



# Lenovo Juniper EX2300 Switches with Power Over Ethernet User Guide

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## Product Guide

### (withdrawn product)

The Juniper EX2300-C-12P and EX2300-24P Ethernet switches for Lenovo with Power over Ethernet (PoE) deliver a compact, high-density, cost-effective solution for small network environments where space and power are at a premium. Featuring a small, 1U footprint, these switches are ideal for access-layer deployments in micro branches, retail and workgroup environments, and converged network access in larger networks.

The EX2300-C-12P offers 12x 10/100/1000BASE-T ports in a single platform, while the EX2300-24P offers 24x 10/100/1000BASE-T ports. Both models offer Power over Ethernet (PoE) for powering attached network devices, such as telephones, video cameras, IEEE 802.11ac WLAN access points, and videophones. Optional front panel 10GbE uplink ports support connections to higher-layer devices.

The EX2300 switches support L2 switching protocols as well as L3 routing protocols like RIP and static routing that are included in the base license. An enhanced license is available via special bid for supporting additional L3 protocols such as OSPF, Internet Group Management Protocol (IGMP v1/v2/v3), Protocol Independent Multicast (PIM), and Virtual Router Redundancy Protocol (VRRP), as well as IEEE 802.1 Q-in- Q VLAN tunneling.

**The EX2300 switches are shown in the following figure.**



Figure 1. Juniper EX2300-C-12P (top) and EX2300-24P (bottom) switches

### Did you know?

The EX2300 switches are designed with non-blocking, line-rate throughput and zero oversubscription.

The compact PoE-enabled EX2300-C-12P switch can simultaneously deliver up to 15.4 watts of standards-based 802.3af Class 3 PoE to a maximum of 8 ports or 30 watts of standards-based 802.3at PoE+ to a maximum of 4, based on a total system budget of 124 W.

The PoE-enabled EX2300-24P switch can simultaneously deliver up to 15.4 watts of standards-based 802.3af Class 3 PoE to a maximum of 24 ports or 30 watts of standards-based 802.3at PoE+ to a maximum of 12 ports, based on a total system budget of 370 watts.

Low power consumption, low acoustic fans (EX2300-24P) or fanless design (EX2300-C-12P), and a small footprint enable flexible, environmentally friendly deployment

## **Key features**

**The EX2300 switches are considered particularly suited for the following customers:**

- Customers who are implementing Power over Ethernet (PoE) standards for supporting networked devices such as telephones, video cameras, IEEE 802.11ac WLAN access points, and videophones in converged networks
- Customer who need economical network connectivity solution for access layer deployments in branch and remote offices, as well as enterprise campus networks
- Customers who want to use GbE in their infrastructure (servers and networking) Customers who are implementing a virtualized environment and require multiple GbE ports Customers who require investment protection for 10 GbE ports
- Customers who want to reduce total cost of ownership (TCO) and improve performance while maintaining high levels of availability and security
- Customers who want to avoid oversubscription, which can result in congestion and loss of performance
- Customers who want to implement a converged infrastructure with NAS or iSCSI

**The EX2300 switches offer the following key features and benefits:**

### **Increases network performance**

The EX2300-C-12P switch provides up to 64 Gbps of switching throughput and supports two SFP+ 10 Gb uplink ports for zero oversubscription, and the EX2300-24P switch provides up to 128 Gbps of switching throughput and supports four SFP+ 10 Gb uplink ports for zero oversubscription.

### **Converged environments**

The EX2300 switches provide 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 PoE to VoIP telephones, videophones, closed-circuit security cameras, wireless access points, and other IP-enabled devices, the EX2300 switches deliver a future-proofed solution for converging disparate networks onto a single IP infrastructure.

To ease deployment, the EX2300 switches support the industry-standard Link Layer Discovery Protocol (LLDP) and LLDP-Media Endpoint Discovery (LLDP-MED) protocol, enabling the switches to automatically discover Ethernet-enabled devices, determine their power requirements, and assign virtual LAN (VLAN) membership.

### **High availability**

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.

## Security

Working as an enforcement point in Access Policy Infrastructure, the EX2300 switches provide both standards-based 802.1X port-level 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.

Virtual Chassis Technology (Requires Enhanced Features license; special bid only, not available as a field upgrade option)

The EX2300 switches support 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.

## Components and connectors

The front panel of the Juniper EX2300-C-12P switch is shown in the following figure.

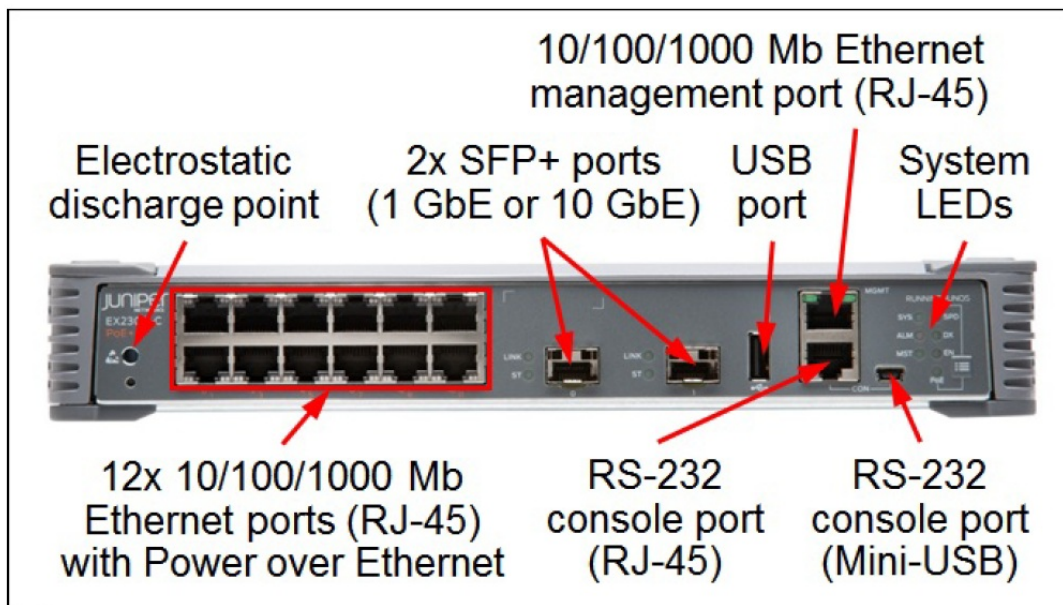


Figure 2. Front panel of the Juniper EX2300-C-12P switch

The front panel of the Juniper EX2300-C-12P switch contains the following components:

