

Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter

Product Guide

The ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter is a flexible follow-on to the X710 10Gb adapters and is best suited for existing 10Gb customers where they need to maintain 10Gb network support plus provide the investment protection of supporting 25GbE network speeds. By providing unmatched features for server and network virtualization, small packet performance, and low power; the data center network is flexible, scalable, and resilient.

The following figure shows the ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter.

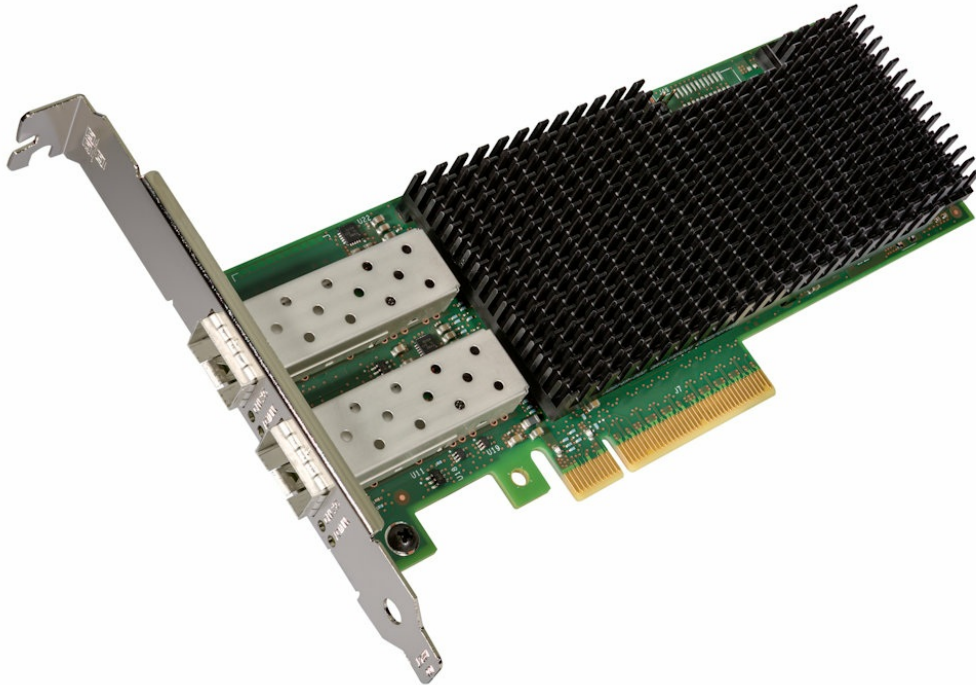


Figure 1. ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter

Did you know?

The Intel XXV710 adapter offers excellent small packet performance, and offers virtualization features with support for GENEVE, VXLAN, NVGRE offloads, DPDK, SR-IOV, and VMDq protocols.

Part number information

The following table provides the ordering part numbers and feature codes for the Intel XXV710 adapters.

Table 1. Ordering information

Part number	Feature code	Description
7XC7A05523	B0WY	ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter

The ThinkSystem and System x adapter option part numbers includes the following items:

- One Intel Ethernet adapter
- Full-height (3U) bracket attached with low-profile (2U) bracket included in the box
- Documentation

Note: The adapters ship without any SFP28 transceivers or direct attach cables. These items must be ordered separately as listed in the following section.

Supported transceivers and cables

The Intel XXV710 adapters have empty SFP28 cages for connectivity. The adapter either supports connections to a 10 Gb or 25 Gb switch or can share a connection to a 100 Gb switch using a 4:1 breakout cable.

The following table lists the supported transceivers.

Table 2. Transceivers

Part number	Feature code	Description
1Gb transceivers		
00FE333	A5DL	SFP 1000Base-T (RJ-45) Transceiver
10Gb transceivers		
46C3447	5053	SFP+ SR Transceiver
49Y4218	0064	QLogic 10Gb SFP+ SR Optical Transceiver
49Y4216	0069	Brocade 10Gb SFP+ SR Optical Transceiver
90Y9412	A1PM	SFP+ LR Transceiver
00FE331	B0RJ	10GBASE-LR SFP+ Transceiver
25Gb transceivers		
7G17A03537	AV1B	Lenovo 25GBase-SR SFP28 Transceiver

The following table lists the supported fiber optic cables and Active Optical Cables (AOCs).

