Lenovo ThinkSystem NE1032T RackSwitch
Product Guide (withdrawn product)

The Lenovo ThinkSystem NE1032T RackSwitch is a 1U rack-mount 10 Gb Ethernet switch that delivers lossless, low-latency performance with feature-rich design that supports virtualization, high availability, and enterprise class Layer 2 and Layer 3 functionality. The switch delivers line-rate, high-bandwidth switching, filtering, and traffic queuing without delaying data.

The NE1032T RackSwitch has 24x 1/10 Gb Ethernet (RJ-45) fixed ports and 8x SFP+ ports that support 1 GbE and 10 GbE optical transceivers, active optical cables (AOCs), and direct attach copper (DAC) cables. The switch helps consolidate server and storage networks into a single fabric, and it is an ideal choice for virtualization, cloud, and enterprise workload solutions.

The Lenovo ThinkSystem NE1032T RackSwitch is shown in the following figure.

Figure 1. Lenovo ThinkSystem NE1032T RackSwitch

Did you know?

The NE1032T RackSwitch provides reliable, high-performance fabric for traditional, converged, and hyperscale solutions.

The NE1032T RackSwitch runs the Lenovo Cloud Networking Operating System (CNOS) that 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 NE1032T RackSwitch 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 NE1032T RackSwitch runs the Cloud NOS that 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.

The NE1032T RackSwitch is considered particularly suited for the following environments:

- 10 GbE UTP Category 6a or 7 cost-efficient server connectivity with additional 10 GbE SFP+ ports for server, storage, or switch connections
- Transitioning the existing 1 GbE infrastructure to 10 GbE with investment protection
- Cloud and virtualization solutions with VM-aware network automation and integration into Lenovo and third-party IT and cloud infrastructure management tools
- Converged SAN and LAN network via NAS and iSCSI storage connectivity
    - Reduced I/O cost (CAPEX) with fewer adapters and cables to purchase
    - Reduced complexity (OPEX) with fewer components to manage and lower energy cost
- Hyperconverged solutions
- Applications demanding higher performance and lower latency

The NE1032T RackSwitch offers the following features and benefits:

- High performance
  The 10 Gb NE1032T RackSwitch provides a combination of low latency, non-blocking line-rate switching, and ease of management with 640 Gbps throughput.
- Lower power and better cooling
  The front-to-rear or rear-to-front cooling design of the NE1032T RackSwitch reduces data center air conditioning costs by having airflow match the servers in the rack. In addition, variable speed fans help reduce power consumption.
- Layer 3 functionality
  The NE1032T RackSwitch 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.
- Network virtualization
  The NE1032T switch supports VXLAN Gateway for VMware NSX integration. VMware NSX is a virtualized network software platform that offers a full set of networking services, such as logical switching, routing, firewall, load balancing, VPN, quality of service (QoS), and monitoring.
- Converged fabric
  The NE1032T RackSwitch 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, customers 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.
- Fault tolerance

The NE1032T RackSwitch offers redundant hot-swap hardware components, learns alternate routes automatically, and performs faster convergence if there is a link, switch, or power failure.

- Seamless interoperability
  RackSwitch switches perform seamlessly with other vendors' upstream switches.
- Automated VM-aware network provisioning
  The Lenovo CNOS Network Policy Agent, a ThinkAgile Network Orchestrator feature, gives increased visibility of the Nutanix (AOS version 5.0.2 or higher [excluding 5.1.2]) and VMware vSphere 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.
- 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
  Network administrators 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. Administrators can also 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 network administrators 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.
- 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.

Components and connectors

The following figure shows the front (port-side) panel of the NE1032T RackSwitch.

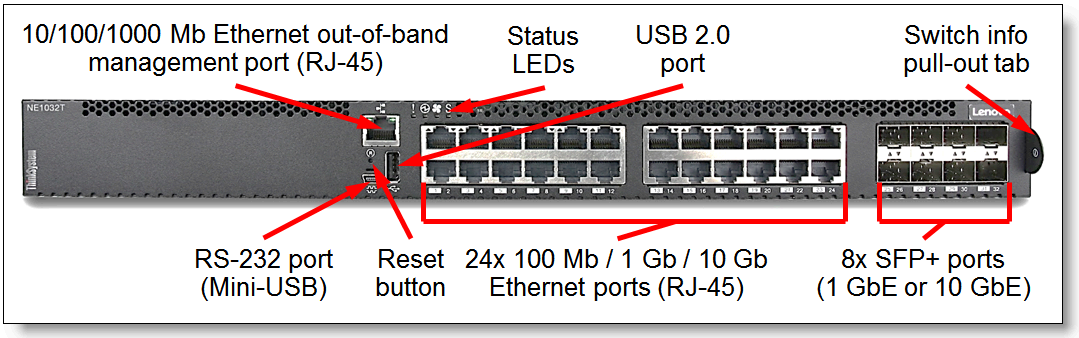

Figure 2. Front panel of the NE1032T RackSwitch

The front panel of the NE1032T RackSwitch includes the following components:

