

NE2552E Flex Switch features and specifications

Product features and technical specifications

Features

The NE2552E Flex Switch has the following features:

Front Panel Interface

- Eight 25 GbE SFP28 (configurable as 10 GbE and 25 GbE)
Ethernet ports support any combination of:
 - SFP+ 10 GbE transceivers
 - SFP28 25 GbE transceivers
 - 10 Gb Passive and active DACs
 - 25 Gb Passive and active DACs
- Two 100 Gb QSFP28 Ethernet ports support any combination of:
 - QSFP28 transceivers
 - 100 Gb to four 25 Gb break-out DACs
 - 100 Gb passive and Active DACs
- One Ethernet RJ-45 type RS-232 out-of-band management port:
 - 10 / 100 / 1000 Mbps Base-T
 - System status LEDs, port link, and activity LEDs

- One mini-USB RS-232 port
 - 9600 8N1

Mid-plane Interface

- Twenty-eight 25 Gb Base-KR (configurable as 10 Gb Base-KR and 25 Gb Base-KR) to the 14 server blades
 - Two KR links per switch are used; two 25 Gb or one 50 Gb to an adapter card using physical / KR lane multiplexor
- Dual GbE management port to the CMM
- Dual I2C management port to the CMM
- +12 V ac power
- Control signals
- 1.3 Tbps (1300 Gbps) nonblocking bandwidth

Specifications

The NE2552E Flex Switch has the following specifications. Click the box to view the specifications:

- **Form factor**
- **Ports**
- **Port speeds**

- **Media types**

- **Switching method**
- **Data traffic types**
- **Software features**
- **Performance**

- **Scalability**
- **Hot-swap parts**
- **Management ports**
- **Management interfaces**

- **Security features**
- **Warranty**
- **Mean Time Between Failures (MTBF)**

Specifications

Description	Specification
Form factor	Flex system embedded I/O module
Ports	Lenovo NE2552E Flex System Ethernet Switch: <ul style="list-style-type: none">• Internal: Twenty-eight 10 Gb or 25 Gb Ethernet ports, or fourteen 50 Gb Ethernet ports• External: Eight SFP+ and / or SFP28 ports and four QSFP28 ports
Port speeds	<ul style="list-style-type: none">• Internal ports: 10 Gbps, 25 Gbps, or 50 (2x 25) Gbps• 10 GbE SFP+ transceivers, DACs, and AOCs: 10 Gbps• 25 GbE SFP28 transceivers, DACs, and AOCs: 25 Gbps• 100 GbE QSFP28 DACs: 100 Gbps, 2x 50 (2x 25) Gbps, or four 25 Gbps• 100 GbE QSFP28 SR4 transceivers and AOCs: 100 Gbps or four 25 Gbps• 100 GbE QSFP28 LR4 transceivers: 100 Gbps

• Warranty

Note: Internal ports and external SFP+/SFP28 ports are combined into nine four-port groups: INTA-INTB: 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, and 13-14; EXT: 1-4 and 5-8. The port speed should be the same (10 Gbps, 25 Gbps, or 50 (2x 25) Gbps (internal ports only)) across all ports in the four-port group.

Specifications

Description	Specification
Media types	<div>10 Gb Ethernet SFP+:<ul style="list-style-type: none">• 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+ DACs</div> <div>25 Gb Ethernet SFP28:<ul style="list-style-type: none">• 25 GbE SR SFP+ transceivers• 25 GbE SFP+ active optical cables• 25 GbE SFP+ DACs</div> <div>100 Gb Ethernet QSFP28:<ul style="list-style-type: none">• 100 GbE short-range (SR4) QSFP28 transceivers• 100 GbE long-range (LR4) QSFP28 transceivers• 100 GbE QSFP28 to QSFP28 active optical cables• 100 GbE QSFP28 to four 25 GbE SFP28 active optical breakout cables• 100 GbE QSFP28 to QSFP28 DACs• 100 GbE QSFP28 to four 25 GbE SFP28 DACs• 100 GbE QSFP28 to two 50 GbE QSFP28 DACs (not supplied by Lenovo)</div>

