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## **Product Datasheet**

# **HP StorageWorks NAS b2000**

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### Overview

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#### StorageWorks NAS b2000

- New server platform based on Proliant DL380 G3
- Columbia Data Products has been loaded in place of Virtual Replicator
- New web interface

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NAS b2000, internal storage

322311-001,421

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NAS b2000, external storage

322312-001,421

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#### Benefits of NAS

- Management & Consolidation
- StorageWorks NAS provides increased manageability of file services by allowing file server and storage consolidation. The integrated web GUI provides a single point of manageability for administrative function associated with advanced file serving.
- Scalability
- While consolidating servers and storage the StorageWorks NAS products provides scalability up to 27 TB that maximizes the return on storage investment.
- Availability
- StorageWorks NAS provides a family of products that offer a wide range of availability, and confidence that data will available when needed. From redundant components, to replication StorageWorks NAS offers it all.
- Performance
- Advanced file serving functions require high performance. The StorageWorks NAS family of products offers impressive performance ranging from the smallest business to the largest enterprise.

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#### What's New

- New updated server platform
- Columbia Data Products for snapshot functionality
- New web interface for easier management
- Integrated Lights-Out (iLO) Management standard on system board
- Intel® Xeon 2.8 GHz Processor (dual capability) with 512-KB level 2 ECC cache
- 1GB (expandable to 6GB) of 2-way interleaved capable PC2100 DDR SDRAM
- Integrated Smart Array 5i Plus Controller with optional Battery-Backed Write Cache (BBWC) Enabler option kit
- Three available 64-bit PCI-X slots, including two hot pluggable 100MHz slots and one 133MHz slot
- Two NC7781 PCI-X Gigabit NICs (embedded) 10/100/1000 WOL (Wake on LAN)
- 2 x 400-Watt Hot Plug Power Supply
- Redundant Hot Pluggable Fans



### Software Components

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#### HP Supplied Software

- Windows® Powered OS – providing advanced file services in a familiar easy to manage package. Management options include GUI, Integrated Lights Out functionality, Terminal Services, and Command Line interface
- HP NAS Data Copy – 30 day trial of advanced host based replication capabilities. Software license available as option for long term activation. NAS Data Copy is a host-based data replication package that allows data to be replicated over TCP/IP in either a synchronous or asynchronous mode. One-to-one, one-to-many, many-to-many replication is supported along with failover and fallback capabilities.
- CDP Persistent Storage Manager – allowing for incremental backup or snapshots throughout the day. Use storage space and management time more efficiently with small extremely fast copies of your data. Supports up to 256 snapshots using a flexible schedule for administration of snapshots.
- Rapid Launch – for easy configuration and set up of file services. The answer to the fast pace and demands of the data center environment
- Web Based Management GUI – for remote distribution and ongoing management and configuration of advanced file service where technical resources are at a premium. Maximizing the management resources available to you
- Windows Powered OS drivers, including Array Controller driver and HBA drivers
- SNMP management support – with pre-installed agents that work with management software such as HP Openview, or Tivoli TME, IBM Netview, CA Unicenter, and BMC
- NIC Teaming Drivers Pre-loaded – providing increased throughput & performance of important data
- HP & APC UPS agents – confidence that all will be well in the event of a site power failure
- Quick Restore CD – for restoration to the StorageWorks NAS standard factory image

### Models

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<b>HP StorageWorks NAS b2000 internal storage</b>  <i>322311-001/421</i>	<b>Processor</b>	(1) Intel Xeon Processor 2.80 GHz standard (up to 2 supported)
	<b>Cache Memory</b>	512 KB level 2 ECC cache
	<b>Memory</b>	1 GB (Standard) to 6 GB (Maximum) SDRAM
	<b>Network Controller</b>	(2) NC7781 PCI-X Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN) (embedded)
	<b>Storage Controller</b>	Smart Array 5i Plus Controller (integrated on system board) with BBWC
	<b>Hard Drive (Internal Storage)</b>	Standard two (2) 36 GB for mirrored OS, and standard three (3) 146.8 GB drives for user data
	<b>Diskette Drives</b>	1.44 MB
	<b>DVD Drive</b>	Slimline DVD-ROM (8x24x)
	<b>Standard Storage 322311-001,421</b>	440.4 GB (3 x 146.8 Universal 1 inch drives)
	<b>Maximum storage Internal to server</b>	587.2 GB (4 x 146.8 Universal 1 inch drives)
	<b>Form Factor</b>	Rack (2U), (3.5-inch)

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<b>HP StorageWorks NAS b2000 external storage</b>  <i>322312-001/421</i>	<b>Processor</b>	(1) Intel Xeon Processor 2.80 GHz standard (up to 2 supported)
	<b>Cache Memory</b>	512-KB level 2 ECC cache
	<b>Memory</b>	1 GB (Standard) to 6 GB (Maximum) SDRAM
	<b>Network Controller</b>	(2) NC7781 PCI-X Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN) (embedded)
	<b>Storage Controller</b>	Smart Array 5i Plus Controller (integrated on system board) with BBWC
	<b>Hard Drive (Internal Storage)</b>	Standard two (2) 36 GB drives for mirrored OS
	<b>Maximum storage Internal to server</b>	587.2 GB (4 x 146.8 Universal 1 inch drives)
	<b>External Storage cabinet*</b>	Standard one (1) 4314 storage enclosure with four (4) 146.8 GB 1" 10,000 rpm hot plug drives (587.2 GB) Maximum storage for 322312-xxx is 27TB. Single power supply, dual fans
	<b>External Storage Array Controller</b>	Standard one (1) Smart Array 5304/256 Controller
	<b>Form Factor</b>	Rack (5U), (7.5-inch)
	<b>Diskette Drives</b>	1.44 MB
	<b>DVD Drive</b>	Slimline DVD-ROM (8x24x)

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**Protocol Support for all b2000 models**      CIFS , NFS ,NCP, AppleTalk, HTTP, FTP  
 \* **NOTE:** External user storage is installed in the included 4314 storage enclosure.

