Lenovo ThinkSystem NE0152TO Gigabit Ethernet Switch

Product Guide (withdrawn product)

The Lenovo ThinkSystem NE0152TO RackSwitch is a 1U rack-mount Gigabit Ethernet switch that delivers low-latency, line-rate switching performance and high availability for cloud management environments.

The NE0152TO RackSwitch has 48x RJ-45 Gigabit Ethernet fixed ports and 4x SFP+ ports that support 1 GbE and 10 GbE optical transceivers, active optical cables (AOCs), and direct attach copper (DAC) cables. Featuring a small, 1U footprint, this switch is designed for management network and access-layer deployments in data center infrastructures.

The Lenovo ThinkSystem NE0152TO RackSwitch is shown in the following figure.

Figure 1. Lenovo ThinkSystem NE0152TO RackSwitch

Did you know?

The NE0152TO RackSwitch provides reliable management network connectivity for converged and hyperscale solutions and access-layer connectivity for traditional infrastructures.

The NE0152TO RackSwitch includes the Open Network Install Environment (ONIE), which is an open, standards-based boot code that provides a deployment environment for loading certified ONIE networking operating systems onto networking devices.

Key features

The NE0152TO RackSwitch is considered particularly suited for the following environments:

- Open networking architectures that are based on the certified ONIE networking operating systems, such as Cumulus Linux.
- Network connectivity for 1 GbE access layer deployments and management networks in data center infrastructures.
- 1 GbE server connectivity with additional 10 GbE SFP+ ports for server, storage, or switch connections.
- Cloud and virtualization solutions.
- Applications demanding improved 1 GbE performance while maintaining high levels of availability and security.

The NE0152TO RackSwitch offers the following features and benefits:

- High performance
  The 1/10 GbE NE0152TO RackSwitch provides a combination of low latency and non-blocking, line-rate switching.
- Lower power and better cooling
  The rear-to-front cooling design of the NE0152TO RackSwitch reduces data center air conditioning costs by having airflow match the servers in the rack cabinet. In addition, variable speed fans help reduce power consumption.
- Fault tolerance
  The NE0152TO RackSwitch offers redundant hot-swap hardware components to provide availability for network communications across business-critical applications.
- Open Network Install Environment (ONIE)
  The NE0152TO RackSwitch 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.
- Seamless interoperability
  The NE0152TO RackSwitch performs seamlessly with other vendors' upstream switches.

Components and connectors

The following figure shows the front (port-side) panel of the NE0152TO RackSwitch.

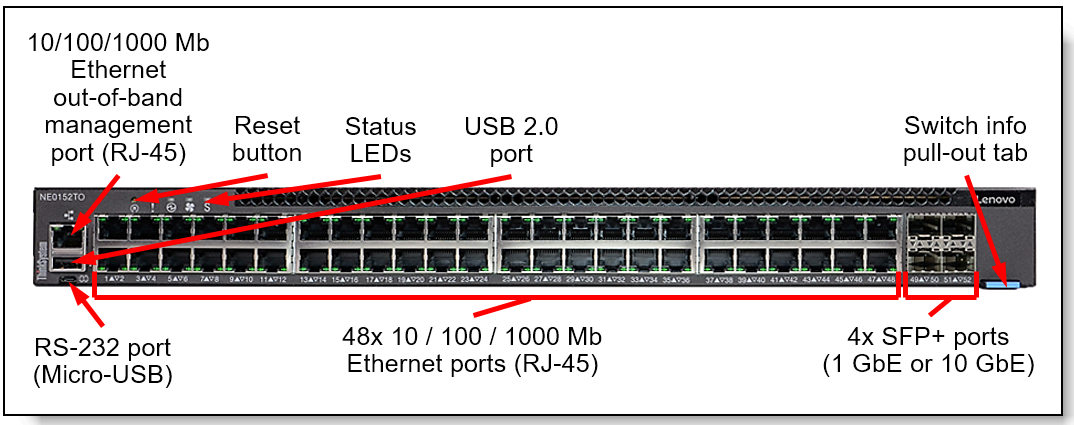

Figure 2. Front panel of the NE0152TO RackSwitch

The front panel of the NE0152TO RackSwitch includes the following components:

- 48x RJ-45 ports for 10 / 100 / 1000 Mb Ethernet connections over twisted pair.
- 4x 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 Micro-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 NE0152TO RackSwitch.

