

Overview

The HP 64-bit/133-MHz Single Channel Ultra320 SCSI host bus adapter (HBA) provides customers with the flexibility and speed they have come to expect from HP. The 64-bit/133-MHz Single Channel Ultra320 SCSI HBA is ideal for HP tape products and larger non-RAID storage applications. This adapter supports Ultra320 SCSI, Wide Ultra3 SCSI, and Wide Ultra2 SCSI protocols. It is the primary building block for non-RAID SCSI storage solutions that provide the maximum of 320 MB/second bandwidth, twice the speed of our current SCSI adapters. HP's 64-bit/133-MHz Single Channel Ultra320 SCSI HBA has two primary uses: 1) tape backup and 2) JBOD file and print applications. Neither application requires fault tolerance but both have large bandwidth requirements.

Models

64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2

374654-B21

Standard Features

Performance

The HP 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA provides support for up to 14 SCSI devices, while only taking up a single PCI-X slot. The HP 64-Bit/133-MHz Single Channel Ultra320 SCSI adapter delivers exceptional system performance, along with one Ultra320 SCSI channel that provides up to 64-bit/133-MHz bus-master capabilities, transferring data up to 320 MB/s between storage subsystem and system memory.

HP Integration	Fully integrated and tested with HP ProLiant 100 series servers, ProLiant 300 series servers, ProLiant 500 series servers, and all HP StorageWorks SCSI tape products.
Tagged Command Queuing	Improves performance by accepting commands simultaneously, sorting efficiently and minimizing response time.
Suggested Solutions	HP's 64-Bit/133-MHz Single Channel Ultra320 adapter is a cost effective solution NHP SCSI HDD and ideal for DAT tape drives on ProLiant 100 series servers

Fault Tolerance

Supports software-based fault tolerant configurations available under:

- Windows 2000 Server and Advanced Server
- Windows 2003 Server, Standard Edition and Enterprise Edition (32bit)
- Windows 2003 Server, Standard Edition and Enterprise Edition (64bit Extended systems)
- Microsoft Windows Server 2008
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Novell Netware 5.1
- Novel Netware 6.5
- UnixWare 7.1.3, 7.1.4
- OpenServer 5, 6

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>

Compatibility

Fully integrated and tested with selected HP ProLiant servers and HP tape drives.

- **ProLiant DL (rack-optimized):**
 - HP ProLiant DL140 G2
 - HP ProLiant DL140 G3
 - HP ProLiant DL145
 - HP ProLiant DL145 G2
 - HP ProLiant DL145 G3
 - 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 G4 Packaged Cluster with MSA500 G2
 - HP ProLiant DL380 G4 Packaged Cluster with MSA1000
 - HP ProLiant DL380 G5
 - HP ProLiant DL385
 - HP ProLiant DL385 Packaged Cluster with MSA500 G2

Standard Features

- 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
 - HP ProLiant ML110 G2
 - HP ProLiant ML110 G3
 - HP ProLiant ML110 G4
 - HP ProLiant ML110 G5
 - HP ProLiant ML115
 - HP ProLiant ML150 G2
 - HP ProLiant ML150 G3
 - HP ProLiant ML310 G2
 - HP ProLiant ML310 G3
 - HP ProLiant ML310 G4
 - HP ProLiant ML310 G5
 - HP ProLiant ML350 G4
 - HP ProLiant ML350 G4p
 - HP ProLiant ML350 G5
 - HP ProLiant ML370 G4
 - HP ProLiant ML370 G5
 - HP ProLiant ML570 G3
 - HP ProLiant ML570 G4

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

Option Kit Contents

- HBA
 - RTF Card
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Warranty

Maximum: The remaining warranty of the HP product in which it is installed (to a maximum one-year limited warranty, parts only)

Minimum: One-year, on-site limited warranty, parts only

NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center at 1-800-345-1518 for details.

Options

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

Hard Drives

NOTE: For complete compatibility information, refer to the HP SCSI Hard Drive Compatibility table located at: <http://www.hp.com/servers/hdd-documentation>.

10,000 RPM Universal Hard Drive

HP 300GB U320 10K Universal HDD	350964-B22
HP 146GB U320 10K Universal HDD	286716-B22
HP 72GB U320 10K Universal HDD	286714-B22

15,000 RPM Universal Hard Drive

HP 300GB U320 15K Universal HDD	411089-B22
HP 146GB U320 15K Universal HDD	347708-B22
HP 72GB U320 15K Universal HDD	286778-B22
HP 36GB U320 15K Universal HDD	286776-B22

Tape Drives

NOTE: For the complete listing of Tape Drive offerings, please see: <http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

DAT Tape Drives

HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
HP StorageWorks DAT 40 SCSI External Tape Drive (Carbon)	C5687D
HP StorageWorks DAT 40 SCSI Array Module (Carbon)	C7497C
HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
HP StorageWorks DAT 72 SCSI External Tape Drive (Carbon)	Q1523B
HP StorageWorks DAT 72 SCSI Array Module (Carbon)	Q1524C
HP StorageWorks DAT 160 SCSI Internal Tape Drive	Q1573A
HP StorageWorks DAT 160 SCSI External Tape Drive	Q1574A
HP StorageWorks DAT 160 SCSI Array Module	Q1575A