### Options

<p>NAS b2000 customers who desire to activate NAS Data Copy after the 30 day trial will need to order the license part number 278546-001</p>	<p>NAS Data Copy</p>	<p>NAS Data Copy is a host-based data replication package that allows data to be replicated over TCP/IP in either a synchronous or asynchronous mode. One-to-one, one-to-many, many-to-many replication is supported along with failover and fallback capabilities.</p>
<p>TCP/Offload NIC (optional)</p>	<p>Alacritech 1000x1 Single Port Gigabit Server and Storage Accelerator Copper wire</p>	<p>Alacritech P/N 2000-100007</p>
<p><b>NOTE:</b> Additional technical and purchasing information can be obtained at <a href="http://www.alacritech.com/hp">http://www.alacritech.com/hp</a></p>	<p>Alacritech 1000x1 Single Port Gigabit Server and Storage Accelerator Fibre</p>	<p>Alacritech P/N 2000-100009</p>
	<p>Alacritech 100x4 Quad-Port Fast Ethernet Server Accelerator</p>	<p>Alacritech P/N 2000-100000</p>
<p>Unique Options</p>	<p>Round hole rack cabinet rail kit</p>	<p>293052-B21</p>
	<p><b>NOTE:</b> Support for racks with round mounting holes (include HP Rack System /E and HP Systems) with an adjustment range of 24" – 36".</p>	
	<p>Hot Plug AC Redundant Power Supply Module (NEMA cord) (NA)</p>	<p>313054-001</p>
	<p>Hot Plug AC Redundant Power Supply Module (IEC cord) (WW)</p>	<p>313054-B21</p>
<p>Processor</p>	<p>Intel Xeon 2.80 GHz-512KB Processor Option Kit</p>	<p>257915-B21</p>
	<p><b>NOTE:</b> This processor option kit (PN 257915-B21) supports the StorageWorks NAS b2000, b3000 &amp; ProLiant ML370 G3 and ProLiant DL380 G3 based servers.</p>	
<p>Memory</p>	<p>512MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (2 x 256 MB)</p>	<p>300678-B21</p>
	<p>1024MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (2 x 512 MB)</p>	<p>300679-B21</p>
	<p>2048-MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (2x1024 MB)</p>	<p>300680-B21</p>
<p>Hard Drives</p>	<p><b>Ultra 320 SCSI – Universal Hot Plug</b></p>	
	<p>36.4 GB 10,000 rpm, U320 Universal Hard Drive, 1"</p>	<p>286713-B22</p>
	<p>72.8 GB 10,000 rpm, U320 Universal Hard Drive, 1"</p>	<p>286714-B22</p>
	<p>146.8 GB 10,000 rpm, U320 Universal Hard Drive, 1"</p>	<p>286716-B22</p>
	<p>18.2 GB 15,000 rpm, U320 Universal Hard Drive, 1"</p>	<p>286775-B22</p>
	<p>36.4 GB 15,000 rpm, U320 Universal Hard Drive, 1"</p>	<p>286776-B22</p>
	<p>72.8 GB 15,000 rpm, U320 Universal Hard Drive, 1"</p>	<p>286778-B22</p>
	<p><b>NOTE:</b> All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds. U320 drives require an optional U320 Smart Array Controller or U320 SCSI HBA to support U320 transfer rates.</p>	
	<p><b>Wide Ultra3 SCSI – Universal Hot Plug</b></p>	
	<p>72.8 GB Wide Ultra3 SCSI 10,000 rpm Drive (1")</p>	<p>232432-B22</p>
	<p>36.4 GB Wide Ultra3 SCSI 10,000 rpm Drive (1")</p>	<p>176496-B22</p>
	<p>18.2 GB Wide Ultra3 SCSI 10,000 rpm Drive (1")</p>	<p>142673-B22</p>
	<p>36.4 GB Wide Ultra3 SCSI 15,000 rpm Drive (1")</p>	<p>232916-B22</p>
	<p>18.2 GB Wide Ultra3 SCSI 15,000 rpm Drive (1")</p>	<p>188122-B22</p>

### Options

<b>Storage Controllers</b>	Battery Backed Write Cache Enabler Option Kit (Japan)	255514-291
	Smart Array 532 Controller	225338-B21
	Smart Array 532 Controller (Japan)	225338-291
	Smart Array 5302/128 Controller	283552-B21
	Smart Array 5302/128 Controller (Japan)	283552-291
	Smart Array 5304/256 Controller	283551-B21
	Smart Array 5304/256 Controller (Japan)	283551-291
	Smart Array 5312 Controller	238633-B21
	Smart Array 5312 Controller (Japan)	238633-291
	RAID ADG Upgrade for Smart Array 5302	288601-B21
	Ultra3 Channel Expansion Module for Smart Array 5300 Controller	153507-B21
	128 MB Cache Module for Smart Array 5302 Controller	153506-B21
	Advanced Data Guarding Module for Smart Array 5302 Controller	199371-B21
	256 MB Battery-Backed Cache Module	254786-B21
	<b>NOTE:</b> This 256 MB Battery-Backed Cache Module supports the Smart Array 5300 series controllers, msa1000 and the Smart Array Cluster Storage.	
	64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter	129803-B21
	64-Bit/66-MHz Single Channel Wide Ultra3 SCSI Adapter	154457-B21
<b>NOTE:</b> Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: <a href="http://www5.hp.com/products/quickspecs/11063_div/11063_div.HTML">http://www5.hp.com/products/quickspecs/11063_div/11063_div.HTML</a> (Smart Array 5i Plus) <a href="http://www5.hp.com/products/quickspecs/10851_div/10851_div.HTML">http://www5.hp.com/products/quickspecs/10851_div/10851_div.HTML</a> (Smart Array 532) <a href="http://www5.hp.com/products/quickspecs/10640_div/10640_div.HTML">http://www5.hp.com/products/quickspecs/10640_div/10640_div.HTML</a> (Smart Array 5300 Series) <a href="http://www5.hp.com/products/quickspecs/11328_div/11328_div.HTML">http://www5.hp.com/products/quickspecs/11328_div/11328_div.HTML</a> (Smart Array 5312) <a href="http://www5.hp.com/products/quickspecs/10429_div/10429_div.HTML">http://www5.hp.com/products/quickspecs/10429_div/10429_div.HTML</a> (SCSI Adapter)		
<b>Communications</b>	NC3134 Fast Ethernet NIC 64 PCI Dual Port 10/100	138603-B21
	NC3135 Fast Ethernet Module Dual 10/100 Upgrade Module for NC3134	138604-B21
	NC6136 Gigabit Server Adapter, 64-bit/66MHz, PCI, 1000 SX	203539-B21
	NC7131 Gigabit Server Adapter, 64-bit/66Mhz, PCI, 10/100/1000-T	158575-B21
	NC7770 PCI-X Gigabit Server Adapter	244948-B21
<b>NOTE:</b> Any NC31XX, NC61XX, NC71XX or NC77XX NIC can be used for redundancy with the embedded NC7781 Network Controller.		
<b>Tape Drives</b>	<b>Internal &amp; External DAT Tape Drives</b>	
	HP StorageWorks 20/40-GB DAT DDS-4 Tape Drive, External (Carbon) (NA)	157770-002
	HP StorageWorks 20/40-GB DAT DDS-4 Tape Drive, External (Int'l) (Carbon)	157770-B32
	HP StorageWorks 20/40-GB DAT DDS-4 Tape Drive, External (Japan) (Carbon)	157770-292
<b>NOTE:</b> Please see the 20/40-GB DAT Tape Drive QuickSpecs for additional options such as host bus adapters, controllers, cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following: <a href="http://www5.hp.com/products/quickspecs/10426_div/10426_div.HTML">http://www5.hp.com/products/quickspecs/10426_div/10426_div.HTML</a> (Division/World Wide) <a href="http://www5.hp.com/products/quickspecs/10426_na/10426_na.HTML">http://www5.hp.com/products/quickspecs/10426_na/10426_na.HTML</a> (North America)		

