

- MAC authentication (RADIUS)
- Control plane DoS protection
- Radius functionality over IPv6 for authentication, authorization, and accounting (AAA)
- DHCPv6 snooping
- IPv6 neighbor discovery
- IPv6 source guard
- IPv6 RA guard
- IPv6 Neighbor Discovery Inspection
- Media Access Control security (MACsec)

High Availability

- Redundant, hot-swappable power supplies
- Redundant, field-replaceable, hot-swappable fans
- Graceful Routing Engine switchover (GRES) for Layer 2 hitless forwarding and Layer 3 protocols on RE failover
- Graceful protocol restart (OSPF, BGP)
- Layer 2 hitless forwarding on RE failover
- Nonstop bridging: LACP, xSTP
- Nonstop routing: PIM, OSPF v2 and v3, RIP v2, RIPng, BGP, BGPv6, ISIS, IGMP v1, v2, v3
- Online insertion and removal (OIR) uplink module

Quality of Service

- L2 QoS
- L3 QoS
- Ingress policing: 1 rate 2 color
- Hardware queues per port: 12
- Scheduling methods (egress): Strict priority (SP), WDRR
- 802.1p, DiffCode (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, and more
- Congestion avoidance capabilities: Tail drop, weighted random early detection (WRED)

Multicast

- IGMP: v1, v2, v3
- IGMP snooping
- Multicast Listener Discovery (MLD) snooping
- PIM-SM, PIM-SSM, PIM-DM

Services and Manageability

- Juniper Mist Wired Assurance
- Junos OS CLI
- Junos Web interface (J-Web)
- Junos Space Management Applications
- Junos Space Network Director

- Junos Space Service Now for automated fault detection, simplified trouble ticket management, and streamlined operations
- Out-of-band management: Serial; 10/100/1000BASE-T Ethernet
- ASCII configuration
- Rescue configuration
- Configuration rollback
- Image rollback
- LCD management
- Element management tools: Juniper Networks Network and Security Manager (NSM)
- Remote performance monitoring
- Proactive services support via Advanced Insight Solutions (AIS)
- SNMP: v1, v2c, v3
- RMON (RFC 2819) Groups 1, 2, 3, 9
- Network Time Protocol (NTP)
- DHCP server
- DHCP client and DHCP proxy
- DHCP relay and helper
- DHCP local server support
- RADIUS
- TACACS+
- SSHv2
- Secure copy
- HTTP/HTTPs
- Domain Name System (DNS) resolver
- System logging
- Temperature sensor
- Configuration backup via FTP/secure copy

Supported RFCs

- RFC 768 UDP
- RFC 783 TFTP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet client and server
- RFC 894 IP over Ethernet
- RFC 903 RARP
- RFC 906 TFTP Bootstrap
- RFC 951, 1542 BootP
- RFC 1027 Proxy ARP
- RFC 1058 RIP v1
- RFC 1112 IGMP v1
- RFC 1122 Host Requirements