- 24x RJ-45 ports for 100 Mb / 1 Gb / 10 Gb Ethernet connections over twisted pair.
- 8x SFP/SFP+ ports to attach SFP/SFP+ transceivers for 1 Gb or 10 Gb Ethernet connections or DAC cables and AOCs for 10 Gb Ethernet connections.
- One RJ-45 10/100/1000 Mb Ethernet port for out-of-band management.
- One Mini-USB RS-232 console port that provides another means to configure the switch.
- One USB port for mass storage devices.
- LEDs that display the status of the switch and the network.
- Reset button.
- Switch information pull-out tab.

The following figure shows the rear (non-port-side) panel of the NE1032T RackSwitch.

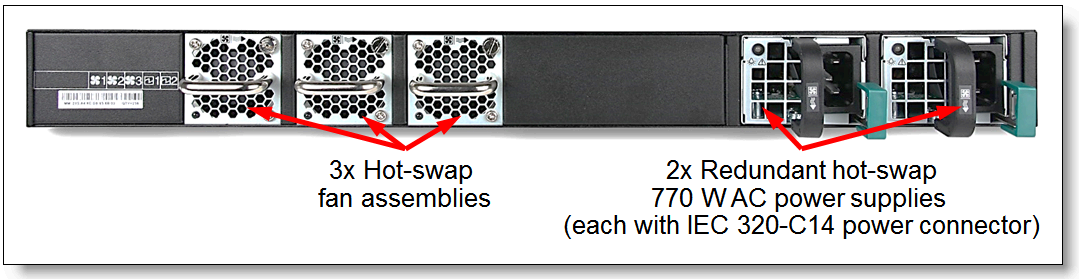

Figure 3. Rear panel of the NE1032T RackSwitch

The rear panel of the NE1032T RackSwitch includes the following components:

- Two redundant hot-swap 770 W AC power supplies (each with the IEC 320-C14 power connector)
- Three N+1 redundant hot-swap fan assemblies

System specifications

The following table lists the NE1032T RackSwitch 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 10.9. For details about specific CNOS software releases that introduced support for certain hardware options and software features, refer to the Release Notes for the particular software release that can be found at:
https://serveroption.lenovo.com/rack_switches/ne1032t

Table 1. NE1032T RackSwitch system specifications

Attribute	Specification
Form factor	1U rack mount
Ports	• 24x 10 Gb Ethernet fixed ports (RJ-45) • 8x SFP/SFP+ ports
Media types	10 Gb Ethernet fixed ports (10GBASE-T): • RJ-45 UTP Category 6a or 7 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	• 10 GbE fixed ports: 100 Mbps / 1 Gbps / 10 Gbps auto-sensing • 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.
Software features	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), Layer 2 failover, quality of service (QoS), IPv4/IPv6 management, IPv4/IPv6 routing, equal cost multiple paths (ECMP), IPv4/IPv6 virtual router redundancy protocol (VRRP), IPv4 policy-based routing (PBR), Converged Enhanced Ethernet (CEE), Network Policy Agent, VXLAN gateway, Python scripting, REST API programming, Telemetry agent.
Performance	Non-blocking architecture with wire-speed forwarding of traffic: • 100% line-rate performance • Up to 640 Gbps switching throughput • As low as 760 ns (SFP+) or 2.3 µs (10GBASE-T) port-to-port switching latency • Up to 476 Million packets per second (Mpps) (64-byte packets) • Up to 9,216-byte jumbo frames • Buffer size: 12 MB