### Options

#### Tape Drives *(continued)*

#### *Internal and External AIT Tape Drives*

HP StorageWorks External AIT 35-GB, LVD Tape Drive (Carbon)	216885-001
HP StorageWorks External AIT 35-GB, LVD Tape Drive (Carbon) (Int'l)	216885-B31
HP StorageWorks External AIT 35-GB, LVD Tape Drive (Carbon) (Japan)	216885-291

**NOTE:** The Integrated Smart Array 5i Controller does not support the AIT 35-GB LVD Tape Drive.

**NOTE:** Please see the AIT 35-GB, LVD Tape Drive QuickSpecs for additional options such as adapters, controllers, and cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/10712\\_div/10712\\_div.HTML](http://www5.hp.com/products/quickspecs/10712_div/10712_div.HTML) (Division/World Wide)

[http://www5.hp.com/products/quickspecs/10712\\_na/10712\\_na.HTML](http://www5.hp.com/products/quickspecs/10712_na/10712_na.HTML) (North America)

HP StorageWorks AIT 50-GB Tape Drive, External (Carbon) (NA)	157767-002
HP StorageWorks AIT 50-GB Tape Drive, External (Int'l) (Carbon)	157767-B32
HP StorageWorks AIT 50-GB Tape Drive, External (Japan) (Carbon)	157767-292
HP StorageWorks AIT 50-GB Tape Drive, 3U Rackmount	274333-B21

**NOTE:** The Integrated Smart Array 5i Controller does not support the AIT 50-GB Tape Drive.

**NOTE:** Please see the AIT 50-GB Tape Drive QuickSpecs for additional options such as adapters, controllers, and cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/10425\\_div/10425\\_div.HTML](http://www5.hp.com/products/quickspecs/10425_div/10425_div.HTML) (Division/World Wide)

[http://www5.hp.com/products/quickspecs/10425\\_na/10425\\_na.HTML](http://www5.hp.com/products/quickspecs/10425_na/10425_na.HTML) (North America)

HP StorageWorks External AIT 100-GB Tape Drive (Carbon)	249160-001
HP StorageWorks External AIT 100-GB Tape Drive (Carbon) (Int'l)	249160-B31

**NOTE:** The Integrated Smart Array 5i Controller does not support the AIT 100-GB Tape Drive.

**NOTE:** Please see the AIT 100-GB Tape Drive QuickSpecs for additional options such as adapters, controllers, and cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/11062\\_div/11062\\_div.HTML](http://www5.hp.com/products/quickspecs/11062_div/11062_div.HTML) (Division/World Wide)

[http://www5.hp.com/products/quickspecs/11062\\_na/11062\\_na.HTML](http://www5.hp.com/products/quickspecs/11062_na/11062_na.HTML) (North America)

#### *External DLT Tape Drives*

HP StorageWorks External 20/40-GB DLT Drive (opal)	340744-B22
HP StorageWorks External 20/40-GB DLT Drive (opal) (Japan)	340744-292

**NOTE:** The Integrated Smart Array 5i Controller does not support the 20/40-GB DLT Tape Drive.

**NOTE:** Please see the 20/40-GB DLT Drive QuickSpecs for additional options such as data and cleaning cartridges, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/10234\\_div/10234\\_div.HTML](http://www5.hp.com/products/quickspecs/10234_div/10234_div.HTML) (Division/World Wide)

[http://www5.hp.com/products/quickspecs/10234\\_na/10234\\_na.HTML](http://www5.hp.com/products/quickspecs/10234_na/10234_na.HTML) (North America)

HP StorageWorks 40/80-GB DLT Tape Drive, External (Carbon) (NA)	146197-B23
HP StorageWorks 40/80-GB DLT Tape Drive, External (Carbon) (Japan)	146197-293
HP StorageWorks Rackmount DLT 40/80, 3U (Single Drive)	274332-B21
HP StorageWorks Rackmount DLT 40/80, Dual Drive 3U (Two Drives)	274335-B21
HP StorageWorks Rackmount DLT 40/80, Tape Array III, 5U (Four Drives)	274337-B21

**NOTE:** Please see the 40/80-GB DLT Drive QuickSpecs for additional options such as host bus adapters, controllers, cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/10658\\_div/10658\\_div.HTML](http://www5.hp.com/products/quickspecs/10658_div/10658_div.HTML) (Division/World Wide)

[http://www5.hp.com/products/quickspecs/10658\\_na/10658\\_na.HTML](http://www5.hp.com/products/quickspecs/10658_na/10658_na.HTML) (North America)

## Options

### Tape Drives *(continued)*

#### **Internal and External SDLT Tape Drives**

HP StorageWorks SDLT 110/220, External (Carbon) (NA)	192103-002
HP StorageWorks SDLT 110/220, External Int'l (carbon)	192103-B32
HP StorageWorks SDLT 110/220, External Japan (Carbon)	192103-292
HP StorageWorks Rackmount SDLT 110/220, 3U (Single Drive)	274331-B21
HP StorageWorks Rackmount SDLT 110/220, Dual-Drive, 3U (Two Drives)	274334-B21
HP StorageWorks Rackmount SDLT 110/220, Tape Array III, 5U (Four Drives)	274336-B21

**NOTE:** Please see the SDLT 110/22-0GB Tape Drive QuickSpecs for additional options such as adapters, controllers, and media, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/10772\\_div/10772\\_div.HTML](http://www5.hp.com/products/quickspecs/10772_div/10772_div.HTML) (Division/World Wide)  
[http://www5.hp.com/products/quickspecs/10772\\_na/10772\\_na.HTML](http://www5.hp.com/products/quickspecs/10772_na/10772_na.HTML) (North America)

#### **External LTO Ultrium Tape Drives**

HP StorageWorks LTO Ultrium 230 Tape Drive, External (Carbon) NA	Q1516A
HP StorageWorks LTO Ultrium 230 Tape Drive, External (Carbon) Int'l	Q1517A