Table 3. Optical cables

Part number	Feature code	Description
LC-LC OM3 Fiber Optic Cables (these cables require a transceiver)		
00MN499	ASR5	Lenovo 0.5m LC-LC OM3 MMF Cable
00MN502	ASR6	Lenovo 1m LC-LC OM3 MMF Cable
00MN505	ASR7	Lenovo 3m LC-LC OM3 MMF Cable
00MN508	ASR8	Lenovo 5m LC-LC OM3 MMF Cable
00MN511	ASR9	Lenovo 10m LC-LC OM3 MMF Cable
00MN514	ASRA	Lenovo 15m LC-LC OM3 MMF Cable
00MN517	ASRB	Lenovo 25m LC-LC OM3 MMF Cable
00MN520	ASRC	Lenovo 30m LC-LC OM3 MMF Cable
SFP+ 10Gb Active Optical Cables		
00YL634	ATYX	Lenovo 1M SFP+ to SFP+ Active Optical Cable
00YL637	ATYY	Lenovo 3M SFP+ to SFP+ Active Optical Cable
00YL640	ATYZ	Lenovo 5M SFP+ to SFP+ Active Optical Cable
00YL643	ATZ0	Lenovo 7M SFP+ to SFP+ Active Optical Cable
00YL646	ATZ1	Lenovo 15M SFP+ to SFP+ Active Optical Cable
00YL649	ATZ2	Lenovo 20M SFP+ to SFP+ Active Optical Cable

The following table lists the supported direct-attach copper (DAC) cables.

Table 4. Copper cables

Part number	Feature code	Description
SFP+ 10Gb Passive DAC Cables		
00D6288	A3RG	0.5m Passive DAC SFP+ Cable
90Y9427	A1PH	1m Passive DAC SFP+ Cable
00AY764	A51N	1.5m Passive DAC SFP+ Cable
00AY765	A51P	2m Passive DAC SFP+ Cable
90Y9430	A1PJ	3m Passive DAC SFP+ Cable
90Y9433	A1PK	5m Passive DAC SFP+ Cable
00D6151	A3RH	7m Passive DAC SFP+ Cable
SFP28 25Gb Passive DAC Cables		
7Z57A03557	AV1W	Lenovo 1m Passive 25G SFP28 DAC Cable
7Z57A03558	AV1X	Lenovo 3m Passive 25G SFP28 DAC Cable
7Z57A03559	AV1Y	Lenovo 5m Passive 25G SFP28 DAC Cable
QSFP28 100G-to-4x25G Breakout Cables		
7Z57A03564	AV22	Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03565	AV23	Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03566	AV24	Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable

Features

The Intel XXV710 adapter is optimized for data center, cloud, and mobile applications and include the following features:

- Compliance with the IEEE 802.3by and 25G Ethernet.org 25 GbE specifications
- VXLAN, NVGRE and GENEVE Hardware Offloads: These stateless offloads preserve application performance for overlay networks. With these offloads, it is possible to distribute network traffic across CPU cores. At the same time, X710 offloads LSO, GSO, and checksum from the host software, which reduces CPU overhead.
- Mobile and cloud application acceleration: Intel's Data Plane Development Kit (DPDK) delivers an open driver where users can fine-tune small packet performance.
- Low latency: Intel Ethernet Flow Director delivers hardware-based application steering and Intel Data Direct I/O makes the processor cache the primary destination and source of I/O data rather than main memory. Combined, latency is reduced and Intel reports a three-fold improvement in RPS.
- Virtualization performance: With Intel Virtualization Technology (VT), the X710 family of adapters delivers outstanding I/O performance in virtualized server environments. These adapters reduce I/O bottlenecks by providing intelligent offloads for networking traffic per virtual machine (VM), which enables near-line rate speeds for small packets and supports almost an unlimited amount of isolated traffic flows so that you can scale your cloud environment.
- Next-generation VMDq: The X710 adapters support up to 256 VMDq VMs and offer enhanced Quality of Service (QoS) feature by providing weighted round-robin servicing for the Tx data. The adapters offload the data-sorting functionality from the hypervisor to the network silicon, which improves data throughput and CPU usage.
- PCI-SIG SR-IOV implementation: Provides an implementation of the PCI-SIG standard for I/O Virtualization. The physical configuration of each port is divided into multiple virtual ports. Each virtual port is assigned to an individual VM directly by bypassing the virtual switch in the Hypervisor, which results in near-native performance.
- VM load balancing: Provides traffic load balancing (Tx and Rx) across VMs that are bound to the team interface. It also provides fault tolerance if a switch, port, cable, or adapter fails.