- 12x 1000BASE-T Ethernet ports with PoE for 10/100/1000 Mbps connections.
- 2x SFP/SFP+ ports for 1 GbE SFP or 10 GbE SFP+ transceivers or 10 GbE DAC cables.
- 1x RJ-45 10/100/1000 Mb Ethernet port for out-of-band management.
- 1x RJ-45 RS-232 console port for configuring the switch.
- 1x Mini-USB RS-232 console port for configuring the switch.
- 1x USB port for uploading Junos OS and configuration files.
- LEDs that display the status of the switch and the network.
- Electrostatic discharge point.

The front panel of the Juniper EX2300-24P switch is shown in the following figure.

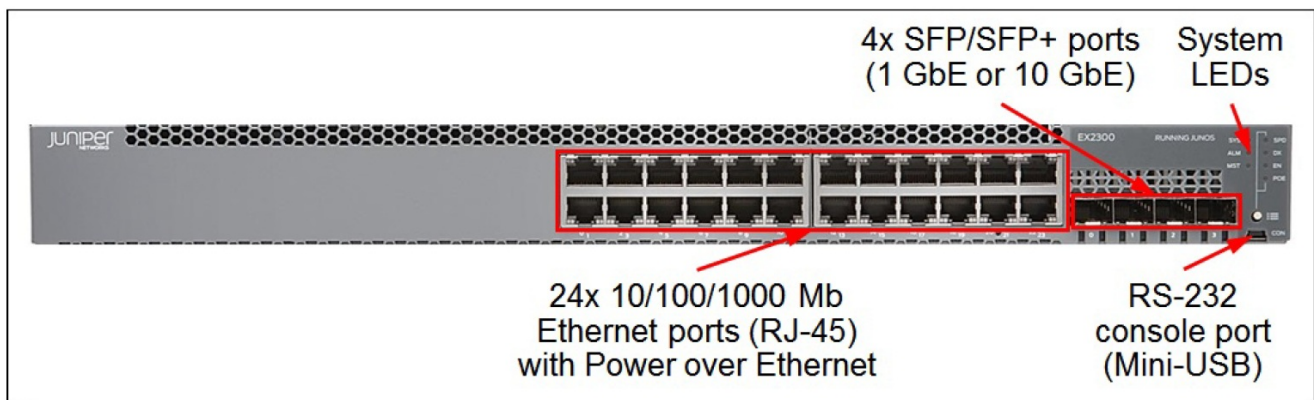


Figure 3. Front panel of the Juniper EX2300-24P switch

**The front panel of the Juniper EX2300-24P switch contains the following components:**

- 24x 1000BASE-T Ethernet ports with PoE for 10/100/1000 Mbps connections.
- 4x SFP/SFP+ ports for 1 GbE SFP or 10 GbE SFP+ transceivers or 10 GbE DAC cables.
- 1x Mini-USB RS-232 console port for configuring the switch.
- LEDs that display the status of the switch and the network.

**The rear panel of the Juniper EX2300-C-12P switch is shown in the following figure.**

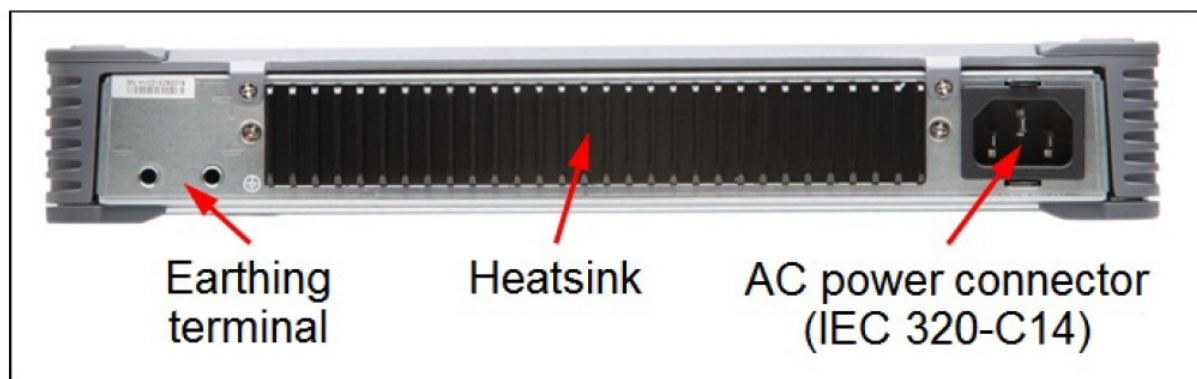


Figure 4. Rear panel of the Juniper EX2300-C-12P switch

**The rear panel of the Juniper EX2300-C-12P switch contains the following components:**

- 1x AC power connector (IEC 320-C14)
- Heatsink
- Earthing terminal

The rear panel of the Juniper EX2300-24P switch is shown in the following figure.