Attribute	Specification
Scalability	• MAC address forwarding database entries: 208,000 • VLANs: 4,095 (3,999 user-configurable; 96 reserved) • Rapid Per VLAN Spanning Tree (RPVST) instances: 500 • Multiple STP (MSTP) instances: 64 • Link aggregation groups: 32 • Active ports in a link aggregation group: 32 • Maximum ingress ACL entries: 3,072 • Maximum egress ACL entries: 512 • Static routes (IPv4 / IPv6): 256 / 256 • Dynamic routes (IPv4 / IPv6): 15,870 / 6,143
Cooling	Three N+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 770 W AC (100 - 240 V) Platinum power supplies (each power supply has an IEC 320-C14 connector).
Hot-swap parts	SFP/SFP+ transceivers, SFP+ DAC cables and AOCs, power supplies, fans.
Management ports	1x 10/100/1000 Mb Ethernet port (RJ-45); 1x RS-232 port (Mini-USB); 1x USB 2.0 port (for additional firmware, log, and configuration files storage).
Management interfaces	Industry standard command line interface (isCLI); SNMP v1, V2, and v3; REST API. Optional Lenovo XClarity for discovery, inventory, monitoring and events. Optional Lenovo Networking plug-ins for VMware vRealize Log Insight, VMware vRealize Orchestrator, and OpenStack-based environments. Ansible support for IT automation. Ganglia support for telemetry analytics.
Security features	Secure Shell (SSH); Secure Copy (SCP); Secure FTP (sFTP); user level security; Role-based Access Control (RBAC); LDAP/LDAPS, RADIUS, and TACACS+ authentication; access control lists (ACLs); secure mode; Trusted Platform Module (TPM) 1.2.
Hardware warranty	Three-year (Machine Type 7159) Customer Replaceable Unit limited warranty with 9x5 Next Business Day Parts Delivered. Optional warranty service upgrades are available through Lenovo: onsite service, 24x7 coverage, 2-hour or 4-hour response time, 1-year or 2-year warranty and post-warranty extensions, basic installation services.
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 (MTBF)	175,607 hours.
Dimensions	Height: 44 mm (1.7 in.); width: 441 mm (17.3 in.); depth: 487 mm (19.2 in.)
Weight	10.9 kg (24.0 lb).

Models

The following table lists the NE1032T RackSwitch models.

Table 2. NE1032T RackSwitch models

Description	Part number	Machine Type-Model	Feature code
Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)	7159B1X	7159-HD3	AU38
Lenovo ThinkSystem NE1032T RackSwitch (Front to Rear)	7159B2X	7159-HD4	AU37

The part numbers for the NE1032T RackSwitch models include the following items:

- One NE1032T RackSwitch with two power supplies and three fan assemblies (rear-to-front airflow or front-to-rear airflow)
- Generic Rack Mount Kit (2-post)
- Console Cable Kit that includes the following items:
  - 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
- *Electronic Publications Flyer*

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 NE1032T RackSwitch supports Features on Demand (FoD) license keys 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.

The following table lists the FoD upgrade options for the NE1032T RackSwitch.

Table 3. FoD upgrade options

Description	Part number	Feature code
Lenovo ThinkSystem NE1032T RackSwitch Advanced Instrumentation Tools	7ZN7A04279	AXDM
Lenovo ThinkSystem NE1032T RackSwitch ONIE Instrumentation Tools	7ZN7A04280	AXDL

Transceivers and cables

With the flexibility of the NE1032T RackSwitch, customers can choose the following connectivity technologies:

- For 1 GbE links, customers can use RJ-45 fixed ports or SFP transceivers with RJ-45 UTP cables for distances up to 100 meters.

  For longer distances, the 1000BASE-SX transceiver supports 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 transceiver supports distances up to 10 kilometers with single-mode fiber (1310 nm).

- For 10 GbE links, customers can use RJ-45 fixed ports (10GBASE-T) with UTP Category 6a or 7 cables for distances up to 100 meters.

  For in-rack or intra-rack cabling, 10 GbE SFP+ direct-attached copper (DAC) cables can be used for distances up to 7 meters, or 10 GbE SFP+ active optical cables (AOCs) can be used for distances up to 20 meters. The AOCs and DAC 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.

The following table lists the supported cables and transceivers.