- RFC 1195 Use of OSI IS-IS for Routing in TCP/IP and Dual Environments (TCP/IP transport only)
 - RFC 1256 IPv4 ICMP Router Discovery (IRDP)
 - RFC 1492 TACACS+RFC 1519 CIDR
 - RFC 1587 OSPF NSSA Option
 - RFC 1591 DNS
 - RFC 1812 Requirements for IP Version 4 Routers
 - RFC 1981 Path MTU Discovery for IPv6
 - RFC 2030 SNTP, Simple Network Time Protocol
 - RFC 2068 HTTP server
 - RFC 2080 RIPng for IPv6
 - RFC 2131 BOOTP/DHCP relay agent and DHCP server
 - RFC 2138 RADIUS Authentication
 - RFC 2139 RADIUS Accounting
 - RFC 2154 OSPF w/Digital Signatures (password, MD-5)
 - RFC 2236 IGMP v2
 - RFC 2267 Network Ingress Filtering
 - RFC 2328 OSPF v2 (edge-mode)
 - RFC 2338 VRRP
 - RFC 2362 PIM-SM (edge-mode)
 - RFC 2370 OSPF Opaque LSA Option
 - RFC 2453 RIP v2
 - RFC 2460 Internet Protocol, Version 6 (IPv6) Specification
 - RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)
 - RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
 - RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
 - RFC 2474 DiffServ Precedence, including 12 queues/port
 - RFC 2475 DiffServ Core and Edge Router Functions
 - RFC 2526 Reserved IPv6 Subnet Anycast Addresses
 - RFC 2597 DiffServ Assured Forwarding (AF)
 - RFC 2598 DiffServ Expedited Forwarding (EF)
 - RFC 2740 OSPF for IPv6
 - RFC 2925 MIB for Remote Ping, Trace
 - RFC 3176 sFlow
 - RFC 3376 IGMP v3
 - RFC 3484 Default Address Selection for Internet Protocol Version 6 (IPv6)
 - RFC 3513 Internet Protocol Version 6 (IPv6) Addressing Architecture
 - RFC 3569 draft-ietf-ssm-arch-06.txt PIM-SSM PIM Source Specific Multicast
 - RFC 3579 RADIUS EAP support for 802.1x
 - RFC 3618 Multicast Source Discovery Protocol (MSDP)
 - RFC 3623 OSPF Graceful Restart
 - RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
 - RFC 4291 IPv6 Addressing Architecture
 - RFC 4443 ICMPv6 for the IPv6 Specification
 - RFC 4541 IBMP and MLD snooping services
 - RFC 4552 OSPFv3 Authentication
 - RFC 4861 Neighbor Discovery for IPv6
 - RFC 4862 IPv6 Stateless Address Autoconfiguration
 - RFC 4915 MT-OSPF
 - RFC 5095 Deprecation of Type 0 Routing Headers
 - RFC 5176 Dynamic Authorization Extensions to RADIUS
 - RFC 5798 VRRPv3 for IPv6
 - Draft-ietf-bfd-base-05.txt Bidirectional Forwarding Detection
 - Draft-ietf-idr-restart-10.txt Graceful Restart Mechanism
 - Draft-ietf-isis-restart-02 Restart Signaling for IS-IS
 - Draft-ietf-isis-wg-multi-topology-11 Multi Topology (MT) Routing in IS-IS for BGP
 - Internet draft-ietf-isis-ipv6-06.txt, Routing IPv6 with IS-IS
 - LLDP Media Endpoint Discovery (LLDP-MED), ANSI/TIA-1057, draft 08
 - PIM-DM Draft IETF PIM Dense Mode draft-ietf-idmr-pim-dm-05.txt, draft-ietf-pim-dm-new-v2-04.txt
- Supported MIBs**
- RFC 1155 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 1657 BGP-4 MIB
 - RFC 1724 RIPv2 MIB
 - RFC 1850 OSPFv2 MIB
 - RFC 1905 RFC 1907 SNMP v2c, SMIv2 and Revised MIB-II
 - RFC 2011 SNMPv2 for Internet Protocol using SMIv2
 - RFC 2012 SNMPv2 for transmission control protocol using SMIv2
 - RFC 2013 SNMPv2 for user datagram protocol using SMIv2
 - RFC 2096 IPv4 Forwarding Table MIB
 - RFC 2287 System Application Packages MIB
 - RFC 2570–2575 SNMPv3, user based security, encryption, and authentication
 - RFC 2576 Coexistence between SNMP Version 1, Version 2, and Version 3
 - RFC 2578 SNMP Structure of Management Information MIB
 - RFC 2579 SNMP Textual Conventions for SMIv2
 - RFC 2665 Ethernet-like interface MIB

- RFC 2787 VRRP MIB
- RFC 2819 RMON MIB
- RFC 2863 Interface Group MIB
- RFC 2863 Interface MIB
- RFC 2922 LLDP MIB
- RFC 2925 Ping/Traceroute MIB
- RFC 2932 IPv4 Multicast MIB
- RFC 3413 SNMP Application MIB
- RFC 3414 User-based Security model for SNMPv3
- RFC 3415 View-based Access Control Model for SNMP
- RFC 3621 PoE-MIB (PoE switches only)
- RFC 4188 STP and Extensions MIB
- RFC 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and VLAN extensions
- RFC 5643 OSPF v3 MIB support
- Draft – blumenthal – aes – usm - 08
- Draft – reeder - snmpv3 – usm - 3desede -00
- Draft-ietf-bfd-mib-02.txt
- Draft-ietf-idmr-igmp-mib-13
- Draft-ietf-idmr-pim-mib-09
- Draft-ietf-idr-bgp4-mibv2-02.txt – Enhanced BGP-4 MIB
- Draft-ietf-isis-wg-mib-07