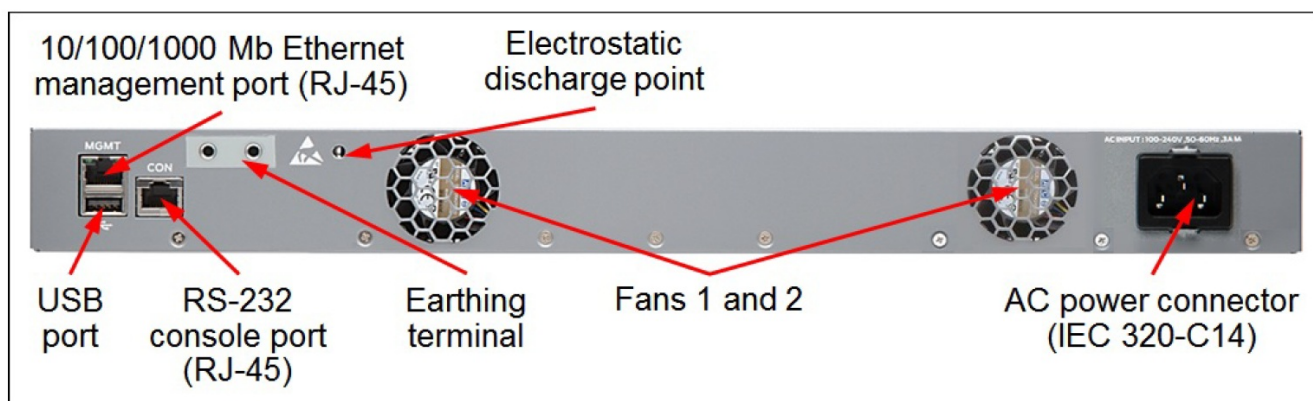


Figure 5. Rear panel of the Juniper EX2300-24P switch

The rear panel of the Juniper EX2300-24P switch contains the following components:

- 1x AC power connector (IEC 320-C14)
- 1x RJ-45 10/100/1000 Mb Ethernet port for out-of-band management.
- 1x RJ-45 RS-232 console port for configuring the switch.
- 1x USB port for uploading Junos OS and configuration files.
- Earthing terminal
- Electrostatic discharge point.

## System specifications

The following table lists system specifications for the EX2300 switches.

**Table 1. System specifications**

Component	Specification
Form factor	EX2300-C-12P: Deskside or 1U rack mount EX2300-24P: 1U rack mount
Ports	EX2300-C-12P: 12x Gigabit Ethernet (GbE) RJ-45 fixed ports with PoE 2x SFP/SFP+ ports EX2300-24P: 24x Gigabit Ethernet (GbE) RJ-45 fixed ports with PoE 4x SFP/SFP+ ports

Component	Specification
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SFP/SFP+ media types	<p>10 Gb Ethernet SFP+:</p> <p>10 GbE ultra short-reach (USR) SFP+ transceivers 10 GbE short-range (SR) SFP+ transceivers</p> <p>10 GbE long-range (LR) SFP+ transceivers</p> <p>10 GbE extended-range (ER) SFP+ transceivers</p> <p>10 GbE extended long-range (ZR) SFP+ transceivers 10 GbE SFP+ direct attach copper (DAC) cables</p> <p>1 Gb Ethernet SFP:</p> <p>1 GbE short-wavelength (SX) SFP transceivers 1 GbE long-wavelength (LX) SFP transceivers</p> <p>1 GbE long-wavelength bi-directional (BX) SFP transceivers 1 GbE long-wavelength long-haul (LH) SFP transceivers</p> <p>1 GbE RJ-45 SFP transceivers 1 GbE CWDM SFP transceivers</p> <p>100 Mb Ethernet SFP:</p> <p>Fast Ethernet short-wavelength (FX) SFP transceivers</p>
Port speeds	<p>1 Gb Ethernet RJ-45 fixed ports: 10/100/1000 Mbps autosensing 10 Gb Ethernet SFP+ transceivers: 10 Gbps</p> <p>1 Gb Ethernet SFP optical transceivers: 1 Gbps</p> <p>1 Gb Ethernet SFP RJ-45 transceivers: 10/100/1000 Mbps autosensing 100 Mb Ethernet SFP transceivers: 100 Mbps</p>
Data traffic types	<p>Unicast, multicast, broadcast.</p>

Software features	<p>Junos OS:</p> <p>Layer 2 switching, Layer 3 switching, virtual local area networks (VLANs), VLAN tagging, spanning tree protocol (STP), link aggregation (trunk) groups (LAGs), redundant trunk groups (RTGs), quality of service (QoS), IP v4/IP v6 management, IPv4/IPv6 routing, Virtual Router Redundancy Protocol (VRRP), policy-based routing, Virtual Chassis license (special bid only), Enhanced Features license (OSPF, IGMP and PIM routing protocols, Q-in-Q VLAN tunneling, and advanced diagnostics; special bid only).</p>
Performance	<p>Non-blocking architecture with wire-speed forwarding of traffic: EX2300-C-12P:</p> <p>Up to 64 Gbps aggregated throughput</p> <p>Up to 47 Million packets per second (Mpps) EX2300-24P:</p> <p>Up to 128 Gbps aggregated throughput</p> <p>Up to 95 Million packets per second (Mpps) Up to 9,216-byte jumbo frames</p>
Scalability	<p>MAC address forwarding database entries: 16,000 VLANs: 4,093</p> <p>VLAN Spanning Tree Protocol (VSTP) instances: 253 Multiple STP (MSTP) instances: 64</p> <p>Link aggregation groups: 128 Ports in a link aggregation group: 8</p>
<b>Component</b>	<b>Specification</b>



Cooling	<p>EX2300-C-12P: Fanless; rear heatsink.</p> <p>EX2300-24P: Two fixed system fans. Front (port side) to rear (non-port side) airflow.</p>
Power supply	<p>One fixed 100 – 240 V AC power supply with IEC 320-C14 connector: EX2300-C-12P: 170 W</p> <p>EX2300-24P: 450 W</p>
Hot-swap parts	SFP/SFP+ transceivers, SFP+ DAC cables.
Management ports	1x 10/100/1000 Mb Ethernet port (RJ-45); 1x RS-232 port (RJ-45); 1x RS-232 port (Mini- USB), 1x USB port (for uploading Junos OS and configuration files).
Management interfaces	Junos OS CLI; Web GUI (J-Web); SNMP v1, v2 and v3.
Security features	Secure Shell (SSH); Secure Copy (SCP); user level security, Role-based Access Control (RBAC); RADIUS and TACACS+ authentication; access control lists (ACLs); port-based network access control (IEEE 802.1x).
Hardware warranty	Enhanced limited lifetime hardware warranty with shipping of spares within one business day; 5- year coverage for power supplies and fans.
Software maintenance	Lifetime software updates with 3-year 24x7 Juniper Networks Technical Assistance Center (J TAC) support.

