

Overview

Models

64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter

268351-B21

Performance

Designed as to be as flexible as HP's legendary servers, the HP StorageWorks U320 SCSI adapter provides support for up to 28 SCSI devices, while only taking up a single PCI-X slot. The HP U320 adapter delivers exceptional system performance, along with up to two separate Ultra320 SCSI channels that each provide up to 64-bit/133-MHz bus-master capabilities, transferring data as fast as 320 MB/s between storage subsystem and system memory.

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

Tagged Command Queuing: Improves performance by accepting commands simultaneously, sorting efficiently and minimizing response time.

Suggested Solutions: HP's U320 dual channel adapter is ideal for high-end tape drives, tape automation and disk storage solutions such as the LTO Ultrium 460 and 230 tape drives, SLDT 320 and 220 tape drives and the StorageWorks 43xx Enclosure.

Fault Tolerance

Supports software-based fault tolerant configurations available under Microsoft® Windows® NT, Microsoft Windows 2000, Microsoft Windows XP, Linux and NetWare.

Compatibility

Fully integrated and tested with most ProLiant servers and management software. See list of servers with each adapter specifications.

Option Kit Contents

Adapter
Installation Guide
Warranty Card
Support Software CD
RTF Card

Warranty

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

Minimum: One-year, on-site limited warranty

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>.

Ultra320 Universal Drives – Hot Plug

36.4GB 10,000 rpm, U320 Universal Hard Drive, 1"	286713-B22
72.8GB 10,000 rpm, U320 Universal Hard Drive, 1"	286714-B22
146.8GB 10,000 rpm, U320 Universal Hard Drive, 1"	286716-B22
18.2GB 15,000 rpm, U320 Universal Hard Drive, 1"	286775-B22
36.4GB 15,000 rpm, U320 Universal Hard Drive, 1"	286776-B22
72.8GB 15,000 rpm, U320 Universal Hard Drive, 1"	286778-B22

Ultra3 Drives – Non Hot Plug

36.4-GB Ultra320 SCSI 10,000 rpm Drive (1")	271832-B21
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Tape Drives

Internal and External DAT Tape Drives

HP StorageWorks DAT 12/24 Tape Drive, Internal (Opal) (WW)	295513-B22
HP StorageWorks DAT 20/40 Tape Drive, Internal (Carbon) (WW)	157769-B22
HP StorageWorks DAT 20/40 Tape Drive, External (Carbon) (NA)	157770-002
HP StorageWorks DAT 20/40 Tape Drive, External (Carbon) (Int'l)	157770-B32
HP StorageWorks DAT 20/40 Tape Drive, External (Carbon) (Japan)	157770-292
HP StorageWorks DAT 20/40 Tape Drive, Hot Plug (Carbon) (WW)	215488-B21
HP StorageWorks DAT 72 Tape Drive for ProLiant, Internal (Carbon) (WW)	Q1525A
HP StorageWorks DAT 72 Tape Drive for ProLiant, External (Carbon) (NA)	Q1527A
HP StorageWorks DAT 72 Tape Drive for ProLiant, External (Carbon) (Int'l)	Q1528A

Internal and External LTO Ultrium Tape Drives

HP StorageWorks Ultrium 230 Tape Drive for ProLiant, Internal (Carbon) (WW)	Q1515A
HP StorageWorks Ultrium 230 Tape Drive for ProLiant, External (Carbon) (NA)	Q1516A
HP StorageWorks Ultrium 230 Tape Drive for ProLiant, External (Carbon) (Int'l)	Q1517A
HP StorageWorks Ultrium 460 Tape Drive for ProLiant, Internal (Carbon) (WW)	Q1518A
HP StorageWorks Ultrium 460 Tape Drive for ProLiant, External (Carbon) (NA)	Q1519A
HP StorageWorks Ultrium 460 Tape Drive for ProLiant, External (Carbon) (Int'l)	Q1520A

