

IBM 6 Gb SAS Host Bus Adapter for System x

IBM System x at-a-glance guide

The IBM 6 Gb SAS HBA is an economical storage enabler to attach RAID-capable external storage enclosures and provide 3 Gbps or 6 Gbps tape storage connectivity for data archiving applications to achieve a higher level of performance.

The PCIe small form-factor IBM 6 Gb SAS HBA is based on the LSI SAS2008 controller and can handle medium to large capacity server storage applications by connecting an 8-lane PCI Express adapter with one external x4 SFF-8088 connector and four internal SATA connectors.

The IBM 6 Gb SAS Host Bus Adapter is shown in Figure 1 (with the 3U bracket removed).



Figure 1. IBM 6Gb SAS Host Bus Adapter

Did you know?

6 Gbps SAS 2.0 technology has been introduced to address data off-load bottlenecks in the direct-access storage environment. This new throughput doubles the transfer rate of the previous generation. SAS 2.0 is designed for backward compatibility with 3 Gbps SAS as well as with 3 Gbps SATA hard drives and tape drives.

Part number information

Table 1 shows the part number to order these HBAs.

Table 1. Part number and feature code for ordering

Description	Part number	Feature code
IBM 6 Gb SAS Host Bus Adapter for System x	46M0907	3875

Part number 46M0907 includes the following items:

- One 6 Gb SAS Host Bus Adapter with 3U bracket attached
- 2U bracket
- Quick Install Guide
- Documentation CD
- *IBM Important Notices* document

Features and specifications

The IBM 6 Gb SAS Host Bus Adapter has the following specifications:

- Four internal SAS x1 connectors (SFF-8087)
- One external SAS x4 connector (SFF-8088)
- PCI Express x8 2.0 host interface
- SAS Controller: LSI SAS2008
- 6 Gbps per port data transfer rate
- MD2 small form factor
- High performance I/O Processor: PowerPC 440 @ 533 MHz
- uEFI support
- RAID levels : None (uses RAID as provided by external disk enclosures)
- Maximum endpoint devices: 512
- Power consumption: 13.5 W

The IBM 6 Gb SAS Host Bus Adapter has the following key features:

- Connection to supported internal and external tape drives
- Connection to supported external storage controllers
- Power management support
- Support for SSP, SMP, STP and SATA protocols - flexible to optimize costs
- Environmentally friendly due to low power consumption
- LSI Fusion-MPT architecture drives more than 290,000 I/Os per second
- End-to-End CRC with Advanced Error Reporting
- T-10 Protection Model for early detection of and recovery from data corruption
- Spread Spectrum Clocking for EMI reductions

Warranty

One-year limited warranty. When installed on a System x server, these cards assume your system's base warranty and any IBM ServicePac upgrade.

Supported servers

The IBM 6 Gb SAS Host Bus Adapter is supported on the IBM System x servers listed in Table 2.

Table 2. Supported servers (Part 1)

Adapter	x3100 M3	x3200 M2	x3200 M3	x3250 M2	x3250 M3	x3350	x3400	x3400 M2	x3455	x3500	x3500 M2	x3550
IBM 6 Gb SAS Host Bus Adapter	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 2. Supported servers (Part 2)

Adapter	x3550 M2	x3550 M3	x3650	x3650 T	x3650 M2	x3650 M3	x3655	x3690 X5	x3755	x3850 M2	x3950 M2	x3850 X5
IBM 6 Gb SAS Host Bus Adapter	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y

See the IBM ServerProven Web site for the latest information about the adapters supported by each System x server type: <http://ibm.com/servers/eserver/serverproven/compat/us/>.

Supported tape drives and disk enclosures

The IBM 6 Gb SAS Host Bus Adapter supports connectivity to the following tape drives:

- IBM Half High LTO Gen 3 SAS Tape Drive, 43W8478
- IBM Half High LTO Gen 4 SAS Tape Drive, 44E8895
- IBM DDS Gen 5 SATA Tape Drive, 43W8480
- IBM GoVault Internal Dock, 42D8771

The adapter supports connectivity to the following 6 Gbps SAS external storage enclosures:

- IBM System Storage DS3512 Express Single Controller Storage System (1746A2S)
- IBM System Storage DS3512 Express Dual Controller Storage System (1746A2D)
- IBM System Storage DS3524 Express Single Controller Storage System (1746A4S)
- IBM System Storage DS3524 Express Dual Controller Storage System (1746A4D)

The following external cables are supported:

- IBM 3 m SAS Cable, part number 39R6531
- IBM 1 m SAS Cable, part number 39R6529

Note: The adapter does not support internal disk drives.

Supported operating systems

The adapter supports the following operating systems:

- Microsoft Windows Server 2003, Web Edition
- Microsoft Windows Server 2003/2003 R2, Datacenter Edition
- Microsoft Windows Server 2003/2003 R2, Datacenter x64 Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise x64 Edition
- Microsoft Windows Server 2003/2003 R2, Standard Edition
- Microsoft Windows Server 2003/2003 R2, Standard x64 Edition
- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Premium Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Standard Edition
- Microsoft Windows WebServer 2008 R2
- Red Hat Enterprise Linux 4 AS for AMD64/EM64T
- Red Hat Enterprise Linux 4 AS for x86
- Red Hat Enterprise Linux 4 ES for AMD64/EM64T
- Red Hat Enterprise Linux 4 ES for x86
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server Edition with Xen
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 10 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 with Xen for x86
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- VMware ESX 4.0 U1

See the IBM ServerProven Web site for the latest information about the specific versions and service packs supported: <http://ibm.com/servers/eserver/serverproven/compat/us/>. Click **System x servers**, then **Disk controllers** to see the support matrix. Click the check mark that is associated with the System x server in question to see details about the operating system support.

Operating environment

The IBM 6Gb SAS Host Bus Adapter is supported in the following environment:

Temperature:

- 10 to 35 °C (50 to 95 °F) at an altitude of 0 to 914 m (0 to 3,000 ft)
- 10 to 32 °C (50 to 90 °F) at an altitude of 0 to 2,100 m (0 to 7,000 ft)

Humidity: 20% to 80%, non-condensing

Maximum altitude: 2,100 m (7,000 ft)

Related publications

For more information refer to the following documents:

- IBM System x Configuration and Options Guide:
<http://www.ibm.com/support/docview.wss?uid=psg1SCOD-3ZVQ5W>
- IBM System Storage Interoperation Center (SSIC)
<http://www.ibm.com/systems/support/storage/config/ssic>

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