Troubleshooting

- Debugging: CLI via console, Telnet, or SSH
- Diagnostics: Show and debug command, statistics
- Traffic mirroring (port)
- Traffic mirroring (VLAN)
- IP tools: Extended ping and trace
- Juniper Networks commit and rollback

Traffic Monitoring

- 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

Safety and Compliance

Safety Certifications

- UL-UL60950-1 (First Edition)
- C-UL to CAN/CSA 22.2 No. 60950-1 (First Edition)
- TUV/GS to EN 60950-1, Amendment A1-A4, A11
- EN 60950-1 (2006 +A1:2009+A12:2010) Information Technology Equipment—Safety
- IEC 60950-1 (2005 +A1:2009) Information Technology Equipment—Safety

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

NEBS

- GR-1089-Core: EMC and Electrical Safety for Network Telecommunications Equipment

Environmental

- Reduction of Hazardous Substances (ROHS) 6/6

Telco

- CLEI code

Noise Specifications

- Noise measurements based on operational tests taken from bystander position (front) and performed at 23° C in compliance with ISO 7779.

Table 3. EX4300 Power Supply Ratings and Acoustic Noise in dBA

Product	Power Supply Rating	Acoustic Noise
EX4300-24T	350 W AC AFO	38.5
EX4300-48T	350 W AC AFO	37.8
EX4300-48T-AFI	350 W AC AFI	38.9
EX4300-24P	715 W AC AFO	39.7
EX4300-48P	1100 W AC AFO	51.0
EX4300-48MP	1400 W AC AFO	53.7
EX4300-48T-DC	550 W DC AFO	39.7
EX4300-48T-DC-AFI	550 W DC AFI	39.7
EX4300-32F	350 W AC AFO	39
EX4300-32F-DC	550 W DC AFO	41.2

Juniper Networks Service 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
Switches¹	
EX4300-24T	24-port 10/100/1000BASE-T + 350 W AC PS (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-48T	48-port 10/100/1000BASE-T + 350 W AC PS (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-48T-AFI	48-port 10/100/1000BASE-T + 350 W AC PS (back-to-front airflow) (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-24P	24-port 10/100/1000BASE-T PoE-plus + 715 W AC PS (provides 565 W PoE+ power) (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-48P	48-port 10/100/1000BASE-T PoE-plus + 1100 W AC PS (provides 950 W PoE+ power) (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-48MP	24-port 10/100/1000BASE-T, 24-port 100/1000/2500/5000/10000BASE-T, 95 W PoE + 1400 W AC PS (provides up to 1100 W PoE++ power) (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-48T-DC	48-port 10/100/1000BASE-T + 550 W DC PS (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-48T-DC-AFI	48-port 10/100/1000BASE-T + 550 W DC PS (back-to-front airflow) (QSFP+ DAC for Virtual Chassis ordered separately)
EX4300-32F	32-port 100/1000BASE-X SFP, 4x10GBASE-X SFP+, 2x40GBASE-X QSFP+, and 350 W AC PS (optics sold separately)
EX4300-32F-DC	32-port 100/1000BASE-X SFP, 4x10GBASE-X SFP+, 2x40GBASE-X QSFP+, and 550 W DC PS (optics sold separately)
EX4300-24T-TAA	Trade Agreement Act-compliant EX4300, 24-port 10/100/1000BASE-T + 350 W AC PS (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-48T-TAA	Trade Agreement Act-compliant EX4300, 48-port 10/100/1000BASE-T + 350 W AC PS (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-48T-AFI-TAA	Trade Agreement Act-compliant EX4300, 48-port 10/100/1000BASE-T + 350 W AC PS (back-to-front airflow) (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-48T-DC-TAA	Trade Agreement Act-compliant EX4300, 48-port 10/100/1000BASE-T + 550 W DC PS (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-48T-DCI-TAA	Trade Agreement Act-compliant EX4300, 48-port 10/100/1000BASE-T + 550 W DC PS (back-to-front airflow) (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-24P-TAA	Trade Agreement Act-compliant EX4300, 24-port 10/100/1000BASE-T PoE-plus + 715 W AC PS (provides 565 W PoE+ power) (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-48P-TAA	Trade Agreement Act-compliant EX4300, 48-port 10/100/1000BASE-T PoE-plus + 1100 W AC PS (provides 950 W PoE+ power) (QSFP+ DAC for Virtual Chassis and optics ordered separately)
EX4300-32F-TAA	Trade Agreement Act-compliant EX4300, 32-port 100/1000BASE-X SFP, 4x10GBASE-X SFP+, 2x40GBASE-X QSFP+, and 350 W AC PS (optics sold separately)
EX4300-32F-DC-TAA	Trade Agreement Act-compliant EX4300, 32-port 100/1000BASE-X SFP, 4x10GBASE-X SFP+, 2x40GBASE-X QSFP+, and 550 W DC PS (optics sold separately)
Mounting Options	
EX-4PST-RMK	Adjustable 4-post rack-mount kit for EX4200, EX4300, and EX3200
EX-WMK	EX4200, EX4300, and EX3200 wall-mount kit
EX-RMK	Rack-mount kit for EX2200, EX3200, EX4200, EX4300, and EX4550
Feature Licenses²	
EX4300-24-EFL	Enhanced Feature License (EFL) for EX4300-24T and EX4300-24P
EX4300-48-EFL	Enhanced Feature License (EFL) for EX4300-48T, EX4300-48T-AFI, EX4300-48T-DC, EX4300-48T-AFI-DC, EX4300-48P, and EX4300-48MP