Specifications

Description	Specification
Switching method	Cut-through
Data traffic types	Unicast, multicast, broadcast
Software features	<p>Lenovo Enterprise Networking OS:</p> <p>Layer 2 switching, Layer 3 switching, virtual local area networks (VLANs), VLAN tagging, spanning tree protocol (STP), link aggregation (trunk) groups (LAGs), virtual LAGs (vLAGs), Hot Links, Layer 2 failover, quality of service (QoS), Switch Partitioning (SPAR), IPv4 / IPv6 management, IPv4 / IPv6 routing, IPv4 virtual router redundancy protocol (VRRP), virtual NICs, Unified Fabric Port (UFP), Converged Enhanced Ethernet, Fibre Channel over Ethernet (FCoE) transit switch operations</p>
Performance	<p>Nonblocking architecture with wire-speed forwarding of traffic:</p> <ul style="list-style-type: none">• 100% line-rate performance• Up to 2.6 Tbps aggregated throughput• As low as 480 ns (QSFP28) or 529 ns (SFP28) port-to-port switching latency• Up to 1934 Million of Packets Per Second (Mpps)• Up to 9216-byte jumbo frames• Buffer size: 22 MB

Specifications

Description	Specification
Scalability	<ul style="list-style-type: none">• MAC address forwarding database entries: 103 000• VLANs: 4095• Per VLAN Rapid Spanning Tree (PVRST) instances: 128• Multiple STP (MSTP) instances: 32• Link aggregation groups: 52• Ports in a link aggregation group: 32• Maximum ACL entries (IPv4, IPv6, and VLAN): 256 / 128 / 128• Static routes (IPv4 and IPv6): 128 / 128• Dynamic routes (IPv4 and IPv6): 2000 / 600
Hot-swap parts	SFP+, SFP28, and QSFP28 transceivers, DACs, and AOCs
Management ports	2x 1 GbE internal ports connected to the chassis management module; 1x 10 / 100 / 1000 Mb Ethernet EXTM external port (RJ-45); and 1x RS-232 external port (mini-USB)
Management interfaces	Browser-based Interface (BBI); Industry-standard command-line interface (ISCLI); SNMP; NETCONF (XML); Lenovo XClarity Administrator (planned for July 2018); Lenovo Networking Content Pack for VMware vRealize Log Insight; Lenovo Networking Neutron Plugin for OpenStack-based environments; Ansible support for IT automation

Specifications

Description	Specification
Security features	Secure Shell (SSH); Secure Copy (SCP); Secure FTP (sFTP); user level security; LDAP / LDAPS, RADIUS, and TACACS+ authentication; access control lists (ACLs); port-based network access control (IEEE 802.1x).
Warranty	One-year customer-replaceable unit limited warranty. When installed in a supported chassis, the switch assumes the chassis' base warranty and any warranty service upgrade; warranty includes Networking OS software upgrades.
Mean Time Between Failures (MTBF)	300,000 hours MTBF with ambient operating temperature of 25°C (77°F).
Dimensions	30 mm x 401 mm x 317 mm (1.2 inches x 15.8 inches x 12.5 inches)
Weight	3.7 kg (8.1 lbs).

- **Warranty**
- **Mean Time Between Failures (MTBF)**

Supported cables and transceivers AOC and DAC

New supported options:

- 100 Gb QSFP28 port DAC / transceiver
- 100 Gb QSFP28 port Active Optics Cable (AOC)

Support the existing options for 10 Gb:

- 10 Gb SFP+ / QSFP+ port DAC / transceiver
- 10 Gb SFP+ / QSFP+ port AOC
- RJ-45 10 Gb Base-T cable support for console management port
 - Cat 6a cable (augmented, UTP) up to 100 m
 - Cat 6 cable up to 55 m
- RJ-45 1000 Gb Base-T cable support:
 - Cat 5e cable or better, up to 100 m

AOC	FAP (PPN/FRU)
3 m 100 Gb	0000000YD284
5 m 100 Gb	0000000YD285
10 m 100 Gb	0000000YD286
20 m 100 Gb	0000000YD288

DAC	FAP (PPN/FRU)
1 m Passive QSFP28	0000000YD299
3 m Passive QSFP28	0000001GV910
5 m Passive QSFP28	0000001GV911
1 m QSFP28 to 4x SFP28	0000001GV912
3 m QSFP28 to 4x SFP28	0000001GV913
5 m QSFP28 to 4x SFP28	0000001GV914

