Lenovo RackSwitch G8296
Product Guide

The Lenovo RackSwitch™ G8296 that leverages 10 Gb SFP+ and 40 Gb QSFP+ Ethernet technology is specifically designed for the data center. It is ideal for today's big data, cloud, and optimized workload solutions. It is an enterprise class Layer 2 and Layer 3 full featured switch that delivers line-rate, high-bandwidth switching, filtering, and traffic queuing without delaying data. Large data-center grade buffers help keep traffic moving, while the redundant hot-swap power supplies and fans along with numerous availability features help provide high availability for business sensitive traffic.

The RackSwitch G8296 that is shown in the following figure is ideal for latency sensitive applications such as high performance computing clusters and financial applications. In addition to the 10 Gb Ethernet (GbE) and 40 GbE connections, the G8296 also has the capability for traditional 1 GbE connections.

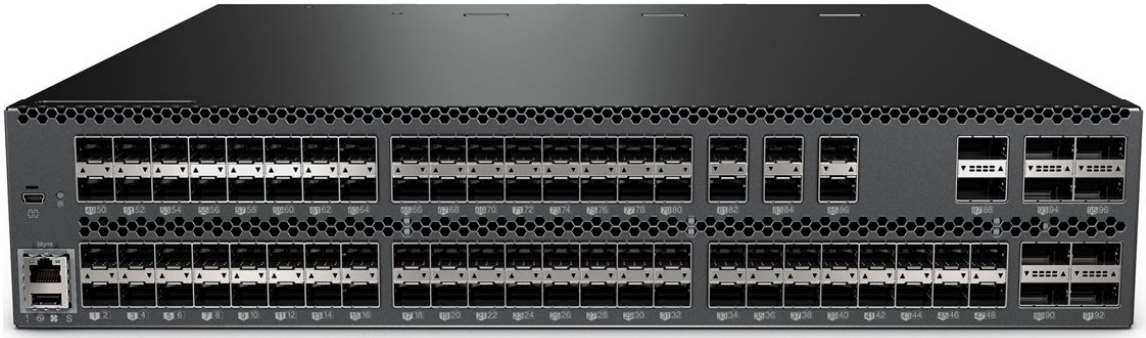

Figure 1. Lenovo RackSwitch G8296

Did you know?

With exceptional port density and flexibility with break-out cables, the RackSwitch G8296 can support up to 94x 10 Gigabit Ethernet connections with 8x 40 Gb Ethernet uplinks in a 2U rack form factor.

The RackSwitch G8296 offers a choice of the Networking Operating Systems (NOS):

- The Cloud NOS provides a simple, open and programmable network infrastructure with cloud-scale performance. It delivers a software-defined Ethernet solution that is simple to manage and easy to deploy using common management tools, and it enables support of automation and orchestration applications for tight integration into the data center ecosystem.
- The Enterprise NOS is a data center-class NOS progressively developed over the past decade to deliver highly reliable, high-performance Ethernet and converged switching and interoperability with existing network infrastructures. ENOS has a feature-rich design with virtualization, high availability, and enterprise class Layer 2 and Layer 3 functionality. ENOS supports OpenFlow which helps easily create software defined virtual networks (SDN).

The RackSwitch G8296 supports the Open Network Install Environment (ONIE) which is a small Linux-based operating system that provides an open install environment for networking devices without operating systems.

Key features

The RackSwitch G8296 is considered particularly suited for these environments:

- 10 GbE server connectivity with 40 GbE upstream aggregation
- Virtualized environments with VM-aware networking
- Converged SAN and LAN network via NAS, iSCSI, or FCoE
    - Reduced I/O cost (CAPEX) with fewer adapters, cables, and transceivers to purchase
    - Reduced complexity (OPEX) with fewer components to manage and lower energy cost
- Applications demanding better performance and lower latency
- Investment protection with 40 Gb Ethernet, Cloud, and SDN

The RackSwitch G8296 offers the following features and benefits:

- High performance
  The 10 Gb/40 Gb switch provides the best combination of low latency, non-blocking line-rate switching, and ease of management. It has a throughput of 2.56 Tbps.
- Lower power and better cooling
  The RackSwitch G8296 uses as little as 210 W of power, and the front-to-rear or rear-to-front cooling design of the G8296 reduces data center air conditioning costs by having airflow match the servers in the rack. In addition, variable speed fans help to automatically reduce power consumption.
- Layer 3 functionality
  The RackSwitch G8296 includes Layer 3 functionality, which provides security and performance benefits, as inter-VLAN traffic stays within the switch. This switch also provides the full range of Layer 3 protocols from static routes for technologies, such as Open Shortest Path First (OSPF) and Border Gateway Protocol (BGP) for enterprise customers.
- Converged fabric
  The RackSwitch G8272 switch supports Converged Enhanced Ethernet (CEE) which helps enable customers to combine storage, messaging traffic, VoIP, video, and other data on a common data center lossless Ethernet infrastructure. As a result, clients can deploy a single server interface for multiple data types, which can simplify the deployment and management of server network connectivity while maintaining the high availability and robustness that is required for storage transactions.
- Seamless interoperability
  RackSwitch switches perform seamlessly with other vendors' upstream switches.
- Fault tolerance
  The RackSwitch G8296 offers redundant hot-swap hardware components, learns alternate routes automatically, and performs faster convergence if there is a link, switch, or power failure.
- Open Network Install Environment (ONIE) (Requires an optional license key)
  The ONIE is a small Linux-based operating system that provides an open install environment for networking devices without operating systems. ONIE enables a network switch ecosystem for end users to choose among different Network Operating Systems by discovering NOS installer images and loading them onto the switch.

The RackSwitch G8296 supports the following networking operating systems:

- Lenovo Cloud Networking Operating System (CNOS)
  The new Cloud NOS provides a simple, open and programmable network infrastructure designed to scale for your business needs. Its intelligent, cloud-scale performance delivers a software-defined Ethernet solution that is simple to manage and easy to deploy using common management tools. Cloud NOS is based on open, industry standards for better data center interoperability, and it enables support of automation and orchestration applications for tight integration into the data center ecosystem.

  With its high-performance architecture and support for an extensive set of routing protocols, Cloud NOS provides reliable, high-performance fabric for traditional, converged and hyperscale solutions. Cloud NOS can help you consolidate server and storage networks into a single fabric. Converged Enhanced Ethernet delivers value for your iSCSI and NAS storage environments.

- Lenovo Enterprise Networking Operating System (ENOS)
  The Lenovo ENOS is a data center-class network operating system progressively developed over the past decade to deliver highly reliable, high-performance Ethernet and converged switching and interoperability with existing network infrastructures.

  ENOS has a feature-rich design with virtualization, UFP, high availability, and enterprise class Layer 2 and Layer 3 functionality. ENOS supports OpenFlow which helps easily create software defined virtual networks (SDN) and enables a remote controller to modify the behavior of network devices.

  ENOS can help you consolidate server and storage networks into a single fabric. Converged Enhanced Ethernet delivers value for your iSCSI, NAS and FCoE enterprise storage environments.

The RackSwitch G8296 with Cloud NOS offers the following additional features:

- Automated VM-aware network provisioning
  The Lenovo CNOS Network Policy Agent, a ThinkAgile Network Orchestrator feature, gives increased visibility of the virtual infrastructure, including VM and virtual network information. It provides automated VM-aware provisioning by automatically configuring VLANs in the physical network based on the auto-discovered virtual network topology. The agent also performs ongoing dynamic updates to the physical network configuration in response to new VMs, updated VMs, and deleted VMs and virtual networks, eliminating errors with manual configuration.
  Note: The Network Policy Agent works with the Nutanix software version 5.0.2 or higher.

- Pro-active congestion monitoring
  Telemetry enables continuous monitoring of networking devices to detect potential congestion problems, such as packets dropped by the switch when ports are being used close to their line rate or switch buffers are being temporarily overflown (for example, in case of microbursts).

- Zero Touch Provisioning
  Zero Touch Provisioning (ZTP) enables a switch to automatically provision itself using the resources available on the network, without manual intervention. ZTP automatically handles the process of upgrading the switch software image and installing configuration files.

- Python Scripting
  You can create and execute local Python scripts on switches to make small programs that allow a switch to automatically provision itself, perform fault monitoring, upgrade the image files, or auto-generate configuration files. You can implement version control systems, automatically generate alerts, create custom logging tools, and automate the management of network devices.

