

ThinkSystem NVIDIA ConnectX-7 NDR InfiniBand/400GbE OSFP Adapters

Product Guide

The ThinkSystem NVIDIA ConnectX-7 NDR InfiniBand/400GbE OSFP Adapters offer 400 Gb/s connectivity for high-performance connectivity when running HPC, cloud, storage and machine learning applications. Adapters support either NDR InfiniBand only, or both NDR InfiniBand and 400Gb Ethernet, depending on the adapter.

The following figure shows the ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (the standard heat sink has been removed in this photo).



Figure 1. ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (4XC7A80289)

Did you know?

The ConnectX-7 NDR adapters are optimized to deliver accelerated networking for modern cloud, artificial intelligence, and traditional enterprise workloads. ConnectX-7 provides a broad set of software-defined, hardware-accelerated networking, storage, and security capabilities which enable organizations to modernize and secure their IT infrastructures.

Part number information

The following table shows the part numbers for the adapters.

Table 1. Ordering information

Part number	Feature code	Description	NVIDIA part number	Protocol support
Air-cooled adapter				
4XC7A95508	C51C	ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter	MCX75310AAS-NEAT	InfiniBand, Ethernet
Water-cooled adapters				
4XC7A86671	BKSN	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC	MCX75510AAS-NEAT-DWC	InfiniBand
4XC7A86670	BKSP	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC	MCX75510AAS-NEAT-DWC	InfiniBand

Non-DWC adapter part numbers includes the following:

- One NVIDIA adapter with full-height (3U) adapter bracket attached
- Low-profile (2U) adapter bracket
- Documentation

Supported transceivers and cables

The ConnectX-7 NDR adapters have an empty OSFP400 cage for connectivity. The following table lists the supported transceivers.

The following table lists the supported transceivers.

Table 2. Transceivers

Part number	Feature code	Description
400Gb Transceivers		
4TC7A81826	BQJT	ThinkSystem NDR OSFP400 IB Multi Mode Solo-Transceiver

The following table lists the supported optical cables.

Table 3. Optical cables

Part number	Feature code	Description
NVIDIA NDR Multi Mode Fibre Optical Cables		
4X97A81748	BQJN	Lenovo 3m NVIDIA NDR Multi Mode Optical Cable
4X97A81749	BQJP	Lenovo 5m NVIDIA NDR Multi Mode Optical Cable
4X97A81750	BQJQ	Lenovo 7m NVIDIA NDR Multi Mode MPO12 APC Optical Cable
4X97A81751	BQJR	Lenovo 10m NVIDIA NDR Multi Mode Optical Cable
4X97A81752	BQJS	Lenovo 20m NVIDIA NDR Multi Mode Optical Cable
4X97A85349	BSN6	Lenovo 30M NVIDIA NDR Multi Mode MPO12 APC Optical Cable

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

Table 4. Copper cables

Part number	Feature code	Description
NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Splitter Copper Cables		
4X97A81827	BQJV	Lenovo 1m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable
4X97A81828	BQJW	Lenovo 1.5m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable
4X97A81829	BQJX	Lenovo 2m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable
4X97A81830	BQJY	Lenovo 3m NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable
4X97B08451	CAGG	Lenovo 5M NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Active Copper Splitter Cable Generic

Features

The adapters have the following features:

- **Accelerated Networking and Security**

ConnectX-7 provides a broad set of software-defined, hardware-accelerated networking, storage, and security capabilities which enable organizations to modernize and secure their IT infrastructures. Moreover, ConnectX-7 empowers agile and high-performance solutions from edge to core data centers to clouds, all while enhancing network security and reducing the total cost of ownership.

- **Accelerate Data-Driven Scientific Computing**

ConnectX-7 provides ultra-low latency, extreme throughput, and innovative NVIDIA In-Network Computing engines to deliver the acceleration, scalability, and feature-rich technology needed for today's modern scientific computing workloads.

- **Accelerate Software- Defined Networking**

NVIDIA ASAP² technology accelerates software-defined networking, delivering line-rate performance with no CPU penalty.