Supported cables and transceivers MPO




Transceiver	FAP (PPN/FRU)
100 Gb Base-SR4 QSFP28	0000000YD277
100 Gb Base-LR4 QSFP28	0000000YD278

MPO	FAP (PPN/FRU)
100 Gb Base-SR4 QSFP28	0000001GV915
100 Gb Base-LR4 QSFP28	0000001GV917
20 m MPO to MPO OM4 MMF cables	0000001GV919
1 m MPO to MPO breakout OM4 MMF cables	0000001GV921
3 m MPO to MPO breakout OM4 MMF cables	0000001GV922
5 m MPO to MPO breakout OM4 MMF cables	0000001GV923

Switch status LEDs

The following table provides descriptions of the switch status LEDs on the front panel of the switch.



LED	State	Functional meaning
 - Power	Steady green	When lit, this LED indicates that the switch is on.
	Off	When this LED is off and the yellow Error LED is lit, it indicates a critical alert. If both the Power and Error LEDs are off, it indicates that the switch is off.
 - Locator	Steady blue	When prompted by a user action in the CMM, this LED is lit to help identify the location of the switch.
	Off	The switch has not received a user-prompted locator command from the CMM.
 - Error	Steady yellow	When lit, this LED indicates a Power-On Self-Test (POST) failure or critical alert. As a result, the system-error LED on the Lenovo Flex System chassis is also lit.
	Off	When this LED is off and the green Power LED is lit, it indicates that the switch is working correctly. If both the Power and Error LEDs are off, it indicates that the switch is off.

Port status LEDs

The front panel of the switch has LEDs for port status. The Link (LINK) and Activity (Tx/Rx) LEDs indicate the status of the external ports.

SFP28 ports

QSFP28 ports



LED	State	Functional meaning
Link	Steady green	A connection (or link) is established between the corresponding port and the attached device.
	Off	There is no signal on the corresponding port, or the link is down.
Tx/Rx	Flashing green	The corresponding port link is transmitting and/or receiving.
	Off	There is currently no traffic on the port.

Flex System chassis compatibility

The NE2552E Flex Switch can be installed in bays 1, 2, 3, and 4 of the Enterprise chassis. A supported 10 GbE, 25 GbE, or 50 GbE adapter must be installed in the corresponding slot of the compute node. Each adapter can use one (10 / 25 GbE) or two (50 GbE) lanes to connect to the respective I/O module bay.

In compute nodes that have an integrated dual-port 10 GbE network interface controller (NIC), NIC ports are routed to bays 1 and 2 with a specialized Fabric Connector, and the adapter is not required. However, the periscope connector can be replaced with the adapter when needed. In such a case, the integrated NIC is disabled.

The following table shows compatibility information for the NE2552E and Flex System chassis.

Description	Part number	Enterprise chassis with CMM	Enterprise chassis with CMM	Enterprise chassis with CMM
Lenovo ThinkSystem NE2552E Flex Switch	4SG7A08868	No	Yes	No



Network adapter compatibility

The currently available I/O adapters that are supported by the NE2552E switch are listed in the following table.

Network adapter	Part number	Feature code	FRU
10 Gb Ethernet			
Embedded 10 GbE adapter (two-port). The embedded 10 GbE adapter is built into select compute nodes.	None	None	
Flex System CN4052S two-port 10 Gb Virtual Fabric Adapter	00AG540	ATBT	
Flex System CN4052S two-port 10 Gb Virtual Fabric Adapter Advanced	01CV780	AU7X	
Flex System CN4054S four-port 10 Gb Virtual Fabric Adapter	00AG590	ATBS	
Flex System CN4054S four-port 10 Gb Virtual Fabric Adapter Advanced	01CV790	AU7Y	
25 Gb Ethernet			
ThinkSystem QLogic QL45214 Flex 25 Gb four-port Ethernet Adapter	7XC7A05844	B2VU	01KR582
50 Gb Ethernet			
ThinkSystem QLogic QL45212 Flex 50 Gb two-port Ethernet Adapter	7XC7A05843	B2VT	01KR581
ThinkSystem QLogic QL45262 Flex 50 Gb two-port Ethernet Adapter with iSCSI / FCoE	7XC7A05845	B2VV	01KR583