- REST API Programming
  The Lenovo REpresentational State Transfer (REST) Application Program Interface (API) enables you to remotely configure and manage a Lenovo switch using REST and HyperText Transfer Protocol (HTTP). It also allows switch management integration into management applications, such as Lenovo xClarity.

The RackSwitch G8296 with Enterprise NOS offers the following additional features:

- Virtual Fabric
  The RackSwitch G8296 can help customers address I/O requirements for multiple NICs while reducing cost and complexity. By using Unified Fabric Port, you can carve a physical NIC into multiple virtual ports (2 - 8 vPorts) and create a virtual pipe between the adapter and the switch for improved performance, availability, and security.
- Transparent networking capability
  With a simple configuration change to Easy Connect Mode, the RackSwitch G8296 becomes a transparent network device that is invisible to the core and eliminates network administration concerns of Spanning Tree Protocol configuration and interoperability and VLAN assignments and avoids any possible loops. By emulating a host NIC to the data center core, it accelerates the provisioning of VMs by eliminating the need to configure the typical access switch parameters.
- OpenFlow enabled
  The RackSwitch G8296 offers benefits of OpenFlow. OpenFlow is the open API that enables the network administrator to easily configure and manage virtual networks that control traffic on a “per-flow” basis. It creates multiple independent virtual networks and related policies without dealing with the complexities of the underlying physical network and protocols. The RackSwitch G8296 is also the ideal switch to use with industry compliant OpenFlow controllers.

The following table compares high level features of the CNOS and ENOS.

Table 1. CNOS and ENOS high level feature comparison

Feature	**CNOS**	**ENOS**
Layer 2 switching	Yes	Yes
Layer 3 switching	Yes	Yes
EasyConnect mode	No	Yes
IP routing	Yes	Yes
Comprehensive IP v6 support	Yes	No*
Unified Fabric Port	No	Yes
Converged Enhanced Ethernet	Yes	Yes
FCoE	No	Yes
OpenFlow SDN	No	Yes
Automated VM-aware network provisioning**	Yes	No
Real-time congestion monitoring with telemetry	Yes	No
Zero touch provisioning	Yes	No
REST API programming	Yes	No
Python scripting	Yes	Yes

* Not all ENOS features support IP v6 addressing, including DHCP, BGP, VRRP, and TACACS+/RADIUS/LDAP.
** Supported with the Nutanix software version 5.0.2 or higher; requires an AHV hypervisor.

Components and connectors

The following figure shows the front panel of the RackSwitch G8296.

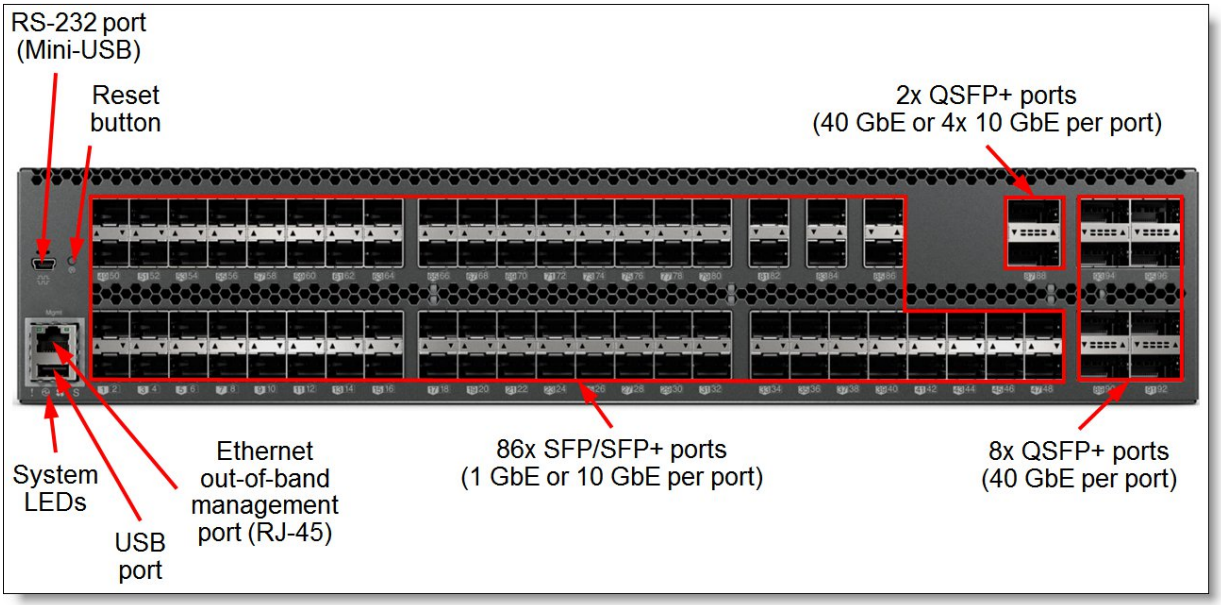

Figure 2. Front panel of the RackSwitch G8296

The front panel of the G8296 contains the following components:

- System LEDs that display the status of the switch and the network.
- One mini-USB RS-232 console port that provides an additional means to configure the switch.
- One USB port for mass storage devices.
- 86x SFP/SFP+ port connectors to attach SFP/SFP+ transceivers for 1 Gb or 10 Gb Ethernet connections or DAC cables for 10 Gb Ethernet connections.
- 8x QSFP+ ports to attach QSFP+ transceivers or DAC cables for 40 Gb Ethernet connections (no 4x 10 GbE support).
- 2x QSFP+ ports to attach QSFP+ transceivers or DAC cables for 40 Gb or 4x 10 Gb Ethernet connections.
- One RJ-45 10/100/1000 Mb Ethernet port for out-of-band management.
- A reset button.

The following figure shows the rear panel of the RackSwitch G8296.

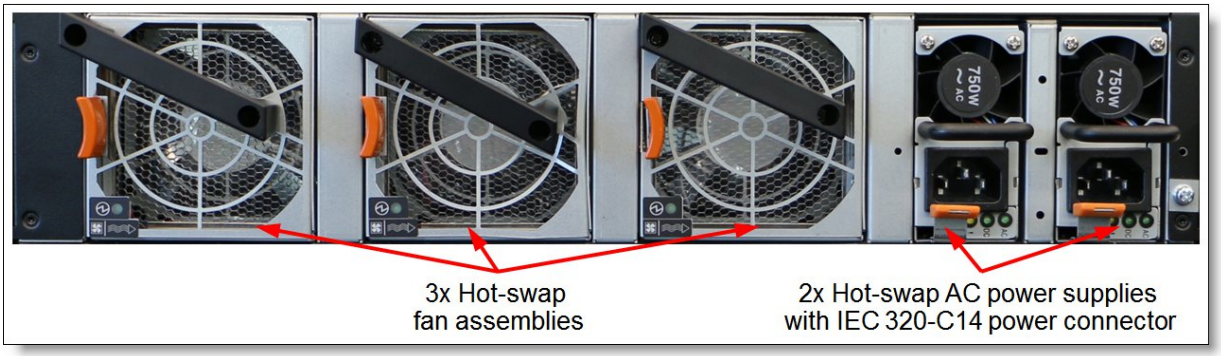

Figure 3. Rear panel of the RackSwitch G8296

The rear panel of the G8296 contains the following components:

- Two redundant hot-swap AC power supplies (IEC 320-C14 power connector)
- Three 2+1 redundant hot-swap fan assemblies

System specifications

The following table lists the RackSwitch G8296 system specifications.

