ThinkSystem 4350-16i and 4350-8i Internal SAS HBAs
Product Guide

The Lenovo ThinkSystem 4350-8i and 4350-16i SAS/SATA 12Gb HBAs are high performance host bus adapters manufactured by Lenovo for internal storage connectivity in ThinkSystem servers. They integrate the latest SAS technology and offer eight or 16 lanes of 12 Gbps SAS. With a low-profile form-factor design, these adapters offers two or four x4 internal mini-SAS HD connectors.

The following figure shows the ThinkSystem 4350-16i SAS/SATA 12Gb HBA.

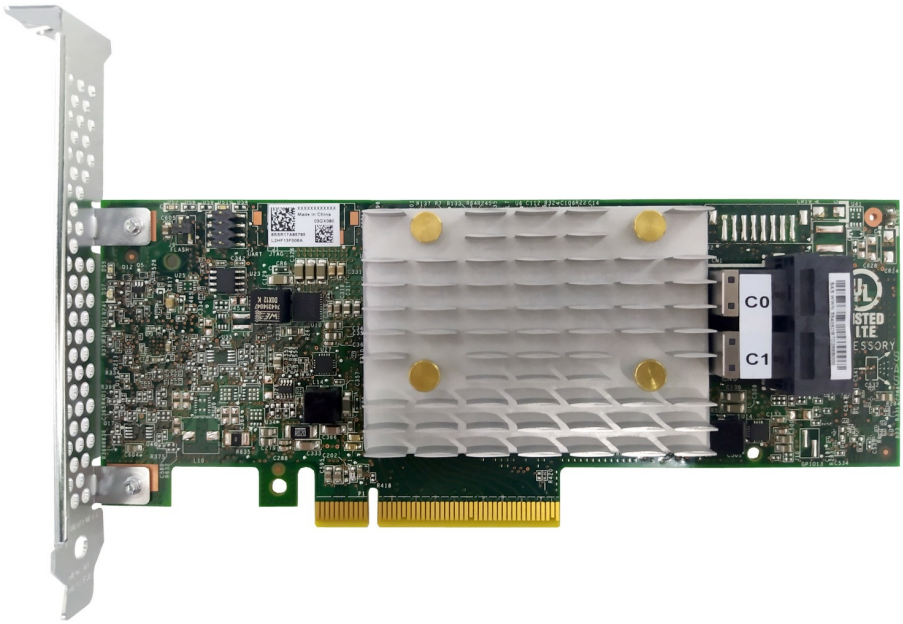

Figure 1. ThinkSystem 4350-8i SAS/SATA 12Gb HBA

Did you know?

The ThinkSystem 4350 HBAs provide high levels of storage performance and scalability. The 16-port adapter can achieve up to 1.7M IOPS (random read using 4KB blocks) and the 8-port adapter can achieve up to 1.5M IOPS.

Rigorous testing of the ThinkSystem HBAs by Lenovo through the ServerProven program ensures a high degree of confidence in storage subsystem compatibility and reliability. Providing an additional peace of mind, the controller is covered under Lenovo warranty.

Part number information

The following table provides the ordering part numbers for the adapters.

Table 1. Part numbers and feature codes

Part number	Feature code	Description
4Y37A72480	BJHH	ThinkSystem 4350-8i SAS/SATA 12Gb HBA
4Y37A72481	BJHJ	ThinkSystem 4350-16i SAS/SATA 12Gb HBA

The part numbers include:

- Host Bus Adapter with 3U full-height bracket attached
- 2U low-profile bracket

The following figure shows the ThinkSystem 4350-16i SAS/SATA 12Gb HBA.

Figure 2. ThinkSystem 4350-16i SAS/SATA 12Gb HBA

Technical specifications

The 4350 HBAs have the following features and specifications:

- PCIe 3.0 x8 host interface
- 12 Gbps SAS/SATA host bus adapter, based on the Adaptec HBA 1100-8i and 1100-16i
- PCI low profile, half-length form factor
- 8 or 16 internal 12 Gbps SAS/SATA ports
  - 4350-8i support connectivity to 8 internal drives
  - 4350-16i support connectivity to 16 internal drives
- Up to 12 Gbps throughput per port
  - Supports 12, 6, or 3 Gbps SAS speeds
  - Supports 6 or 3 Gbps SATA speeds
- Two internal x4 HD Mini-SAS connectors (SFF-8643)

- Non-RAID (JBOD mode, known as “raw” or "HBA mode” in Adaptec parlance) support for SAS and SATA HDDs and SSDs (RAID not supported)
- Optimized for SSD performance
- High performance architecture with a queue depth of up to 1014
- Advanced power management support
- Supports 512e, 512n and 4K sector formatted drives
- TLR
- SATA Native Command Queuing (NCQ)
- S.M.A.R.T. support.

