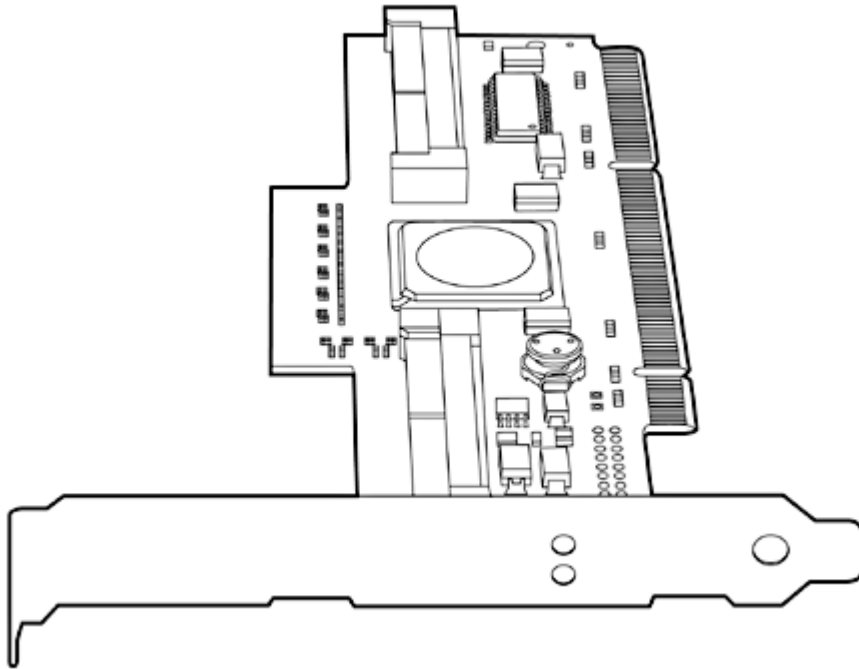


Overview

The HP 8 Internal Port SAS HBA with RAID provides customers with the flexibility and speed they have come to expect from HP. The HP 8 Internal Port SAS HBA with RAID is ideal for small RAID and larger non-RAID storage applications. This adapter supports both 3 Gbps SAS and 1.5 Gbps SATA devices as well as HP StorageWorks SAS tape products. It is the basic building block for both RAID and non-RAID SCSI storage solutions, providing up to 2.4GB/s maximum bandwidth, nearly four times the speed of dual channel U320 SCSI adapters. The HP 8 Internal Port SAS HBA with RAID has been thoroughly tested and integrated into many of the HP ProLiant servers.



Model

Serial Attached SCSI
(SAS) HBA

HP 8 Internal Port SAS HBA with RAID

347786-B21

Standard Features

Performance Designed to be as flexible as HP servers, HP 8 Internal Port SAS HBA with RAID provides support for up to 8 SAS or SATA hard drives. The HP adapter delivers exceptional system performance, with eight 3 Gbps SAS ports providing up to 24 Gb/s total storage bandwidth.

HP Server Integration Fully integrated and tested with most ProLiant servers and management software.

Key Features

- SAS technology delivers high performance and data bandwidth up to 3 Gbps per physical link.
- Mix-and-match SAS and SATA hard drives, lets you deploy drive technology as needed to fit your computing environment.
- 64-bit, PCIX 133-MHz interface provides 1 GB/s maximum bandwidth during burst transfers.
- Support for HP StorageWorks SAS tape products.

Ports

- Eight (8) SAS physical links distributed across 2 internal x4 wide connectors
 - Provides the ability to support up to 8 drives or 2.4GB of SAS storage

Performance HP's High Performance Architecture sets new boundaries for industry performance expectations!

- 3 Gbps SAS (bandwidth per physical link)
- 24 Gbps total available bandwidth (8 physical links x 3Gbps)
- 64-bit, PCIX 133-MHz bus (1 GB/s bandwidth)

NOTE: When using the SC08Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required.