Note: The supported hardware options and software features listed in this product guide are based on the Lenovo Cloud Networking Operating System (CNOS) version 10.4.2 or Lenovo Enterprise Networking Operating System (ENOS) version 8.4.4. For details about specific software releases that introduced support for certain hardware options and software features, refer to the Change history of the particular software release that can be found at:
http://datacentersupport.lenovo.com/us/en/products/networking/rackswitch/switch-G8296/7159/downloads

Table 2. System specifications

Component	Specification
Form factor	2U rack mount
Ports	• 86x SFP/SFP+ ports (1 GbE or 10 GbE connectivity) • 10x QSFP+ ports (2x 40 GbE ports, each with 4x 10 GbE support; 8x 40 GbE ports)
Media types	40 Gb Ethernet QSFP+: • 40 GbE short-range (SR) QSFP+ bi-directional (BiDi) transceivers • 40 GbE short-range (SR4/iSR4/eSR4) QSFP+ transceivers • 40 GbE long-range (LR4) QSFP+ transceivers • 40 GbE QSFP+ to QSFP+ active optical cables (AOCs) • 40 GbE QSFP+ to 4x 10 GbE SFP+ active optical breakout cables • 40 GbE QSFP+ to QSFP+ direct attach copper (DAC) cables • 40 GbE QSFP+ to 4x 10 GbE SFP+ DAC breakout cables 10 Gb Ethernet SFP+: • 10 GbE short-range (SR) SFP+ transceivers • 10 GbE long-range (LR) SFP+ transceivers • 10 GbE extended-range (ER) SFP+ transceivers • 10 GbE RJ-45 SFP+ transceivers • 10 GbE SFP+ active optical cables • 10 GbE SFP+ DAC cables 1/10 Gb Ethernet SFP+: • 1/10 GbE SX/SR SFP+ transceivers 1 Gb Ethernet SFP: • 1 GbE short-wavelength (SX) SFP transceivers • 1 GbE long-wavelength (LX) SFP transceivers • 1 GbE RJ-45 SFP transceivers
Port speeds	• 40 GbE QSFP+ SR BiDi/SR4/LR4 transceivers: 40 GbE • 40 GbE QSFP+ iSR4/eSR4 transceivers, DAC cables and AOCs: 40 GbE or 4x 10 GbE • 10 GbE SFP+ transceivers, DAC cables and AOCs: 10 Gbps • 1/10 GbE SFP+ transceivers: 1 Gbps or 10 Gbps • 1 GbE SFP transceivers: 1 Gbps
Switching method	Cut-through.
Data traffic types	Unicast, multicast, broadcast.

Component	Specification
Software features	• Lenovo Enterprise Networking OS: Layer 2 switching, Layer 3 switching, virtual local area networks (VLANs), VLAN tagging, spanning tree protocol (STP), link aggregation (trunk) groups (LAGs), virtual LAGs (vLAGs), Hot Links, Layer 2 failover, quality of service (QoS), Edge Virtual Bridging (EVB), VMready, OpenFlow, IPv4/IPv6 management, IPv4/IPv6 routing, IPv4 virtual router redundancy protocol (VRRP), IPv4 policy-based routing (PBR), Unified Fabric Port (UFP), Converged Enhanced Ethernet, Fibre Channel over Ethernet (FCoE) transit switch operations, VXLAN gateway. • Lenovo Cloud Networking OS (CNOS): Layer 2 switching, Layer 3 switching, virtual local area networks (VLANs), VLAN tagging, spanning tree protocol (STP), link aggregation (trunk) groups (LAGs), virtual LAGs (vLAGs), quality of service (QoS), IPv4/IPv6 management, IPv4/IPv6 routing, IPv4/IPv6 virtual router redundancy protocol (VRRP), IPv4/IPv6 policy-based routing (PBR), Converged Enhanced Ethernet, Network Policy Agent, Python scripting, REST API programming.
Performance	Non-blocking architecture with wire-speed forwarding of traffic: • 100% line-rate performance • Up to 2.56 Tbps aggregated throughput • As low as 600 nanoseconds switching latency • Up to 9,216-byte jumbo frames • Receive buffer size: 12.2 MB
Scalability	• MAC address forwarding database entries: 224,000 • VLANs: 4,095 (3,999 user-configurable; 96 reserved) • Per VLAN Rapid Spanning Tree (PVRST) instances: 256 (ENOS) / 500 (CNOS) • Multiple STP (MSTP) instances: 32 (ENOS) / 64 (CNOS) • Link aggregation groups: 102 • Active ports in a link aggregation group: 32
Cooling	Three 2+1 redundant hot-swap fans. Rear (non-port side) to front (port side) or front to rear airflow.
Power supply	Two load-sharing, redundant hot-swap 750 W AC (100 - 240 V) power supplies (1x IEC 320-C14 connector on each power supply).
Hot-swap parts	SFP/SFP+/QSFP+ transceivers, SFP+/QSFP+ DAC cables, power supplies, fans.
Management ports	1x 10/100/1000 Mb Ethernet port (RJ-45); 1x RS-232 port (Mini-USB); 1x USB port (for additional firmware, log, and configuration files storage).
Management interfaces	Industry standard command line interface (isCLI); SNMP v1, v2, and v3; Netconf (XML) (ENOS only); REST API (CNOS only). Optional Lenovo Switch Center (ENOS only). Optional Lenovo XClarity for discovery, inventory, monitoring and events. Optional Lenovo Networking Content Pack for VMware vRealize Log Insight.
Security features	Secure Shell (SSH); Secure Copy (SCP); Secure FTP (sFTP); user level security; Role-based Access Control (RBAC); LDAP/LDAPS (ENOS only), RADIUS, and TACACS+ authentication; access control lists (ACLs); port-based network access control (IEEE 802.1x; ENOS only).
Hardware warranty	Three-year customer-replaceable unit and onsite limited warranty with 9x5 next business day terms. Optional warranty service upgrades are available through Lenovo: 24x7 coverage, 2-hour or 4-hour response time, 1-year or 2-year warranty extensions, 1-year or 3-year Remote Technical Support (RTS).
Software maintenance	Three-year software support and subscription is included in the base warranty. Optional 1-year and 2-year warranty extensions include software support and subscription.
Mean Time Between Failures	276,870 hours with ambient operating temperature of 40° C.
Dimensions	Height: 87 mm (3.5 in.); width: 439 mm (17.3 in.); depth: 483 mm (19.0 in.)

Component	Specification
Weight	15.4 kg (34.0 lb).

Models

The following table lists the G8296 switch models.

Table 3. G8296 switch models

Description	Part number	Machine Type-Model	Feature code
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6	7159-HC6	ASVM
Lenovo RackSwitch G8296 (Front to Rear)	7159GF5	7159-HC5	ASVN

The part numbers for the G8296 switches include the following items:

- One Lenovo RackSwitch G8296 with two power supplies and three fan assemblies
- Generic 2U Rack Mount Kit (2-post)
- Console Cable Kit that includes:
  - RJ-45 (plug) to RJ-45 (plug) serial cable (1 m)
  - Mini-USB to RJ-45 (jack) adapter cable (0.2 m) with retention clip
  - DB-9 to RJ-45 (jack) adapter
- Documentation package

Configuration notes:

- Power cables are not included and must be ordered together with the switch (see "Power supplies and cables" for details).
- QSFP+ and SFP/SFP+ transceivers and cables are not included and should be ordered together with the switch (see "Transceivers and cables" for details).

The RackSwitch G8296 supports Features on Demand (FoD) license keys listed in the following table to enable additional features. The ONIE FoD option enables customers to download an ONIE boot loader and install it on the switch, and the Advanced Instrumentation Tools FoD option enables access to low-level switch diagnostics for advanced troubleshooting.

Table 4. FoD upgrade options

Description	Part number	Feature code
Lenovo RackSwitch G8296 ONIE Open Switch OS Installer	01GV949	AUZD
Lenovo RackSwitch G8296 Advanced Instrumentation Tools	01GV948*	AUZC*

* Supported only for Cloud NOS.

Transceivers and cables

With the flexibility of the G8296 switch, customers can choose the following connectivity technologies:

- For 1 GbE links, customers can use RJ-45 SFP transceivers with UTP cables up to 100 meters. Customers that need longer distances can use a 1000BASE-SX transceiver, which can drive distances up to 220 meters with 62.5 µ multimode fiber (OM1) and up to 550 meters with 50 µ multimode fiber (OM2), or the 1000BASE-LX transceivers that support distances up to 10 kilometers with single-mode fiber (1310 nm).
- For 10 GbE links, customers can use SFP+ direct-attached copper (DAC) cables for in-rack cabling for distances up to 7 meters or SFP+ active optical cables (AOCs) for distances up to 20 meters. These cables have SFP+ connectors on each end, and they do not need separate transceivers. For distances up to 30 meters, the 10GBASE-T SFP+ transceiver can be used with Category 6a or 7 RJ-45 UTP cables.