Table 4. Supported SFP/SFP+ transceivers and cables

Description	Part number	Feature code	Maximum quantity
SFP transceivers - 1 GbE			
Lenovo 1000BASE-T (RJ-45) SFP Transceiver (no 10/100 Mbps support)	00FE333	A5DL	8
Lenovo 1000BASE-SX SFP Transceiver	81Y1622	3269	8
Lenovo 1000BASE-LX SFP Transceiver	90Y9424	A1PN	8
UTP Category 5E cables for 1 GbE RJ-45 ports: Fixed ports operating at 1 Gbps, management, SFP transceivers			
0.6m Green Cat5e Cable	40K5563	3796	33
1.5m Blue Cat5e Cable	40K8785	3802	33
1.5m Green Cat5e Cable	40K5643	3797	33
3m Blue Cat5e Cable	40K5581	3803	33
3m Green Cat5e Cable	40K5793	3798	33
3m Yellow Cat5e Cable	40K8957	3793	33
10m Blue Cat5e Cable	40K8927	3804	33
10m Green Cat5e Cable	40K5794	3799	33
25m Blue Cat5e Cable	40K8930	3805	33
25m Green Cat5e Cable	40K8869	3800	33
SFP+ transceivers - 10 GbE			
Lenovo Dual Rate 1/10Gb SX/SR SFP+ Transceiver	00MY034	ATTJ	8
Lenovo 10Gb SFP+ SR Transceiver (10GBASE-SR)	46C3447	5053	8
Lenovo 10Gb SFP+ LR Transceiver (10GBASE-LR)	90Y9412	A1PM	8
Lenovo 10GBASE-LR SFP+ Transceiver	00FE331	B0RJ	8
Lenovo 10Gb SFP+ ER Transceiver (10GBASE-ER)	90Y9415	A1PP	8
Lenovo 10GBASE-T SFP+ Transceiver	7G17A03130	AVV1	8
Optical cables for 1 GbE SX SFP and 10 GbE SR SFP+ transceivers			
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5	8
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6	8
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7	8
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8	8

Description	Part number	Feature code	Maximum quantity
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9	8
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA	8
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB	8
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC	8
UTP Category 6 cables for RJ-45 ports: 10 GbE fixed, 1 GbE management, 1 GbE SFP/10 GbE SFP+ transceivers			
10m Cat6 Blue Cable	90Y3721	A1MU	33
10m Cat6 Green Cable	90Y3718	A1MT	33
10m Cat6 Yellow Cable	90Y3715	A1MS	33
25m Cat6 Blue Cable	90Y3730	A1MX	33
25m Cat6 Green Cable	90Y3727	A1MW	33
25m Cat6 Yellow Cable	90Y3724	A1MV	33
SFP+ active optical cables - 10 GbE			
Lenovo 1m SFP+ to SFP+ Active Optical Cable	00YL634	ATYX	8
Lenovo 3m SFP+ to SFP+ Active Optical Cable	00YL637	ATYY	8
Lenovo 5m SFP+ to SFP+ Active Optical Cable	00YL640	ATYZ	8
Lenovo 7m SFP+ to SFP+ Active Optical Cable	00YL643	ATZ0	8
Lenovo 15m SFP+ to SFP+ Active Optical Cable	00YL646	ATZ1	8
Lenovo 20m SFP+ to SFP+ Active Optical Cable	00YL649	ATZ2	8
SFP+ passive direct-attach cables - 10 GbE			
Lenovo 0.5m Passive SFP+ DAC Cable	00D6288	A3RG	8
Lenovo 1m Passive SFP+ DAC Cable	90Y9427	A1PH	8
Lenovo 1.5m Passive SFP+ DAC Cable	00AY764	A51N	8
Lenovo 2m Passive SFP+ DAC Cable	00AY765	A51P	8
Lenovo 3m Passive SFP+ DAC Cable	90Y9430	A1PJ	8
Lenovo 5m Passive SFP+ DAC Cable	90Y9433	A1PK	8
Lenovo 7m Passive SFP+ DAC Cable	00D6151	A3RH	8
SFP+ active direct-attach cables - 10 GbE			
Lenovo 1m Active DAC SFP+ Cable	00VX111	AT2R	8
Lenovo 3m Active DAC SFP+ Cable	00VX114	AT2S	8
Lenovo 5m Active DAC SFP+ Cable	00VX117	AT2T	8
Spare console cables			
Console Cable Kit Spare (RJ-45/DB9)	90Y9462	A2MG	1