Specifications

The Intel XXV710 adapter has the following specifications:

- Empty SFP28 cages for supported transceivers or DAC cables
- Host interface:
 - PCI Express 3.0; x8
 - PCI Power Management/ACPI Extensions
 - MSI-X Support
 - Energy Efficient Ethernet
 - 1,536 Tx and Rx queues
- Virtualization features:
 - Microsoft Network Virtualization that uses Generic Routing Encapsulation (NVGRE)
 - VMware Virtual Extensible LAN (VXLAN)
 - GENEVE support
 - VMDq for intelligent offloads
 - SR-IOV direct assignment support
 - Virtual Bridging Support: VEPA/802.1Qbg, BPE/802.1Qbh
 - Virtual Functions: Up to 128 per device (SR-IOV)
 - Hardware Queue Pairs: Up to 1.5K

- Management features:
 - Advanced filtering capabilities (IPv4, IPv6)
 - SNMP
 - RMON statistic counters
- Additional features:
 - Jumbo Frame Support: 9728 bytes
 - VLAN support
 - Flow Control
 - IEEE 1588 Time Synchronization Support (802.1as)
- TCP/IP Layer 2 features:
 - Receive Side Scaling (RSS)
 - Large Send Offload (LSO)
 - TCP/UDP/IP/SCTP Checksum Offload
 - IPv4, IPv6
 - Supports iSCSI as an iSCSI software initiator
- IEEE 802.1Q VLAN support with VLAN tag insertion, with stripping and packet filtering for up to 4096 VLAN tags.
- IEEE 802.3x flow control support.
- IEEE 802.1p Class of Service (CoS)/QoS.
- Support for Advanced Packet Filtering.
- Teaming support:
 - Adapter Fault Tolerance (AFT)
 - Switch Fault Tolerance (SFT)
 - Adaptive Load Balancing (ALB)
 - VM Load Balancing (VMLB)
 - IEEE 802.3ad (link aggregation control protocol)
- Intel PROSet Utility for easy configuration and management.
- UEFI and legacy PXE boot
- Compliant with the European Union RoHS directive 2011/65/EU to reduce the use of hazardous materials.

Standards supported

The Intel XXV710 support the following IEEE standards:

- IEEE 802.3by 25 Gb/s Ethernet Standard
- IEEE 802.3ae 10GBASE-SR short range fiber optics 10 Gb Ethernet
- IEEE 802.1p CoS traffic prioritization
- IEEE 802.1Q VLAN tagging
- IEEE 802.3ad Link Aggregation Control Protocol
- IEEE 802.3x Full-duplex flow control
- IEEE 802.3bd priority-based flow control
- IEEE 1588, IEEE 802.1AS time sync
- IEEE 802.3az Energy Efficient Ethernet

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 5. ThinkSystem server support (Part 1)

Part number	Description	Intel 2S							AMD			
		ST550 (7X09/7X10)	SR530 (7X07/7X08)	SR550 (7X03/7X04)	SR570 (7Y02/7Y03)	SR590 (7X98/7X99)	SR630 (7X01/7X02)	SR650 (7X05/7X06)	SR670 (7Y36/37/38)	SR635 (7Y98/7Y99)	SR655 (7Y00/7Z01)	SR645 (7D2Y/7D2X)
7XC7A05523	ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	Y	N	N	N	N	Y	Y	N	N	N	N

Table 6. ThinkSystem server support (Part 2)

Part number	Description	E	1S Intel			4S Intel			Dense/ Blade					
		SE350 (7Z46/7D1X)	ST50 (7Y48/7Y50)	ST250 (7Y45/7Y46)	SR150 (7Y54)	SR250 (7Y51/7Y52)	SR850 (7X18/7X19)	SR850P (7D2F/2D2G)	SR860 (7X69/7X70)	SR950 (7X11/12/13)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
7XC7A05523	ThinkSystem Intel XXV710-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	N	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	N

Operating system support

The following table lists the supported operating systems for the adapter.

Tip: This table is automatically generated based on data from [Lenovo ServerProven](#).

