

# ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA

## Product Guide

The ThinkSystem 450W-16e 24Gb SAS/SATA HBA is a high performance 24Gb SAS/SATA host bus adapter for external storage connectivity in ThinkSystem servers. The adapters provide four x4 external mini-SAS HD connectors to provide connectivity to external storage devices such as the ThinkSystem D4390 Direct Attached Storage Enclosure.

The following figure shows the ThinkSystem 450W-16e 24Gb SAS/SATA HBA.



Figure 1. ThinkSystem 450W-16e 24Gb SAS/SATA HBA

### Did you know?

The ThinkSystem 450W-16e 24Gb SAS/SATA HBA is an ideal interface for the ThinkSystem D4390 Direct Attached Storage Enclosure, since the combination enables end-to-end 24Gb SAS connectivity. This maximizes the overall performance of your external storage subsystem.

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 lists the ordering information.

Table 1. Ordering information

Part number	Feature code	Description
4Y37A85156	BWKP	ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA

The option part number includes the following items:

- Adapter with a full-height (3U) bracket attached
- Low-profile (2U) bracket
- Documentation flyer

## Features and specifications

The 440 external HBAs have the following features and specifications:

- PCIe 4.0 x16 host interface
- PCI low profile, half-length form factor
- Based on the Broadcom 9600W-16e adapter and the SAS4016W IOC controller
- Four SFF-8674 x4 connectors
- Non-RAID (JBOD mode) support for SAS and SATA HDDs and SSDs
- Connectivity for up to 240 external SAS or SATA drives
- Up to 24 Gbps throughput per port
  - Supports 24, 12, 6, or 3 Gbps SAS speeds
  - Supports 6 or 3 Gbps SATA speeds
- Support for external storage systems and tape backup units
- High performance architecture with very deep queue depth
- Advanced power management support
- Support for SSP, SMP, STP, and SATA protocols
- End-to-End CRC with Advanced Error Reporting
- Spread Spectrum Clocking for EMI reductions
- Supports 512e, 512n and 4K formatted drives
- Compliant with Disk Data Format (DDF) configuration on disk (CoD).
- S.M.A.R.T. support.
- Secure boot and attestation

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

Table 2. Specifications

<b>Feature</b>	<b>440-16e</b>
Adapter type	HBA
Part number	4Y37A85156
Controller chip	Broadcom SAS4016W
Broadcom equivalent	9600W-16e
Host interface	PCIe 4.0 x16
Port interface	24 Gb SAS
Number of ports	16
Port connectors	4x 24Gbps Mini-SAS HD (SFF-8674)
Drive interface	SAS/SATA
Drive type	HDD/SSD/SED*
Hot-swap drives	Yes
Max devices	240
RAID levels	None
JBOD mode	Yes
Cache	None
CacheVault cache protection	None
Performance Accelerator (FastPath)	No
SSD Caching (CacheCade Pro 2.0)	No
SED support	Yes*

\* SED support is by using software on the server (SED commands are passed through the HBA to the drives).

To compare the 450W-16e to other external adapters, see the Lenovo ThinkSystem RAID Adapter and HBA Reference

<https://lenovopress.com/lp1288-lenovo-thinksystem-raid-adapter-and-hba-reference#internal-or-external-ports=External>

## Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. Server support (Part 1 of 4)

Part Number	Description	AMD V3				2S Intel V3/V4			4S 8S Intel V3			Multi Node V3/V4		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 / 7DGG9)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	ST45 V3 (7DH4 / 7DH5)	ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4Y37A85156	ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA	N	Y	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	N

Table 4. Server support (Part 2 of 4)

Part Number	Description	GPU Rich				Edge				Super Computing				1S Intel V2							
		SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SC750 V4 (7DDJ)	SC777 V4 (7DKA)	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)
4Y37A85156	ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 5. Server support (Part 3 of 4)

Part Number	Description	2S Intel V2			AMD V1				Dense V2			4S V2	8S	4S V1					
		ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)	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)
4Y37A85156	ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 6. Server support (Part 4 of 4)

Part Number	Description	1S Intel V1		2S Intel V1								Dense V1					
		ST50 (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)
4Y37A85156	ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

## Drive enclosure support

The 450W-16e is planned to support the following SAS external drive enclosures:

- ThinkSystem D4390 Direct Attached Storage Enclosure

For details about D4390, see the product guide:

<https://lenovopress.lenovo.com/lp1681-lenovo-storage-thinksystem-d4390-high-density-expansion-enclosure>

For interoperability, refer to the Lenovo Storage Interoperation Center (LSIC):

<https://datacentersupport.lenovo.com/us/en/lpic>

## Operating system support

The following table lists the supported operating systems.

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

Table 7. Operating system support for ThinkSystem 450W-16e SAS/SATA PCIe Gen4 24Gb HBA, 4Y37A85156

Operating systems	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3
Microsoft Windows Server 2025	Y	Y	Y

## 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 450W-16e has the following dimensions:

- Height: 69 mm (2.7 inches)
- Length: 168 mm (6.6 inches)

## Operating environment

The adapters are supported in the following environment:

- Operating:
  - Temperature: 10°C to 55°C (50°F to 131°F)
  - Relative humidity: 20% to 90% (non-condensing)
- Storage
  - Temperature with package: -40°C to 70°C (-40°F to 158°F)
  - Relative humidity: 5% to 95% (non-condensing)

## Agency approvals

The adapters have the following agency approvals:

- FCC Part 15 Class A
- Australia/New Zealand (AS/NZS CISPR 22)
- Canada (ICES-003 Class B)
- Europe (EN55022/EN55024)
- Japan (VCCI V-3)
- Korea (RRA no 2013-24 & 25)
- RoHS compliant
- EN/IEC/UL 60950
- Taiwan (CNS 13438)
- USA (FCC 47 CFR part 15 Subpart B class B)
- WEEE

## Related publications and links

For more information, see the following websites:

- Lenovo ThinkSystem RAID Adapter and HBA Reference  
<https://lenovopress.com/lp1288-lenovo-thinksystem-raid-adapter-and-hba-reference>
- Lenovo ThinkSystem product publications:  
<http://thinksystem.lenovofiles.com/help/index.jsp>
- ServerProven hardware compatibility:  
<http://www.lenovo.com/us/en/serverproven>

## Related product families

Product families related to this document are the following:

- [Host Bus Adapters](#)

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