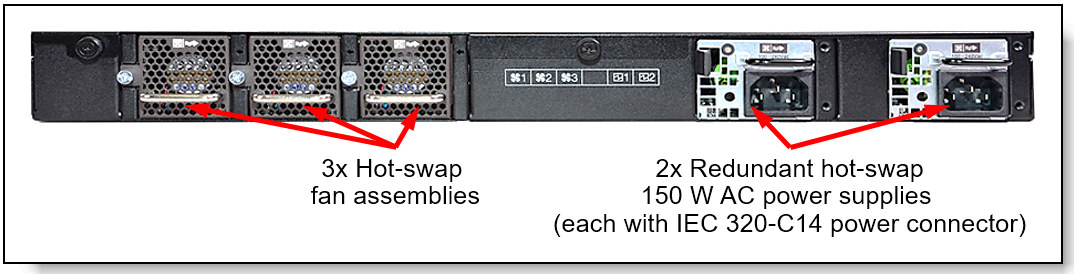

Figure 3. Rear panel of the NE0152TO RackSwitch

The rear panel of the NE0152TO RackSwitch includes the following components:

- Two redundant hot-swap 150 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 NE0152TO RackSwitch system specifications.

Table 1. NE0152TO RackSwitch system specifications

Attribute	Specification
Form factor	1U rack mount
Ports	• 48x 1 Gb Ethernet fixed ports (RJ-45) • 4x SFP/SFP+ ports
Media types	1 Gb Ethernet fixed ports (1000BASE-T): • RJ-45 UTP Category 5 or 5e 1 Gb Ethernet SFP: • 1 GbE short-wavelength (SX) SFP transceivers • 1 GbE long-wavelength (LX) SFP transceivers • 1 GbE RJ-45 SFP transceivers 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
Port speeds	• 1 GbE fixed ports: 10 / 100 / 1000 Mbps auto-sensing • 1 GbE SFP transceivers: 1 Gbps • 10 GbE SFP+ transceivers, DAC cables, and AOCs: 10 Gbps • 1/10 GbE SFP+ transceivers: 1 Gbps or 10 Gbps
Performance	Non-blocking architecture with wire-speed forwarding of traffic: • 100% line-rate performance • Up to 176 Gbps switching throughput • As low as 3.3 µs port-to-port switching latency • Up to 130 Million packets per second (Mpps) (64-byte packets)
Cooling	Three N+1 redundant hot-swap fans. Rear (non-port side) to front (port side) airflow.
Power supply	Two load-sharing, redundant hot-swap 150 W AC (100 - 240 V) 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 (Micro-USB); 1x USB 2.0 port (for additional firmware, log, and configuration files storage).
Hardware warranty	Three-year Customer Replaceable Unit (CRU) limited warranty with 9x5 coverage and Next Business Day (NBD) parts delivered.
Warranty upgrades and services	Optional warranty service upgrades are available through Lenovo: 9x5 coverage with NBD onsite response, 24x7 coverage with 2-hour or 4-hour onsite response, 6-hour or 24-hour committed repair (select countries), 1-year or 2-year post-warranty extensions, Premier support, and Basic installation services.
Mean Time Between Failures	188 432 hours MTBF at 40 ºC (104 ºF).
Dimensions	Height: 44 mm (1.7 in.); width: 438 mm (17.3 in.); depth: 442 mm (17.4 in.)
Weight	10 kg (22.0 lb).

Models

The following table lists the NE0152TO RackSwitch models.

