethernet-like MIB, and TRAPs
- RFC 1493 Bridge MIB
- RFC 1643 Ethernet MIB
- RFC 1724 RIPv2 MIB
- RFC 1905 RFC 1907 SNMP v2c, SMIv2 and Revised MIB-II
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2011 SNMPv2 Management Information Base for the IP using SMIv2
- RFC 2012 SNMPv2 Management Information Base for the Transmission Control Protocol using SMIv2
- RFC 2013 SNMPv2 Management Information Base for the User Datagram Protocol using SMIv2
- RFC 2096 IPv4 Forwarding Table MIB
- RFC 2287 System Application Packages MIB
- RFC 2460 IPv6 Specification
- RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
- RFC 2570-2575 SNMPv3, User-based Security, Encryption, and Authentication
- RFC 2576 Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework
- RFC 2578 SNMP Structure of Management Information MIB
- RFC 2579 SNMP Textual Conventions for SMIv2

- RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
- RFC 2819 RMON MIB
- RFC 2863 The Interfaces Group MIB
- RFC 2922 LLDP MIB
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
- RFC 3413 SNMP Application MIB
- RFC 3414 User-based Security Model for SNMPv3
- RFC 3415 View-based Access Control Model (VACM) for SNMP
- RFC 3484 Default Address Selection for IPv6
- RFC 3621 PoE-MIB (PoE switches only)
- RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
- RFC 4188 STP and Extensions MIB
- RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
- RFC 4291 IPv6 Addressing Architecture
- RFC 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and VLAN Extensions
- RFC 4443 ICMPv6 for the IPv6 Specification
- RFC 4861 Neighbor Discovery for IPv6
- RFC 4862 IPv6 Stateless Address Autoconfiguration
- Draft – blumenthal – aes – usm - 08
- Draft – reeder - snmpv3 – usm - 3desede -00

Troubleshooting

- Debugging: CLI via console, telnet, or SSH
- Diagnostics: Show and debug command statistics
- Traffic mirroring (port)
- Traffic mirroring (VLAN)
- ACL-based mirroring
- Mirroring destination ports per system: 4
- LAG port monitoring
- Multiple destination ports monitored to 1 mirror (N:1)
- Maximum number of mirroring sessions: 4
- Mirroring to remote destination (over L2): 1 destination VLAN
- Encapsulated Remote Switched Port Analyzer (ERSPAN)
- IP tools: Extended ping and trace
- Juniper Networks commit and rollback

Safety Certifications

- UL-UL60950-1 (Second Edition)
- C-UL to CAN/CSA 22.2 No.60950-1 (Second Edition)
- TUV/GS to EN 60950-1 (Second Edition)
- CB-IEC60950-1 (Second Edition with all country deviations)
- EN 60825-1 (Second Edition)

Electromagnetic Compatibility Certifications

- FCC 47CFR Part 15 Class A
- EN 55022 Class A
- ICES-003 Class A
- VCCI Class A
- AS/NZS CISPR 22 Class A
- CISPR 22 Class A
- EN 55024
- EN 300386
- CE

Telecom Quality Management

- TL9000

Environmental

- Reduction of Hazardous Substances (ROHS) 6

Telco

- CLEI code

Noise Specifications

Noise measurements based on operational tests taken from bystander position (front) and performed at 25° C in compliance with ISO 7779. The PoE load was 370 W (24 ports powered at 15.4W each) on the EX2300-24P and 740 W (48 ports powered at 15.4W each) on the EX2300-48P.

Model	Acoustic Noise in DB
EX2300-24T	34.2
EX2300-24P	40.6
EX2300-48T	34.6
EX2300-48P	51.4
EX2300-24MP	45.7
EX2300-48MP	45.8