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

Table 5. NE1032T RackSwitch network cabling requirements

Transceiver	Standard	Cable	Connector
10 Gb Ethernet			
10 Gb RJ-45 fixed ports	10GBASE-T	Up to 25 m with UTP Category 6 cables supplied by Lenovo (see Table 4); UTP Category 6a or 7 up to 100 m	RJ-45
10Gb SR SFP+ (46C3447) 1/10Gb SFP+ (00MY034)	10GBASE-SR	Up to 30 m with fiber optic cables supplied by Lenovo (see Table 4); up to 300 m with OM3 or up to 400 m with OM4 multimode fiber optic cables	LC
10Gb LR SFP+ (90Y9412, 00FE331)	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	Up to 25 m with UTP Category 6 cables supplied by Lenovo (see Table 4); UTP Category 6a or 7 up to 30 m	RJ-45
Active optical cable	10GBASE-SR	SFP+ active optical cables up to 20 m (see Table 4)	SFP+
Direct attach copper cable	10GSFP+Cu	SFP+ DAC cables up to 7 m (see Table 4)	SFP+
1 Gb Ethernet			
RJ-45 fixed ports operating at 1 Gbps	1000BASE-T	Up to 25 m with UTP Category 5E or 6 cables supplied by Lenovo (see Table 4); UTP Category 5, 5E, or 6 up to 100 m	RJ-45
1Gb RJ-45 SFP (00FE333)	1000BASE-T	Up to 25 m with UTP Category 5E or 6 cables supplied by Lenovo (see Table 4); UTP Category 5, 5E, or 6 up to 100 m	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 optic cable up to 10 km	LC
Management ports			
1 GbE management port	1000BASE-T	Up to 25 m with UTP Category 5E or 6 cables supplied by Lenovo (see Table 4); UTP Category 5, 5E, or 6 up to 100 m	RJ-45
Serial port	RS-232	DB-9/RJ-45-to-Mini-USB (comes with the switch)	Mini-USB

Software features

The NE1032T RackSwitch 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
  - Layer 2 Failover to support active/standby configurations of NIC teaming on servers
- 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
  - Private VLANs
  - 802.1Q VLAN tagging
  - 802.1Q encapsulation on Layer 3 routed ports
  - Ingress VLAN tagging 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, TACACS+, and LDAP/LDAPS authentication and authorization
  - Secure mode: Only secure communication protocols are allowed to be enabled
- 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) with Explicit Congestion Notification (ECN) to avoid congestion
  - Control Plane Protection (CoPP)
  - IPv4 ACL metering

- IP v4 Layer 3 functions:
  - Host management
  - Routed ports (Switch ports as Layer 3 interfaces)
  - IP forwarding
  - IP filtering with ACLs
  - Virtual Router Redundancy Protocol (VRRP) for router redundancy
  - Static routes
  - Equal Cost Multiple Paths (ECMP)
  - Routing protocols (OSPF v2 and BGP-4)
  - Policy-based routing (PBR)
  - DHCP Relay and DHCP Snooping
  - IGMP snooping
  - DNS client
- IPv6 Layer 3 functions:
  - IPv6 host management
  - Routed ports (Switch ports as Layer 3 interfaces)
  - IPv6 forwarding
  - Virtual Router Redundancy Protocol (VRRP) for router redundancy
  - Static routes
  - Equal Cost Multiple Paths (ECMP)
  - Routing protocols (BGP-4)
  - 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
  - Data Center Interconnect (DCI) enables bridging of Layer 2 services across multiple locations over existing Layer 3 IP networks by using VXLAN high availability framework.
  - Virtual Routing and Forwarding (VRF) allows multiple instances (up to 64 for data traffic and one for management traffic) of a routing table to coexist and to work simultaneously on the switch to segment network paths.
  - 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 Nutanix (requires the AOS version 5.0.2 or higher [excluding 5.1.2]) or VMware vSphere environment.
  - 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 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

    - sFlow agent for monitoring traffic in data networks (separate sFlow analyzer required elsewhere)
- 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) for discovery, inventory, monitoring and events
    - Lenovo Intelligent Network Controller (LINC) (optional) for Software-Defined Networking (SDN)
    - Third-party tools integration
        - Lenovo Networking Content Pack for VMware vRealize Log Insight (optional download) for automated log management
        - Integration with Nutanix Prism and VMware vCenter 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

Ethernet standards

The NE1032T RackSwitch supports the following Ethernet standards:

- IEEE 802.1AB Data Center Bridging Capability Exchange Protocol (DCBX)
- 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 802.1Qbb Priority-Based Flow Control (PFC)
- IEEE 802.1Qaz Enhanced Transmission Selection (ETS)
- IEEE 802.1w Rapid STP (RSTP)
- IEEE 802.3 10BASE-T Ethernet (management port)
- 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 802.3an 10GBASE-T copper twisted pair 10 Gb Ethernet
- IEEE 802.3u 100BASE-TX Fast Ethernet (management port)
- 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
- SFF-8431 10GSFP+Cu SFP+ Direct Attach Cable

Cooling

The NE1032T RackSwitch ships with three variable speed, hot-swap fan assemblies that provide N+1 cooling redundancy.