Table 2. NE0152TO RackSwitch models

Description	Part number	Machine Type/Model	Feature code
Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE)	7Z320O11WW	7Z32CTO1WW	B4T2

The NE0152TO RackSwitch models include the following items:

- One NE0152TO RackSwitch with two power supplies and three fan assemblies
- Generic Rack Mount Kit (2-post)
- Console Cable Kit that includes the following items:
  - Micro-USB (plug) to RJ-45 (jack) serial console cable
  - DB-9 (plug) to RJ-45 (plug) serial console cable
- *Electronic Publications Flyer*

Configuration notes:

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

Transceivers and cables

With the flexibility of the NE0152TO 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 Category 5 or 5e cables for distances up to 100 meters.

  For longer distances, the 1000BASE-SX transceiver supports distances up to 220 meters with 62.5 µ OM1 or up to 550 meters with 50 µ OM2 multimode fiber optic (MMF) cables, or the 1000BASE-LX transceiver supports distances up to 10 kilometers with single-mode fiber optic (SMF) cables.

- For 10 GbE 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 with OM3 or up to 400 meters with OM4 MMF cables. The 10GBASE-LR transceivers can support distances up to 10 kilometers with SMF cables. For extended distances, the 10GBASE-ER transceivers can support distances up to 40 kilometers with SMF cables.

The following table lists the supported cables and transceivers.

Table 3. Supported SFP/SFP+ transceivers and cables

Description	Part number	Feature code	Maximum quantity
UTP Category 5e cables for 1 GbE RJ-45 fixed and management ports			
0.6m Blue Cat5e Cable	40K5679	3801	53
1.5m Blue Cat5e Cable	40K8785	3802	53
3m Blue Cat5e Cable	40K5581	3803	53
10m Blue Cat5e Cable	40K8927	3804	53
25m Blue Cat5e Cable	40K8930	3805	53
SFP transceivers - 1 GbE			
Lenovo 1000BASE-T (RJ-45) SFP Transceiver (no 10/100 Mbps support)	00FE333	A5DL	4
Lenovo 1000BASE-SX SFP Transceiver	81Y1622	3269	4
Lenovo 1000BASE-LX SFP Transceiver	90Y9424	A1PN	4
SFP+ transceivers - 10 GbE			
Lenovo Dual Rate 1/10Gb SX/SR SFP+ Transceiver	00MY034	ATTJ	4
Lenovo 10Gb SFP+ SR Transceiver (10GBASE-SR)	46C3447	5053	4
Lenovo 10Gb SFP+ LR Transceiver (10GBASE-LR)	90Y9412	A1PM	4
Lenovo 10GBASE-LR SFP+ Transceiver	00FE331	B0RJ	4
Lenovo 10Gb SFP+ ER Transceiver (10GBASE-ER)	90Y9415	A1PP	4
Lenovo 10GBASE-T SFP+ Transceiver	7G17A03130	AVV1	4
Optical cables for 1 GbE SX SFP and 10 GbE SR SFP+ transceivers			
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5	4
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6	4
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7	4
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8	4
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9	4
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA	4
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB	4
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC	4
SFP+ active optical cables - 10 GbE			
Lenovo 1m SFP+ to SFP+ Active Optical Cable	00YL634	ATYX	4
Lenovo 3m SFP+ to SFP+ Active Optical Cable	00YL637	ATYY	4
Lenovo 5m SFP+ to SFP+ Active Optical Cable	00YL640	ATYZ	4
Lenovo 7m SFP+ to SFP+ Active Optical Cable	00YL643	ATZ0	4
Lenovo 15m SFP+ to SFP+ Active Optical Cable	00YL646	ATZ1	4
Lenovo 20m SFP+ to SFP+ Active Optical Cable	00YL649	ATZ2	4
SFP+ passive direct-attach cables - 10 GbE			
Lenovo 0.5m Passive SFP+ DAC Cable	00D6288	A3RG	4
Lenovo 1m Passive SFP+ DAC Cable	90Y9427	A1PH	4
Lenovo 1.5m Passive SFP+ DAC Cable	00AY764	A51N	4
Lenovo 2m Passive SFP+ DAC Cable	00AY765	A51P	4
Lenovo 3m Passive SFP+ DAC Cable	90Y9430	A1PJ	4