  For longer distances, the 10GBASE-SR transceiver supports distances up to 300 meters over OM3 multimode fiber or up to 400 meters over OM4 multimode fiber. The 10GBASE-LR transceivers can support distances up to 10 kilometers on single mode fiber. For extended distances, the 10GBASE-ER transceivers can support distances up to 40 kilometers on single mode fiber.

  To increase the number of available 10 GbE ports, customers can split out four 10 GbE ports for each 40 GbE port by using QSFP+ to 4x SFP+ DAC or active optical breakout cables for distances up to 5 meters. For distances up to 100 meters, the 40GBASE-iSR4 QSFP+ transceivers can be used with OM3 optical MPO-to-LC breakout cables or up to 150 meters with OM4 optical MPO-to-LC breakout cables. For longer distances, the 40GBASE-eSR4 transceivers can be used with OM3 optical MPO-to-LC breakout cables for distances up to 300 meters or OM4 optical MPO-to-LC breakout cables for distances up to 400 meters.
  Note: Break-out cables are supported on ports 87 and 88 only.

- For 40 GbE to 40 GbE connectivity, customers can use the affordable QSFP+ to QSFP+ DAC cables for distances up to 7 meters or QSFP+ to QSFP+ active optical cables for distances up to 20 meters. These DAC cables and AOCs have QSFP+ connectors on each end, and they do not need separate transceivers.

  With multimode fiber LC cables, customers can use the 40GBASE QSFP+ bi-directional transceivers for distances up to 100 meters with OM3 MMF LC cables or up to 150 meters with OM4 MMF LC cables.

  With multimode fiber MPO cables, customers can use the 40GBASE-SR4/iSR4 QSFP+ transceivers for distances up to 100 meters with OM3 MMF MPO cables or up to 150 meters with OM4 MMF MPO cables. For distances up to 300 meters, the 40GBASE-eSR4 QSFP+ transceiver can be used with OM3 MMF MPO cables or up to 400 meters with OM4 MMF MPO cables.

  For distances up to 10 kilometers, the 40GBASE-LR4 QSFP+ transceiver can be used with single mode fiber LC cables.

The following table lists the supported cables and transceivers.

Table 5. Supported transceivers and DAC cables

Description	Part number	Feature code	Maximum quantity supported
SFP transceivers - 1 GbE			
Lenovo 1000BASE-T (RJ-45) SFP Transceiver (no 10/100 Mb support)	00FE333	A5DL	86
Lenovo 1000BASE-SX SFP Transceiver	81Y1622	3269	86
Lenovo 1000BASE-LX SFP Transceiver	90Y9424	A1PN	86
SFP+ transceivers - 10 GbE			
Lenovo Dual Rate 1/10Gb SX/SR SFP+ Transceiver	00MY034	ATTJ	86
Lenovo 10GBASE-SR SFP+ Transceiver	46C3447	5053	86
Lenovo 10GBASE-LR SFP+ Transceiver	90Y9412	A1PM	38*
Lenovo 10GBASE-ER SFP+ Transceiver	90Y9415	A1PP	8*
Lenovo 10GBASE-T SFP+ Transceiver	7G17A03130	AVV1	86
Optical cables for 1 GbE SX SFP, 10 GbE SR SFP+, and 40 GbE SR QSFP+ BiDi transceivers			
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5	86
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6	86
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7	86
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8	86
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9	86
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA	86
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB	86
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC	86
SFP+ active optical cables - 10 GbE			
Lenovo 1m SFP+ to SFP+ Active Optical Cable	00YL634	ATYX	86
Lenovo 3m SFP+ to SFP+ Active Optical Cable	00YL637	ATYY	86
Lenovo 5m SFP+ to SFP+ Active Optical Cable	00YL640	ATYZ	86
Lenovo 7m SFP+ to SFP+ Active Optical Cable	00YL643	ATZ0	86
Lenovo 15m SFP+ to SFP+ Active Optical Cable	00YL646	ATZ1	86
Lenovo 20m SFP+ to SFP+ Active Optical Cable	00YL649	ATZ2	86
SFP+ passive direct-attach cables - 10 GbE			
Lenovo 0.5m Passive SFP+ DAC Cable	00D6288	A3RG	86
Lenovo 1m Passive SFP+ DAC Cable	90Y9427	A1PH	86
Lenovo 1.5m Passive SFP+ DAC Cable	00AY764	A51N	86
Lenovo 2m Passive SFP+ DAC Cable	00AY765	A51P	86
Lenovo 3m Passive SFP+ DAC Cable	90Y9430	A1PJ	86
Lenovo 5m Passive SFP+ DAC Cable	90Y9433	A1PK	86
Lenovo 7m Passive SFP+ DAC Cable	00D6151	A3RH	86
SFP+ active direct-attach cables - 10 GbE			
Lenovo 1m Active DAC SFP+ Cable	00VX111	AT2R	86
Lenovo 3m Active DAC SFP+ Cable	00VX114	AT2S	86

Description	Part number	Feature code	Maximum quantity supported
Lenovo 5m Active DAC SFP+ Cable	00VX117	AT2T	86
QSFP+ transceivers - 40 GbE			
Lenovo 40GBase QSFP+ Bi-Directional Transceiver	00YL631	ATYW	4
Lenovo 40GBASE-SR4 QSFP+ Transceiver	49Y7884	A1DR	10
Lenovo 40GBASE-iSR4 QSFP+ Transceiver	00D9865	ASTM	10
Lenovo 40GBASE-eSR4 QSFP+ Transceiver	00FE325	A5U9	10
Lenovo 40GBASE-LR4 QSFP+ Transceiver	00D6222	A3NY	10
Optical cables for 40 GbE QSFP+ SR4/iSR4/eSR4 transceivers			
Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	00VX003	AT2U	10
Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	00VX005	AT2V	10
Optical breakout cables for 40 GbE QSFP+ iSR4/eSR4 transceivers**			
Lenovo 1m MPO-4xLC OM3 MMF Breakout Cable	00FM412	A5UA	2
Lenovo 3m MPO-4xLC OM3 MMF Breakout Cable	00FM413	A5UB	2
Lenovo 5m MPO-4xLC OM3 MMF Breakout Cable	00FM414	A5UC	2
QSFP+ active optical cables - 40 GbE			
Lenovo 1m QSFP+ to QSFP+ Active Optical Cable	7Z57A04256	AX42	10
Lenovo 3m QSFP+ to QSFP+ Active Optical Cable	00YL652	ATZ3	10
Lenovo 5m QSFP+ to QSFP+ Active Optical Cable	00YL655	ATZ4	10
Lenovo 7m QSFP+ to QSFP+ Active Optical Cable	00YL658	ATZ5	10
Lenovo 15m QSFP+ to QSFP+ Active Optical Cable	00YL661	ATZ6	10
Lenovo 20m QSFP+ to QSFP+ Active Optical Cable	00YL664	ATZ7	10
QSFP+ active optical breakout cables - 40 GbE to 4x10 GbE**			
Lenovo 1M QSFP+ to 4xSFP+ Active Optical Cable	00YL667	ATZ8	2
Lenovo 3M QSFP+ to 4xSFP+ Active Optical Cable	00YL670	ATZ9	2
Lenovo 5M QSFP+ to 4xSFP+ Active Optical Cable	00YL673	ATZA	2
QSFP+ direct-attach cables - 40 GbE			
Lenovo 1m Passive QSFP+ DAC Cable	49Y7890	A1DP	10
Lenovo 3m Passive QSFP+ DAC Cable	49Y7891	A1DQ	10
Lenovo 5m Passive QSFP+ DAC Cable	00D5810	A2X8	10
Lenovo 7m Passive QSFP+ DAC Cable	00D5813	A2X9	10
QSFP+ breakout cables - 40 GbE to 4x 10 GbE**			
Lenovo 1m Passive QSFP+ to SFP+ Breakout DAC Cable	49Y7886	A1DL	2
Lenovo 3m Passive QSFP+ to SFP+ Breakout DAC Cable	49Y7887	A1DM	2
Lenovo 5m Passive QSFP+ to SFP+ Breakout DAC Cable	49Y7888	A1DN	2
Spare console cables			
Console Cable Kit Spare (RJ-45/DB9)	90Y9462	A2MG	1

* 10GBASE-LR and 10GBASE-ER SFP+ transceivers are not supported in ports 1 - 48.
** Break-out cables are supported on ports 87 and 88 only.