Dimensions	EX2300-C-12P: Height: 44 mm (1.7 in.); width: 279 mm (11.0 in.); depth: 238 mm (9.5 in.) EX2300-24P: Height: 44 mm (1.7 in.); width: 442 mm (17.4 in.); depth: 310 mm (12.2 in.)
Weight	EX2300-C-12P: 3.2 kg (7.0 lb) EX2300-24P: 4.5 kg (9.9 lb)

## Models

The following table lists the Juniper EX2300 switch models.

**Table 2. Juniper EX2300 switch models**

Description	Part number	Machine Type-Model	Feature code
Juniper EX2300-C-12P PoE Switch	7165H1X	7165-HC1	AUEZ
Juniper EX2300-24P PoE Switch	7165H2X	7165-HC2	AUEY

### The EX2300 switch models ship with the following items:

- Generic Rack Mount Kit (2-post) (EX2300-24P only)
- Power Cord Retainer Clip
- RJ-45 (plug) to RJ-45 (plug) cable with the DB-9 (plug) to RJ-45 (jack) adapter attached
- Documentation package

### Configuration notes:

- Power cables are not included and must be ordered together with the switch (see “Power supplies and cables” for details).
- SFP/SFP+ transceivers and cables are not included and should be ordered together with the switch, if required (see “Transceivers and cables” for details).
- When configuring the EX2300 switches in the Standalone Solution Configuration Tool, the options for these switch models are listed in the Unconfigured Options category.

## Transceivers and cables

With the flexibility of the EX2300 switches, customers can choose the following connectivity technologies:

- For 100 Mb links, customers can use 100BASE-FX transceivers in the SFP/SFP+ ports for distances up to 2 km with multimode fiber.
- For 1 GbE links, customers can use RJ-45 UTP cables up to 100 meters. Customers that need longer distances can use the 1000BASE-SX transceivers in the SFP/SFP+ ports, which can drive distances up to up to 550 meters with OM2 multi-mode fiber, or the 1000BASE-LX or 1000BASE-BX transceivers that support distances up to 10 kilometers with single-mode fiber.  
For extended distances, the 1000BASE-LH transceivers can support distances up to 70 kilometers and the CWDM transceivers can support distances up to 80 km with single-mode fiber.
- For 10 GbE links (supported on SFP/SFP+ ports), customers can use direct-attached copper (DAC) SFP+ cables for in-rack cabling for distances up to 7 meters. These DAC cables have SFP+ connectors on each end, and they do not need separate transceivers.

For longer distances, the 10GBASE-SR transceiver can support distances up to 300 meters over OM3 multimode fiber. The 10GBASE-LR transceivers can support distances up to 10 kilometers with single mode fiber.

For extended distances, the 10GBASE-ER transceivers can support distances up to 40 kilometers and the 10GBASE-ZR transceivers can support distances up to 80 km with single-mode fiber

The supported SFP/SFP+ and DAC cable options are listed in the following table.

**Table 3. Supported SFP/SFP+ transceivers and DAC cables**

Description	Part number	Feature code	Maximum quantity supported*
SFP transceivers – Fast Ethernet			
Juniper SFP 100Base-FX Fast Ethernet, Extended Temp Range Optics	01DD465	AUFF	2 / 4
SFP transceivers – 1 GbE			
Small Form Factor Pluggable 10/100/1000 Copper Transceiver Module	01DD468	AUFG	2 / 4
Juniper SFP 1000Base-SX Gigabit Ethernet Optics	01DD456	AUFC	2 / 4

Juniper SFP 1000Base-SX GbE Optics, Extended Temp Range Optics	01DD893	AUFS	2 / 4
Juniper SFP 1000Base-LX Gigabit Ethernet Optics	01DD459	AUFD	2 / 4
Juniper SFP 1000Base-LX Gigabit Ethernet Optics, 1310nm SMF	01DD514	AUFQ	2 / 4
Juniper SFP 1000Base-LH Gigabit Ethernet Optics	01DD462	AUFE	2 / 4
Juniper SFP 1000Base-BX Gigabit Ethernet Optics, Tx 1550nm/Rx 1310nm	01DD530	AUFW	2 / 4
Juniper SFP 1000Base-BX Gigabit Ethernet Optics, Tx 1310nm/Rx 1550nm	01DD532	AUFX	2 / 4
Juniper SFP 1000Base-BX Gigabit Ethernet Optics, Tx 1550nm/Rx 1310nm	01DD534	AUFY	2 / 4
Juniper SFP 1000Base-BX Gigabit Ethernet Optics, Tx 1490nm/Rx 1310nm	01DD536	AUFZ	2 / 4
Juniper SFP 1000Base-BX Gigabit Ethernet Optics, Tx 1310nm/Rx 1550nm	01DD538	AUG0	2 / 4
Juniper SFP 1000Base-BX Gigabit Ethernet Optics, Tx 1310nm/Rx 1490nm	01DD540	AUG1	2 / 4
Juniper SFP, Gigabit Ethernet CWDM Optics, 1470nm on SMF	01DD528	AUFV	2 / 4

Juniper SFP, Gigabit Ethernet CWDM Optics, 1490nm on SMF	01DD526	AUFU	2 / 4
Juniper SFP, Gigabit Ethernet CWDM Optics, 1510nm on SMF	01DD524	AUFT	2 / 4
Juniper SFP, Gigabit Ethernet CWDM Optics, 1530nm on SMF	01DD522	AUHM	2 / 4
Juniper SFP, Gigabit Ethernet CWDM Optics, 1550nm on SMF	01DD548	AUG5	2 / 4