**NOTE:** Please see the HP StorageWorks LTO Ultrium Tape Drive QuickSpecs for additional options such as controllers, and other related items, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/11415\\_div/11415\\_div.HTML](http://www5.hp.com/products/quickspecs/11415_div/11415_div.HTML) (Division/World Wide)  
[http://www5.hp.com/products/quickspecs/11415\\_na/11415\\_na.HTML](http://www5.hp.com/products/quickspecs/11415_na/11415_na.HTML) (North America)

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

**NOTE:** Please see the HP StorageWorks Ultrium 460 Tape Drives for ProLiant QuickSpecs for additional options such as data and cleaning cartridges, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/11530\\_div/11530\\_div.HTML](http://www5.hp.com/products/quickspecs/11530_div/11530_div.HTML) (Division/World Wide)  
[http://www5.hp.com/products/quickspecs/11530\\_na/11530\\_na.HTML](http://www5.hp.com/products/quickspecs/11530_na/11530_na.HTML) (North America)

#### **External DAT Autoloader**

20/40-GB DAT 8 Cassette Autoloader External (Opal)	166505-001
20/40-GB DAT 8 Cassette Autoloader External (Opal) (Int'l)	166505-B31
20/40-GB DAT 8 Cassette Autoloader External (Opal) (Japan)	166505-291

**NOTE:** Please see the 20/40-GB DAT DDS-4 8 Cassette Autoloader QuickSpecs for additional options such as adapters, controllers, and cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/10518\\_div/10518\\_div.HTML](http://www5.hp.com/products/quickspecs/10518_div/10518_div.HTML) (Division/World Wide)  
[http://www5.hp.com/products/quickspecs/10518\\_na/10518\\_na.HTML](http://www5.hp.com/products/quickspecs/10518_na/10518_na.HTML) (North America)

#### **AIT Autoloader**

HP StorageWorks AIT 35 GB Autoloader, Rackmount (Carbon) (NA)	280349-001
HP StorageWorks AIT 35 GB Autoloader, Rackmount (Carbon) (Int'l)	280349-B31

**NOTE:** The Integrated Smart Array 5i Controller does not support the AIT 35-GB Autoloader.

**NOTE:** Please see the AIT 35-GB Autoloader QuickSpecs for additional options such as adapters, controllers, and cassettes, and for an up-to-date listing of the latest O/S Support details, please see the following:

[http://www5.hp.com/products/quickspecs/11404\\_div/11404\\_div.HTML](http://www5.hp.com/products/quickspecs/11404_div/11404_div.HTML) (Division/World Wide)  
[http://www5.hp.com/products/quickspecs/11404\\_na/11404\\_na.HTML](http://www5.hp.com/products/quickspecs/11404_na/11404_na.HTML) (North America)

## Options

Tape Drives <i>(continued)</i>	<b>HP StorageWorks 1/8 Autoloader</b>		
	HP StorageWorks 1/8 Autoloader, Tabletop, Ultrium 230	C9572CB	
	HP StorageWorks 1/8 Autoloader, Tabletop, DLT VS80	C9264CB	
	HP StorageWorks 1/8 Autoloader, Rackmount kit	C9268R	
<b>Rackmount Tape Drive Kits</b>			
	3U Rackmount Kit	274338-B21	
	<b>NOTE:</b> 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 12/24-GB DAT, 20/40-GB DAT, AIT 35-GB LVD, AIT 50-GB, 20/40-GB DLT, 40/80-GB DLT, and the SDLT 110/220-GB Tape Drives.		
	5U Rackmount Kit	274339-B21	
	<b>NOTE:</b> The 5U Rackmount Kit (PN 274339-B21) can support up to (4) full-height tape drives and is compatible with all DLT/SDLT tape drives including the 20/40-GB DLT, 35/70-GB DLT, 40/80-GB DLT, and the SDLT 110/220-GB tape drives.		
	<b>NOTE:</b> Please see the Rackmount Tape Drive Kits QuickSpecs for additional information regarding these kits, please see the following: <a href="http://www5.hp.com/products/quickspecs/10854_div/10854_div.HTML">http://www5.hp.com/products/quickspecs/10854_div/10854_div.HTML</a> (Division/World Wide) <a href="http://www5.hp.com/products/quickspecs/10854_na/10854_na.HTML">http://www5.hp.com/products/quickspecs/10854_na/10854_na.HTML</a> (North America)		
<b>Rackmount Tape Drive Cable Kits</b>			
	LVD Cable Kit, VHDCI/HD68	168048-B21	
	<b>NOTE:</b> For use with the 3U RM Storage Enclosure and DLT Tape Array III only.		
	LVD Cable Kit, HD68/HD68	242381-B21	
	<b>NOTE:</b> For use with the 3U RM Storage Enclosure and DLT Tape Array III only.		
Tape Automation	<b>SSL2020 – AIT50 based library with up to 2 drives and 20 slots</b>		
	SSL2020 AIT Mini-Library 1 drive, 20 slot Table Top	175195-B21	
	SSL2020 AIT Mini-Library 2 drive, 20 slot Table Top	175195-B22	
	SSL2020 AIT Mini-Library 1 drive, 20 slot Rackmount	175196-B21	
	SSL2020 AIT Mini-Library 2 drive, 20 slot Rackmount	175196-B22	
	SSL2020 AIT Library Pass Thru with Transport	175312-B21	
	<b>Add-on drives and accessories</b>		
	SSL2020 AIT Library Pass Thru Extender	175312-B22	
	AIT 50GB Drive Add-On LVD Drive for SSL2020 AIT Library	175197-B21	
	19 Slot Magazine for SSL2020 AIT Library	175198-B21	
	AIT 50-GB Data Cassette (5 pack)	152841-001	
	AIT Cleaning Cassette	402374-B21	
		<b>NOTE:</b> Please see the SSL2020 Automated AIT Tape Library Solution QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at: <a href="http://www5.hp.com/products/quickspecs/10580_na/10580_na.HTML">http://www5.hp.com/products/quickspecs/10580_na/10580_na.HTML</a> (North America) <a href="http://www5.hp.com/products/quickspecs/10580_div/10580_div.HTML">http://www5.hp.com/products/quickspecs/10580_div/10580_div.HTML</a> (Division/World Wide)	

## Options

### Tape Automation *(continued)*

#### **MSL5060L1 – LTO Ultrium 1 based departmental library up to 4 drives and 60 slots**

MSL5060L1, 0 DRV LTO1 RM Library	301899-B21
MSL5060L1, 2 DRV LTO1 RM Library	301899-B22
MSL5060L1, 2 DRV LTO1 TT Library	301900-B21
MSL5060L1FC, 2 DRV LTO1 RM-with integrated FC router	301899-B23