- **Enhance Storage Performance**

ConnectX-7 enables high- performance and efficient data storage by leveraging RDMA/RoCE, GPUDirect Storage, and hardware-based NVMe-oF offload engines.

- **SharedIO (4XC7A86670 only)**

SharedIO (Shared I/O or Multi-Host) is an implementation of Sockets Direct that is offered in Lenovo direct water-cooled (DWC) servers such as the SD650 V3, where there are two server nodes per DWC tray. In this implementation, the ConnectX-7 adapter is installed in a PCIe slot in one node and the adapter is connected via a cable to a PCIe connector on the second node. The result is that the two nodes share the network connection of the adapter with significant savings both in the cost of the adapters but also the cost of switch ports.

Technical specifications

The adapters have the following technical specifications:

- Networking interfaces
 - One OSPF400 cage for 400 Gb/s connectivity
- InfiniBand connectivity
 - Support for InfiniBand NDR
 - Supports NDR 400Gb/s, HDR 200Gb/s, EDR 100Gb/s
 - InfiniBand Trade Association Spec 1.5 compliant
 - RDMA, send/receive semantics
 - 16 million input/output (IO) channels
 - 256 to 4Kbyte maximum transmission unit (MTU), 2Gbyte messages
- Enhanced InfiniBand Networking
 - Hardware-based reliable transport
 - Extended Reliable Connected (XRC)
 - Dynamically Connected Transport (DCT)
 - GPUDirect RDMA
 - GPUDirect Storage
 - Adaptive routing support
 - Enhanced atomic operations
 - Advanced memory mapping, allowing user mode registration (UMR)
 - On-demand paging (ODP), including registration-free RDMA memory access
 - Enhanced congestion control
 - Burst buffer offload
 - Single root IO virtualization (SR-IOV)
 - Optimized for HPC software libraries including: NVIDIA HPC-X, UCX, UCC, NCCL, OpenMPI, MVAPICH, MPICH, OpenSHMEM, PGAS
 - Collective operations offloads
 - Support for NVIDIA Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)
 - Rendezvous protocol offload
 - In-network on-board memory
- Ethernet connectivity (only 4XC7A95508 - see [Table 1](#))
 - Support for 400Gb Ethernet
 - Supports 400GbE, 200GbE, 100GbE, 50GbE, 25GbE, 10GbE
 - Support for NRZ, PAM4 (50G and 100G)
 - RDMA over Converged Ethernet (RoCE)
- Enhanced Ethernet Networking (only 4XC7A95508)
 - Zero-Touch RoCE
 - ASAP² Accelerated Switch and Packet Processing™ for SDN and VNF acceleration
 - Single Root I/O Virtualization (SR-IOV)
 - VirtIO acceleration
 - Overlay network acceleration: VXLAN, GENEVE, NVGRE
 - Programmable flexible parser
 - Connection tracking (L4 firewall)
 - Flow mirroring, sampling and statistics
 - Header rewrite
 - Hierarchical QoS
 - Stateless TCP offloads
- Storage Accelerations
 - Block-level encryption: XTS-AES 256/512-bit key
 - NVMe over Fabrics (NVMe-oF)

- NVMe over TCP (NVMe/TCP)
 - T10 Data Integrity Field (T10-DIF) signature handover
 - SRP, iSER, NFS over RDMA, SMB Direct
- Management and Control
 - NC-SI, MCTP over SMBus, and MCTP over PCIe
 - PLDM for Monitor and Control DSP0248
 - PLDM for Firmware Update DSP0267
 - PLDM for Redfish Device Enablement DSP0218
 - PLDM for FRU DSP0257
 - SPDM DSP0274
 - Serial Peripheral Interface (SPI) to flash
 - JTAG IEEE 1149.1 and IEEE 1149.6
- Remote Boot
 - Remote boot over InfiniBand
 - Remote boot over iSCSI
 - UEFI
 - PXE over InfiniBand
- Cybersecurity
 - Platform security: secure boot with hardware root-of-trust, secure firmware update, flash encryption, and device attestation
- PCI Express Interface
 - PCIe Gen 5.0 x16 host interface
 - Support for PCIe bifurcation
 - SharedIO (NVIDIA Multi-Host) supports connection of up to two hosts (on supported water-cooled nodes only)
 - Transaction layer packet (TLP) processing hints (TPH)
 - PCIe switch Downstream Port Containment (DPC)
 - Support for MSI/MSI-X mechanisms
 - Advanced error reporting (AER)
 - Access Control Service (ACS) for peer-to-peer secure communication
 - Process Address Space ID (PASID)
 - Address translation services (ATS)
 - Support for SR-IOV