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

Table 6. G8296 network cabling requirements

Transceiver	Standard	Cable	Connector
40 Gb Ethernet			
40Gb SR QSFP+ BiDi (00YL631)	40GBASE-SR BiDi	Up to 30 m with fiber optic cables supplied by Lenovo (see Table 3); up to 100 m with OM3 or up to 150 m with OM4 multimode fiber optic cable	LC
40Gb SR4 QSFP+ (49Y7884)	40GBASE-SR4	10 m or 30 m MPO fiber optic cables supplied by Lenovo (see Table 3); support for up to 100 m with OM3 or up to 150 m with OM4 multimode fiber optic cable	MPO
40Gb iSR4 QSFP+ (00D9865)	40GBASE-SR4	10 m or 30 m MPO fiber optic cables or MPO-4xLC breakout cables up to 5 m supplied by Lenovo (see Table 3); support for up to 100 m with OM3 or up to 150 m with OM4 multimode fiber optic cable	MPO
40Gb eSR4 QSFP+ (00FE325)	40GBASE-SR4	10 m or 30 m MPO fiber optic cables or MPO-4xLC breakout cables up to 5 m supplied by Lenovo (see Table 3); support for up to 300 m with OM3 or up to 400 m with OM4 multimode fiber optic cable	MPO
40Gb LR4 QSFP+ (00D6222)	40GBASE-LR4	1310 nm single-mode fiber optic cable up to 10 km	LC
Active optical cable	40GBASE-SR4	QSFP+ to QSFP+ active optical cables up to 20 m; QSFP+ to 4x SFP+ active optical break-out cables up to 5 m for 4x 10 GbE SFP+ connections out of a 40 GbE port (see Table 3)	QSFP+
Direct attach copper cable	40GBASE-CR4	QSFP+ to QSFP+ DAC cables up to 7 m; QSFP+ to 4x SFP+ DAC break-out cables up to 5 m for 4x 10 GbE SFP+ connections out of a 40 GbE port (see Table 3)	QSFP+
10 Gb Ethernet			
10Gb SR SFP+ (46C3447) 1/10Gb SFP+ (00MY034)	10GBASE-SR	Up to 30 m with fiber optic cables supplied by Lenovo (see Table 3); up to 300 m with OM3 or up to 400 m with OM4 multimode fiber optic cable	LC
10Gb LR SFP+ (90Y9412)	10GBASE-LR	1310 nm single-mode fiber optic cable up to 10 km	LC
10Gb ER SFP+ (90Y9415)	10GBASE-ER	1310 nm single-mode fiber optic cable up to 40 km	LC
10Gb RJ-45 SFP+ (7G17A03130)	10GBASE-T	UTP Category 6a or 7 up to 30 meters	RJ-45
Active optical cable	10GBASE-SR	SFP+ active optical cables up to 20 m (see Table 3)	SFP+
Direct attach copper cable	10GSFP+Cu	SFP+ DAC cables up to 7 m (see Table 3)	SFP+
1 Gb Ethernet			
1Gb RJ-45 SFP (00FE333)	1000BASE-T	UTP Category 5, 5E, and 6 up to 100 meters	RJ-45
1Gb SX SFP (81Y1622) 1/10Gb SFP+ (00MY034)	1000BASE-SX	Up to 30 m with fiber optic cables supplied by Lenovo (see Table 3); 850 nm multimode fiber cable 50 µ (OM2) up to 550 m or 62.5 µ (OM1) up to 220 m	LC
1Gb LX SFP (90Y9424)	1000BASE-LX	1310 nm single-mode fiber cable up to 10 km	LC
Management ports			
1 GbE management port	1000BASE-T	UTP Category 5, 5E, and 6 up to 100 meters	RJ-45
Serial port	RS-232	DB-9/RJ-45-to-Mini-USB (comes with the switch)	Mini-USB

Cloud NOS software features

The RackSwitch G8296 with Cloud NOS has the following software features and specifications:

- Scalability and performance:
  - Media access control (MAC) address learning with automatic updates
  - Static and LACP (IEEE 802.3ad) link aggregation
  - Broadcast and multicast storm control
  - IGMP snooping to limit flooding of IP multicast traffic
  - IGMP filtering to control multicast traffic for hosts participating in multicast groups
  - Configurable traffic distribution schemes over trunk links based on source or destination IP or MAC addresses, or both
  - Fast port forwarding and fast uplink convergence for rapid STP convergence
- 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) provides rapid STP convergence for critical delay-sensitive traffic, such as voice or video
  - Per-VLAN Rapid STP (PVRST) enhancements
- VLAN support:
  - Up to 4095 VLANs:
    - VLAN 1 is the default VLAN
    - VLAN numbers 2 - 3999 are user-configurable
    - VLAN numbers 4000 - 4095 are reserved for the use by the switch
  - Port-based VLANs
  - 802.1Q VLAN tagging support
  - Ingress VLAN tagging support to tunnel packets through a public domain without altering the original 802.1Q tagging information
- Security:
  - VLAN-based, MAC-based, and IP-based access control lists (ACLs)
  - Multiple user IDs and passwords
  - User access control
  - Radius and TACACS+ authentication and authorization
- Quality of Service (QoS):
  - Support for IEEE 802.1p, IP ToS/DSCP, and ACL-based (MAC/IP source and destination addresses and VLANs) traffic classification and processing
  - Traffic shaping and re-marking that is based on defined policies
  - Eight output Class of Service (COS) queues per port for processing qualified traffic
  - Weighted Random Early Detection (WRED) to avoid congestion
  - Control Plane Protection (CoPP)
  - IPv4 ACL metering
- IP v4 Layer 3 functions:
  - Host management
  - IP forwarding
  - IP filtering with ACLs
  - Virtual Router Redundancy Protocol (VRRP) for router redundancy
  - Static routes
  - Routing protocols (OSPF v2 and BGP)
  - Policy-based routing (PBR)
  - DHCP Relay and DHCP Snooping
  - IGMP snooping
  - DNS client

- IPv6 Layer 3 functions:
  - IPv6 host management
  - IPv6 forwarding
  - Virtual Router Redundancy Protocol (VRRP) for router redundancy
  - Static routes
  - Routing protocols (BGP)
  - Policy-based routing (PBR)
  - DHCP Relay
  - DNS client
- Virtualization:
  - Virtual link aggregation groups (vLAGs)
    - Two switches (vLAG peers) act as a single virtual entity for a multi-port aggregation
    - vLAG Peer Gateway for improved usage of the link between the vLAG peers
    - Two-tier vLAGs with VRRP enables active/active VRRP to reduce routing latency
  - Network Policy Agent gives increased visibility of the virtual infrastructure and automates VM-aware network provisioning and configuration updates for VLANs, virtual NICs, virtual networks, ACLs, and QoS based on the VM associations in a hyperconverged Nutanix environment (requires the AHV and software version 5.0.2 or higher).
- Converged Enhanced Ethernet:
  - Priority-Based Flow Control (PFC) (IEEE 802.1Qbb) extends 802.3x flow control to allow the switch to pause traffic that is based on the 802.1p priority value in each packet's VLAN tag.
  - Enhanced Transmission Selection (ETS) (IEEE 802.1Qaz) provides a method for allocating link bandwidth that is based on the 802.1p priority value in each packet's VLAN tag.
  - Data Center Bridging Capability Exchange Protocol (DCBX) (IEEE 802.1AB) allows neighboring network devices to exchange information about their capabilities.
- Monitoring:
  - Switch LEDs for port status and switch status indication
  - Port mirroring for analyzing network traffic passing through switch
  - Change tracking and remote logging with syslog feature
  - Telemetry agent for real-time analytics: Buffer statistics and congestion drop counters
- Manageability:
  - Industry-standard command line interface (isCLI)
  - Simple Network Management Protocol (SNMP V1, V2, and V3)
  - Telnet interface for CLI
  - Secure Shell (SSH) v1 and v2 for CLI
  - Secure Copy (SCP) for uploading and downloading the configuration file via secure channels
  - Service Location Protocol (SLP)
  - Link Layer Discovery Protocol (LLDP) for discovering network devices
  - Serial interface for CLI
  - Scriptable CLI
  - Dual software images
  - Firmware image update via TFTP, FTP, Secure FTP (sFTP), or USB storage
  - Network Time Protocol (NTP) for switch clock synchronization
  - Lenovo XClarity (optional; sold separately) for discovery, inventory, monitoring and events
  - Third-party tools integration
    - Lenovo Networking Content Pack for VMware vRealize Log Insight (optional download) for automated log management
    - Integration with Nutanix Prism management via Network Policy Agent
    - Lenovo Networking Neutron Plugin to automate VLAN provisioning and configuration updates for OpenStack-based cloud environments
    - Integration with Ansible management
    - Ganglia plug-in for telemetry data analytics