Description	Part number	Feature code	Maximum quantity
Lenovo 5m Passive SFP+ DAC Cable	90Y9433	A1PK	4
Lenovo 7m Passive SFP+ DAC Cable	00D6151	A3RH	4
SFP+ active direct-attach cables - 10 GbE			
Lenovo 1m Active DAC SFP+ Cable	00VX111	AT2R	4
Lenovo 3m Active DAC SFP+ Cable	00VX114	AT2S	4
Lenovo 5m Active DAC SFP+ Cable	00VX117	AT2T	4

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

Table 4. NE0152TO RackSwitch network cabling requirements

Transceiver	Standard	Cable	Connector
10 Gb Ethernet			
10Gb SR SFP+ (46C3447) 1/10Gb SFP+ (00MY034)	10GBASE-SR	Up to 30 m with MMF cables supplied by Lenovo (see Table 3); up to 300 m with OM3 or up to 400 m with OM4 MMF cables.	LC
10Gb LR SFP+ (90Y9412, 00FE331)	10GBASE-LR	Up to 10 km with 1310 nm SMF cables.	LC
10Gb ER SFP+ (90Y9415)	10GBASE-ER	Up to 40 km with 1310 nm SMF cables.	LC
10Gb RJ-45 SFP+ (7G17A03130)	10GBASE-T	Up to 30 m with UTP Category 6a or 7 cables.	RJ-45
Active optical cables	10GBASE-SR	Up to 20 m (see Table 3).	SFP+
DAC cables	10GSFP+Cu	Up to 7 m (see Table 3).	SFP+
1 Gb Ethernet			
Fixed 1 GbE ports	1000BASE-T	Up to 25 m with UTP cables supplied by Lenovo (see Table 3); up to 100 m with UTP Category 5 or 5e cables.	RJ-45
1Gb RJ-45 SFP (00FE333)	1000BASE-T	Up to 25 m with UTP cables supplied by Lenovo (see Table 3); up to 100 m with UTP Category 5 or 5e cables.	RJ-45
1Gb SX SFP (81Y1622) 1/10Gb SFP+ (00MY034)	1000BASE-SX	Up to 30 m with MMF cables supplied by Lenovo (see Table 3); up to 550 m with 50 µ OM2 or 220 m with 62.5 µ OM1 MMF cables.	LC
1Gb LX SFP (90Y9424)	1000BASE-LX	Up to 10 km with 1310 nm SMF cables.	LC
Management ports			
1 GbE port	1000BASE-T	Up to 25 m with UTP cables supplied by Lenovo (see Table 3); up to 100 m with UTP Category 5 or 5e cables.	RJ-45
Serial port	RS-232	DB-9/RJ-45-to-Micro-USB (comes with the switch).	Micro-USB

Software

The NE0152TO RackSwitch includes 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. 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 following operating systems are certified for the NE0152TO RackSwitch:

- Cumulus Linux

The following table lists ordering information for the Cumulus software license and support options for the NE0152TO RackSwitch.

Table 5. Cumulus software license and support options

Description	Part number	Feature code
Cumulus Linux Perpetual License (1G) w/1Yr Cumulus Support	7S0D000KWW	S0WN
Cumulus Linux Perpetual License (1G) w/3Yr Cumulus Support	7S0D000LWW	S0WP
Cumulus Linux Perpetual License (1G) w/5Yr Cumulus Support	7S0D000MWW	S0WQ

Software support: Lenovo does not provide support for third-party software that is certified with the switch. Customers should contact a third-party software vendor directly to submit a software support request, and the software vendor will own the software-related problem resolution until closure.