Internal and External DLT/SDLT Tape Drives

HP StorageWorks DLT 20/40 Tape Drive, Internal (Opal) (WW)	340743-B22
HP StorageWorks DLT 20/40 Tape Drive, External (Opal) (Japan)	340743-292
HP StorageWorks DLT 20/40 Tape Drive, External (Opal) (WW)	340744-B22
HP StorageWorks DLT 20/40 Tape Drive, External (Opal) (Japan)	340744-292
HP StorageWorks DLT 40/80 Tape Drive, Internal (Carbon) (WW)	146196-B22
HP StorageWorks DLT 40/80 Tape Drive, External (Carbon) (NA)	146197-B23
HP StorageWorks DLT 40/80 Tape Drive, External (Carbon) (Japan)	146197-293
HP StorageWorks DLT 40/80 Tape Drive, 3U Rackmount (Single Drive) (WW)	274332-B21
HP StorageWorks DLT 40/80 Tape Drive, 3U Rackmount (Two Drives) (WW)	274335-B21
HP StorageWorks DLT 40/80 Tape Drive, 5U Rackmount (Four Drives) (WW)	274337-B21
HP StorageWorks DLT VS 40/80 Tape Drive, Internal (Carbon) (WW)	280129-B21
HP StorageWorks DLT VS 40/80 Tape Drive, External (Carbon) (NA)	280129-B22
HP StorageWorks DLT VS 40/80 Tape Drive, External (Carbon) (Int'l)	280129-B31
HP StorageWorks DLT VS 40/80 Tape Drive, External (Carbon) (Japan)	280129-291
HP StorageWorks SDLT 110/220 Tape Drive, Internal (Carbon) (WW)	192106-B25
HP StorageWorks SDLT 110/220 Tape Drive, External (Carbon) (NA)	192103-002
HP StorageWorks SDLT 110/220 Tape Drive, External (Carbon) (Int'l)	192103-B32

Options

HP StorageWorks SDLT 110/220 Tape Drive, External (Carbon) (Japan)	192103-292
HP StorageWorks SDLT 110/220, 3U Rackmount (Single Drive) (WW)	274331-B21
HP StorageWorks SDLT 110/220, 3U Rackmount (Two Drives) (WW)	274334-B21
HP StorageWorks SDLT 110/220, 5U Rackmount (Four Drives) (WW)	274336-B21
HP StorageWorks SDLT 160/320 Tape Drive, Internal (Carbon) (WW)	257319-B21
HP StorageWorks SDLT 160/320 Tape Drive, External (Carbon) (NA)	257319-001
HP StorageWorks SDLT 160/320 Tape Drive, External (Carbon) (Int'l)	257319-B31
HP StorageWorks SDLT 160/320 Tape Drive, External (Carbon) (Japan)	257319-291

Internal and External AIT Tape Drives

HP StorageWorks AIT 35 Tape Drive, LVD Internal (Carbon) (WW)	216884-B21
HP StorageWorks AIT 35 Tape Drive, LVD External (Carbon) (NA)	216885-001
HP StorageWorks AIT 35 Tape Drive, LVD External (Carbon) (Int'l)	216885-B31
HP StorageWorks AIT 35 Tape Drive, LVD External (Carbon) (Japan)	216885-291
HP StorageWorks AIT 35 Tape Drive, LVD Hot Plug	216886-B21
HP StorageWorks AIT 50 Tape Drive, Internal (Carbon) (WW)	157766-B22
HP StorageWorks AIT 50 Tape Drive, External (Carbon) (NA)	157767-002
HP StorageWorks AIT 50 Tape Drive, External (Carbon) (Int'l)	157767-B32
HP StorageWorks AIT 50 Tape Drive, External (Carbon) (Japan)	157767-292
HP StorageWorks AIT 50 Tape Drive, Hot Plug (carbon) (WW)	215487-B21
HP StorageWorks AIT 50 Tape Drive, 3U Rackmount (Single Drive) (WW)	274333-B21
HP StorageWorks AIT 100 Tape Drive, Internal (Carbon) (WW)	249189-B21
HP StorageWorks AIT 100 Tape Drive, External (Carbon) (NA)	249160-001
HP StorageWorks AIT 100 Tape Drive, External (Carbon) (Int'l)	249160-B31
HP StorageWorks AIT 100 Tape Drive, Hot-Plug (Carbon) (WW)	249161-B21

Rackmount Tape Drive Kits

HP StorageWorks 3U Rackmount Kit

NOTE: The 3U Rackmount Kit (PN 274338-B21) can support up to (2) full-height or (4) half-height tape drives and compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 12/24, DAT 20/40, 20/40 DAT 8 Cassette Autoloader, AIT 35, AIT 50, DLT 20/40, DLT VS 40/80, DLT 40/80, SDLT 110/220, SDLT 160/320, Ultrium 230 and Ultrium 460 tape drives.