Power supplies and cables

The NE1032T RackSwitch supports up to two load-sharing, redundant hot-swap 770 W AC Platinum power supplies (two power supplies come standard with the switch).

The NE1032T RackSwitch ships without any 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 6. 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
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 NE1032T RackSwitch ships with the 2-post rack mount kit.

For 4-post rack installations, the NE1032T RackSwitch supports the optional adjustable 19-inch, 4-post rail kit and the air inlet duct (optional for the 4-post rail kit; supported only with the models with rear to front airflow).

When the NE1032T RackSwitch (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 NE1032T RackSwitch switches with rear to front and front to rear airflow.

Table 7. Rack installation options

Description	Part number	Feature code
Rear to front airflow (7159-HD3)		
Lenovo RackSwitch Adjustable 19" 4 Post Rail Kit	00D6185	A3KP
Air Inlet Duct for 487 mm RackSwitch	00FM507	ASTN
Front to rear airflow (7159-HD4)		
Lenovo RackSwitch Adjustable 19" 4 Post Rail Kit	00D6185	A3KP
Lenovo RackSwitch Recessed 19" 4 Post Rail Kit	00CG089	A51M

Physical specifications

The NE1032T RackSwitch features the following physical specifications:

- Height: 44 mm (1.7 in.)
- Width: 441 mm (17.3 in.)
- Depth: 487 mm (19.2 in.)
- Maximum weight: 10.9 kg (24.0 lb)

Operating environment

The NE1032T RackSwitch is supported in the following operating environment:

- Temperature: 0 - 40 °C (32 - 104 °F).
- Relative humidity: 10 - 90% (Non-condensing)
- Altitude: Up to 2,000 m (6,561 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
- Power consumption
    - Typical: 130 W
    - Maximum: 184 W
- Heat dissipation
    - Typical: 444 BTU/hour
    - Maximum: 628 BTU/hour

Warranty and maintenance

The NE1032T RackSwitch comes with a 3-year Customer Replaceable Unit (CRU) hardware limited warranty with 9x5 Next Business Day (NBD) Parts Delivered and includes a 3-year software license, which provides entitlement to upgrades over that period. The options that are installed in the switch assume the switch's base warranty and any Lenovo warranty service upgrade for the switch.

Some regions might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific region. Local service teams can assist in explaining region-specific terms when needed. Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

If warranty terms and conditions include onsite labor for repair or replacement of parts, Lenovo will dispatch a service technician to the customer site to perform the replacement. Onsite labor under base warranty is limited to labor for replacement of parts that have been determined to be field-replaceable units (FRUs). Parts that are determined to be customer-replaceable units (CRUs) do not include onsite labor under base warranty.

If warranty terms include parts-only base warranty, Lenovo is responsible for delivering only replacement parts that are under base warranty (including FRUs) that will be sent to a requested location for self-service. Parts-only service does not include a service technician being dispatched onsite. Parts must be changed at customer's own cost and labor and defective parts must be returned following the instructions supplied with the spares parts.

Also available are Lenovo Services warranty maintenance upgrades and post-warranty maintenance agreements, with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

Lenovo warranty service upgrade offerings are region-specific. Not all warranty service upgrades are available in every region. For information about Lenovo warranty service upgrade offerings that are available in your region, refer to the following resources:

- Service part numbers in Lenovo Data Center Solutions Configurator (DCSC):
  http://dcsc.lenovo.com/#/services
- Lenovo Services Availability Locator
  https://lenovolocator.com/

In general, the following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
  - 3, 4, or 5 years of warranty service coverage
  - 1-year or 2-year post-warranty extensions
  - Foundation Service: 9x5 service coverage with next business day onsite response
  - Essential Service: 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select regions)
  - Advanced Service: 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select regions)
- Basic Hardware Installation Services
  Lenovo experts can seamlessly manage the physical installation of your server, storage, or networking hardware. Working at a time convenient for you (business hours or off shift), the technician will unpack and inspect the systems on your site, install options, mount in a rack cabinet, connect to power and network, check and update firmware to the latest levels, verify operation, and dispose of the packaging, allowing your team to focus on other priorities.