Ultrium Tape Drives

HP StorageWorks LTO-1 Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
HP StorageWorks LTO-1 Ultrium 232 External Tape Drive (Carbonite)	DW065B
HP StorageWorks LTO-2 Ultrium 448 SCSI Internal Tape Drive (Carbonite)	DW016A
HP StorageWorks LTO-2 Ultrium 448 SCSI External Tape Drive (Carbonite)	DW017B
HP StorageWorks LTO-2 Ultrium 448 SCSI Array Module (Carbonite)	DW019A
HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite)	DW028B
HP StorageWorks LTO-3 Ultrium 920 SCSI Internal Tape Drive	EH841A
HP StorageWorks LTO-3 Ultrium 920 SCSI External Tape Drive	EH842A
HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920	EH903A
HP StorageWorks LTO-3 Ultrium 960 Internal Tape Drive (Carbonite)	Q1538A
HP StorageWorks LTO-3 Ultrium 960 External Tape Drive (Carbonite)	Q1539B
HP StorageWorks LTO-3 Ultrium 960 Array Module (Carbonite)	Q1540A
HP StorageWorks 3U SCSI Rack-mount kit with one LTO-3 Ultrium 960 (Carbonite)	Q1595B
HP StorageWorks LTO-4 Ultrium 1840 SCSI Internal Tape Drive	EH853A
HP StorageWorks LTO-4 Ultrium 1840 SCSI External Tape Drive	EH854A
HP StorageWorks LTO-4 Ultrium 1840 SCSI Array Module	EH856A
HP StorageWorks 3U SCSI Rack-Mount with 1 LTO-4 Ultrium 1840 Tape Drive	EH926A

Options

DLT VS/SDLT Tape Drives

HP StorageWorks DLT VS160 Internal Tape Drive (Carbon)	A7569B
HP StorageWorks DLT VS160 External Tape Drive, North America (Carbon)	A7570B
HP StorageWorks DLT VS160 External Tape Drive, International (Carbon)	A7571B
HP StorageWorks SDLT 600 Internal Tape Drive (Carbon)	A7518B
HP StorageWorks SDLT 600 External Tape Drive, North America (Carbon)	A7519B
HP StorageWorks SDLT 600 External Tape Drive, Worldwide (Carbon)	A7520B

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit	A7445B
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NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, DLT VS160, LTO-1 Ultrium 232, LTO-2 Ultrium 448 and LTO-3 Ultrium 920 tape drives.

HP StorageWorks 3U Rack-mount kit	274338-B22
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NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple LVD SCSI tape drives including DAT 40, DAT 72, DAT 160, DLT VS160, SDLT 600, LTO-1 Ultrium 232, LTO-2 Ultrium 460, LTO-2 Ultrium 448, LTO-3 Ultrium 920, LTO-3 Ultrium 960 and LTO-4 Ultrium 1840 tape drives.

Tape Autoloaders

HP StorageWorks DAT Autoloader

HP StorageWorks DAT 72x10 tape autoloader	AE313B
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HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	AH165A
HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
HP StorageWorks 1/8 G2 LTO-1 Ultrium 232 Tape Autoloader	AH163A

NOTE: Please reference the Tape Autoloader QuickSpecs at: <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at: <http://www.hp.com/go/ebs>

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
HP StorageWorks MSL2024 2 LTO-3 Ultrium 920 SCSI Drive Library	AH170A
HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
HP StorageWorks MSL2024 2 LTO-2 Ultrium 448 SCSI Drive Library	AG117A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ037A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
HP StorageWorks MSL4048 2 LTO-3 Ultrium 960 SCSI Drive Library	AG323A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Drive Library	AH171A
HP StorageWorks MSL4048 2 LTO-3 Ultrium 920 SCSI Drive Library	AH172A
HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library	AG320A
HP StorageWorks MSL4048 2 LTO-2 Ultrium 448 SCSI Drive Library	AG321A

Options

HP StorageWorks MSL8096 Tape Library

HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 SCSI Drive Library AJ039A

HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 SCSI Drive Library AH219A

HP StorageWorks MSL6000 Tape Library

LTO-3 Ultrium 960 technology

HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 SCSI Drive Library AJ029A

HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 SCSI Drive Library AD606B

HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 SCSI Drive Library AD607B

HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 SCSI Drive Library AJ031A

HP StorageWorks MSL6060 2 LTO-3 Ultrium 960 SCSI Drive Library AD610B

Internal Cables

LVD cable (Ultra2 or Ultra3)

166389-B21

Technical Specifications

SCSI Protocols	Ultra320 Wide Ultra3 SCSI (Ultra160) Wide Ultra2 SCSI Ultra SCSI
Electrical Protocol	Low Voltage Differential (LVD)
SCSI Devices Supported	Up to 14
Storage Capacity	Up to 1.8 TB (6 x 300GB)
Data Transfer Method	64-bit/133-MHz PCI-X bus-master
Maximum SCSI Transfer Rate	320 MB/s
Operating System Support	Microsoft Windows Server 2008 Microsoft Windows 2000 Microsoft Windows 2003 Red Hat Enterprise Linux SUSE Linux Enterprise Server Novell Netware 5.1 Novell NetWare 6.5 UnixWare 7.1.3, 7.1.4 OpenServer 5, 6 Solaris 10 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
External SCSI Connectors	One 68-Pin VHDCI connectors (Only on the G2 HBA)
Internal SCSI Connectors	One SCSI-3 (68-Pin)

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.

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