NOTE: Transfer rate: 1.5 Gb/s SATA, 3Gb/s SAS

Capacity Given the increasing need for high performance and rapid capacity expansion, the HP 8 Internal Port SAS HBA with RAID offers:

- Eight 3 Gbps SAS physical links supporting up to 2 simultaneous x4 Wide SAS Ports
 - Up to 2.4TB of SAS storage per PCI slot
-

Fault Tolerance Keeps data available and server running while a failed drive is being replaced

- Drive Mirroring (RAID 1): This allocates half of the drive array to data and the other half to mirrored data, providing two copies of every file.
-

Standard Features

Servers

The following SAS Model HP ProLiant servers are supported:

- **ProLiant DL (rack-optimized):**
 - HP ProLiant DL140 G2
 - HP ProLiant DL140 G3
 - HP ProLiant DL145 G2
 - HP ProLiant DL145 G3
 - HP ProLiant DL160 G5
 - HP ProLiant DL165 G5
 - HP ProLiant DL180
 - HP ProLiant DL320 G3
 - HP ProLiant DL320 G4
 - HP ProLiant DL320 G5
 - HP ProLiant DL320 G5p
 - HP ProLiant DL360 G4
 - HP ProLiant DL360 G4p
 - HP ProLiant DL360 G5
 - HP ProLiant DL365
 - HP ProLiant DL365 G5
 - HP ProLiant DL380 G4
 - HP ProLiant DL380 G5
 - HP ProLiant DL385
 - HP ProLiant DL385 G2
 - HP ProLiant DL385 G5
 - HP ProLiant DL580 G3
 - HP ProLiant DL580 G4
 - HP ProLiant DL580 G5
 - HP ProLiant DL585
 - HP ProLiant DL585 G2
 - HP ProLiant DL585 G5
- **ProLiant ML (expansion-optimized):**
 - HP ProLiant ML110 G4
 - HP ProLiant ML115
 - HP ProLiant ML150 G3
 - HP ProLiant ML310 G2
 - HP ProLiant ML310 G3
 - HP ProLiant ML310 G4
 - HP ProLiant ML310 G5
 - HP ProLiant ML310 G5p
 - HP ProLiant ML350 G4
 - HP ProLiant ML350 G4p
 - HP ProLiant ML350 G5
 - HP ProLiant ML370 G4
 - HP ProLiant ML370 G5
 - HP ProLiant ML570 G4

NOTE: This is a list of supported servers. Some may be discontinued.

Standard Features

Operating Systems

Microsoft® Windows® 2000 (Server/Adv Server) 32 Bit
Microsoft Windows 2003 Standard 32 Bit
Microsoft Windows 2003 Enterprise 32 Bit
Microsoft Windows 2003 Web
Microsoft Windows 2003 SBS
Microsoft Windows 2003 Standard x64
Microsoft Windows 2003 Enterprise x64
Microsoft Windows Server 2008
Red Hat Enterprise Linux
SUSE Linux Enterprise Server
Novell NetWare
SCO Unix

NOTE: For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix: <http://h18004.www1.hp.com/products/servers/linux/hplinuxcert.html>

LSI Off Line

LSI Off Line option ROM Utility

Service and Support, HP Care Pack, and Warranty Information

Warranty The warranty for this device is 1 year parts only.
Pre-Failure Warranty: SAS drives attached to the Smart Array Controller and monitored under Systems Insight Manger are supported by a Pre-Failure (replacement) Warranty. For complete details, consult the HP Support Center or refer to your HP Server Documentation.

Software Product Services Standalone telephone support
Rights to new license version
Media and documentation updates

Hardware Product Services Installation services
On-site maintenance (includes warranty support)
Response time upgrades during the warranty period
Post-warranty coverage
RAID setup and performance consulting via statement of work
NOTE: For additional hardware installation and maintenance information, please refer to the URL:
<http://www.hp.com/hps/hardware/>

Warranty Upgrade Options Response - Upgrade on-site response from next business day to same day 4 hours
Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days
Duration - Select duration of coverage for a period of 1, 3, or 5 years
Warranty upgrade options can come in the form of Care Packs, which are sold at the HP System level this product attaches too.

HP Care Pack Information HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage. Care Packs for this option are sold at the system level this option attaches too.
HP Care Pack is not available for less than the product's warranty duration.
HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
HP Care Pack services are prepaid.
NOTE: For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL <http://www.hp.com/hps/carepack/>

Options

NOTE: This is a list of supported options - some may be discontinued.