HP StorageWorks 5U Rackmount Kit

NOTE: The 5U Rackmount Kit (PN 274339-B21) can support up to (4) full-height tape drives and is compatible with all HP DLT/SDLT tape drives including the DLT 20/40, DLT 35/70, DLT 40/80, SDLT 110/220, SDLT 160/320, Ultrium 230 and Ultrium 460 tape drives.

Tape Storage Enclosure Cable Kits

LVD Cable Kit, VHDCI/HD68

NOTE: For use with the 3U Rackmount Kit and 5U Rackmount Kit only.

LVD Cable Kit, HD68/HD68

NOTE: For use with the 3U Rackmount Kit and 5U Rackmount Kit only.

Hot Plug Tape Drives

HP StorageWorks DAT 20/40 Tape Drive, Hot Plug (Carbon) (WW)	215488-B21
HP StorageWorks AIT 35 Tape Drive, LVD, Hot Plug (Carbon) (WW)	216886-B21
HP StorageWorks AIT 50 Tape Drive, Hot Plug (Carbon) (WW)	215487-B21
HP StorageWorks AIT 100 Tape Drive, Hot Plug (Carbon) (WW)	249161-B21

Options

Tape Media	HP DDS-1 data cartridge, 4GB	C5706A
	HP DDS-2 data cartridge, 8GB	C5707A
	HP DDS-3 data cartridge, 24GB	C5708A
	HP DDS-4 data cartridge, 40GB	C5718A
	HP DAT 72 data cartridge, 72GB	C8010A
	HP DDS cleaning cartridge	C5709A
	HP Ultrium 400GB data cartridge	C7972A
	HP Ultrium 200GB data cartridge	C7971A
	HP Ultrium universal cleaning cartridge	C7978A
	HP Ultrium 400GB bar code label pack	Q2002A
	HP Ultrium 200GB bar code label pack	Q2001A
	HP DLT IIIXT data cartridge	C5141A
	HP DLT IV data cartridge, 40/70/80GB	C5141F
	HP DLT cleaning cartridge	C5142A
	HP DLT vs cleaning cartridge	C7998A
	HP DLTIV bar code label pack	Q2004A
	HP SDLT tape I data cartridge, 220-320GB	C7980A
	HP SDLT cleaning cartridge	C7982A
	HP SDLT bar code label pack	Q2003A
	HP AIT-1 70GB data cartridge	Q1997A
	HP AIT-2 100GB data cartridge	Q1987A
	HP AIT-3 200GB data cartridge	Q1999A
	HP AIT cleaning cartridge	Q1996A
	HP AIT bar code label packs	Q2005A

Tape Automation	DAT Autoloader	
	HP StorageWorks 20/40-GB DAT 8 Cassette Autoloader, Internal (Opal) (WW)	166504-B21
	HP StorageWorks 20/40-GB DAT 8 Cassette Autoloader External (Opal) (NA)	166505-001
	HP StorageWorks 20/40-GB DAT 8 Cassette Autoloader External (Opal) (Int'l)	166505-B31
	HP StorageWorks 20/40-GB DAT 8 Cassette Autoloader External (Opal) (Japan)	166505-291
	SSL1016 Tape Autoloaders	
	SSL1016 SDLT160/320 tape autoloader	330816-B21
SSL1016 DLT1 tape autoloader	330815-B21	

External Cables	VHDCI (Very High Density Cable Interconnect) to Wide, 6 foot (1.83 meter)	295644-B21
	VHDCI to Wide, 12 foot (3.66 meter) for racks	295645-B21
	VHDCI to Narrow, 6 foot (1.83 meter)	295646-B21
	VHDCI to Narrow, 12 foot (3.66 meter) for racks	295647-B21