**NOTE:** Please see the HP StorageWorks MSL5060 LTO Library QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at:  
[http://www5.hp.com/products/quickspecs/11438\\_na/11438\\_na.HTML](http://www5.hp.com/products/quickspecs/11438_na/11438_na.HTML) (North America)  
[http://www5.hp.com/products/quickspecs/11438\\_div/11438\\_div.HTML](http://www5.hp.com/products/quickspecs/11438_div/11438_div.HTML) (Division/World Wide)

#### **MSL5052S2 – SDLT160 based departmental library up to 4 drives and 52 slots**

MSL5052S2, RM 0 DRV SDLT ALL	255102-B21
MSL5052S2, 2 DRV SDLT2 TT LIB	293476-B21
MSL5052S2, 2 DRV SDLT2 RM LIB	293474-B21
MSL5052S2FC 2 DRV SDLT2 RM- with integrated FC router	293474-B24

**NOTE:** Please see the HP StorageWorks MSL5052S2 Library QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at:  
[http://www5.hp.com/products/quickspecs/11442\\_na/11442\\_na.HTML](http://www5.hp.com/products/quickspecs/11442_na/11442_na.HTML) (North America)  
[http://www5.hp.com/products/quickspecs/11442\\_div/11442\\_div.HTML](http://www5.hp.com/products/quickspecs/11442_div/11442_div.HTML) (Division/World Wide)

### HP StorageWorks MSL5000 mid-range libraries

#### **MSL5030L1 – LTO Ultrium 1 mid-range library up to 2 drives and 30 slots**

MSL5030L1, 0 DRV LTO1 RM Library	301897-B21
MSL5030L1, 1 DRV LTO1 RM Library	301897-B22
MSL5030L1, 2 DRV LTO1 RM Library	301897-B23
MSL5030L1, 1 DRV LTO1 TT Library	301898-B21
MSL5030L1, 2 DRV LTO1 TT Library	301898-B22
MSL5030L1FC, 1 DRV LTO1 RM- with integrated FC router	301897-B24
MSL5030L1FC, 2 DRV LTO1 RM- with integrated FC router	293472-B25

**NOTE:** Please see the HP StorageWorks MSL5030 LTO Library QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at:  
[http://www5.hp.com/products/quickspecs/11439\\_na/11439\\_na.HTML](http://www5.hp.com/products/quickspecs/11439_na/11439_na.HTML) (North America)  
[http://www5.hp.com/products/quickspecs/11439\\_div/11439\\_div.HTML](http://www5.hp.com/products/quickspecs/11439_div/11439_div.HTML) (Division/World Wide)

#### **MSL5026S2 – SDLT160 based mid-range library up to 2 drives and 26 slots**

MSL5026S2, 0 DRV SDLT2 RM Library	293472-B21
MSL5026S2, 1 DRV SDLT2 RM Library	293472-B22
MSL5026S2, 2 DRV SDLT2 RM Library	293472-B23
MSL5026S2, 1 DRV SDLT2 TT Library	293473-B21
MSL5026S2, 2 DRV SDLT2 TT Library	293473-B22
MSL5026S2FC, 1 DRV SDLT2 RM- with integrated FC router	293472-B24
MSL5026S2FC, 2 DRV SDLT2 RM- with integrated FC router	293472-B25

**NOTE:** Please see the HP StorageWorks MSL5026SL Library QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at:  
[http://www5.hp.com/products/quickspecs/11453\\_na/11453\\_na.HTML](http://www5.hp.com/products/quickspecs/11453_na/11453_na.HTML) (North America)  
[http://www5.hp.com/products/quickspecs/11453\\_div/11453\\_div.HTML](http://www5.hp.com/products/quickspecs/11453_div/11453_div.HTML) (Division/World Wide)

## Options

### Tape Automation *(continued)*

### HP StorageWorks MSL5000 mid-range libraries *(continued)*

#### **MSL5026SL Graphite – SDLT110 based mid-range library up to 2 drives and 26 slots**

MSL5026SL, 1 DRV SDLT TT, graphite	302511-B21
MSL5026SL, 2 DRV SDLT TT, graphite	302511-B22
MSL5026SL, 1 DRV SDLT RM, graphite	302512-B21
MSL5026SL, 2 DRV SDLT RM, graphite	302512-B22

**NOTE:** Please see the HP StorageWorks MSL5026SL Graphite Library QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at:

[http://www5.hp.com/products/quickspecs/11440\\_na/11440\\_na.HTML](http://www5.hp.com/products/quickspecs/11440_na/11440_na.HTML) (North America)

[http://www5.hp.com/products/quickspecs/11440\\_div/11440\\_div.HTML](http://www5.hp.com/products/quickspecs/11440_div/11440_div.HTML) (Division/World Wide)

#### **MSL5026SL Opal – SDLT110 based mid-range library up to 2 drives and 26 slots**

MSL5026, 0 DR, LVD, RM	231979-B21
MSL5026SL, 1 SDLT 110/220,LVD, TT	231822-B21
MSL5026SL, 2 SDLT 110/220,LVD, TT	231822-B22
MSL5026SL, 1 SDLT 110/220,LVD, RM	231892-B21
MSL5026SL, 2 SDLT 110/220,LVD, RM	231892-B22

#### **MSL5026DLX– 40/80GB DLT based mid-range library up to 2 drives and 26 slots**

MSL5026DLX, 1 40/80GB DLT, LVD, TT	231821-B21
MSL5026DLX, 2 40/80GB DLT, LVD, TT	231821-B22
MSL5026DLX, 1 40/80GB DLT, LVD, RM	231891-B21
MSL5026DLX, 2 40/80GB DLT, LVD, RM	231891-B22

**NOTE:** Please see the HP StorageWorks MSL5026DLX Library QuickSpecs for additional information including Upgrade Kits, Accessories, and SCSI Cable Kits and additional options needed for a complete solution at:

[http://www5.hp.com/products/quickspecs/10860\\_na/10860\\_na.HTML](http://www5.hp.com/products/quickspecs/10860_na/10860_na.HTML) (North America)

[http://www5.hp.com/products/quickspecs/10860\\_div/10860\\_div.HTML](http://www5.hp.com/products/quickspecs/10860_div/10860_div.HTML) (Division/World Wide)