Product Number	Description
EX4300-32F-EFL	Enhanced Feature License (EFL) for EX4300-32F and EX4300-32F-DC
EX4300-24-AFL	Advanced Feature License (AFL) for EX4300-24T and EX4300-24P
EX4300-48-AFL	Advanced Feature License (AFL) for EX4300-48T, EX4300-48T-AFI, EX4300-48T-DC, EX4300-48T-AFI-DC, EX4300-48P, and EX4300-48MP
EX4300-32F-AFL	Advanced Feature License (AFL) for EX4300-32F and EX4300-32F-DC
EX-QFX-MACSEC-ACC3	MACsec Software License for EX4300 and EX4200 access switches
Uplink Modules	
EX-UM-4X4SFP	EX4300 4-port 1GbE/10GbE SFP+ Uplink Module for EX4300-24T, EX4300-48T, EX4300-48T-AFI, EX4300-48T-DC, EX4300-48T-DC-AFI, EX4300-24P and EX4300-48P
EX-UM-8X8SFP	EX4300 8-port 1GbE/10GbE SFP+ Uplink Module for EX4300-32F and EX4300-32F-DC
EX-UM-2QSFP	EX4300 2-port 40GbE QSFP+ Uplink Module for EX4300-32F and EX4300-32F-DC
EX-UM-4SFPP-MR	EX4300MP 4-port 1GbE/10GbE SFP+ Uplink Module for EX4300-48MP
EX-UM-2QSFP-MR	EX4300MP 2-port 40GbE QSFP+/2-port 100GbE QSPF28 Uplink Module for EX4300-48MP
Power Supplies	
JPSU-350-AC-AFO	EX4300 350 W AC power supply (power cord needs to be ordered separately) (front-to-back airflow)
JPSU-350-AC-AFI	EX4300 350 W AC power supply with airflow in (power cord needs to be ordered separately) (back-to-front airflow)
JPSU-715-AC-AFO	EX4300 715 W AC power supply (power cord needs to be ordered separately) (front-to-back airflow)
JPSU-1100-AC-AFO	EX4300 1100 W AC power supply (power cord needs to be ordered separately) (front-to-back airflow)
JPSU-1400-AC-AFO	EX4300 1400 W AC power supply for EX4300-48MP (power cord needs to be ordered separately) (front-to-back airflow)
JPSU-550-DC-AFO	EX4300 550 W DC power supply (power cord needs to be ordered separately) (front-to-back airflow)
JPSU-550-DC-AFI	EX4300 550 W DC power supply with air flow in (power cord needs to be ordered separately) (back-to-front airflow)
Fans	
EX4300-FAN	Spare fan with front-to-back airflow
EX4300-FAN-AFI	Spare fan with back-to-front airflow
EX4300-48MP-FAN	Spare fan with front-to-back airflow for EX4300-48MP
Spare Chassis	
EX4300-24P-S	Spare chassis, 24-port 10/100/1000BASE-T PoE-plus (optics, power supplies, and fans sold separately)
EX4300-24T-S	Spare chassis, 24-port 10/100/1000BASE-T (optics, power supplies, and fans sold separately)
EX4300-32F-S	Spare chassis, 32-port 1000BASE-X SFP, 4x10GBASE-X SFP+, 2x40GBASE-X QSFP+ (optics, power supplies, and fans sold separately)
EX4300-48P-S	Spare chassis, 48-port 10/100/1000BASE-T PoE-plus (optics, power supplies, and fans sold separately)
EX4300-48T-S	Spare chassis, 48-port 10/100/1000BASE-T (optics, power supplies, and fans sold separately)
EX4300-48MP-S	Spare chassis, 24-port 10/100/1000BASE-T, 48-port 100/1000/2500/5000/10000BASE-T, 95 W PoE (optics, power supplies, and fans sold separately)