Description	Part number	Feature code	Maximum quantity supported*
Juniper SFP, Gigabit Ethernet CWDM Optics, 1570nm on SMF	01DD546	AUG4	2 / 4
Juniper SFP, Gigabit Ethernet CWDM Optics, 1590nm on SMF	01DD544	AUG3	2 / 4
Juniper SFP, Gigabit Ethernet CWDM Optics, 1610nm on SMF	01DD542	AUG2	2 / 4
SFP+ transceivers – 10 GbE			
Juniper SFP+ 10GbE Ultra Short Reach; OM1, OM2, OM3	01DD636	AUFP	2 / 4
Juniper SFP 10 Gigabit Ethernet (SFP+) SR Optics	01DD633	AUFN	2 / 4
Juniper SFP 10 Gigabit Ethernet (SFP+) LR Optics	01DD627	AUFM	2 / 4
Juniper SFP+ 10GBase-ER 10 GbE Optics Module, 1550nm for 40Km	01DD624	AUFL	2 / 4

Juniper SFP+, 10GBase-ZR 10 Gigabit Ethernet Optics, 1550nm SMF	01DD639	AUFR	2 / 4
SFP+ passive direct-attach cables – 10 GbE			
Juniper SFP+ 10GbE Direct Attach Copper (Twinax Copper Cable), 1M	01DD612	AUFH	2 / 4
Juniper SFP+ 10GbE Direct Attach Copper (Twinax Copper Cable), 3M	01DD615	AUFJ	2 / 4
Juniper SFP+ 10GbE Direct Attach Copper (Twinax Copper Cable), 5M	01DD618	AU FK	2 / 4
Juniper SFP+ 10GbE Direct Attach Copper (Twinax Copper Cable), 7M	01DD621	AUHL	2 / 4
Optical cables for 1 GbE SFP SX and 10 GbE SFP+ USB/SR transceivers			
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5	2 / 4
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6	2 / 4
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7	2 / 4
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8	2 / 4
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9	2 / 4
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA	2 / 4
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB	2 / 4
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC	2 / 4

Maximum quantity shown is for EX2300-C-12P / EX2300-24P.

The network cables that can be used with the EX2300 switches are listed in the following table.

**Table 4. EX2300 network cabling requirements**

Transceiver	Type	Cable	Connector
100 Mb Ethernet			
SFP Fast Ethernet	100BASE-FX	50/125 $\mu$ multimode fiber (OM2) cable up to 2 km.	LC
1 Gb Ethernet			
RJ-45 ports (fixed) 1Gb RJ-45 Copper SFP	1000BASE-T	UTP Category 5, 5E, and 6 up to 100 meters.	RJ-45
1Gb SX SFP	1000BASE-SX	Lenovo fiber optic cables up to 30 m (see Table 3); 50/125 $\mu$ multimode fiber (OM2) cable up to 550 m.	LC
1Gb LX SFP	1000BASE-LX	9/125 $\mu$ single-mode fiber cable up to 10 km.	LC
1Gb BX SFP	1000BASE-BX	9/125 $\mu$ single-mode fiber cable up to 10 km.	LC
1Gb LH SFP	1000BASE-LH	9/125 $\mu$ single-mode fiber cable up to 70 km.	LC
1Gb CWDM SFP	CWDM	9/125 $\mu$ single-mode fiber cable up to 80 km.	LC



Transceiver	Type	Cable	Connector
10 Gb Ethernet			
10Gb USR SFP+	10GBASE-SR	Lenovo fiber optic cables up to 30 m (see Table 3); 50/125 $\mu$ multimode fiber (OM3) cable up to 100 m; 50/125 $\mu$ multimode fiber (OM2) cable up to 20 m; 62.5/125 $\mu$ multimode fiber (OM1) cable up to 10 m.	LC
10Gb SR SFP+	10GBASE-SR	Lenovo fiber optic cables up to 30 m (see Table 3); 50/125 $\mu$ multimode fiber (OM3) cable up to 300 m.	LC
10Gb LR SFP+	10GBASE-LR	9/125 $\mu$ single-mode fiber cable up to 10 km.	LC
10Gb ER SFP+	10GBASE-ER	9/125 $\mu$ single-mode fiber cable up to 40 km.	LC
10Gb ZR SFP+	10GBASE-ZR	9/125 $\mu$ single-mode fiber cable up to 80 km.	LC
Direct attach cable	10GSFP+Cu	SFP+ DAC cables up to 7 m (see Table 3).	SFP+
Management ports			
Ethernet management port	1000BASE-T	UTP Category 5, 5E, and 6 up to 100 meters.	RJ-45
RS-232 serial console port	RS-232	DB-9/RJ-45-to-RJ-45 (comes with the switch)	RJ-45
RS-232 serial console port	RS-232	USB-to-Mini-USB (not supplied by Lenovo)	Mini-USB

## Software features

The E2300 switches have the following software features:

- **Scalability and performance:**

- Media access control (MAC) address learning with automatic updates
- Static and LACP (IEEE 802.3ad) link aggregation (trunks) Broadcast/multicast storm control
- IGMP snooping for limit flooding of IP multicast traffic
- IGMP filtering to control multicast traffic for hosts participating in multicast groups
- Configurable traffic distribution schemes over LAGs based on source/destination IP or MAC

- **Availability and redundancy:**

- IEEE 802.1D STP for providing L2 redundancy
- IEEE 802.1s Multiple STP (MSTP) for topology optimization
- IEEE 802.1w Rapid STP (RSTP) (rapid convergence for delay-sensitive traffic such as voice)
- Per-VLAN STP (VSTP) enhancements
- Redundant trunk groups (RTGs) provide basic link redundancy without STP complexity
- Uplink failure detection

- **VLAN support:**

- Port-based VLANs
- Up to 4093 VLANs supported per switch
- 802.1Q VLAN tagging support on all ports
- 802.1Q-in-Q VLAN tunneling (Requires Enhanced Features license; special bid only)
- 802.1x with dynamic VLAN assignment
- Private VLANs

- **Virtualization:** Virtual Chassis license (special bid only) enables up to four interconnected EX2300 switches to form a single logical device.