#### **MSL5000 Add-on drives & accessories**

MSL5000 SDLT 160/320 Upgrade DRV (MSL5052S2 & MSL5026S2 only)	293475-B21
MSL5000 LTO Ultrium 1 Upgrade DRV (MSL5060L1 & MSL5030L1 only)	301901-B21
MSL5000 SDLT 110/220 Upgrade DRV	231823-B22
MSL5000 40/80GB DLT Upgrade DRV	231823-B21
MSL5000 Dual Magazine LTO (2 X 15 slot magazines)	301902-B21
MSL5000 Dual Magazine DLT (2 X 13 slot magazines)	232136-B21
MSL5000, Pass through mechanism 10U (includes elevator mechanism and router, required to connect first two units in a stack)	231824-B21
MSL5026, 5U Pass through extender (required one for each unit connected to the stack, for third and additional units) – for MSL5026 & MSL5030	231824-B22
MSL5052, 10U Pass-Through Extender (required one for each unit connected to the stack, for third and additional units) – for MSL5052 & MSL5060	231824-B23

### Options

External Storage - Rack	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
	<b>NOTE:</b> The HP StorageWorks Enclosure 4300 Family supports the Wide Ultra2/Ultra3 1" Hot Plug Hard Drives.	

UPS Power Cord Reference Guide *Please see the UPS Power Cord Reference Guide for that lists cable descriptions, requirements, and specifications for UPS units.*  
<http://www.hp.com/products/servers/proliantstorage/power-protection/options/index.html>

Uninterruptible Power Systems - Rack	UPS R1500 XR (1440VA, 1340 Watt), Low Voltage (NA)	204404-001	
	UPS R1500 XR (1500VA, 1340 Watt), High Voltage (Int'l)	204404-B31	
	UPS R1500 XR (1500VA, 1340 Watt), Low Voltage (Japan)	204404-291	
	UPS R3000 XR (2880VA, 2700 Watt), Low Voltage (NA)	192186-001	
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage (NA)	192186-002	
	UPS R3000 XR (2400VA, 2250 Watt), Low Voltage (Japan)	192186-291	
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Japan)	192186-292	
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Int'l - detachable cord)	192186-B31	
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A IEC309 Plug)	192186-B32	
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A CEE 7/7 SCHUKO Plug)	192186-B33	
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A BS-546 Plug)	192186-AR1	
	Rackmountable UPS R6000 (6000VA, 6000 Watt) High Voltage (NA)	347207-001	
	Rackmountable UPS R6000 (6000VA, 6000 Watt) High Voltage (Int'l)	347207-B31	
	Rackmountable UPS R6000 (6000VA, 6000 Watt) High Voltage (Japan)	347207-291	
	UPS R12000 XR, N+x (12KVA, 12KW) High Voltage (WW)	207552-B22	
	<b>NOTE:</b> UPS R6000 has a hardwired input; and the UPS R12000 XR has a hardwired input and output connection.		

UPS Options	SNMP Serial Port Card	192189-B21
	<b>NOTE:</b> Supports tower and rack UPS XR models ranging from 1000 – 3000VA.	
	Six Port Card	192185-B21
	<b>NOTE:</b> Supports tower and rack UPS XR models ranging from 1000 – 3000VA.	
	High to Low Voltage Transformer (250VA)	388643-B21
	<b>NOTE:</b> Supports R6000 UPS series only. 2.5 amps @ 125 Volts max output across two NEMA 5-15.	
	Extended Runtime Module, R1500 XR, 2U	218971-B21
	<b>NOTE:</b> 2U each, two ERM maximum.	
	Extended Runtime Module, R3000 XR, 2U	192188-B21
	<b>NOTE:</b> 3U each, one ERM maximum.	
	Extended Runtime Module, R6000, 3U	347224-B21
	<b>NOTE:</b> 3U each, two ERM maximum.	
	Extended Runtime Module, R12000 XR, 4U	217800-B21
<b>NOTE:</b> 4U each, two ERM maximum.		
SNMP-EN Adapter	347225-B21	
<b>NOTE:</b> Supports R6000 UPS series only.		
Multi-Server UPS Card	123508-B21	
<b>NOTE:</b> Supports R6000 UPS series only.		
Scalable UPS Card	123509-B21	
<b>NOTE:</b> Supports R6000 UPS series only.		

### Options

<b>Rackmountable PDUs – 1U/0U</b> (Up to 12 outlets)	Power Distribution Unit-16A (200 to 240V) (WW)	207590-B21
	<b>NOTE:</b> The 16A PDU also connects to the high volt models of the UPS R3000 XR (need cable P/N 340653-001) and the UPS R6000 models.	
	Power Distribution Unit-32A (200 to 240V) (Int'l)	207590-B31
	Power Distribution Unit-40A (200 to 240V) (WW)	207590-B23
<b>NOTE:</b> Please see the following Power Distribution Unit (Zero-U/1U PDU) QuickSpecs for additional options including cables: <a href="http://www5.hp.com/products/quickspecs/10838_na/10838_na.HTML">http://www5.hp.com/products/quickspecs/10838_na/10838_na.HTML</a> (North America) <a href="http://www5.hp.com/products/quickspecs/10838_div/10838_div.HTML">http://www5.hp.com/products/quickspecs/10838_div/10838_div.HTML</a> (Division/World Wide)		
<b>Dual Input PDUs, 1U/0U</b> (Up to 12 outlets)	Dual Input Power Distribution Unit-24A High Voltage (NA only)	191186-001
	Dual Input Power Distribution Unit-24A High Voltage (Int'l)	191186-B31
	<b>NOTE:</b> Please see the following Power Distribution Unit (Zero-U/1U PDU) QuickSpecs for additional options including cables: <a href="http://www5.hp.com/products/quickspecs/10838_na/10838_na.HTML">http://www5.hp.com/products/quickspecs/10838_na/10838_na.HTML</a> (North America) <a href="http://www5.hp.com/products/quickspecs/10838_div/10838_div.HTML">http://www5.hp.com/products/quickspecs/10838_div/10838_div.HTML</a> (Division/World Wide)	
<b>Modular PDUs 1U/0U</b> (Up to 32 outlets)	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) (NA, Japan)	252663-D71
	<b>NOTE:</b> The above mPDU may also be used to connect to the low volt model of the UPS R3000 XR.	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72
	HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31
	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) (WW)	252663-B21
	<b>NOTE:</b> The 40A model has a hardwired input.	
<b>PDU Options</b>	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW)	252663-B24
	<b>NOTE:</b> This PDU has a detachable input power cord and allows for adaptability to country specific power requirements. This model may also be used with the high volt UPSs R3000 XR and R6000.	
	<b>NOTE:</b> Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords: <a href="http://www5.hp.com/products/quickspecs/11041_na/11041_na.HTML">http://www5.hp.com/products/quickspecs/11041_na/11041_na.HTML</a> (North America) <a href="http://www5.hp.com/products/quickspecs/11041_div/11041_div.HTML">http://www5.hp.com/products/quickspecs/11041_div/11041_div.HTML</a> (Division/World Wide)	
<b>PDU Options</b>	1U PDU Mounting Brackets Kit	215852-B21
	<b>NOTE:</b> The 1U PDU Mounting Brackets are required when mounting PDU's PN 207590-xxx series in 1U configurations.	
<b>PDU Options</b>	Third Party PDU Mounting Kit	310777-B21
	<b>NOTE:</b> This kit allows you to mount the Modular PDUs in racks other than the 9000/10000 Series racks (any racks using the standard 19" rail). For more details please refer the Modular PDU QuickSpecs.	
<b>Rack Options for Third Party Cabinet Racks</b>	Input Device Telco Rails	287138-B21
	<b>NOTE:</b> Input Device Telco Rails (287138-B21) are for use ONLY with the TFT5110R, TFT5600RKM and integrated keyboard/drawer which is used in mounting into third party racks.	
<b>Rack Options for Third Party Cabinet Racks</b>	Round hole rack cabinet rail kit	293052-B21
	<b>NOTE:</b> Support for racks with round mounting holes (include HP Rack System /E and HP Systems) with an adjustment range of 24" – 36".	

