

ThinkSystem Emulex LPe32000/LPe32002 32Gb Fibre Channel Adapters

Product Guide (withdrawn product)

The Emulex 32 Gb LPe32000/LPe32002 Fibre Channel host bus adapters (FC HBAs) for ThinkSystem servers are an ideal solution when requiring high-speed data transfer in storage connectivity for virtualized environments, data backup, and mission-critical applications. They are designed to meet the needs of modern networked storage systems that utilize high performance and low latency solid state storage drives for caching and persistent storage as well as hard disk drive arrays.

The Emulex 32 Gb FC HBAs feature ExpressLane, which prioritizes mission-critical traffic in congested networks ensuring maximum application performance on flash storage arrays. They also seamlessly support Brocade ClearLink diagnostics through Emulex HBA Manager (formerly named Emulex OneCommand Manager), ensuring the reliability and management of storage network when connected to Brocade FC SAN fabrics.



Figure 1. Emulex 32 Gb Single-port and Dual-port HBAs (shown without the included SFP+ modules)

Did you know?

The Emulex 32 Gb FC HBAs have an advanced ASIC which can achieve 1.6M IOPS on a single port by using Emulex's Dynamic Multicore architecture, which dynamically scales HBA resources to either port of a dual-port adapter as needed. This is essential when ports are used in active-standby mode.

The adapters can provide near limitless scalability to support maximum VM density, with 2x more on-chip resources and bandwidth. These low latency HBAs can also improve your VDI experience, providing noticeable improvements during boot storms, and allow faster data warehousing and meet the massive bandwidth requirements of flash storage arrays.

Part number information

The following table lists the ordering information for the adapters.

Withdrawn: The adapters in this product guide are now withdrawn from marketing.

Table 1. Part number information

Part number	Feature code	Description
7ZT7A00517	AUNT	ThinkSystem Emulex LPe32000-M2-L PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter
7ZT7A00519	AUNV	ThinkSystem Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter

The part numbers include the following items:

- An FC HBA adapter with one or two 32 Gb (32/16/8/4 Gbps speeds) FC SW SFP+ installed
- 3U (standard) and 2U (low-profile) adapter brackets
- Publications flyer

Fiber optic cables

The following table lists the fiber optic cables that are available from Lenovo.

Table 2. Fiber optic cables

Part number	Feature code	Description
LC-LC OM3 MMF Fiber Optic Cables		
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

Key features

The Emulex 32 Gb FC HBAs have the following features:

- Maximum performance with up to 1.6 million IOPS per adapter to support larger server virtualization deployments and scalable cloud initiatives, and performance to match new multicore processors, SSDs/flash storage, and faster server host bus architectures.
- The unique Emulex Dynamic Multi-core Architecture delivers high performance and more efficient port utilization than other HBAs by applying all ASIC resources to either port of a dual-port adapter when the other port is not being used.
- Supports Brocade Clearlink diagnostics, which helps ensure optical and signal integrity for Fibre Channel cables and optics by validating the health, reliability and performance of the network prior to, and after, deployment. Allows the IT administrator to detect faulty cables and optics in minutes versus hours. Brocade ClearLink is also seamlessly integrated into Emulex HBA Manager.