NVIDIA Unified Fabric Manager

NVIDIA Unified Fabric Manager (UFM) is InfiniBand networking management software that combines enhanced, real-time network telemetry with fabric visibility and control to support scale-out InfiniBand data centers.

The two offerings available from Lenovo are as follows:

- UFM Telemetry for Real-Time Monitoring**
 The UFM Telemetry platform provides network validation tools to monitor network performance and conditions, capturing and streaming rich real-time network telemetry information, application workload usage, and system configuration to an on-premises or cloud-based database for further analysis.
- UFM Enterprise for Fabric Visibility and Control**
 The UFM Enterprise platform combines the benefits of UFM Telemetry with enhanced network monitoring and management. It performs automated network discovery and provisioning, traffic monitoring, and congestion discovery. It also enables job schedule provisioning and integrates with industry-leading job schedulers and cloud and cluster managers, including Slurm and Platform Load Sharing Facility (LSF).

The following table lists the subscription licenses available from Lenovo.

Table 5. NVIDIA Unified Fabric Manager subscriptions

Part number	Feature code (7S09CTO6WW)	NVIDIA part number	Description
UFM Telemetry			
7S090011WW	S921	797-YUFTMA+P3CMI12	NVIDIA UFM Telemetry 1-year License and 24/7 Support for Lenovo clusters
7S090012WW	S922	797-YUFTMA+P3CMI36	NVIDIA UFM Telemetry 3-year License and 24/7 Support for Lenovo clusters
7S090013WW	S923	797-YUFTMA+P3CMI60	NVIDIA UFM Telemetry 5-year License and 24/7 Support for Lenovo clusters
UFM Enterprise			
7S09000XWW	S91Y	797-YUFETA+P3CMI12	NVIDIA UFM Enterprise 1-year License and 24/7 Support for Lenovo clusters
7S09000YWW	S91Z	797-YUFETA+P3CMI36	NVIDIA UFM Enterprise 3-year License and 24/7 Support for Lenovo clusters
7S09000ZWW	S920	797-YUFETA+P3CMI60	NVIDIA UFM Enterprise 5-year License and 24/7 Support for Lenovo clusters

For more information, see the following web page:

<https://www.nvidia.com/en-us/networking/infiniband/ufm/>

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 6. Server support (Part 1 of 5)

Part Number	Description	AMD V3					2S Intel V3/V4					Multi Node V3			1S V3		
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR630 V4 (7DG8 / 7DG9)	SR650 V4 (7DGC / 7DGD)	SR650a V4 (7DGC / 7DGD)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	ST45 V3 (7DH4 / 7DH5)	ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)
Air-cooled adapter																	
4XC7A95508	ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	N	N
Water-cooled adapters																	
4XC7A86671	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A86670	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 7. Server support (Part 2 of 5)

Part Number	Description	4S 8S Intel V3/V4					GPU Rich					Edge						
		SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SR850 V4 (7DJT / 7DJS)	SR860 V4 (7DJQ / 7DJN)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR680a V3 B200 (7DM9)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)	SR680a V4 (7DMK)	SE100 (7DGR)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)
Air-cooled adapter																		
4XC7A95508	ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N
Water-cooled adapters																		
4XC7A86671	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Part Number	Description	4S 8S Intel V3/V4				GPU Rich				Edge									
		SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SR850 V4 (7DJT / 7DJS)	SR860 V4 (7DJQ / 7DJN)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR680a V3 B200 (7DM9)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)	SR680a V4 (7DMK)	SE100 (7DGR)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)
4XC7A86670	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 8. Server support (Part 3 of 5)