Ethernet standards

The NE0152TO RackSwitch supports the following Ethernet standards:

- IEEE 802.1Q VLAN Tagging
- IEEE 802.3 10BASE-T copper twisted pair Ethernet (10 Mb)
- IEEE 802.3ab 1000BASE-T copper twisted pair Gigabit Ethernet
- 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 copper twisted pair Fast Ethernet (100 Mb Ethernet)
- 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 NE0152TO RackSwitch ships with three variable speed, hot-swap fan assemblies that provide N+1 cooling redundancy.

Power supplies and cables

The NE0152TO RackSwitch ships with two load-sharing, redundant hot-swap 150 W AC power supplies.

The models of the NE0152TO RackSwitch listed in Models ships without power cables. The following table lists the power cables that can be ordered for the switch (two power cables are required per switch).

Table 6. 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	43V6034	6568
2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08366	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 2.8m, 10A/250V, C13 to IRAM 2073 Line Cord	39Y7930	6222
Australia/New Zealand 2.8m, 10A/250V, C13 to AS/NZ 3112 Line Cord	39Y7924	6211
Brazil 2.8m, 10A/125V, C13 to NBR 6147 Line Cord	39Y7929	6223
China 2.8m, 10A/250V C13 to GB 2099.1 Line Cord	39Y7928	6210
Denmark 2.8m, 10A/250V, C13 to DK2-5a Line Cord	39Y7918	6213
European 2.8m, 10A/250V, C13 to CEE7-VII Line Cord	39Y7917	6212
India 2.8m, 10A/250V, C13 to IS 6538 Line Cord	39Y7927	6269
Israel 2.8m, 10A/250V, C13 to SI 32 Line Cord	39Y7920	6218
Italy 2.8m, 10A/250V, C13 to CEI 23-16 Line Cord	39Y7921	6217
Japan 2.8m, 12A/125V, C13 to JIS C-8303 Line Cord	46M2593	A1RE
Korea 2.8m, 12A/250V, C13 to KS C8305 Line Cord	39Y7925	6219
South Africa 2.8m, 10A/250V, C13 to SABS 164 Line Cord	39Y7922	6214
Switzerland 2.8m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	39Y7919	6216
Taiwan 2.8m, 10A/250V, C13 to CNS 10917-3 Line Cord	00CG265	A53E
Taiwan 2.8m, 15A/125V, C13 to CNS 10917-3 Line Cord	00CG267	A53F
United Kingdom 2.8m, 10A/250V, C13 to BS 1363/A Line Cord	39Y7923	6215
United States 2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord	46M2592	A1RF
United States 4.3m, 10A/125V, C13 to NEMA 5-15P Line Cord	39Y7931	6207

Rack installation

The NE0152TO RackSwitch ships with the 2-post rack mount kit.

For 4-post rack installations, the NE0152TO RackSwitch supports the optional adjustable 19-inch, 4-post rail kit and the air inlet duct (optional for the 4-post rail kit).

The following table lists rack installation options for the NE0152TO RackSwitch switches with rear to front and front to rear airflow.

Table 7. Rack installation options

Description	Part number	Feature code
Lenovo RackSwitch Adjustable 19" 4 Post Rail Kit	00D6185	A3KP
Air Inlet Duct for 442 mm RackSwitch	00D6061	A3KR

Physical specifications

The NE0152TO RackSwitch features the following dimensions and weight (approximate):

- Height: 44 mm (1.7 in.)
- Width: 438 mm (17.3 in.)
- Depth: 442 mm (17.4 in.)
- Maximum weight: 10 kg (22 lb)

Operating environment

The NE0152TO RackSwitch is supported in the following operating environment:

- Temperature: 0 - 40 ºC (32 - 104 ºF).
- Relative humidity: 10 - 90% (Non-condensing)
- Altitude: Up to 2000 m (6,561 feet)
- Acoustic noise: Less than 65 dB
- Airflow: Front-to-rear or rear-to-front cooling with variable speed fans
- Electrical input: 50 / 60 Hz, 100 - 240 V AC auto-switching
- Power consumption
    - Typical: 71 W
    - Maximum: 77 W
- Heat dissipation
    - Typical: 242 BTU/hour
    - Maximum: 261 BTU/hour

Hardware warranty services and upgrades

The NE0152TO RackSwitch comes with a 3-year Customer Replaceable Unit (CRU) hardware limited warranty with 9x5 Next Business Day (NBD) Parts Delivered. The options that are installed in the switch assume the switch's base warranty and any Lenovo warranty service upgrade for the switch.