- Offer end-to-end Quality of Service (QoS) application prioritization with ExpressLane technology, which allows customers to prioritize faster storage traffic (such as SSDs) ahead of slower traffic (such as spinning hard drives), alleviating potential bottlenecks from slow storage.
- Frame-level multiplexing and out-of-order frame reassembly increases link efficiency and maximizes HBA performance.
- vScale performance and scalability: Multicore ASIC engine with eight cores supports 255 VFs, 1024 MSI-X, and 16127 logins/open exchanges for maximum VM density.
- The Emulex HBA Manager enterprise class management application features a multiprotocol and cross-platform architecture that provides centralized management of all Emulex HBAs. VMware vCenter plug-in provides HBA Manager support within a VMware environment.
- GreenState power efficiency reduces data center power consumption and associated operational expenses by delivering exceptional power to port ratios.
- End-to-end data protection with hardware parity, CRC, ECC, and other advanced error checking and correcting algorithms, which ensures that data is safe from corruption.
- Support Forward Error Correction (FEC), a new feature that provides enhanced data reliability and performance by automatically detecting and recovering from bit errors.
- T10-PI data integrity with high performance offload provides end-to-end data corruption protection.
- Rock-solid reliability and thermal characteristics, which are essential for mission-critical, cloud, and virtualized applications.
- Emulex HBAs are renowned for reliability, ensuring maximum SAN uptime. Their "it just works" reputation is based on 17 million installed ports with proven industry-leading reliability of 10 million hours field Mean Time Between Failures (MTBF).
- Support for Message Signaled Interrupts eXtended (MSI-X) improves host utilization and enhances application performance.
- Support for 32 Gb, 16 Gb, 8 Gb, and 4 Gb FC devices.
- Comprehensive virtualization capabilities with support for N_Port ID Virtualization (NPIV).
- A common driver model allows a single driver to support all Emulex HBAs on a given OS.
- Reduces the number of cards, cables, and PCIe slots required.
- Exceptional performance per watt and price/performance ratios.
- Integrates seamlessly into existing SANs.
- Allows application of SAN best practices, tools, and processes with virtual server deployments.
- Ensures data availability and data integrity.
- Universal boot capability allows the appropriate boot environment to be automatically selected for any given hardware.
- Boot from SAN capability reduces the system management costs and increases uptime.
- Detailed and real-time event logging and tracing enables quick diagnosis of SAN problems.
- The beaconing feature flashes the HBA LEDs, simplifying their identification within server racks.
- The environmental monitoring feature helps optimize SAN availability.

The following table compares features of Emulex 32 Gb HBAs with previous generation adapters.

Table 3. Feature comparison of Emulex 32Gb HBAs with previous generations

Feature	32 Gb FC	16 Gb FC Gen 6	16 Gb FC (Gen 5)	8 Gb FC
Part numbers	7ZT7A00517 7ZT7A00519	01CV830 01CV840	81Y1655 81Y1662	42D0485 42D0494
Host interface	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 2.0 x8
IOPS performance	1.6 M IOPS per adapter	1.6 M IOPS per adapter	1.2 M IOPS per adapter	0.2 M IOPS per port
32 Gb speed support	Yes	No	No	No
16 Gbps speed support	Yes	Yes	Yes	No
8 Gbps speed support	Yes	Yes	Yes	Yes
4 Gbps speed support	Yes	Yes	Yes	Yes
ClearLink support	Yes	Yes	Yes	No
ExpressLane support	Yes	Yes	Yes	No
Logins and Exchanges	16,127	16,127	8,192	4,096
SR-IOV support	255 VFs	255 VFs	255 VFs	No

Technical specifications

The Emulex 32 Gb FC HBAs have the following specifications:

- Based on the Emulex LPe32000 (single port) and LPe32002 (dual port) adapters
- I/O controller: Emulex Engine 501 (XE501) I/O Controller (IOC)
- Host interface: PCIe 3.0 x8
- Ports: Single-port and Dual-port SFP+ based adapters
- Link speed: Support for 32 Gb, 16 Gb, 8 Gb and 4 Gb FC link speeds, which are automatically negotiated
- Data rate: 28.05 (3200 MBps), 14.025 Gbps (1600 MBps), 8.5 Gbps (800 MBps), and 4.25 Gbps (400 MBps) autosensing (per port), with full duplex
- Performance: Up to 1,600,000 IOPS per adapter
- Industry standards:
 - Current ANSI/IETF standards: FC-PI-4, FC-PI-5, FC-PI-6 , FC-FS-3, FC-LS-2, FC-GS-6, FC-DA, FC-DA2, FCP-4, SPC-4, SBC-3, and SSC-4
 - Legacy ANSI/IETF standards: FC-PH, FC-PH-2, FC-PH-3, FC-PI, FC-PI-2, FC-PI-3, FC-FS, FC-GS-2/3/4/5, FCP-2/3, FC-HBA, FC-TAPE, FC-MI, SPC-3, SBC-2, SSC-2, and SSC-3
- Topology: Point-to-point and switched fabric
- Hot-pluggable 32 Gbps Fibre Channel SFP+ short wave optical transceivers (850 nm) with LC connectors (included with the adapters). Note: Other transceivers are not supported.