Enterprise NOS software features

The RackSwitch G8296 with ENOS has the following features and specifications:

- Scalability and performance
  - Media access control (MAC) address learning with automatic updates
  - Static and LACP (IEEE 802.3ad) link aggregation
  - Broadcast/multicast storm control
  - IGMP snooping to limit flooding of IP multicast traffic
  - IGMP filtering to control multicast traffic for hosts participating in multicast groups
  - Configurable traffic distribution schemes over trunk links based on source/destination IP or MAC addresses, or both
  - Fast port forwarding and fast uplink convergence for rapid STP convergence
- 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) provides rapid STP convergence for critical delay-sensitive traffic like voice or video
  - Per-VLAN Rapid STP (PVRST) enhancements
  - Layer 2 Failover to support active/standby configurations of NIC teaming on servers
  - Hot Links provides basic link redundancy with fast recovery for network topologies that require Spanning Tree to be turned off
- VLAN support
  - Up to 4095 VLANs supported per switch, with VLAN numbers ranging from 1 to 4095 (VLAN 4095 is used by the management network.)
  - Port-based and protocol-based VLANs
  - 802.1Q VLAN tagging support
  - Ingress VLAN tagging support to tunnel packets through a public domain without altering the original 802.1Q tagging information
  - Private VLANs support as defined in RFC 5517
- Security
  - VLAN-based, MAC-based, and IP-based access control lists (ACLs)
  - 802.1x port-based authentication
  - Multiple user IDs and passwords
  - User access control
  - Radius, TACACS+ and LDAP/LDAPS authentication and authorization
  - NIST 800-131A Encryption
  - Selectable encryption protocol
  - Secure Input/Output Module (SIOM) policy: Secure and Legacy modes
- Quality of Service (QoS)
  - Support for IEEE 802.1p, IP ToS/DSCP, and ACL-based (MAC/IP source and destination addresses, VLANs) traffic classification and processing
  - Traffic shaping and re-marking based on defined policies
  - Eight output Class of Service (COS) queues per port for processing qualified traffic
  - Weighted Random Early Detection (WRED) with Explicit Congestion Notification (ECN) to help avoid congestion
  - IPv4/IPv6 ACL metering

- IP v4 Layer 3 functions
  - Host management
  - IP forwarding
  - Network Address Translation (NAT)
  - IP filtering with ACLs, up to 256 IPv4 ACLs supported
  - Virtual Router Redundancy Protocol (VRRP) for router redundancy
  - Support for up to 128 static routes
  - Routing protocol support (RIP v1, RIP v2, OSPF v2, BGP)
  - Support for policy-based routing (PBR)
  - Support for DHCP Relay
  - Support for IGMP snooping and IGMP relay
  - Support for Protocol Independent Multicast (PIM) in Sparse Mode (PIM-SM) and Dense Mode (PIM-DM).
- IPv6 Layer 3 functions
  - IPv6 host management
  - IPv6 forwarding
  - Up to 128 static routes
  - Support for OSPF v3 routing protocol
  - IPv6 filtering with ACLs, up to 128 IPv6 ACLs supported
- OpenFlow 1.0 and 1.3.1 support
- Virtualization
  - Unified Fabric Port (UFP)
    - Up to 8 UFP vPorts per 10 GbE physical port with supported Emulex Virtual Fabric Adapters (VFAs)
    - Up to 4 UFP vPorts per 10 GbE physical port with supported QLogic VFAs
    - Ethernet and storage (NAS, iSCSI, and FCoE) traffic on UFP vPorts (adapter specific)
    - Up to 1024 VLAN for the vPorts
    - VMready or 802.1Qbg Edge Virtual Bridging (not both) on the same physical port
    - Integration with L2 Failover
    - Support for Private VLANs
  - Virtual link aggregation groups (vLAGs)
    - Two switches (vLAG peers) act as a single virtual entity for a multi-port aggregation
    - vLAG Peer Gateway for improved usage of the link between the vLAG peers
    - Two-tier vLAGs with VRRP enables active/active VRRP to reduce routing latency
  - 802.1Qbg Edge Virtual Bridging (EVB) is an emerging IEEE standard for allowing networks to become virtual machine (VM)-aware.
    - Virtual Ethernet Bridging (VEB) and Virtual Ethernet Port Aggregator (VEPA) are mechanisms for switching between VMs on the same hypervisor.
    - Edge Control Protocol (ECP) is a transport protocol that operates between two peers over an IEEE 802 LAN providing reliable, in-order delivery of upper layer protocol data units.
    - Virtual Station Interface (VSI) Discovery and Configuration Protocol (VDP) allows centralized configuration of network policies that will persist with the VM, independent of its location.
    - EVB Type-Length-Value (TLV) is used to discover and configure VEPA, ECP, and VDP.
  - VMready support
    - Up to 4,096 virtual entities (VEs)
    - Automatic VE discovery
    - Up to 4,093 local or distributed VM groups for VEs
    - Lenovo NMotion™ feature for automatic network configuration migration
  - VXLAN Gateway enables the communication between physical and virtual devices using the VXLAN protocol for VMware NSX integration.

- Converged Enhanced Ethernet
  - Priority-Based Flow Control (PFC) (IEEE 802.1Qbb) extends 802.3x standard flow control to allow the switch to pause traffic based on the 802.1p priority value in each packet's VLAN tag.
  - Enhanced Transmission Selection (ETS) (IEEE 802.1Qaz) provides a method for allocating link bandwidth based on the 802.1p priority value in each packet's VLAN tag.
  - Data Center Bridging Capability Exchange Protocol (DCBX) (IEEE 802.1AB) allows neighboring network devices to exchange information about their capabilities.
- Fibre Channel over Ethernet (FCoE)
  - FC-BB5 FCoE specification compliant
  - FCoE transit switch operations
  - FCoE Initialization Protocol (FIP) support for automatic ACL configuration
  - FCoE Link Aggregation Group (LAG) support
  - Supports 2,048 FCoE sessions with FIP Snooping by using Class ID ACLs
- Manageability
  - Industry-standard command line interface (isCLI)
  - Simple Network Management Protocol (SNMP V1, V2, and V3)
  - Telnet interface for CLI
  - Secure Shell (SSH) v1 and v2 for CLI
  - Secure Copy (SCP) for uploading and downloading the switch configuration via secure channels
  - Service Location Protocol (SLP)
  - Link Layer Discovery Protocol (LLDP) for discovering network devices
  - Serial interface for CLI
  - Scriptable CLI
  - Dual software images
  - Firmware image update via TFTP, FTP, Secure FTP (sFTP), or USB storage
  - Network Time Protocol (NTP) and Precision Time Protocol (PTP) for switch clock synchronization
  - Netconf (XML)
  - Lenovo Switch Center management application (optional; sold separately)
  - Lenovo XClarity (optional; sold separately) for discovery, inventory, monitoring and events
  - Lenovo Networking Content Pack for VMware vRealize Log Insight (optional download) for automated log management
- Monitoring
  - Switch LEDs for port status and switch status indication
  - Remote Monitoring (RMON) agent to collect statistics and proactively monitor switch performance
  - Port mirroring for analyzing network traffic passing through switch
  - Change tracking and remote logging with syslog feature
  - Support for sFLOW agent for monitoring traffic in data networks (separate sFLOW analyzer required elsewhere)

The following features are not supported with IPv6:

- Bootstrap Protocol (BOOTP) and DHCP
- RADIUS, TACACS+ and LDAP
- VMware Virtual Center (vCenter) for VMready
- Routing Information Protocol (RIP)
- Border Gateway Protocol (BGP)
- Protocol Independent Multicast (PIM)
- Virtual Router Redundancy Protocol (VRRP)
- sFLOW

Ethernet standards

The switch supports the following Ethernet standards:

- IEEE 802.1AB Data Center Bridging Capability Exchange Protocol (DCBX) (ENOS only)
- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1p Class of Service (CoS) prioritization
- IEEE 802.1s Multiple STP (MSTP)
- IEEE 802.1Q Tagged VLAN (frame tagging on all ports when VLANs are enabled)
- IEEE 802.1Qbg Edge Virtual Bridging (ENOS only)
- IEEE 802.1Qbb Priority-Based Flow Control (PFC) (ENOS only)
- IEEE 802.1Qaz Enhanced Transmission Selection (ETS) (ENOS only)
- IEEE 802.1x port-based authentication (ENOS only)
- IEEE 802.1w Rapid STP (RSTP)
- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3ab 1000BASE-T copper twisted pair Gigabit Ethernet
- IEEE 802.3ad Link Aggregation Control Protocol
- 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 802.3ba 40GBASE-SR4 short range fiber optics 40 Gb Ethernet
- IEEE 802.3ba 40GBASE-CR4 copper 40 Gb Ethernet
- IEEE 802.3u 100BASE-TX Fast Ethernet
- IEEE 802.3x Full-duplex Flow Control
- IEEE 802.3z 1000BASE-SX short range fiber optics Gigabit Ethernet
- IEEE 802.3z 1000BASE-LX long range fiber optics Gigabit Ethernet

Cooling

The G8296 switch supports up to three variable speed, hot-swap fan assemblies (three fan assemblies come standard with the switch and they provide 2+1 redundancy). Spare fan assemblies can be ordered, if required (see the following table). Each option contains one hot-swap fan assembly (rear-to front or front-to-rear).

Table 7. Fan assembly spare options

Description	Part number	Feature code
Rear to front airflow (7159-HC6)		
Lenovo RackSwitch Hot-swap, 80mm Rear-to-Front Fan Assembly	00AY184	ASVP
Front to rear airflow (7159-HC5)		
Lenovo RackSwitch Hot-swap, 80mm Front-to-Rear Fan Assembly	00AY180	ASVQ

Power supplies and cables

The G8296 switch supports up to two load-sharing, hot-swap 750 W power supplies (two power supplies come standard with the switch). Spare power supplies can be ordered, if required. Each option contains one hot-swap power supply (rear-to-front or front-to-rear).

The following table lists the spare power supplies.

Table 8. Power supply spare options

Description	Part number	Feature code
Rear to front airflow (7159-HC6)		
Hot-Swappable, 750W CFF Power Supply Spare (rear to front)	00D5858	A2X7
Front to rear airflow (7159-HC5)		
Hot-Swappable, 750W CFF Power Supply Spare (front to rear)	00MY174	ASVT

The G8296 switch ships standard without any AC power cables. The part numbers and feature codes to order the power cables (two power cables are required per switch) are listed in the following table.

Table 9. AC power cable options

Description	Part number	Feature code
Rack power cables		
1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7937	6201
1.8m, 10A/100-250V, 2xC13PM to IEC 320-C14 Rack Power Cable	None*	6568
2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	None*	6311
2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	39Y7938	6204
4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7932	6263
Country-specific line cords		
Argentina 10A/250V C13 to IRAM 2073 2.8m line cord	39Y7930	6222
Australia/NZ 10A/250V C13 to AS/NZ 3112 2.8m line cord	39Y7924	6211
Brazil 10A/125V C13 to NBR 6147 2.8m line cord	39Y7929	6223
China 10A/250V C13 to GB 2099.1 2.8m line cord	39Y7928	6210
Denmark 10A/250V C13 to DK2-5a 2.8m line cord	39Y7918	6213
European 10A/230V C13 to CEE7-VII 2.8m line cord	39Y7917	6212
India 10A/250V C13 to IS 6538 2.8m line cord	39Y7927	6269
Israel 10A/250V C13 to SI 32 2.8m line cord	39Y7920	6218
Italy 10A/250V C13 to CEI 23-16 2.8m line cord	39Y7921	6217
Japan 12A/125V C13 to JIS C-8303 2.8m line cord	46M2593	A1RE
Korea 12A/250V C13 to KETI 2.8m line cord	39Y7925	6219
South Africa 10A/250V C13 to SABS 164 2.8m line cord	39Y7922	6214
Switzerland 10A/250V C13 to SEV 1011-S24507 2.8m line cord	39Y7919	6216
Taiwan 10A/250V C13 to CNS 10917-3 2.8m line cord	00CG265	A53E
Taiwan 15A/125V C13 to CNS 10917-3 2.8m line cord	00CG267	A53F
United Kingdom 10A/250V C13 to BS 1363/A 2.8m line cord	39Y7923	6215
United States 10A/125V C13 to NEMA 5-15P 4.3m line cord	39Y7931	6207
United States 10A/250V C13 to NEMA 6-15P 2.8m line cord	46M2592	A1RF

* Available for factory-built custom configurations and solutions only.

Rack installation

The RackSwitch G8296 includes a 2-post rack mount kit.

For 4-post rack installations, the RackSwitch G8296 supports the optional 19-inch, 4-post rail kit that includes both adjustable and recessed rack mount options. The air inlet duct (optional for the adjustable 4-post rail kit; supported only with the models with rear to front airflow) is also available.

When the RackSwitch G8296 (front to rear airflow) is installed in the Intelligent Cluster Rack (Machine Type 1410) or Enterprise Rack (Machine Type 9363) as a part of a NeXtScale System solution, the recessed 19-inch 4-post rail kit is required.

The following table lists rack installation options for the G8296 switches with rear to front and front to rear airflow.

Table 10. Rack installation options

Description	Part number	Feature code
Rear to front airflow (7159-HC6)		
Lenovo RackSwitch Adjustable+Recessed 19" 2U 4-Post Rail Kit	00MY163	ASVS
Air Inlet Duct for 2U 483MM RackSwitch	00MY160	ASVR
Front to rear airflow (7159-HC5)		
Lenovo RackSwitch Adjustable+Recessed 19" 2U 4-Post Rail Kit	00MY163	ASVS

Physical specifications

The approximate dimensions and weight of the G8296 switch are as follows:

- Height: 87 mm (3.5 in.)
- Width: 439 mm (17.3 in.)
- Depth: 483 mm (19.0 in.)
- Weight: 15.4 kg (34.0 lb)

Operating environment

The G8296 switch is supported in the following operating environment:

- Temperature: 0 to 40 ºC (32 to 104 ºF).
- Relative humidity: Non-condensing, 10 - 90%
- Altitude: up to 1,800 m (6,000 feet)
- Acoustic noise: Less than 65 dB
- Airflow: Front-to-rear or rear-to-front cooling with variable speed fans for reduced power draw
- Electrical input: 50-60 Hz, 100-240 V AC auto-switching
- Input Volt Amperes (VA)
    - Typical: 220 VA
    - Maximum: 420 VA
- Heat dissipation
    - Typical: 717 BTU/hour
    - Maximum: 1,433 BTU/hour

Warranty and maintenance

The RackSwitch G8296 comes with a limited 3-year hardware warranty with Next Business Day (NBD), 9x5, Customer Replaceable Unit (CRU) warranty service and includes a 3-year software license, which provides entitlement to upgrades over that period. The following optional warranty and maintenance upgrades are available for the RackSwitch G8296 through Lenovo service upgrade offerings:

- Warranty service upgrades (3, 4, or 5 years):
  - 24x7 onsite repair with 2-hour target response time
  - 24x7 onsite repair with 4-hour target response time
  - 9x5 onsite repair with 4-hour target response time
- Maintenance (post-warranty) service offerings (1 or 2 years):
  - 24x7 onsite repair with 2-hour target response time
  - 24x7 onsite repair with 4-hour target response time
  - 9x5 onsite repair with 4-hour target response time
  - 9x5 onsite repair with next business day target response time
- Remote Technical Support (RTS) services (1 or 3 years)
  RTS provides comprehensive technical call center support. RTS can reduce problem resolution time, which decreases the cost to address technical problems and increases uptime.

Lenovo warranty service upgrade offerings are country-specific. Not all warranty service upgrades are available in every country. For more information about Lenovo warranty service upgrade offerings that are available in your country, refer to the Lenovo Enterprise Solutions Configurator (LESC): http://lesc.lenovo.com

The options that are installed in the switch assume the switch's base warranty and any Lenovo warranty service upgrade for the switch.