Internal Cables	LVD cable (Ultra2 or Ultra3)	166389-B21
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Options

External Storage Systems	StorageWorks Enclosure Model 4314T (tower)	190210-001
	StorageWorks Enclosure Model 4314T (tower) (Int'l)	190210-B31
	StorageWorks Enclosure Model 4314T (tower) (Japan)	190210-291
	StorageWorks Enclosure Model 4314R (rack-mountable)	190209-001
	StorageWorks Enclosure Model 4314R (rack-mountable) (Int'l)	190209-B31
	StorageWorks Enclosure Model 4314R (rack-mountable) (Japan)	190209-291
	StorageWorks Enclosure Model 4354R (rack-mountable)	190211-001
	StorageWorks Enclosure Model 4354R (rack-mountable) (Int'l)	190211-B31
	StorageWorks Enclosure Model 4354R (rack-mountable) (Japan)	190211-291
	StorageWorks Enclosure Model 4214R (rack mountable)	103381-001
	StorageWorks Enclosure Model 4214R (rack mountable) (Int'l)	103381-B31
	StorageWorks Enclosure Model 4214R (rack mountable) (Japan)	103381-291
	StorageWorks Enclosure Model 4214T (tower)	124875-001
	StorageWorks Enclosure Model 4214T (tower) (Int'l)	124875-B31
	StorageWorks Enclosure Model 4214T (tower) (Japan)	124875-291
	ProLiant Storage System Model F1 (Single Bus, Tower)	272900-001
	ProLiant Storage System Model F2 (Dual Bus, Tower)	272900-002
	ProLiant Storage System Model F1 (Single Bus, Rack)	272800-001
	ProLiant Storage System Model F2 (Dual Bus, Rack)	272800-002
	ProLiant Storage System Model UE (Single Bus, Tower)	348710-002
	ProLiant Storage System Model U1 (Single Bus, Tower)	304110-B21
	ProLiant Storage System Model U2 (Dual Bus, Tower)	304110-B22
	ProLiant Storage System Model UE (Single Bus, Rack)	348700-001
	ProLiant Storage System Model U1 (Single Bus, Rack)	304100-B21
	ProLiant Storage System Model U2 (Dual Bus, Rack)	304100-B22

NOTE: Ultra3 LVD SCSI adapters must be used with Ultra3 LVD SCSI capable HDDs, cables, drivers and servers/workstations. Ultra3 LVD SCSI operation is only supported for drives internally mounted in the server. Ultra3 LVD SCSI is not supported for external storage systems. HP adapters will default to Wide Ultra2 SCSI for external storage subsystems.

Compatibility

Servers

ProLiant ML 310
 ProLiant ML 330 G2 (SCSI)
 ProLiant ML 350 G3
 ProLiant ML 370 G3
 ProLiant ML 530 G2
 ProLiant ML 570 G2
 ProLiant ML 750
 ProLiant DL 320
 ProLiant DL 320 G2
 ProLiant DL 360 G2
 ProLiant DL 360 G3
 ProLiant DL 380 G2
 ProLiant DL 380 G3
 ProLiant DL 580 G2
 ProLiant DL 760

Technical Specifications

64-Bit/133-MHz PCI-X Dual Channel Ultra320 SCSI Adapter

SCSI Protocols	Ultra320 SCSI Wide Ultra3 SCSI Wide Ultra2 SCSI Ultra SCSI
Electrical Protocol	Low Voltage Differential (LVD)
Drives Supported	Up to 28 (14 per channel)
Storage Capacity	Up to 509.6 GB (this could be multiple TB if using tape library capacities)
Data Transfer Method	64-bit/133-MHz PCI-X bus-master
Maximum Host Bus Transfer Rate	532 MB/s per channel
Maximum SCSI Transfer Rate	320 MB/s per channel
Operating System Support	Microsoft Windows 2000, .Net/XP, NT 4 Linux Red Hat Advanced Server 2.1, Red Hat 7.3, Red Hat 8.0, SLES SuSE 7
External SCSI Connectors	Two 68-Pin VHDCI connectors
Internal SCSI Connectors	One SCSI-3 (68-Pin) for Channel A

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