- Distance support:
 - Operating at 32 Gbps:
 - Up to 20 m on 50/125 μ m OM2 Multi-Mode Fiber (MMF)
 - Up to 70 m on 50/125 μ m OM3 MMF
 - Up to 100 m on 50/125 μ m OM4 MMF
 - Operating at 16 Gbps:
 - Up to 15 m on 62.5/125 μ m OM1 Multi-Mode Fiber (MMF)
 - Up to 35 m on 50/125 μ m OM2 MMF
 - Up to 100 m on 50/125 μ m OM3 MMF
 - Up to 125 m on 50/125 μ m OM4 MMF
 - Operating at 8 Gbps:
 - Up to 21 m on 62.5/125 μ m OM1 MMF
 - Up to 50 m on 50/125 μ m OM2 MMF
 - Up to 150 m on 50/125 μ m OM3 MMF
 - Operating at 4 Gbps:
 - Up to 70 m on 62.5/125 μ m OM1 MMF
 - Up to 150 m on 50/125 μ m OM2 MMF
- Management software:
 - Emulex AutoPilot Installer automates the HBA installation process and reduces time to deployment and administrative costs. Automated installation and configuration of driver and management tools simplifies deployment of multiple adapters within Windows environments. A single installation of driver and management application eliminates multiple reboots and ensures that each component is installed correctly and the HBA is ready to use.
 - The Emulex HBA Manager application enables centralized discovery, monitoring, reporting, and administration of Emulex HBAs and CNAs on local and remote hosts. Powerful automation capabilities facilitate remote driver parameter, firmware, and boot code upgrades. In addition to the GUI interface, management functions can also be performed through a scriptable command-line interface (CLI) and a web browser.
 - Emulex management instrumentation complies with Open Management Standards, such as SMI-S and common HBA API support, which enables seamless upward integration into enterprise storage and server management solutions.

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 4. Server support (Part 1 of 2)

Part Number	Description	Edge		1S Intel V2		2S Intel V2				AMD			Dense V2			4S V2	8S				
		SE350 (7Z46 / 7D1X)	SE450 (7D8T)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)	SR670 V2 (7Z22 / 7Z23)	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)
7ZT7A00517	ThinkSystem Emulex LPe32000-M2-L PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y
7ZT7A00519	ThinkSystem Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y

Table 5. Server support (Part 2 of 2)

Part Number	Description	1S Intel V1			2S Intel V1						Dense V1			4S V1					
		ST150 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)	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)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)
7ZT7A00517	ThinkSystem Emulex LPe32000-M2-L PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter	N	N	N	N	N	N	N	N	Y	Y	N	Y	N	N	N	Y	N	Y
7ZT7A00519	ThinkSystem Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter	N	N	N	N	N	N	N	N	Y	Y	N	Y	N	N	N	Y	N	Y

Operating system support

The following tables list the supported operating systems for the adapters:

- [ThinkSystem Emulex LPe32000-M2-L PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter, 7ZT7A00517](#)
- [ThinkSystem Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter, 7ZT7A00519](#)

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

Table 6. Operating system support for ThinkSystem Emulex LPe32000-M2-L PCIe 32Gb 1-Port SFP+ Fibre Channel Adapter, 7ZT7A00517

Operating systems	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR860 (Gen 2)	SR950 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	N	N	N	N	N	N	Y	Y	N	Y	Y	Y
Microsoft Windows Server version 1803	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.5	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	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
Red Hat Enterprise Linux 7.9	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
Red Hat Enterprise Linux 8.1	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
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4 with Xen	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
SUSE Linux Enterprise Server 12 SP2 with Xen	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP3 with Xen	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR860 (Gen 2)	SR950 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Operating systems												
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	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
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	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	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	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 ²
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ The WWPN show wrong when created by execute FC-NPIV test under VM6.5.2 os.