For service definitions, region-specific details, and service limitations, please refer to the following documents:

- Lenovo Statement of Limited Warranty for Infrastructure Solutions Group (ISG) Servers and System Storage
  http://pcsupport.lenovo.com/us/en/solutions/ht503310
- Lenovo Data Center Services Agreement
  http://support.lenovo.com/us/en/solutions/ht116628

Regulatory compliance

The NE1032T RackSwitch conforms to the following regulations:

- Argentina IEC60950-1
- AS/NZS CISPR 22, Class A
- Canada ICES-003, Issue 4, Class A
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, and EN61000-3-3)
- China CCC GB4943, GB9254 Class A, GB17625.1
- CISPR 22, Class A
- CSA C22.2 No. 60950-1
- FCC: Verified to comply with Part 15 of the FCC Rules, Class A
- IEC 60950-1 (CB Certificate and CB Test Report)
- Japan VCCI, Class A
- Korea KN22, Class A; KN24
- NOM-019
- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22, 51318.24, 51317.3.2, and 51317.3.3
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- TUV-GS (EN60950-1/IEC60950-1, EK1-ITB2000)
- UL/IEC 60950-1
- Reduction of Hazardous Substances (ROHS)

Network connectivity

The following table lists the network switches with rear-to-front airflow that are offered by Lenovo that can be used with the NE1032T RackSwitch for ThinkSystem and Flex System network connectivity.

Table 8. Ethernet LAN switches

Description	Part number
1 Gb Ethernet switches	
Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front)	7Y810011WW
Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE)	7Z320O11WW
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 NE1072T RackSwitch (Rear to Front)	7159C1X
Lenovo RackSwitch G8124E (Rear to Front)	7159BR6
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6

Description	Part number
25 Gb Ethernet switches	
Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)	7159E1X
Lenovo ThinkSystem NE2572O RackSwitch (Rear to Front, ONIE)	7Z210O21WW
100 Gb Ethernet switches	
Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)	7159D1X
Lenovo ThinkSystem NE10032O RackSwitch (Rear to Front, ONIE)	7Z210O11WW

The following table lists the network switches with front-to-rear airflow that are offered by Lenovo that can be used with the NE1032T RackSwitch for NeXtScale System network connectivity.

Table 9. 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 NE1072T RackSwitch (Front to Rear)	7159C2X
Lenovo RackSwitch G8124E (Front to Rear)	7159BF7
Lenovo RackSwitch G8272 (Front to Rear)	7159CFV
Lenovo RackSwitch G8296 (Front to Rear)	7159GF5
25 Gb Ethernet switches	
Lenovo ThinkSystem NE2572 RackSwitch (Front to Rear)	7159E2X
100 Gb Ethernet switches	
Lenovo ThinkSystem NE10032 RackSwitch (Front to Rear)	7159D2X

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

Storage connectivity

The following table lists the external storage systems that are currently offered by Lenovo that can be used with the NE1032T RackSwitch for external NAS or iSCSI SAN storage connectivity.

Table 10. External storage systems: DE Series

Description	Part number	
	Worldwide	Japan
Lenovo ThinkSystem DE Series Storage (iSCSI connectivity)		
Lenovo ThinkSystem DE2000H 10GBASE-T Hybrid Flash Array LFF	7Y70A003WW	7Y701001JP
Lenovo ThinkSystem DE2000H 10GBASE-T Hybrid Flash Array SFF	7Y71A002WW	7Y711005JP
Lenovo ThinkSystem DE2000H iSCSI Hybrid Flash Array LFF	7Y70A004WW	7Y701000JP
Lenovo ThinkSystem DE2000H iSCSI Hybrid Flash Array SFF	7Y71A003WW	7Y711006JP
Lenovo ThinkSystem DE4000H iSCSI Hybrid Flash Array 4U60	7Y77A000WW	7Y771002JP
Lenovo ThinkSystem DE4000H iSCSI Hybrid Flash Array LFF	7Y74A002WW	7Y74A002JP
Lenovo ThinkSystem DE4000H iSCSI Hybrid Flash Array SFF	7Y75A001WW	7Y75A001JP
Lenovo ThinkSystem DE4000F iSCSI All Flash Array SFF	7Y76A002WW	7Y76A002JP
Lenovo ThinkSystem DE6000H iSCSI Hybrid Flash Array 4U60	7Y80A002WW	7Y801000JP
Lenovo ThinkSystem DE6000H iSCSI Hybrid Flash Array SFF	7Y78A002WW	7Y781000JP
Lenovo ThinkSystem DE6000F iSCSI All Flash Array SFF	7Y79A002WW	7Y79A002JP