## Memory

### HP StorageWorks NAS b2000

#### STANDARD MEMORY

1 GB PC2100 Registered DDR SDRAM DIMM Memory comes installed (2 x 512MB SDRAM)

#### STANDARD MEMORY PLUS OPTIONAL MEMORY

Up to 5,120 MB of memory is available with the optional installation of PC2100 Registered DDR SDRAM DIMM Memory Option Kits.

#### STANDARD MEMORY REPLACED WITH OPTIONAL MEMORY

Up to 6,144 MB of memory is available with the removal of the standard 1 GB (2 x 512 MB) of memory and the optional installation of PC2100 Registered DDR SDRAM DIMM Memory Option Kits.

**NOTE:** Chart does not represent all possible configurations.

Memory		Slot					
		1	2	3	4	5	6
Standard	1024 MB	512 MB	512 MB	Empty	Empty	Empty	Empty
Optional	5,120 MB	512 MB	512 MB	1024 MB	1024 MB	1024 MB	1024 MB
Maximum	6,144 MB	1024 MB	1024 MB	1024 MB	1024 MB	1024 MB	1024 MB

**NOTE:** In the online spare configuration, the ROM automatically configures the last populated back as the spare memory. If only banks A and B are populated, bank B is the spare bank. If banks A, B, and C are populated, bank C is the spare bank; Online spare memory is configured through RBSU.

Following are memory options available from HP:

- 2048 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (2x1024 MB) 300680-B21
- 1024 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (2 x 512 MB) 300679-B21
- 512 MB of Advanced ECC PC2100 DDR SDRAM DIMM Memory Kit (2 x 256 MB) 300678-B21

### Storage



0-5	Six 1" Wide Ultra3 SCSI hot plug hard drives
A	1.44-MB Diskette Drive
B	Slimline DVD-ROM (8x24x)
C	Six 1" Wide Ultra3 SCSI hot plug hard drives or for five hot plug hard drives and one AIT or 20/40-GB DAT hot plug tape drive

### DRIVE SUPPORT

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
1.44-MB Diskette Drive	1	A	Integrated
Slimline DVD-ROM (8x24x)	1	B	Integrated IDE

#### Hard Drives

##### Ultra 320 Hot Pluggable Drives

1-inch	Internal to server	Up to 2-5	Smart Array 5i Controller (integrated on system board)
146.8-GB 10,000 rpm	to 4 additional to the mirrored OS drives		Smart Array 532 Controller
72.8-GB 10,000 rpm			Smart Array 5302/128 Controller
36.4-GB 10,000 rpm			Smart Array 5304/256 Controller
72.8-GB 15,000 rpm			Smart Array 5312 Controller
36.4-GB 15,000 rpm			64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter
18.2-GB 15,000 rpm			64-Bit/66-MHz Single Channel Wide Ultra3 SCSI Adapter

**NOTE:** All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds. U320 drives require an optional U320 Smart Array Controller or U320 SCSI HBA to support U320 transfer rates.

##### Wide Ultra3 Hot Pluggable Drives

1-inch	Internal to server	Up to 2-5	Smart Array 5i Controller (integrated on system board)
72.8-GB 10,000 rpm	to 4 additional to the mirrored OS drives		Smart Array 532 Controller
36.4-GB 10,000 rpm			Smart Array 5302/128 Controller
18.2-GB 10,000 rpm			Smart Array 5304/256 Controller
36.4-GB 15,000 rpm			Smart Array 5312 Controller
18.2-GB 15,000 rpm			64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter
			64-Bit/66-MHz Single Channel Wide Ultra3 SCSI Adapter

#### External Storage

StorageWorks Enclosure 4300 Family (supports Ultra2/Ultra3 1" drives only)	Up to 13	External	Smart Array 532 Controller Smart Array 5302/128 Controller Smart Array 5304/256 Controller Smart Array 5312 Controller 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter 64-Bit/66-MHz Single Channel Wide Ultra3 SCSI Adapter
3U Rackmount Kit	Up to 3	External	64-bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter
5U Rackmount Kit			64-bit/66-MHz Single Channel Wide Ultra3 SCSI Adapter
3U RM Storage Expander	Up to 3	External	64-bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter 64-bit/66-MHz Single Channel Wide Ultra3 SCSI Adapter

## Power Specifications

### POWER SPECIFICATIONS

Part Number	194989-002
Spare Kit	199382-B21
Operational Input Voltage Range (V rms)	90 to 264
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	400	400	400	400	400	400
Nominal Input Current (A rms)	5.8	5.0	2.7	2.5	2.4	2.3
Max Rated Input Wattage Rating (Watts)	571	563	548	541	541	541
Max. Rated VA (Volt-Amp)	583	575	559	552	552	552
Efficiency (%)	70	71	73	74	74	74
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.31	0.36	0.65	0.69	0.72	0.75
Maximum Inrush Current (A peak)	50	50	50	50	50	50
Maximum Inrush Current duration	20	20	20	20	20	20