Part Number	Description	Super Computing				1S Intel V2		2S Intel V2		AMD V1									
		SC750 V4 (7DDJ)	SC777 V4 (7DKA)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST150 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	
Air-cooled adapter																			
4XC7A95508	ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Water-cooled adapters																			
4XC7A86671	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A86670	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC	Y	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 9. Server support (Part 4 of 5)

Part Number	Description	Dense V2				4S V2	8S	4S V1			1S Intel V1				
		SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
Air-cooled adapter															
4XC7A95508	ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Water-cooled adapters															
4XC7A86671	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A86670	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 10. Server support (Part 5 of 5)

Part Number	Description	2S Intel V1							Dense V1				
		ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
Air-cooled adapter													
4XC7A95508	ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter	N	N	N	N	N	N	N	N	N	N	N	N
Water-cooled adapters													
4XC7A86671	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A86670	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC	N	N	N	N	N	N	N	N	N	N	N	N

Operating system support

The following table indicates which operating systems can be preloaded in the Lenovo factory for CTO server orders where this adapter is included in the server configuration.

Table 11. OS preload support

Operating system	Preload support
Windows Server 2016	No support as a preload
Windows Server 2019	Supported as a preload for factory orders
Windows Server 2022	Supported as a preload for factory orders
Windows Server 2025	Supported as a preload for factory orders
VMware ESXi 6.5 U3	No support as a preload
VMware ESXi 6.7 U3	No support as a preload
VMware ESXi 7.0	No support as a preload
VMware ESXi 7.0 U1	No support as a preload
VMware ESXi 7.0 U2	No support as a preload
VMware ESXi 7.0 U3	Supported as a preload for factory orders
VMware ESXi 8.0	No support as a preload
VMware ESXi 8.0 U1	No support as a preload
VMware ESXi 8.0 U2	No support as a preload
VMware ESXi 8.0 U3	No support as a preload
VMware ESXi 9.0	No support as a preload

Tip: If an OS is listed as "No support" above, but it is listed in one of the support tables below, that means the OS is supported by the adapter, just not available to be preloaded in the Lenovo factory in CTO orders.

The adapters support the operating systems listed in the following tables.

- [ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter, 4XC7A80289](#)
- [ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 VPI Adapter, 4XC7A95508](#)
- [ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC, 4XC7A86671](#)
- [ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter \(SharedIO\) DWC, 4XC7A86670](#)

Tip: These tables are automatically generated based on data from [Lenovo ServerProven](#).

ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter, 4XC7A80289

The following table lists the OS support for the ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter.

Table 12. Operating system support for ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe

Gen5 Adapter, 4XC7A80289 (Part 1 of 2)

Operating systems	SR665	SR650 V4/SR650a V4	SR780a V3	SR680a V3	SR685a V3	SD535 V3	SR650 V3 (5th Gen Xeon)	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR950 V3	SR675 V3	SR860 V3	SR850 V3	SR655 V3	SR650 V3 (4th Gen Xeon)	SR635 V3	SR850 V2	SR670 V2	SR650 V2	SR630 V2
Microsoft Windows Server 2019	Y	N	N	N	N	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2025	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.10	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y	Y ¹	N	N	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y
Red Hat Enterprise Linux 9.5	N	Y	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	Y	N	N	Y
SUSE Linux Enterprise Server 12 SP5	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP6	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.3 LTS or later with HWE kernel	N	N	N	N	N	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.5 LTS or later with HWE kernel	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS or later with HWE kernel	Y	N	Y ¹	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 24.04 LTS or later with HWE kernel	N	Y	Y ¹	Y	Y ¹	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N

¹ For limitation, please refer [Support Tip TT2258](#)

Table 13. Operating system support for ThinkSystem NVIDIA ConnectX-7 NDR400 OSFP 1-port PCIe Gen5 Adapter, 4XC7A80289 (Part 2 of 2)

Operating systems	SR665 V3	SR645 V3	SR645	SR680a V3 B200
Microsoft Windows Server 2019	Y	Y	Y	N
Microsoft Windows Server 2022	Y	Y	Y	N