The specifications of the adapters are listed in the following table.

Table 2. Specifications

Feature	**4350-8i**	**4350-16i**
Form factor	PCIe low profile	PCIe low profile
Controller chip	Adaptec PM8222 SmartIOC 2100	Adaptec PM8238 SmartIOC 2100
Adaptec equivalent	Adaptec HBA 1100-8i	Adaptec HBA 1100-16i
Host interface	PCIe 3.0 x8	PCIe 3.0 x8
Port interface	12 Gb SAS	12 Gb SAS
Number of ports	8	16
Port connectors	2x Mini-SAS HD x4 (SFF-8643)	4x Mini-SAS HD x4 (SFF-8643)
Drive interface	SAS, SATA	SAS, SATA
Drive type	HDD, SSD	HDD, SSD
Maximum devices	8	16
RAID levels	No RAID	No RAID
JBOD mode (HBA mode / Raw)	Yes	Yes
Cache	No	No
SED support (pass-through)	Yes	Yes

To compare these adapters to others in the ThinkSystem portfolio, see the ThinkSystem RAID Adapter and HBA Reference:
https://lenovopress.com/lp1288-thinksystem-raid-adapter-and-hba-reference

Features

Resiliency and Efficiency

The 4350 SAS/SATA HBA Series delivers enterprise resiliency with its broadly deployed Smart Storage stack. Based on the Adaptec PM8222 8x12G SmartIOC 2100 SAS/SATA protocol controller, the 4350 HBAs provide a robust and stable solution that can handle the toughest system workloads and configurations. The adapters offers over 40% power savings compared to previous generations, and significant power advantages versus competing solutions.

Optimized for New Devices and New Use Cases

The 4350 HBAs support the latest SAS and SATA SSDs. They are also optimized for software-defined storage solutions such as Microsoft Azure Stack HCI and VMware vSAN.

Maximum Performance

The 4350 HBAs provides the highest levels of storage performance and scalability for next-generation data centers. Using the SmartPQI host OS device drivers that are optimized for low-latency solid-state drives, the adapters can aggregate the performance of devices to the limits of the PCIe Gen3 host bus at 6.6 Gbps, and achieve up to 1.7M IOPS and 60% higher IOPS performance with SATA devices without additional overhead or latency.

Ease of Use

The 4350 HBAs, with their broad operating system support and ecosystem compatibility, are easy to implement and scale. The unified maxView management tools and drivers across the 4350 HBA, RAID 5350, and RAID 9350 adapters enable easy manageability across the Adaptec-based storage adapter family.

Support for Lenovo system management tools is listed in the following table.

Table 3. Support for key management features

Function	Lenovo XClarity Controller	Lenovo XClarity Provisioning Manager	Lenovo XClarity Essentials OneCLI (out-of-band)	Lenovo XClarity Essentials OneCLI (in-band)	Lenovo XClarity Administrator	Bare Metal Update / Bootable Media Creator
Adapter FRU Inventory Details	Supported	Supported	Supported	Supported	Supported	No support
Disk Inventory Details	Supported	Supported	Supported	Supported	Supported	No support
Firmware Update	Supported	No support	Supported	Supported	Supported	Supported
Monitoring/ Events/ Log Capture	Supported*	Supported	Supported*	Supported	Supported*	No support

* No capture of controller firmware log

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 4. Server support (Part 1 of 4)

Part Number	Description	AMD V3				2S Intel V3/V4				4S 8S Intel V3			Multi Node V3/V4				GPU Rich				
		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)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	SD520 V4 (7DFZ / 7DFY)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)
4Y37A72480	ThinkSystem 4350-8i SAS/SATA 12Gb HBA	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N
4Y37A72481	ThinkSystem 4350-16i SAS/SATA 12Gb HBA	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	N

Table 5. Server support (Part 2 of 4)

Part Number	Description	1S V3			Edge					Super Computing					1S Intel V2			2S Intel V2		
		ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)
4Y37A72480	ThinkSystem 4350-8i SAS/SATA 12Gb HBA	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y	Y
4Y37A72481	ThinkSystem 4350-16i SAS/SATA 12Gb HBA	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y

Table 6. Server support (Part 3 of 4)

Part Number	Description	AMD V1					Dense V2				4S V2		8S	4S V1			1S Intel V1			
		SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	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)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
4Y37A72480	ThinkSystem 4350-8i SAS/SATA 12Gb HBA	N	N	N	Y[1]	Y[1]	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N
4Y37A72481	ThinkSystem 4350-16i SAS/SATA 12Gb HBA	N	N	N	Y[1]	Y[1]	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N

1. Supported in the SR645 and SR665 only with an EPYC 7003 "Milan" processor. Not supported with an EPYC 7002 "Rome" processor.

