Lenovo ThinkSystem 430-8e and 430-16e External SAS HBAs
Product Guide

The Lenovo ThinkSystem 430-8e and 430-16e SAS/SATA 12Gb HBA are high performance host bus adapters for external storage connectivity in ThinkSystem servers. The 430-8e provides two x4 external mini-SAS HD connectors with eight lanes of 12 Gbps SAS. The 430-16e provides four x4 external mini-SAS HD connectors with 16 lanes of 12 Gbps SAS.

The following figure shows the ThinkSystem 430-16e SAS/SATA 12Gb HBA.

Figure 1. ThinkSystem 430-16e SAS/SATA 12Gb HBA

Did you know?

The 430-8e and 430-16e external HBAs offer improved performance over the previous generation N2225 and N2226 HBAs for System x servers, with a faster processor and more memory.

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 part numbers and feature codes for the adapters.

Table 1. Ordering information

Part number	Feature code	Description
7Y37A01090	AUNR	ThinkSystem 430-8e SAS/SATA 12Gb HBA
7Y37A01091	AUNN	ThinkSystem 430-16e SAS/SATA 12Gb HBA

The option part numbers includes the following items:

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

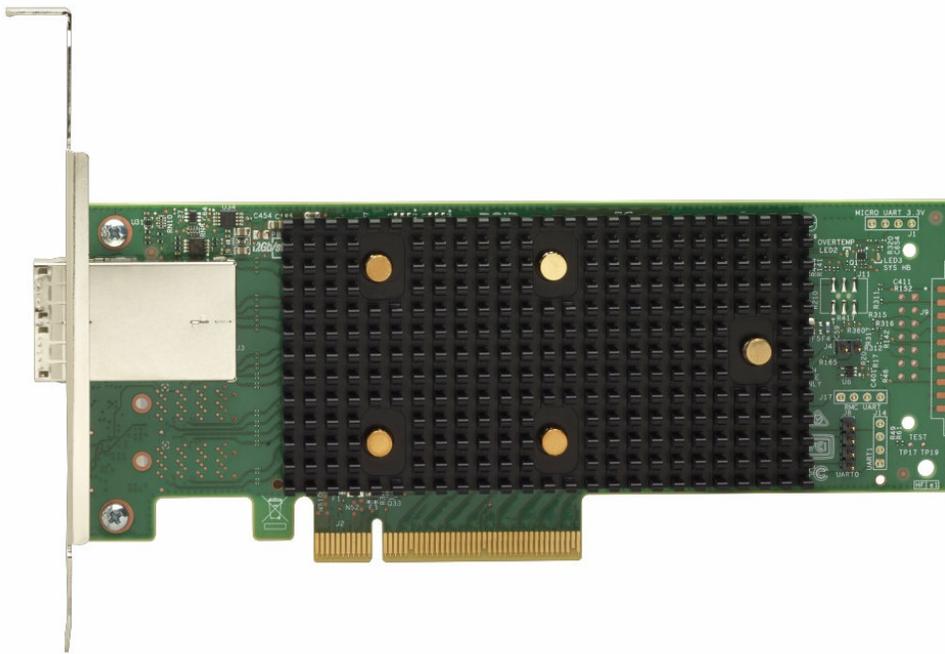The following figure shows the ThinkSystem 430-8e SAS/SATA 12Gb HBA.

Figure 2. ThinkSystem 430-8e SAS/SATA 12Gb HBA

Features and specifications

The 430 external HBAs have the following features and specifications:

- PCIe 3.0 x8 host interface
- 12 Gbps SAS/SATA host bus adapter, based on the Broadcom SAS3408 and SAS3416 IOC design
- PCI low profile, half-length form factor
- External 12 Gbps SAS/SATA ports:
    - 430-8e: 8 SAS/SATA ports
    - 430-16e: 16 SAS/SATA ports
- Connectivity for up to 512 external SAS or SATA drives (future planned support for an upper limit of

1024 drives)

- Up to 12 Gbps throughput per port
  - Supports 12, 6, or 3 Gbps SAS speeds
  - Supports 6 or 3 Gbps SATA speeds

- External x4 HD Mini-SAS connectors (SFF-8644):
  - 430-8e: 2 external connectors
  - 430-16e: 4 external connectors

- 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 (when available) formatted drives

- Compliant with Disk Data Format (DDF) configuration on disk (CoD).

- S.M.A.R.T. support.