² Need out of box driver to support NPIV feature

Table 7. Operating system support for ThinkSystem Emulex LPe32002-M2-L PCIe 32Gb 2-Port SFP+ Fibre Channel Adapter, 7ZT7A00519

	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR860 (Gen 2)	SR950 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Operating systems												
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	N	N	N	N	N	N	Y	Y	N	Y	Y	Y
Microsoft Windows Server version 1803	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y

	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR860 (Gen 2)	SR950 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Operating systems												
Red Hat Enterprise Linux 7.5	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	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
Red Hat Enterprise Linux 7.9	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
Red Hat Enterprise Linux 8.1	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
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4 with Xen	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
SUSE Linux Enterprise Server 12 SP2 with Xen	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP3 with Xen	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	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
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	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	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	Y	Y	Y	Y	N	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y	Y	Y	Y	Y ¹	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

	SD530 (Gen 2)	SR630 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR860 (Gen 2)	SR950 (Gen 2)	SD530 (Gen 1)	SR630 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Operating systems												
VMware vSphere Hypervisor (ESXi) 6.7 U3	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
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

¹ The WWPN show wrong when created by excute FC-NPIV test under VM6.5.2 os.

SAN switches

Lenovo offers the ThinkSystem DB Series of Fibre Channel SAN switches for high-performance storage expansion. See the DB Series product guides for models and configuration options:

- ThinkSystem DB Series SAN Switches:
<https://lenovopress.com/storage/switches/rack#rt=product-guide>

For information about interoperability with storage servers, see the Lenovo Storage Interoperability Links article, available from:

<https://lenovopress.com/lp0584-lenovo-storage-interoperability-links>

Warranty

The adapters carry a one-year limited warranty. When installed in a supported server, the adapters assume the servers's base warranty and any Lenovo Services warranty upgrade.

Physical specifications

The adapters have the following dimensions (approximate):

- Short, low profile MD2 form factor card
- 168 mm x 69 mm (6.60 in. x 2.7 in.)
- Standard (3U) and low-profile (2U) brackets included

Operating environment

The adapters are supported in the following environment:

- Temperature:
 - Operating: 0 - 55 °C (32 - 131 °F)
 - Storage: -20 - 85 °C (-4 - 185 °F)
- Relative humidity: 5 - 95% (non-condensing)

Agency approvals

The adapters conform to the following regulations:

- AS/NZS CISPR22:2009+A1, Class A
- Australian EMC Framework (RCM)
- China RoHS compliant
- cUR recognized to CSA 22.2, No. 60950-1-07
- EN55022:2010, Class A
- EN55024:2010
- EN55032:2012
- EU (CE Mark)
- FCC Rules, Part 15, Class A
- Industry Canada, ICES-003, Class A
- Japan VCCI, Class A
- Korea MSIP, Class A
- RoHS Compliant (Directive 2011/65/EU)
- TUV certified to EN60950-1+A11+A1+A12+A2
- Taiwan BSMI, Class A
- UL recognized to UL60950-1 2nd Edition

Related publications and links

For more information, see the following resources:

- Lenovo ThinkSystem networking options product page
<https://lenovopress.com/lp0765-networking-options-for-thinksystem-servers>
- Lenovo Storage Interoperability Links
<https://lenovopress.com/lp0584-lenovo-storage-interoperability-links>
- Lenovo support
<http://support.lenovo.com>
- Lenovo ServerProven
<http://static.lenovo.com/us/en/serverproven/xseries/sharedstorage/samatrix.shtml>
- Emulex HBA Manager (formerly Emulex OneCommand Manager)
<https://www.broadcom.com/products/storage/fibre-channel-host-bus-adapters/emulex-hba-manager>

Related product families

Product families related to this document are the following:

- [Host Bus Adapters](#)

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