Table 7. Server support (Part 4 of 4)

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)
4Y37A72480	ThinkSystem 4350-8i SAS/SATA 12Gb HBA	Y	N	N	N	Y	Y	Y	N	N	N	N	N
4Y37A72481	ThinkSystem 4350-16i SAS/SATA 12Gb HBA	N	N	N	N	N	Y	Y	N	N	N	N	N

Note: The use of both an Intel E810 network adapter and an X350 HBA/RAID adapter (9350, 5350 and 4350) is supported, however E810 firmware CVL4.3 or later is required. For details, see Support Tip HT513226.

Operating system support

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

- ThinkSystem 4350-8i SAS/SATA 12Gb HBA, 4Y37A72480
- ThinkSystem 4350-16i SAS/SATA 12Gb HBA, 4Y37A72481

Table 8. Operating system support for ThinkSystem 4350-8i SAS/SATA 12Gb HBA, 4Y37A72480 (Part 1 of 2)

Operating systems	SE450	SE455 V3	SR250 V3	ST250 V3	ST50 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR675 V3	SR850 V3	SR860 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)
Microsoft Windows 10	N	N	N	N	N	N	Y	Y	Y	Y [1]	Y	Y	Y	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	Y	Y	Y	Y	Y [1]	Y	Y	Y	N	N	N	N	N
Microsoft Windows Server 2016	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2019	Y	Y	N	N	N	Y [1]	Y	Y	Y	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y [1]	Y	Y	Y	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.9	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.4	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.5	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.6	Y	Y	N	N	N	Y [1]	N	Y	Y	Y [1]	N	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 8.7	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.0	Y	Y	N	N	N	Y [1]	N	Y	Y	Y [1]	N	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.1	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP4	Y	Y	N	N	N	Y [1]	N	Y	Y	Y [1]	N	Y	Y	Y	Y	Y	Y	N
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Operating systems	SE450	SE455 V3	SR250 V3	ST250 V3	ST50 V3	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR675 V3	SR850 V3	SR860 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)
SUSE Linux Enterprise Server 15 SP6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.6 LTS	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	Y	Y	N	N	Y	Y	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	Y	Y	N	N	N	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	N	N
Ubuntu 22.04 LTS	Y	N	N	N	N	Y [1]	N	Y	Y	Y [1]	N	Y	Y	Y	Y	Y	Y	N
Ubuntu 22.04.2 LTS	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	Y [1]	N	N	N	Y [1]	N	N	N	N	N	N	Y
Ubuntu 24.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	N	N	N	Y [1]	Y	Y	Y	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	N	N	N	N	Y [1]	N	Y	Y	Y [1]	N	Y	Y	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	N	N	N	Y [2]	N	Y	Y	Y [2]	N	Y	Y	Y	Y	Y	Y	N
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

[1] For limitation, please refer Support Tip 103500, Support Tip 104332

[2] For limitation, please refer Support Tip 104278

Table 9. Operating system support for ThinkSystem 4350-8i SAS/SATA 12Gb HBA, 4Y37A72480 (Part 2 of 2)

Operating systems	SR250 V2	ST250 V2	ST50 V2	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR645	SR665	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	ST550 (Xeon Gen 2)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Microsoft Windows 10	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	N	N	N	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y

Operating systems	SR250 V2	ST250 V2	ST50 V2	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR645	SR665	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	ST550 (Xeon Gen 2)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	N	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	N
Red Hat Enterprise Linux 8.2	N	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	N	N	N	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	N	N	N	N
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	N	N	N	N
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	N
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	N	N	N	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	N	N	N	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
Ubuntu 18.04.5 LTS	N	N	N	Y	Y	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N
Ubuntu 18.04.6 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Operating systems	SR250 V2	ST250 V2	ST50 V2	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2	SR645	SR665	SR590 (Xeon Gen 2)	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	ST550 (Xeon Gen 2)	SR590 (Xeon Gen 1)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)	ST550 (Xeon Gen 1)
Ubuntu 24.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	Y	Y	Y	N	N	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	N	Y	Y	N	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	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 [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y

[1] HW is not supported with EPYC 7002 processors.