- Configuration through
  - XClarity Provisioning Manager UEFI interface
  - XClarity Controller web interface
  - XClarity Administrator Configuration Patterns
  - StorCLI command-line interface
  - LSI Storage Authority (LSA) GUI interface
  - UEFI Human Interface Infrastructure (HII)

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

Table 2. Specifications

Feature	430-8e	430-16e
Controller chip	LSI SAS3408	LSI SAS3416
Host interface	PCIe 3.0x8	PCIe 3.0x8
Port interface	12 Gb SAS	12 Gb SAS
Number of ports	8	16
Connectors	2x Mini-SAS HD SFF8644	4x Mini-SAS HD SFF8644
Drive interface	SAS/SATA	SAS/SATA
Drive type	HDD/SSD/SED*	HDD/SSD/SED*
Maximum devices	512 (planned: 1024)**	512 (planned: 1024)**
RAID levels	None	None
JBOD mode	Yes	Yes
Cache	None	None
SED support	Yes*	Yes*

* SED support is by using software on the server (SED commands are passed through the HBA to the drives).
** Future planned support for an upper limit of 1024 drives

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. ThinkSystem server support

Part number	Description	ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y03 / 7Y04)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR850 (7X18 / 7X19)	SR860 (7X69 / 7X70)	SR950 (7X11 / 7X12 / 7X13)	SD530 (7X21)	SN550 (7X16)	SN850 (7X15)
7Y37A01090	ThinkSystem 430-8e SAS/SATA 12Gb HBA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
7Y37A01091	ThinkSystem 430-16e SAS/SATA 12Gb HBA	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N

Drive enclosure support

The HBAs support the following 12 Gbps SAS external drive enclosures:

- Lenovo Storage D1212
- Lenovo Storage D1224
- Lenovo Storage D3284

For details about the D1212 and D1224 , see the product guide:
http://lenovopress.com/lp0512

For details about D3284, see the product guide:
http://lenovopress.com/lp0513

Storage system support

The HBAs support connectivity to the following 12 Gb and 6 Gb SAS storage systems:

- Lenovo ThinkSystem DS2200
- Lenovo ThinkSystem DS4200
- Lenovo ThinkSystem DS6200
- Lenovo Storage S2200
- Lenovo Storage S3200
- Lenovo Storage V3700 V2
- Lenovo Storage V5030

For details about these storage systems, see the relevant product guide:
https://lenovopress.com/storage/san/lenovo?resource_type=product-guide

Tape backup units

The 430-8e and 430-16e SAS/SATA 12Gb HBAs support connectivity to external tape drives and autoloaders.

The following table lists the supported external SAS tape backup options.

Tip: Verify the end-to-end support of an IBM tape backup solution through the IBM System Storage Interoperation Center (SSIC): http://www.ibm.com/systems/support/storage/ssic

Table 4. External SAS backup options

Part number	Description
External SAS tape backup drives	
6160S5E	IBM TS2250 Tape Drive Model H5S
6160S6E	IBM TS2260 Tape Drive Model H6S
6160S7E	IBM TS2270 Tape Drive Model H7S
External SAS tape backup autoloaders	
6171S5R	IBM TS2900 Tape Autoloader w/LTO5 HH SAS
6171S6R	IBM TS2900 Tape Autoloader w/LTO6 HH SAS
6171S7R	IBM TS2900 Tape Autoloader w/LTO7 HH SAS
External tape backup libraries	
61732UL	IBM TS3100 Tape Library Model L2U
61734UL	IBM TS3200 Tape Library Model L4U
SAS backup drives for TS3100 and TS3200 Tape Libraries	
00NA109	6173 LTO Ultrium 5 SAS Drive Sled
00NA111	6173 LTO Ultrium 5 Half High SAS Drive Sled
00NA117	6173 LTO Ultrium 6 Half High SAS Drive Sled
00WF767	6173 LTO Ultrium 7 Half High SAS Drive Sled

For more information, see the list of Product Guides in the Backup units category: https://lenovopress.com/servers/options/backup

Operating systems

The HBAs support the following operating systems:

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE Linux Enterprise Server 11 for AMD64/EM64T
- SUSE Linux Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 12 with XEN
- VMware vSphere ESXi 6.0
- VMware vSphere ESXi 6.5

For more information about the specific versions and service levels that are supported and any other prerequisites, see the ServerProven website: http://www.lenovo.com/us/en/serverproven

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.

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 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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