- **Security:**

- VLAN-based, port-based, and IP-based access control lists (ACLs)
- 802.1x port-based authentication
- Multiple user IDs and passwords
- User access control
- Radius and TACACS+ authentication and authorization

- **Quality of Service (QoS):**

- IEEE 802.1p, IP ToS/DSCP, MAC/IP, VLAN, and port traffic classification and processing
- Traffic shaping and re-marking based on defined policies
- Eight priority queues per port for processing qualified traffic
- IPv4/IPv6 ACL metering

- **IP v4 Layer 3 functions:**

- Host management
- IP filtering with ACLs
- Virtual Router Redundancy Protocol (Requires Enhanced Features license; special bid only)
- Static routes
- RIP v1 and RIP v2 routing protocols
- OSPF v1 and v2 routing protocols (Requires Enhanced Features license; special bid only)
- Protocol Independent Multicast (PIM) (Requires Enhanced Features license; special bid only)
- Policy-based routing (PBR)
- DHCP server, client and relay operations
- IGMP snooping
- IGMP v1, v2, and v3 (Requires Enhanced Features license; special bid only)

- **IP v6 Layer 3 functions:**

- IPv6 host management
- IPv6 filtering with ACLs
- Static routes
- RIPng routing protocol
- OSPF v3 routing protocol (Requires Enhanced Features license; special bid only)

- **Manageability:**

- Junos OS CLI
- Web GUI (J-Web)
- Simple Network Management Protocol (SNMP v1, v2, and v3)

- Serial interface for CLI
- SSH v2 interface for CLI
- HTTP/HTTPS for Web GUI
- Secure copy (SCP) for uploading and downloading the configuration file via secure channels
- Firmware image and configuration file management (TFTP, FTP, or USB storage)
- Link Layer Discovery Protocol (LLDP) for discovering network devices
- Network Time Protocol (NTP) for switch clock synchronization
- Junos Space Network Management Platform (available separately from Juniper)
- **Monitoring:**
  - Switch LEDs for port status and switch module status indication
  - Remote Monitoring (RMON) agent to collect statistics and proactively monitor switch performance
  - Port mirroring for analyzing network traffic passing through the switch
  - Change tracking and remote logging with the syslog feature
  - Bidirectional forwarding detection (Requires Enhanced Features license; special bid only)
  - Real-time performance monitoring (Requires Enhanced Features license; special bid only)
  - Connectivity fault management (Requires Enhanced Features license; special bid only)

**Note:** Some features require Virtual Chassis or Enhanced Features additional software licenses that are available as special bid only, that is, these licenses support factory activation only, and they are not available as a field upgrade option.

## Ethernet standards

The EX2300 switches support the following Ethernet standards:

- IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1s Multiple STP (MSTP)
- IEEE 802.1w Rapid STP (RSTP)
- IEEE 802.1p Class of Service (CoS) prioritization
- IEEE 802.1Q VLAN tagging
- IEEE 802.1Q-in-Q VLAN tunneling
- IEEE 802.1x port-based authentication
- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-TX copper Fast Ethernet
- IEEE 802.3u 100BASE-FX fiber optics Fast Ethernet
- IEEE 802.3ab 1000BASE-T copper twisted-pair Gigabit Ethernet
- IEEE 802.3z 1000BASE-SX short range fiber optics Gigabit Ethernet
- IEEE 802.3z 1000BASE-LX long range fiber optics Gigabit Ethernet
- IEEE 802.3ad Link Aggregation Control Protocol
- IEEE 802.3x Full-duplex Flow Control
- IEEE 802.3ae 10GBASE-SR short range fiber optics 10 Gb Ethernet
- IEEE 802.3ae 10GBASE-LR long range fiber optics 10 Gb Ethernet
- IEEE 802.3ae 10GBASE-ER extended range fiber optics 10 Gb Ethernet

- IEEE 802.3af PoE
- IEEE 802.3at PoE+
- IEEE 802.3ah 1000BASE-BX long-range fiber optics Gigabit Ethernet, bi-directional
- 10GSFP+Cu SFP+ Direct Attach Copper

## Power supplies and cables

The EX2300-C-12P switch has one fixed 170 W AC (100 – 240 V) power supply with an IEC 320-C14 connector. The EX2300-24P switch has one fixed 450 W AC (100 – 240 V) power supply with an IEC 320-C14 connector. The EX2300 switches ship without any AC power cables. The part numbers and feature codes to order the AC power cables are listed in the following table (one cable is required per switch).

**Table 5. AC power cable options**

Description	Part number	Feature code
Line cords		
Juniper AC Power Cable – Argentina (10A/250V, 2.5m)	01DD572	AUJD
Juniper AC Power Cable – Brazil (10A/250V, 2.5m)	01DD568	AUJB
Juniper AC Power Cable – India (6A/250V, 2.5m)	01DD560	AUJ7
Juniper AC Power Cable – Israel (10A/250V, 2.5m)	01DD562	AUJ8
Juniper AC Power Cable – South Africa (10A/250V, 2.5m)	01DD582	AUJJ
Juniper AC Power Cable – Taiwan (10A/125V, 2.5m)	01DD578	AUJG
Juniper Power Cable, Australia	01DD570	AUJC
Juniper Power Cable, China	01DD566	AUJA
Juniper Power Cable, Europe	01DD564	AUJ9
Juniper Power Cable, Italy	01DD558	AUJ6

Description	Part number	Feature code
Juniper Power Cable, Japan	01DD556	AUJ5
Juniper Power Cable, Korea	01DD584	AUJK
Juniper Power Cable, Switzerland	01DD580	AUJH
Juniper Power Cable, UK	01DD576	AUJF
Juniper Power Cable, US	01DD574	AUJE

## Mount kits

The EX2300 switches can be placed on a desk or other level surface or mounted on a wall or in 2-post or 4-post rack cabinets. The following table lists the mount kit options.