Warranty

- Enhanced limited lifetime switch hardware warranty

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

Product Number	Description
Switches	
EX2300-24T	EX2300 24-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-24T-VC	EX2300 24-port non-PoE+ w/ Virtual Chassis License
EX2300-24P	EX2300 24-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-24P-VC	EX2300 24-port PoE+ w/ Virtual Chassis License
EX2300-24MP	EX2300 16-port 10/100/1000BASE-T PoE+, 8-port 10/100/1000/2500BASE-T PoE+, 4 x 1/10GbE SFP/ SFP+ (optics sold separately)
EX2300-24T-DC	EX2300 24-port 10/100/1000BASE-T with internal DC PSU, 4 x 1/10GbE SFP/SFP+ (optics sold separately
EX2300-24T-TAA	EX2300 TAA 24-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately
EX2300-24P-TAA	EX2300 TAA 24-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48T	EX2300 48-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48T-VC	EX2300 48-port non-PoE+ w/ Virtual Chassis License
EX2300-48P	EX2300 48-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48P-VC	EX2300 48-port PoE+ w/ Virtual Chassis License
EX2300-48MP	EX2300 32-port 10/100/1000BASE-T PoE+, 16-port 10/100/1000/2500BASE-T PoE+, 6 x 1/10GbE SFP/ SFP+ (optics sold separately)
EX2300-48T-TAA	EX2300 TAA 48-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48P-TAA	EX2300 TAA 48-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
Accessories	
EX-RMK	Rack-mount kit for EX2300
EX-4PST-RMK	Adjustable 4-post rack-mount kit for EX2300
EX-WMK	Wall-mount kit for EX2300
Licenses	
EX2300-VC	EX2300 Virtual Chassis License
EX-24-EFL/EX-48-EFL	Enhanced Feature License for EX2300 24- and 48-port switches. Includes licenses for IPv4 routing (OSPF v2/ v3, IGMP v1/v2/v3, VRRP, and BFD), IPv6 routing (RIPng, OSPF v3, VRRP v6, MSDP, and PIM), and RealTime Performance Monitoring (RPM).
Pluggable Optics	
EX-SFP-1GE-T	SFP 10/100/1000BASE-T copper; RJ-45 connector; 100m reach on UTP
EX-SFP-1GE-SX	SFP 1000BASE-SX; LC connector; 850 nm; 550m reach on multimode fiber
EX-SFP-1GE-SX-ET	SFP 1000BASE-SX; LC connector; 850 nm; 550m reach on multimode fiber, extended temperature
EX-SFP-1GE-LX	SFP 1000BASE-LX; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-1GE-LH	SFP 1000BASE-LH; LC connector; 1550 nm; 70 km reach on single-mode fiber
EX-SFP-1GE-LX40K	SFP 1000BASE-LX; LC connector; 1310 nm; 40 km reach on single-mode fiber
EX-SFP-GE10KT13R14	SFP 1000BASE-BX; TX 1310 nm/RX 1490 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE10KT13R15	SFP 1000BASE-BX; TX 1310 nm/RX 1550 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE10KT14R13	SFP 1000BASE-BX; TX 1490 nm/RX 1310 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE10KT15R13	SFP 1000BASE-BX; TX 1550 nm/RX 1310 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE40KT13R15	SFP 1000BASE-BX; TX 1310 nm/RX 1550 nm for 40 km transmission on single-strand, single-mode fiber
EX-SFPGE80KCW1470	SFP Gigabit Ethernet CWDM, LC connector; 1470 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1490	SFP Gigabit Ethernet CWDM, LC connector; 1490 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1510	SFP Gigabit Ethernet CWDM, LC connector; 1510 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1530	SFP Gigabit Ethernet CWDM, LC connector; 1530 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1550	SFP Gigabit Ethernet CWDM, LC connector; 1550 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1570	SFP Gigabit Ethernet CWDM, LC connector; 1570 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1590	SFP Gigabit Ethernet CWDM, LC connector; 1590 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1610	SFP Gigabit Ethernet CWDM, LC connector; 1610 nm, 80 km reach on single-mode fiber
EX-SFP-10GE-USR	SFP+ 10 Gigabit Ethernet Ultra Short Reach Optics, 850 nm for 10m on OM1, 20m on OM2, 100m on OM3 multimode fiber
EX-SFP-10GE-SR	SFP+ 10GBASE-SR; LC connector; 850 nm; 300m reach on 50 microns multimode fiber; 33m on 62.5 microns multimode fiber
EX-SFP-10GE-LR	SFP+ 10GBASE-LR; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-10GE-ER	SFP+ 10GBASE-ER 10 Gigabit Ethernet Optics, 1550 nm for 40 km transmission on single-mode fiber
EX-SFP-10GE-ZR	SFP+ 10GBASE-ZR; LC connector; 1550nm; 80 km reach on single-mode fiber
EX-SFP-10GE-DAC1M	SFP+ 10 Gigabit Ethernet Direct Attach Copper (twinax copper cable) – 1-meter length
EX-SFP-10GE-DAC3M	SFP+ 10 Gigabit Ethernet Direct Attach Copper (twinax copper cable) – 3-meter length
EX-SFP-10GE-DAC5M	SFP+ 10 Gigabit Ethernet Direct Attach Copper (twinax copper cable) – 5-meter length

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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