Software support: Lenovo does not provide support for third-party software that is certified with the switch. Customers should contact a third-party software vendor directly to submit a software support request, and the software vendor will own the software-related problem resolution until closure.

Some countries might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific country. Local service teams can assist in explaining country-specific terms when needed. Examples of country-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 country-specific. Not all warranty service upgrades are available in every country. For information about Lenovo warranty service upgrade offerings that are available in your country or area, 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 countries)
  - Advanced Service: 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select countries)
- Premier Support
  Premier Support service offers direct access to Lenovo's most advanced technicians for faster troubleshooting with single point of contact for end-to-end problem resolution and collaborative third-party software support.
- 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, country-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 NE0152TO RackSwitch conforms to the following regulations:

- United States FCC Part 15, Class A
- Canada ICES-003, Issue 4, Class A
- Argentina IEC60950-1
- Australia/New Zealand AS/NZS CISPR 32, Class A
- Japan VCCI, Class A
- China CCC GB4943.1, GB9254 Class A, GB17625.1, CECP
- Taiwan BSMI CNS13438, Class A; CNS14336-1; CNS15663
- Korea KN32, Class A; KN35
- CE Mark (EN55032 Class A, EN60950-1, EN55024, EN61000-3-2, and EN61000-3-3)
- Germany TUV-GS (IEC/EN 60950-1, EK1-ITB2000)
- CSA C22.2 No. 60950-1
- CISPR 32, Class A
- IEC/UL/EN 62368-1
- IEC/UL/EN 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 NE0152TO RackSwitch in network connectivity solutions for ThinkSystem, System x, ThinkServer, and Flex System hosts.

Table 8. 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
Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front)	7Y810011WW
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 G8272 (Rear to Front)	7159CRW
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6
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

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

The following table lists currently available embedded Ethernet switches and pass-thru modules that can be used with the NE0152TO RackSwitch in network connectivity solutions for Flex System hosts.

Table 9. Embedded Ethernet switches for Flex System

Description	Part number
1 Gb Ethernet switches	
Lenovo Flex System EN2092 1Gb Ethernet Scalable Switch	49Y4294
10 Gb Ethernet switches and modules	
Lenovo Flex System Fabric EN4093R 10Gb Scalable Switch	00FM514
Lenovo Flex System SI4091 10Gb System Interconnect Module	00FE327
Lenovo Flex System Fabric SI4093 System Interconnect Module	00FM518
25 Gb Ethernet switches	
Lenovo ThinkSystem NE2552E Flex Switch	4SG7A08868
Pass-thru modules (10 GbE pass-thru connectivity)	
Lenovo Flex System EN4091 10Gb Ethernet Pass-thru	88Y6043

For more information, see the list of Product Guides in the Blade Network Modules category:
http://lenovopress.com/servers/blades/networkmodule#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 NE0152TO 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)			

Description	Part number		
	Worldwide	Japan	PRC
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit	4599A31	4599A3J	4599A3C
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit	4599A11	4599A1J	4599A1C
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 NE0152TO 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 NE0152TO 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 NE0152TO 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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Related publications and links

For more information about the NE0152TO RackSwitch, see the following resources:

- Lenovo User Manuals:
  https://serveroption.lenovo.com/rack_switches/ne0152to
  - *Lenovo ThinkSystem NE0152TO RackSwitch Installation Guide*
  - *Lenovo ThinkSystem NE0152TO ONIE User Guide*
- Lenovo Data Center Support:
  http://datacentersupport.lenovo.com
- Cumulus Linux User Guide
  http://docs.cumulusnetworks.com/display/DOCS/Cumulus+Linux+User+Guide

Related product families

Product families related to this document are the following:

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

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