Table 10. Operating system support for ThinkSystem 4350-16i SAS/SATA 12Gb HBA, 4Y37A72481 (Part 1 of 2)

Operating systems	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)	SR630 V2	SR650 V2	SR850 V2	SR860 V2	ST650 V2	SR645	SR665
Microsoft Windows 10	N	Y	Y	Y	Y [1]	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows 11	Y	Y	Y	Y	Y [1]	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Microsoft Windows Server 2019	Y [1]	Y	Y	Y	Y [3]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
Microsoft Windows Server 2022	Y [1]	Y	Y	Y	Y [4]	Y	Y [5]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 7.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.9	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 8.3	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]

Operating systems	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)	SR630 V2	SR650 V2	SR850 V2	SR860 V2	ST650 V2	SR645	SR665
Red Hat Enterprise Linux 8.4	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 8.5	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 8.6	Y [1]	N	Y	Y	Y [1]	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 8.7	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 9.0	Y [1]	N	Y	Y	Y [1]	N	Y [5]	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 9.1	Y	N	Y	Y	Y	N	Y [5]	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP5	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
SUSE Linux Enterprise Server 15 SP3	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
SUSE Linux Enterprise Server 15 SP4	Y [1]	N	Y	Y	Y [1]	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
SUSE Linux Enterprise Server 15 SP6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	Y	N	N
Ubuntu 20.04 LTS	Y	Y	N	N	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y [1]	N	Y	Y	Y [1]	N	Y [5]	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
Ubuntu 22.04.3 LTS	N	Y [1]	N	N	N	Y [1]	N	N	N	N	N	Y	N	N	N	N	N	N	N
Ubuntu 24.04 LTS	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	Y	Y [6]	Y [6]
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y [6]	Y [6]
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]

Operating systems	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)	SR630 V2	SR650 V2	SR850 V2	SR860 V2	ST650 V2	SR645	SR665
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y [1]	Y	Y	Y	Y [1]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
VMware vSphere Hypervisor (ESXi) 8.0	Y [1]	N	Y	Y	Y [1]	N	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y [2]	N	Y	Y	Y [2]	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y [6]	Y [6]
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y [6]	Y [6]
VMware vSphere Hypervisor (ESXi) 8.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

[1] For limitation, please refer Support Tip 103500, Support Tip 104324, Support Tip 104332

[2] For limitation, please refer Support Tip 104278

[3] For limitation, please refer Support Tip 103500, Support Tip 104324, Support Tip104332

[4] For limitation, please refer Support Tip 103500, Support Tip 104324, Support Tip104333

[5] For limitation, please refer Support Tip 104366

[6] HW is not supported with EPYC 7002 processors.

Table 11. Operating system support for ThinkSystem 4350-16i SAS/SATA 12Gb HBA, 4Y37A72481 (Part 2 of 2)

Operating systems	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)
Microsoft Windows 10	N	N	N	N
Microsoft Windows 11	N	N	N	N
Microsoft Windows Server 2016	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y

Operating systems	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)
Red Hat Enterprise Linux 8.10	N	N	N	N
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	N	N
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	N	N
Red Hat Enterprise Linux 9.4	N	N	N	N
SUSE Linux Enterprise Server 12 SP3	N	N	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP6	N	N	N	N
Ubuntu 18.04.5 LTS	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	Y	Y
Ubuntu 22.04.3 LTS	N	N	N	N
Ubuntu 24.04 LTS	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y

Operating systems	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U3	N	N	N	N

Warranty

The adapters carry a 1-year limited warranty. When installed in a supported ThinkSystem server, the adapters assume the server's base warranty and any warranty service upgrade.

Physical specification

The adapters have the following dimensions:

- Height: 64 mm (2.5 inches)
- Length: 167 mm (6.6 inches)

Operating environment

The adapters are supported in the following environment:

- Operating:
  - Temperature: 0°C to 55°C (32°F to 131°F)
  - Relative humidity: 10% to 90% (non-condensing)
  - Altitude: Up to 3,000 meters

Agency approvals

The ThinkSystem 4350 HBAs have the following agency approvals:

- FCC Part 15 Class A
- Australia/New Zealand (AS/NZS 3548)
- Canada (ICES-003 Class B)
- Europe (EN55032/EN55024)
- Japan VCCI
- Korea KCC
- RoHS compliant
- EN/IEC/UL 60950
- USA (FCC 47 CFR part 15 Subpart B class B)

Related publications and links

For more information, see the following documents:

- Product publications:
  - Adapter Hardware Installation Guide
  - Adapter Software User Guide
  - maxView Storage Manager User Guide
- Server Option page for the adapters:
  https://serveroption.lenovo.com/storage_adapter_options/thinksystem_4350_5350_9350_adapter_ic/
- Adaptec Smart HBA & RAID - Installation And User's Guide
  https://download.adaptec.com/pdfs/user_guides/adaptec_smarthba_smartraid_iug_7_2024.pdf
- Lenovo ThinkSystem product publications:
  http://thinksystem.lenovofiles.com/help/index.jsp
- ServerProven hardware compatibility:
  http://www.lenovo.com/us/en/serverproven
- Lenovo ThinkSystem RAID Adapter and HBA Reference
  https://lenovopress.com/lp1288-thinksystem-raid-adapter-and-hba-reference

Related product families

Product families related to this document are the following:

- Host Bus Adapters

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