Table 7. Operating system support for ThinkSystem Intel XXV710-DA2 PCIe 25Gb 2-Port SFP28 Ethernet Adapter, 7XC7A05523

Operating systems	SR250	ST250	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR850P	SR860 (Gen 2)	SR950 (Gen 2)	ST550 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)	ST550 (Gen 1)
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y

	SR250	ST250	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR850P	SR860 (Gen 2)	SR950 (Gen 2)	ST550 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)	ST550 (Gen 1)
Operating systems																	
Microsoft Windows Server version 1709	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y ¹	Y	Y
Microsoft Windows Server version 1803	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	N
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	N	Y	Y
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
Red Hat Enterprise Linux 7.5	Y	Y	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
Red Hat Enterprise Linux 7.6	N	N	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 11 SP4 with Xen	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	N	Y	Y
SUSE Linux Enterprise Server 12 SP2 with Xen	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	N	Y	Y
SUSE Linux Enterprise Server 12 SP3	Y	Y	N	N	N	N	Y	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 12 SP3 with Xen	Y	Y	N	N	N	N	Y	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 12 SP4	N	N	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	N	N	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	Y	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	Y	Y	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	Y	Y	N	N	N	N	N	N	N	N	Y	Y	Y	Y ¹	Y ¹	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	Y	Y	Y	Y ¹	Y	Y ¹	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y

Operating systems	SR250	ST250	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR850P	SR860 (Gen 2)	SR950 (Gen 2)	ST550 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)	ST550 (Gen 1)
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y ¹	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ The maximum quantity of Intel X710-DA2 plus XXV710-DA2 adapters supported is 5. Detail information please refer to [Support Tip HT508158](#)

Physical specifications

The Intel XXV710-DA2 adapter has the following dimensions:

- Length: 168 mm (6.6 in.)
- Width: 69 mm (2.7 in.)
- Height: 15 mm (0.6 in.)

Operating environment

The XXV710 adapters are supported in the following environment:

- Operating temperature: 0 to 55 °C (32 to 131 °F)
- Storage temperature: -20 to 65 °C (-4 to 149 °F)
- Shipping conditions: -20 to 70 °C (-4 to 158 °F)
- Air flow requirement (LFM)
 - 25G optics: 200 LFM
 - Direct-attach 25G cables: 100 LFM
- Wet bulb (max): 27 °C
- Relative humidity (non-operating): 10% to 90%
- Maximum dew Point (operating): 21 °C
- Maximum operating altitude: 7,000 feet or 2,134 meters
- Vibration and shock with 25-GS0009 standard
- Electrostatic/electromagnetic susceptibility with 25-GS0009 standard

Warranty

One-year limited warranty. When installed in a supported server, these adapters assume the server's base warranty and any warranty upgrade.

Agency approvals

The adapter conforms to the following standards:

- EN55032
- EN55024
- EN 61000-3-2
- EN 61000-3-3
- ICES-003, Issue-004
- FCC 47 CFR Part 15 Class A
- Japan VCCI
- AS/NZS CISPR 22 / C-tick
- RRL for KC
- BSMI
- UL 94 V-1

Top-of-rack Ethernet switches

The following table lists the 10 Gb, 25 Gb and 100 Gb Ethernet LAN switches that are offered by Lenovo.

Table 8. Ethernet LAN switches

Part number	Description
10 Gb Ethernet switches	
7159A1X	Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)
7159B1X	Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)
7159C1X	Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)
7159BR6	Lenovo RackSwitch G8124E (Rear to Front)
7159G64	Lenovo RackSwitch G8264 (Rear to Front)
7159DRX	Lenovo RackSwitch G8264CS (Rear to Front)
7159CRW	Lenovo RackSwitch G8272 (Rear to Front)
7159GR6	Lenovo RackSwitch G8296 (Rear to Front)
25 Gb Ethernet switches	
7159E1X	Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)
100 Gb Ethernet switches	
7159D1X	Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)

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

- 10 Gb Ethernet switches: <http://lenovopress.com/networking/tor/10gb?rt=product-guide>
- 25 Gb Ethernet switches: <http://lenovopress.com/networking/tor/25gb?rt=product-guide>
- 100 Gb Ethernet switches: <https://lenovopress.com/networking/tor/100Gb?rt=product-guide>

Related publications

For more information, see the following resources:

- Networking Options for ThinkSystem Servers
<https://lenovopress.com/lp0765-networking-options-for-thinksystem-servers>
- Intel Product Brief
<https://www.intel.com/content/www/us/en/ethernet-products/network-adapters/ethernet-xxv710-brief.html>
- Lenovo ServerProven compatibility information
<http://www.lenovo.com/us/en/serverproven>
- Support page for the adapter:
<https://datacentersupport.lenovo.com/us/en/search?query=7XC7A05523>

Related product families

Product families related to this document are the following:

- [25 Gb Ethernet Connectivity](#)
- [Ethernet Adapters](#)

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This document, LP0785, was created or updated on September 15, 2020.

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