Table 11. External storage systems: DM Series

Description	Part number
Lenovo ThinkSystem DM Series Storage (NAS or iSCSI connectivity)	
Lenovo ThinkSystem DM3000H Hybrid Storage Array (2U12 LFF, CTO only)	7Y42CTO1WW
Lenovo ThinkSystem DM3000H 48TB (12x 4TB HDDs) (Universal SFP+)	7Y420001EA*
Lenovo ThinkSystem DM3000H 48TB (12x 4TB HDDs) (10GBASE-T)	7Y420002EA*
Lenovo ThinkSystem DM5000H Hybrid Storage Array (2U24 SFF, CTO only)	7Y57CTO1WW
Lenovo ThinkSystem DM5000H 11.5TB (12x 960GB SSDs) (Universal SFP+)	7Y570001EA*
Lenovo ThinkSystem DM5000H 11.5TB (12x 960GB SSDs) (10GBASE-T)	7Y570002EA*
Lenovo ThinkSystem DM5000H 29TB (24x 1.2TB 10K HDDs) (Universal SFP+)	7Y570003EA*
Lenovo ThinkSystem DM5000H 29TB (24x 1.2TB 10K HDDs) (10GBASE-T)	7Y570004EA*
Lenovo ThinkSystem DM5000F Flash Storage Array (2U24 SFF, CTO only)	7Y41CTO1WW
Lenovo ThinkSystem DM7000H Hybrid Storage Array (3U, CTO only)	7Y56CTO1WW
Lenovo ThinkSystem DM7000F Flash Storage Array (3U, CTO only)	7Y40CTO1WW

* Available only in EMEA.

Table 12. External storage systems: DS Series

Description	Part number		
	Worldwide	Japan	PRC
Lenovo ThinkSystem DS Series Storage (iSCSI connectivity)			
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit	4599A31	4599A3J	4599A3C
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit	4599A11	4599A1J	4599A1C

Description	Part number		
	Worldwide	Japan	PRC
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit	4617A31	4617A3J	4617A3C
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit	4617A11	4617A1J	4617A1C
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit	4619A11	4619A1J	4619A1C
DS6200F 12x 400GB 10DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A1F	4619J1F	4619C1F
DS6200F 12x 800GB 3DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A2F	4619J2F	4619C2F
DS6200F 12x 1.6TB 3DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A3F	4619J3F	4619C3F
DS6200F 12x 3.84TB 1DWD SSDs, 1x 8Gb FC SFP, 512 Snapshots, Replication	4619A4F	4619J4F	4619C4F

Table 13. External storage systems: V Series and Storwize for Lenovo

Description	Part number
Lenovo Storage V Series (iSCSI connectivity)	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
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
Lenovo Storage V7000 SFF Control Enclosure 3Yr S&S PRC	6538R11^
Lenovo Storage V7000 SFF Control Enclosure 5Yr S&S PRC	6538R21^
Lenovo Storage V7000F SFF Control Enclosure 3Yr S&S PRC	6538R1G^
Lenovo Storage V7000F SFF Control Enclosure 5Yr S&S PRC	6538R2G^
IBM Storwize for Lenovo (iSCSI connectivity)	
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA	6195C5L‡

^ Available only in PRC.
† Available worldwide except Latin America.
‡ Available only in Latin America.

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

- Lenovo DE Series, DM Series, DS 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

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used with the NE1032T RackSwitch in IT 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#rt=product-guide

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo that can be used with the NE1032T RackSwitch in IT 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 a 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 a 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)	

Description	Part number
Ultra Density Enterprise C19/C13 PDU Module (without a line cord)	71762NX
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 a line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without a line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without a 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#rt=product-guide

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 NE1032T RackSwitch in IT solutions.

Table 16. Uninterruptible power supply units

Description	Part number
Worldwide models	
RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-15R 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 NEMA 5-20R 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
ASEAN, HTK, INDIA, and PRC models	
ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)	55943KT
ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)	55943LT
ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)	55946KT
ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)	5594XKT

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

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http://www.lenovofs.com

Related publications and links

For more information about the NE1032T RackSwitch, see the following publications that are available at the following page:
https://serveroption.lenovo.com/rack_switches/ne1032t

- *Lenovo ThinkSystem NE1032T RackSwitch Installation Guide*
- *Lenovo ThinkSystem NE1032T RackSwitch Application Guide*
- *Lenovo ThinkSystem NE1032T RackSwitch REST API Guide*
- *Lenovo ThinkSystem NE1032T RackSwitch Python Programming Guide*

The software for the NE1032T RackSwitch can be downloaded from Lenovo Data Center Support:
http://datacentersupport.lenovo.com/us/en/products/networking/rackswitch/NE1032T/downloads

Related product families

Product families related to this document are the following:

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

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