	SR665 V3	SR860 V4	SR850 V4	SR650 V4/SR650a V4	SR780a V3	SR630 V4	SR680a V3	SR650 V3 (5th Gen Xeon)	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR675 V3	SR860 V3	SR850 V3	SR655 V3	SR650 V3 (4th Gen Xeon)	SR635 V3	SR645 V3	SR680a V4	SR680a V3 B200
Operating systems																			
Red Hat Enterprise Linux 9.4	N	N	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 9.5	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y
Red Hat Enterprise Linux 9.6	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.7	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	N	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 9.8	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 10.0	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 10.1	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	N	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 10.2	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N
SUSE Linux Enterprise Server 15 SP6	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
SUSE Linux Enterprise Server 15 SP7	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
SUSE Linux Enterprise Server 16	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N	N
Ubuntu 22.04.5 LTS or later with HWE kernel	Y	Y	Y	Y	N	Y	N	N	N	N	Y	N	N	Y	N	Y	Y	N	N
Ubuntu 22.04 LTS or later with HWE kernel	Y	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y
Ubuntu 24.04 LTS or later with HWE kernel	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 26.04 LTS or later with HWE kernel	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 8.0 U3	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
VMware vSphere Hypervisor (ESXi) 9.0	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
VMware vSphere Hypervisor (ESXi) 9.1	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N

ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC, 4XC7A86671

The following table lists the OS support for the ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter DWC.

Table 15. Operating system support for ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-port PCIe Gen5 x16 InfiniBand Adapter DWC, 4XC7A86671

	SD650 V3	SD650 V3 (5th Gen Xeon)	SD650-1 V3 (4th Gen Xeon)	SD650-1 V3 (5th Gen Xeon)
Operating systems				
Red Hat Enterprise Linux 8.6	Y	N	Y	N
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y

	SD650 V3	SD650 V3 (5th Gen Xeon)	SD650-I V3 (4th Gen Xeon)	SD650-I V3 (5th Gen Xeon)
Operating systems				
Red Hat Enterprise Linux 9.0	Y	N	N	N
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	Y	N
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP6	Y	Y	N	N
Ubuntu 22.04.3 LTS or later with HWE kernel	N	Y	N	N
Ubuntu 22.04 LTS or later with HWE kernel	Y	N	N	N

ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC, 4XC7A86670

The following table lists the OS support for the ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC.

Table 16. Operating system support for ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-port PCIe Gen5 x16 InfiniBand Adapter (SharedIO) DWC, 4XC7A86670

	SD650 V3	SD650 V3 (5th Gen Xeon)	SD650-I V3 (4th Gen Xeon)	SD650-I V3 (5th Gen Xeon)
Operating systems				
Red Hat Enterprise Linux 8.6	Y	N	Y	N
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	N	N	N
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	Y	N
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP6	Y	Y	N	N
Ubuntu 22.04.3 LTS or later with HWE kernel	N	Y	N	N
Ubuntu 22.04 LTS or later with HWE kernel	Y	N	N	N

Regulatory approvals

The adapters have the following regulatory approvals:

- Safety: CB / cTUVus / CE
- EMC: CE / FCC / VCCI / ICES / RCM / KC
- RoHS: RoHS Compliant

Operating environment

The adapters have the following operating characteristics:

- Maximum power available through OSFP port: 17W
- Temperature
 - Operational: 0°C to 55°C
 - Non-operational: -40°C to 70°C
- Humidity: 90% relative humidity

Warranty

One year limited warranty. When installed in a Lenovo server, the adapter assumes the server's base warranty and any warranty upgrades.

Related publications

For more information, refer to these documents:

- Networking Options for ThinkSystem Servers:
<https://lenovopress.com/lp0765-networking-options-for-thinksystem-servers>
- ServerProven compatibility:
<http://www.lenovo.com/us/en/serverproven>
- NVIDIA InfiniBand product page:
<https://www.nvidia.com/en-us/networking/infiniband-adapters/>
- ConnectX-7 user manual:
<https://docs.nvidia.com/networking/display/ConnectX7VPI/Specifications>

Related product families

Product families related to this document are the following:

- [InfiniBand & Omni-Path Adapters](#)

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