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug SFF Enterprise (ENT) Drives

HP 300GB 3G SAS 10K SFF DP ENT HDD	492620-B21
HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
HP 146GB 3G SAS 10K SFF DP ENT HDD	418367-B21
HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
HP 72GB 3G SAS 15K SFF DP ENT HDD	418371-B21
HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
HP 72GB 3G SAS 10K SFF DP ENT HDD	384842-B21
HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
HP 36GB 3G SAS 15K SFF DP ENT HDD	418369-B21
HP 36GB 3G SAS 15K SFF SP HDD	431933-B21

SAS Hot Plug 3.5" Enterprise (ENT) Drives

HP 450GB 3G SAS 15K 3.5" DP ENT HDD	454232-B21
HP 400GB 3G SAS 10K 3.5" DP ENT HDD	459508-B21
HP 300GB 3G SAS 15K 3.5" SP HDD	431944-B21
HP 300GB 3G SAS 15K 3.5" DP ENT HDD	416127-B21
HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21
HP 146GB 3G SAS 15K 3.5" DP ENT HDD	384854-B21
HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21
HP 72GB 3G SAS 15K 3.5" DP ENT HDD	384852-B21

Non-Hot Plug SAS 3.5" Drives

HP 450GB 3G NHP 15K 3.5" DP SAS ENT HDD	454234-B21
HP 400GB 3G NHP 10K 3.5" DP SAS ENT HDD	508232-B21
HP 300GB 3G NHP 15K 3.5" DP SAS ENT HDD	417950-B21
HP 146GB 3G NHP 15K 3.5" DP SAS ENT HDD	417855-B21
HP 300GB SAS 3.5" 15K NHP	431950-B21
HP 146GB SAS 3.5" 15K NHP	432093-B21
HP 72GB SAS 3.5" 15K NHP	432095-B21

SAS Hot Plug SFF Midline (MDL) Drives

HP 500GB 6G SAS 7.2K SFF DP MDL HDD	507610-B21
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SAS Hot Plug 3.5" Midline (MDL) Drives

HP 1TB 3G 7.2K 3.5" DP SAS MDL HDD	461137-B21
HP 750GB 3G 7.2K 3.5" DP SAS MDL HDD	461135-B21

SATA Hot Plug Entry (ETY) Drives



Options

HP 250GB 3G SATA 5.4K SFF ETY HDD	460355-B21
HP 120GB 1.5G SATA 5.4K SFF ETY HDD	458924-B21
HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
SATA Non-Hot Plug Entry (ETY) Drives	
HP 250GB 3G SATA 5.4K NHP SFF ETY HDD	460357-B21
HP 120GB 1.5G SATA 5.4K NHP SFF ETY HDD	459357-B21
HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
SATA Hot Plug Midline (MDL) Drives	
HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
SATA Non-Hot Plug Midline (MDL) Drives	
HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
SFF SATA Hot Plug Drives	
HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21
3.5" SATA Hot Plug Drives	
HP 80GB 1.5G SATA 7.2K 3.5" HDD	349237-B21
3.5" SATA Non-Hot Plug Drives	
HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21

NOTE: Go to the [HP Hard Drive Compatibility table](http://www.hp.com/products/harddiskdrives) for complete drive compatibility information (<http://www.hp.com/products/harddiskdrives>). Using hard drives in unsupported configurations will result in voiding the warranty and could result in damage to the drive and/or loss of data.

NOTE: SATA Drive Write Cache is disabled by default to minimize the risk of data loss in case of power loss and cannot be enabled for SATA drives attached to all HP Smart Array controllers and HP 8 Port internal SAS/SATA HBA with RAID.

Tape Drives

SAS Tape Drives

HP StorageWorks Ultrium 448 SAS Internal Tape Drive	DW085A
HP StorageWorks Ultrium 448 SAS External Tape Drive	DW086A
HP StorageWorks Ultrium 920 SAS Internal Tape Drive	EH847A
HP StorageWorks Ultrium 920 SAS External Tape Drive	EH848A

SAS Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SAS Rack-Mount Kit	AE459A
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NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the Ultrium 448 SAS and Ultrium 920 SAS tape drives.

Technical Specifications

Dimensions (excluding bracket)	6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)
Disk Drive and Enclosure Protocol Support	3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)
Architecture	64-bit
SAS Connectors	2 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)
Data Transfer Method	64-bit wide, PCI-X 133 MHz (1 GB/s maximum bandwidth)
PCI Bus Speed	PCI-X-133 and 3.3 volt PCI compatibility only
PCI	PCI-X and 3.3 volt PCI compatibility only
Simultaneous Drive Transfer Ports	2 x4 Wide SAS Connectors
Port Transfer Rate	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
Software upgradeable Firmware	Yes
Maximum Capacity	2.4TB (8 x 300GB SAS Drives)
Memory Addressing	64-bit, supporting servers memory greater than 4 GB
Logical Drives Supported	Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 8 Drives per RAID 0
RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
Upgradeable Firmware	4-MB flashable ROM
Disk Drive and Enclosure Protocol Support	3Gbps SAS and 1.5Gbps SATA

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to http://www.hp.com/go/green . To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
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The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Technical Specifications

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.