**Table 6. Mount kits**

Description	Part number	Feature code
EX2300-C-12P mount kits		
Juniper Cable Guard for EX2300-C	01DD872	AUG6
Juniper Magnet Mount for EX2300-C	01DD875	AUG7
Juniper Rack Mount Kit for EX2300-C	01DD878	AUG8
EX2300-24P mount kits		
Juniper Rack Mount Kit for EX2300	01DD550	AUP2
Juniper Adjustable 4-post Rack Mount Kit for EX2300	01DD552	AUP3
Juniper Wall Mount Kit with Baffle for EX2300	01DD554	AUP4

**Notes:**

- The optional Cable Guard for EX2300-C-12P prevents cables from being accidentally unplugged or removed from the switch for non-rack installations.
- The optional Magnet Mount for EX2300-C-12P is used for mounting the switch on or under surfaces made of ferrous material.
- The optional Rack Mount Kit for EX2300-C-12P includes two mounting brackets for installing the switch in 2-post and 4-post rack cabinets
- The Rack Mount Kit for EX2300 (comes standard with the EX2300-24P switch) includes two mounting brackets for installing the switch in 2-post and 4-post rack cabinets.
- The optional Adjustable 4-post Rack Mount Kit for EX2300 includes adjustable mounting rails for installing the switch in 4-post rack cabinets.
- The optional Wall Mount Kit with Baffle for EX2300 includes two wall-mounting brackets for mounting the switch on a wall.

**Physical specifications**

The EX2300-C-12P switch has the following approximate dimensions and weight:

- Height: 44 mm (1.7 in.)
- Width: 279 mm (11.0 in.)
- Depth: 238 mm (9.5 in.)
- Weight: 3.2 kg (7.0 lb)

The EX2300-24P switch has the following approximate dimensions and weight:

- Height: 44 mm (1.7 in.)
- Width: 442 mm (17.4 in.)
- Depth: 310 mm (12.2 in.)
- Weight: 4.5 kg (9.9 lb)

## Operating environment

The Juniper EX2300-C-12P switch is supported in the following operating environment:

- Operating temperature: 32° to 104° F (0° to 40° C)
- Storage temperature: -40° to 158° F (-40° to 70° C)
- Operating altitude: up to 5,000 ft (1524 m)
- Non-operating altitude: up to 16,000 ft (4877 m)
- Relative humidity operating: 10% to 85% (non-condensing) Relative humidity non-operating: 0% to 95% (non-condensing)
- Electrical:
  - 100 – 240 V AC (nominal); 50 Hz or 60 Hz
  - AC current rating: 2.5 A at 100 V AC; 1.25 A at 240 V AC
- Power consumption
  - 24 W (when no PoE power is drawn)
  - 124 W (maximum PoE/PoE+ power available)
- Acoustic noise: 0 dB (fanless)

The Juniper EX2300-24P switch is supported in the following operating environment:

- 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% (non-condensing)
- Relative humidity non-operating: 0% to 95% (non-condensing)
- Electrical:
  - 100 – 240 V AC (nominal); 50 Hz or 60 Hz
  - AC current rating: 7 A at 100 V AC; 3.5 A at 240 V AC
- Power consumption
  - 80 W (when no PoE power is drawn)
  - 370 W (maximum PoE/PoE+ power available)
- Acoustic noise: 39.3 dB

## Warranty and maintenance

The Juniper EX2300 switches for Lenovo include 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 24×7 Juniper Networks Technical Assistance Center (JTAC) support for three years after the purchase date. Power supplies and fans are

covered for a period of five years.  
The warranty service is provided by Juniper.

## Regulatory compliance

The EX2300 switches conform to the following regulations:

- Safety certifications:
  - UL60950-1 (Second Edition)
  - CAN/CSA 22.2 No.60950-1 (Second Edition)
  - TUV/GS to EN 60950-1 (Second Edition)
  - IEC 60950-1 (Second Edition), 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 300 386
  - CE
- Environmental: Reduction of Hazardous Substances (ROHS) 6

## Network connectivity

The following table lists the network switches that are offered by Lenovo that can be used with the EX2300 switches in networking solutions.

**Table 7. Ethernet LAN switches**

Description	Part number
1 Gb Ethernet switches	
Lenovo RackSwitch G7052 (Rear to Front)	7159CAX
Lenovo RackSwitch G8052 (Rear to Front)	7159G52
10 Gb Ethernet switches	
Lenovo RackSwitch G8124E (Rear to Front)	7159BR6
Lenovo RackSwitch G8264 (Rear to Front)	7159G64
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6
40 Gb Ethernet switches	
Lenovo RackSwitch G8332 (Rear to Front)	7159BRX

For more information, see the list of Product Guides in the Top-of-rack Switches category:



## Storage connectivity

The EX2300 switches can be used with the Lenovo Storage offerings for external NAS or iSCSI SAN storage connectivity.

**Table 8. External storage systems**

Description	Part number
Lenovo Storage N Series (Unified NAS and iSCSI SAN storage)	
Lenovo Storage N3310	70FX / 70FY*
Lenovo Storage N4610	70G0 / 70G1*
Lenovo Storage S Series (iSCSI host connectivity)	
Lenovo Storage S2200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64114B1
Lenovo Storage S2200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64114B2
Lenovo Storage S2200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64114B3
Lenovo Storage S2200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64114B4
Lenovo Storage S3200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64116B1
Lenovo Storage S3200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64116B2

Lenovo Storage S3200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64116B3
Lenovo Storage S3200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64116B4
Lenovo Storage V Series (iSCSI host connectivity)	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D
Lenovo Storage V3700 V2 LFF Control Enclosure (TopSeller)	6535EC1
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 SFF Control Enclosure (TopSeller)	6535EC2
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP LFF Control Enclosure (TopSeller)	6535EC3
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
Lenovo Storage V3700 V2 XP SFF Control Enclosure (TopSeller)	6535EC4
Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S	6536C12
Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S	6536C32

Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S	6536C22
Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S	6536C42
IBM Storwize for Lenovo (iSCSI host connectivity)	
IBM Storwize V3500 3.5-inch Dual Control Storage Controller Unit	6096CU2**
IBM Storwize V3500 2.5-inch Dual Control Storage Controller Unit	6096CU3**
IBM Storwize V3700 3.5-inch Storage Controller Unit	6099L2C
IBM Storwize V3700 2.5-inch Storage Controller Unit	6099S2C
IBM Storwize V3700 2.5-inch DC Storage Controller Unit	6099T2C
IBM Storwize V5000 LFF Control Enclosure, w/3 Yr S&S	6194L2C†
IBM Storwize V5000 LFF Control Enclosure, w/3 Yr S&S (LA)	6194L2L‡
IBM Storwize V5000 LFF Control Enclosure, w/5 Yr S&S	61941A1†
IBM Storwize V5000 LFF Control Enclosure, w/5 Yr S&S (LA)	61941AL‡
IBM Storwize V5000 SFF Control Enclosure, w/3 Yr S&S	6194S2C†

Description	Part number
IBM Storwize V5000 SFF Control Enclosure, w/3 Yr S&S (LA)	6194S2L‡
IBM Storwize V5000 SFF Control Enclosure, w/5 Yr S&S	61941C1†
IBM Storwize V5000 SFF Control Enclosure, w/5 Yr S&S (LA)	61941CL‡
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S	6195SC5†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (LA)	6195SCL‡
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S	61951F1†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (LA)	61951FL‡

- Machine Type; see the respective Product Guide in the NAS Storage category (<http://lenovopress.com/storage/nas>) for models.
- Available only in China.
  - † Available worldwide except Latin America.
  - ‡ Available only in Latin America.

**For more information, see the list of Product Guides in the following categories:**

- Lenovo N Series storage: <http://lenovopress.com/storage/nas>
- Lenovo S Series and V Series storage: <http://lenovopress.com/storage/san/lenovo>
- IBM Storwize storage: <http://lenovopress.com/storage/san/ibm>

### Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used with the EX2300 switches in networking solutions.

**Table 9. Rack cabinets**

Description	Part number
11U Rack Office Enablement Kit (1156 mm deep)	201886X
25U S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072RX
25U Static S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072PX
42U S2 Standard Rack (1000 mm deep; 6 sidewall compartments)	93074RX
42U 1100mm Enterprise V2 Dynamic Rack (6 sidewall compartments)	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack (6 sidewall compartments)	93634EX
42U 1200mm Deep Dynamic Rack (6 sidewall compartments)	93604PX
42U 1200mm Deep Static Rack (6 sidewall compartments)	93614PX
42U Enterprise Rack (1105 mm deep; 4 sidewall compartments)	93084PX
42U Enterprise Expansion Rack (1105 mm deep; 4 sidewall compartments)	93084EX

For more information, see the list of Product Guides in the Rack cabinets category:

<https://lenovopress.com/servers/options/racks>

## Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo that can be used with the EX2300 switches in networking solutions.

**Table 10. Power distribution units**

Description	Part number
0U Basic PDUs	
0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord	00YJ776
0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord	00YJ777
0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord	00YJ778

0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord	00YJ779
Switched and Monitored PDUs	
0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord	00YJ781
0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord	00YJ780
0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord	00YJ782
0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord	00YJ783
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord	46M4003
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763N U

C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord	39Y8938
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	



DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord)	00YE443
NEMA PDUs (6x NEMA 5-15R outlets)	
DPI 100-127V PDU with fixed NEMA L5-15P line cord	39Y8905
Line cords for PDUs that ship without a line cord	
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612

Description	Part number
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DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI Australian/NZ 3112 Line Cord	40K9617

For more information, see the list of Product Guides in the PDU category:

<https://lenovopress.com/servers/options/pdu>

## Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo that can be used with the EX2300 switches in networking solutions.

Table 11. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (100-125VAC)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)	55949PX

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category:  
<https://lenovopress.com/servers/options/ups>

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## Related publications and links

For more information, see these resources:

- Juniper Networks for Lenovo product page  
<https://www3.lenovo.com/us/en/networking/juniper-products-from-lenovo/c/juniper-products>
- Lenovo Hardware Configurator:  
<http://lesc.lenovo.com>
- Juniper EX2300 Switches Hardware Guide  
[http://www.juniper.net/techpubs/en\\_US/release-independent/junos/information-products/pathway-pages/ex-series/ex2300/ex2300.html](http://www.juniper.net/techpubs/en_US/release-independent/junos/information-products/pathway-pages/ex-series/ex2300/ex2300.html)
- Junos OS Release 15.1 for EX Series switches  
[http://www.juniper.net/techpubs/en\\_US/junos15.1/information-products/pathway-pages/ex-series/index-ex-series.html](http://www.juniper.net/techpubs/en_US/junos15.1/information-products/pathway-pages/ex-series/index-ex-series.html)

## Related product families

Product families related to this document are the following:

- 1 Gb Ethernet Connectivity
- Top-of-Rack Switches

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This document, LP0520, was created or updated on September 19, 2016.

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### Documents / Resources

	<p><a href="#">Lenovo Juniper EX2300 Switches with Power Over Ethernet</a> [pdf] User Guide Juniper EX2300, Switches with Power Over Ethernet, Juniper EX2300 Switches with Power Over Ethernet</p>
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### References

- [L Top-of-Rack Switches > Lenovo Press](#)
- [L Network-Attached Storage > Lenovo Press](#)

- [📄 IBM Storage > Lenovo Press](#)
- [📄 Lenovo Storage > Lenovo Press](#)
- [📄 DCSC - Data Center Solution Configurator](#)
- [📄 Junos OS Documentation | Juniper Networks](#)
- [📄 EX2300 Switch Hardware Guide | Juniper Networks](#)
- [🌐 | Lenovo US](#)
- [📄 Power Distribution Units > Lenovo Press](#)
- [📄 Rack Cabinets > Lenovo Press](#)
- [📄 Uninterruptible Power Supplies > Lenovo Press](#)
- [📄 Juniper EX2300 Switches for Lenovo with Power over Ethernet Product Guide \(withdrawn product\) > Lenovo Press](#)
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