

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

HP U320 64bit Single Channel SCSI G2 Host Bus Adapter

374654-B21

Kit Contents

- HBA
- RTF Card

Compatibility

Servers

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 DL320 G6
 - 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 DL380 G6
 - HP ProLiant DL380 G7
 - HP ProLiant DL385
 - HP ProLiant DL385 Packaged Cluster with MSA500 G2
 - 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



Overview

- HP ProLiant DL585 G5
- HP ProLiant DL585 G6
- 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 ML310 G5p
 - HP ProLiant ML330 G6
 - 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.



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: <ul style="list-style-type: none">• 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 <p>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</p>
Warranty	<p>Maximum: The remaining warranty of the HP product in which it is installed (to a maximum one-year limited warranty, parts only)</p> <p>Minimum: One-year, on-site limited warranty, parts only</p> <p>NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center at 1-800-345-1518 for details.</p>



Service and Support

Service and Support

HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI

When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively

HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.

Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at <http://www.hp.com/go/lookuptool>



Service and Support

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services **Hardware Options Support**

HP Care Packs provide support for all HP-branded hardware options qualified for inclusion in your server or storage solution. Any additional HP-qualified options installed within the server are covered at the same service level and for the same period as the server and no additional cost.

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7

Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

HP Installation and Startup of HP ProLiant Servers

Provides for the installation of your new HP ProLiant server and operating system to assist you in bringing your new HP ProLiant server and operating system into operation in a timely and professional manner.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Delivery of the service at a mutually scheduled time convenient to your organization
- Availability of an HP service specialist to answer basic questions during the onsite delivery of this service
- Custom installation as detailed in "Delivery specifications" or in a Statement of Work (SOW)
- Verification prior to installation that all service prerequisites are met

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982?7572ENN>



Service and Support

Optional HP Care Pack Services that will enhance your HP product experience

Optional Services

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service, 6- or 24-hour

As an alternative to our recommended support level, for customers who need committed call-to-repair for server hardware.

Provides your IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 or 24 hours of the initial service request to the HP Global Solution Center.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

3-Year HP Support Plus 24

As an alternative to our recommended support level, for customers who need access to responsive 24x7 hardware and software support plus software updates on HP and selected third party products:

For a higher return on your server and storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EEE>

HP Proactive Select Service

Customer needs on demand access to consulting, technical proactive services and education courses

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN>

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24



Service and Support

X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

Customer Technical Training

In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.

HP Services Awards

HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.

Additional Services Information

To learn more on HP ProLiant servers, HP BladeSystem servers and HP StorageWorks storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit:
www.hp.com/services/proliant or www.hp.com/services/bladesystem or <http://www.hp.com/hps/storage>



Related 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.

10,000 RPM Universal Hard Drive

HP 300GB 10K rpm Ultra320 Hot Plug SCSI Hard Drive	350964-B22
HP 146GB 10K Ultra320 SCSI Pluggable Hard Drive	286716-B22
HP 72GB 10K Ultra320 SCSI Pluggable Hard Drive	286714-B22

15,000 RPM Universal Hard Drive

HP 300GB 15K rpm Ultra320 Hot Plug SCSI Hard Drive	411089-B22
HP 146GB 15K rpm Ultra320 Hot Plug SCSI Hard Drive	347708-B22
HP 72GB 15K rpm Ultra320 Hot Plug SCSI Hard Drive	286778-B22
HP 36GB 15K Ultra320 SCSI Pluggable Hard Drive	286776-B22

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

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



Related Options

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
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
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
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

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



Related Options

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
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

HP Internal Wide Ultra3 NHP Cable	166389-B21
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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.
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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, 1 GB = 1 billion bytes. Actual formatted capacity is less.