Product Number	Description
Pluggable Optics	
EX-QSFP-40GE-DAC-50CM	QSFP+ to QSFP+ 40GbE Direct Attach Copper (twinax copper cable) 50 cm passive
QFX-QSFP-40G-SR4	QSFP+ 40GBASE-SR4 40GbE optics, 850 nm for up to 150 m transmission on multimode fiber-optic (MMF)
QFX-QSFP-DAC-1M	QSFP+ to QSFP+ 40GbE Direct Attach Copper (twinax copper cable) 1 m passive
QFX-QSFP-DAC-3M	QSFP+ to QSFP+ 40GbE Direct Attach Copper (twinax copper cable) 3 m passive
JNP-QSFP-DAC-5M	QSFP+ to QSFP+ 40GbE Direct Attach Copper (twinax copper cable) 5 m passive
EX-SFP-1FE-FX	SFP 100BASE-FX; LC connector; 1310 nm; 2 km reach on multimode fiber (supported on EX4300-32F and EX4300-32F-DC 100BASE-X fixed ports only)
EX-SFP-1GE-SX	SFP 1000BASE-SX; LC connector; 850 nm; 550 m reach on multimode fiber
EX-SFP-1GE-LX	SFP 1000BASE-LX; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-1GE-T	SFP 10/100/1000BASE-T copper; RJ-45 connector; 100 m reach on unshielded twisted pair (UTP) (supported on EX4300-32F and EX4300-32F-DC 1000BASE-X fixed ports only)
EX-SFP-10GE-SR	SFP+ 10GBASE-SR; LC connector; 850 nm; 300 m reach on 50 microns multimode fiber; 33 m on 62.5 microns multimode fiber
EX-SFP-10GE-LRM	SFP+ 10GBASE-LRM; LC connector; 1310 nm; 220 m reach on multimode fiber
EX-SFP-10GE-LR	SFP+ 10GBASE-LR; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-10GE-DAC-xM	SFP+ 10GbE Direct Attach Copper (twinax copper cable), where "x" denotes 1, 3, 5, or 7 meter lengths
EX-SFP-10GE-ER	SFP+ 10GBASE-ER 10GbE optics, 1550 nm for 40 km transmission on single-mode fiber
EX-SFP-10GE-USR	SFP+ 10GbE ultra short reach optics, 850 nm for 10 m on OM1, 20 m on OM2, 100 m on OM3 multimode 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-GE10KT14R13	SFP 1000BASE-BX; Tx 1490 nm/Rx 1310 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-GE10KT15R13	SFP 1000BASE-BX; Tx 1550 nm/Rx 1310 nm for 10 km transmission on single-strand, single-mode fiber

¹Each switch ships standard with one power supply (including a power cord for the country to which it is being shipped), RJ-45 cable, RJ-45-to-DB-9 serial port adapter, and a 19 in. rack-mount kit. A second power supply is optional to provide resiliency. The appropriate power cord accompanying that power supply needs to be ordered separately. Virtual Chassis cables must be ordered separately and can be for any of the optics supported (40GbE DAC is recommended for Virtual Chassis connections).

² EFL includes license for OSPFv4/v6, PIM-SM/SSM/DM, IGMP v1/v2/v3, and VRF-Lite. AFL includes license for IS-IS and BGP (EFL needs to be purchased and installed separately before installing AFL).

³ Not available in Russia and CIS countries.

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.