Regulatory compliance

The switch conforms to the following regulations:

- Safety certifications
  - UL60950-1
  - CAN/CSA 22.2 No.60950-1
  - TUV/GS to EN 60950-1
  - IEC60950-1, all country deviations
  - CNS 14336-1
  - Argentina Smark to IEC60950-1
  - GB4943.1-2011
  - EAC
  - NOM-019
- 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
  - KC Class A
  - CE
- Environmental: Reduction of Hazardous Substances (ROHS) Directive 2011/65/EU

Network connectivity

The following table lists the network switches with rear-to-front airflow that are offered by Lenovo that can be used in RackSwitch G8296 network connectivity solutions for System x, ThinkServer, and Flex System hosts.

Table 11. Network switches (rear-to-front airflow)

Description	Part number
1 Gb Ethernet switches	
Lenovo RackSwitch G7028 (Rear to Front)	7159BAX
Lenovo RackSwitch G7052 (Rear to Front)	7159CAX
Lenovo RackSwitch G8052 (Rear to Front)	7159G52
10 Gb Ethernet switches	
Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)	7159A1X
Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)	7159B1X
Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)	7159C1X
Lenovo RackSwitch G8124E (Rear to Front)	7159BR6
Lenovo RackSwitch G8264 (Rear to Front)	7159G64
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
10 Gb Converged switches	
Lenovo RackSwitch G8264CS (Rear to Front)*	7159DRX
40 Gb Ethernet switches	
Lenovo RackSwitch G8332 (Rear to Front)	7159BRX
100 Gb Ethernet switches (support 40 GbE connectivity)	
Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)	7159D1X

* The RackSwitch G8296 supports FCoE transit switch operations when connected to the RackSwitch G8264CS.

The following table lists the network switches with front-to-rear airflow that are offered by Lenovo that can be used in RackSwitch G8296 network connectivity solutions for NeXtScale System hosts.

Table 12. Network switches (front-to-rear airflow)

Description	Part number
1 Gb Ethernet switches	
Lenovo RackSwitch G8052 (Front to Rear)	715952F
10 Gb Ethernet switches	
Lenovo ThinkSystem NE1032 RackSwitch (Front to Rear)	7159A2X
Lenovo ThinkSystem NE1032T RackSwitch (Front to Rear)	7159B2X
Lenovo ThinkSystem NE1072T RackSwitch (Front to Rear)	7159C2X
Lenovo RackSwitch G8124E (Front to Rear)	7159BF7
Lenovo RackSwitch G8264 (Front to Rear)	715964F
Lenovo RackSwitch G8272 (Front to Rear)	7159CFV
10 Gb Converged switches	
Lenovo RackSwitch G8264CS (Front to Rear)*	7159DFX
40 Gb Ethernet switches	
Lenovo RackSwitch G8332 (Front to Rear)	7159BFX
100 Gb Ethernet switches (support 40 GbE connectivity)	
Lenovo ThinkSystem NE10032 RackSwitch (Front to Rear)	7159D2X

* The RackSwitch G8296 supports FCoE transit switch operations when connected to the RackSwitch G8264CS.

For more information, see the list of Product Guides in the Top-of-rack Switches category:
http://lenovopress.com/servers/options/switches

Storage connectivity

The following table lists the external storage systems that are currently offered by Lenovo that can be used with the RackSwitch G8296 for external NAS or iSCSI or FCoE SAN storage connectivity.

Table 13. External storage systems

Description	Part number
Lenovo ThinkSystem DS Series Storage (iSCSI host connectivity)	
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A31*
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A3C^
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A3J**
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A11*
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A1C^
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A1J**
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A31*
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A3C^
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A3J**
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A11*

Description	Part number
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A1C^
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A1J**
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4619A11*
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4619A1C^
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 or FCoE 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
Lenovo Storage V5030F SFF Control Enclosure 3Yr S&S	6536B1F
Lenovo Storage V5030F SFF Control Enclosure 5Yr S&S	6536B2F
IBM Storwize for Lenovo (iSCSI or FCoE 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 V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (Model 524)	6195SC5†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (LA) (Model 524)	6195SCL‡
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (Model 524)	61951F1†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (LA) (Model 524)	61951FL‡
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA (Model HC1 [Gen2+])	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA (Model HC1 [Gen2+])	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA (Model HC1 [Gen2+])	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA (Model HC1 [Gen2+])	6195C5L‡

Description	Part number
Lenovo Storage DX8200 Series (NAS or iSCSI connectivity)	
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 3yr SW S&S	5135A2x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 4yr SW S&S	5135J2x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 5yr SW S&S	51351Vx#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 3yr SW S&S	5135B2x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 4yr SW S&S	5135L2x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 5yr SW S&S	51352Vx#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 3yr SW S&S	5135C3x#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 4yr SW S&S	5135M3x#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 5yr SW S&S	51353Wx#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 3yr SW S&S	5135D2x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 4yr SW S&S	5135N2x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 5yr SW S&S	51354Vx#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 3yr SW S&S	5135F2x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 4yr SW S&S	5135P2x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 5yr SW S&S	51355Vx#
Lenovo Storage DX8200D ServerSAN High, 32TB, 3yr SW S&S	5135G3x#
Lenovo Storage DX8200D ServerSAN High, 32TB, 4yr SW S&S	5135Q3x#
Lenovo Storage DX8200D ServerSAN High, 32TB, 5yr SW S&S	51356Wx#
Lenovo Storage DX8200N with 1x N2226 HBA (Requires a supported external drive enclosure)	5128A1x#
Lenovo Storage DX8200N with 2x N2226 HBAs (Requires a supported external drive enclosure)	5128A2x#
Lenovo Storage DX8200 Series (S3 cloud storage)	
Lenovo Storage DX8200C 56TB (14x 4TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C1x#
Lenovo Storage DX8200C 84TB (14x 6TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C3x#
Lenovo Storage DX8200C 112TB (14x 8TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C2x#
Lenovo Storage DX8200C 140TB (14x 10TB HDDs) with Cloudian HyperStore - 3yr HW/SW S&S	5120C4x#

* Available worldwide (except China and Japan).
^ Available only in China.
** Available only in Japan.
† Available worldwide except Latin America.
‡ Available only in Latin America.
# x represents a geo-specific letter (for example: U = North America, G = EMEA). Ask a Lenovo representative for specifics.

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

- Lenovo DS Series, S Series, and V Series storage:
  http://lenovopress.com/storage/san/lenovo?rt=product-guide
- IBM Storwize for Lenovo storage:
  http://lenovopress.com/storage/san/ibm?rt=product-guide
- Lenovo NAS storage:
  http://lenovopress.com/storage/nas
- Lenovo Cloud storage:
  http://lenovopress.com/storage/cloud

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used in RackSwitch G8296 solutions.

Table 14. Rack cabinets

Description	Part number
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:
http://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 in RackSwitch G8296 solutions.

Table 15. 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

Description	Part number
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
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
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 (32A)	40K9617
DPI Korean 8305 Line Cord (30A)	40K9618

For more information, see the list of Product Guides in the Power Distribution Units category:
http://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 in RackSwitch G8296 solutions.

Table 16. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA5-15R 12A outlets)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A outlets)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-20R 16A outlets)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC) (6x NEMA5-20R 16A, 1x NEMA L5-30R 24A outlets)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55949PX

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category: http://lenovopress.com/servers/options/ups?rt=product-guide

Lenovo Financial Services

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Related publications and links

For more information about the RackSwitch G8296, see the following publications that are available at the RackSwitch G8296 InfoCenter:
http://systemx.lenovofiles.com/help/topic/com.lenovo.rackswitch.g8296.doc/rs_g8296.html

- *Lenovo RackSwitch G8296 Installation Guide*
- *Lenovo RackSwitch G8296 Application Guide*
- *Lenovo RackSwitch G8296 Industry Standard CLI Command Reference*
- *Lenovo RackSwitch G8296 REST API Guide (CNOS only)*
- *Lenovo RackSwitch G8296 Python Programming Guide (CNOS only)*

The software for the RackSwitch G8296 can be downloaded from Lenovo Support:
http://datacentersupport.lenovo.com/us/en/products/networking/rackswitch/switch-g8296/downloads

Related product families

Product families related to this document are the following:

- 10 Gb Ethernet Switches
- Top-of-Rack Switches

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