### SYSTEM SPECIFICATIONS

#### StorageWorks NAS b2000 Fully Configured

2 Processors, 6 Memory Slots, 6 Hard Drives, 3 PCI Slots, and 2 Hot Plug Power Supplies

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Fully Loaded System Input Wattage (W)	431	411	406	400	395	390
Fully Loaded System Input Current (A)	4.3	3.6	2.0	1.9	1.8	1.7
Fully Loaded System Thermal (BTU-Hr)	1421	1401	1383	1365	1347	1330
Fully Loaded System VA (Volt-Amp)	425	419	414	408	403	398
System Leakage with all power supplies loaded (mA)	0.63	0.72	1.30	1.38	1.44	1.50
System Inrush Current with all power supplies loaded (A)	100	100	100	100	100	100
Power cord requirements	Nema 5-15P to IEC320-C13			Option no./Spare no.: See Chart below		
	IEC320-C13 to IEC320-C14			Option no./Spare no.: 142259-001/142258-B21		

## Technical Specifications

<b>System Unit</b>	<b>Dimensions (HxWxD)</b>	3.38 x 17.50 x 25.75 in/ 8.59 x 44.45 x 65.41 cm
	<b>Weight</b>	Maximum: 60 lb/27.22 kg No drives: 47.18 lb/20.41 kg
<b>Input Requirements</b> (per power supply)	Range Line Voltage	90 to 132 VAC/180 to 265 VAC
	Nominal Line Voltage	100 to 120 VAC/220 to 240 VAC
	Rated Input Current	6A (110V) to 3A (220V)
	Rated Input Frequency	50 to 60 Hz
	Rated Input Power	600W
<b>BTU Rating</b>	1,475 BTU/HR	
<b>SCSI Connectors</b>	One external VHDCI connector	
<b>Power Supply Output Power</b> (per power supply)	Rated Steady-State Power	400W
	Maximum Peak Power	400W
<b>Temperature Range</b>	Operating	50° to 95°F/10° to 35°C
	Shipping	-40° to 158°F/-40° to 70°C
<b>Relative Humidity</b> (non-condensing)	Operating	10% to 90%
	Non-operating	5% to 95%
<b>Maximum Wet Bulb Temperature</b>	82.4°F/28°C	
<b>Acoustic Noise</b>	Idle Minimum (Fixed Disk Drives Spinning)	
	<b>L<sub>WA</sub>d</b> (BELS)	7.0
	<b>L<sub>pAm</sub></b> (dBA)	55
	Operating Minimum (Random Seeks to Fixed Disks)	
	<b>L<sub>WA</sub>d</b> (BELS)	7.0
	<b>L<sub>pAm</sub></b> (dBA)	55
<b>Acoustic Noise</b>	Idle Maximum (Fixed Disk Drives Spinning)	
	<b>L<sub>WA</sub>d</b> (BELS)	7.2
	<b>L<sub>pAm</sub></b> (dBA)	56
	Operating Maximum (Random Seeks to Fixed Disks)	
	<b>L<sub>WA</sub>d</b> (BELS)	7.3
	<b>L<sub>pAm</sub></b> (dBA)	57

## Technical Specifications

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1.44-MB Diskette Drive	<b>Diskette Size</b>	3.5 in	
	<b>LED Indicators</b> (front panel)	Green	
	<b>Read/Write Capacity per Diskette</b> (high/mid/low density)	1.44 MB/1.2 MB/720 KB formatted	
	<b>Drive Supported</b>	One	
	<b>Drive Height</b>	0.50 in/1.27 cm	
	<b>Drive Rotation</b>	300/360/300 rpm	
	<b>Transfer Rate</b> (high/mid/low)	500/500/250 Kb/s	
	<b>Bytes/Sector</b>	512	
	<b>Sectors/Track</b> (high/mid/low)	18/15/9	
	<b>Tracks/Side</b> (high/low)	80/80	
	<b>Access Times</b>	Track-to-Track (high/mid/low)	3/3/6 ms
		Average (high/mid/low)	174/94/94 ms
		Settling Time	15 ms
		Latency Average	100 ms/83.3 ms/100 ms
<b>Cylinders</b> (high/low)	80/80		
<b>Read/Write Heads</b>	Two		

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## Technical Specifications

Integrated Smart Array 5i Plus Controller	Data Compatible with all Smart Array Controllers	Yes
	Instant Upgrades to other Smart Array Controllers	Yes
	Consistent Software Manageability Tools	Yes
	PCI-X Bus	64-bit, 100 MHz (integrated on system board)
	PCI-X Peak Data Transfer Rate	800 MB/s
	SCSI Protocols Supported	Ultra3, Ultra2
	SCSI Peak Data Transfer Rate	160 MB/s per channel <b>NOTE:</b> For ProLiant servers having TWO internal drive bays on separate SCSI ports: SCSI Peak Data Transfer Rate is 320 MB/s total; 160 MB/s per channel and Channels is 2.
	Channels	2 <b>NOTE:</b> For ProLiant servers having two internal drive bays on separate SCSI ports: SCSI Peak Data Transfer Rate is 320 MB/s total; 160 MB/s per channel and Channels is 2.
	SCSI Ports (external/internal)	0/2 <b>NOTE:</b> For ProLiant servers having two internal drive bays on separate SCSI ports: SCSI Peak Data Transfer Rate is 320 MB/s total; 160 MB/s per channel and Channels is 2.
	Drives Supported (maximum)	Maximum = total number of drives <b>NOTE:</b> Maximum is the total number of internal drives on each specific ProLiant server.
	Cache	64 MB Read and/or Write Cache
	Battery-Backed Write Cache	Yes, with installation of Battery-Backed Write Cache Enabler, up to 64MB
	RAID Support	0, 1, 1+ 0, 5
	Logical Drives (maximum)	Maximum = total number of drives
	Online Configuration	Yes
	Online Capacity Expansion	Yes
	Logical Drive Capacity Extension	Yes
	Online Stripe Size Migration	Yes
	Online RAID Level Migration	Yes
	Online Spare Support	Yes
Automatic Data Recovery	Yes	
Drive Roaming	Yes	
Redundant Controllers	No	

## Technical Specifications

**NC7781 PCI-X Gigabit NIC**  
(embedded) 10/100/1000 WOL  
(Wake On LAN)

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<b>Network Interface</b>	10Base-T/100Base-TX/1000 BaseTX
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<b>Compatibility</b>	IEEE 802.3/802.3u compliant
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<b>Data Transfer Method</b>	64-bit bus-master PCI-X
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**Network Transfer Rate**

10Base-T (Half-Duplex)	10 Mb/s
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10Base-T (Full-Duplex)	20 Mb/s
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100Base-TX (Half-Duplex)	100 Mb/s
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100Base-TX (Full-Duplex)	200 Mb/s
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1000BaseTX (Half-Duplex)	1000 Mb/s
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1000BaseTX (Full-Duplex)	2000 Mb/s
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<b>Connector</b>	RJ-45
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**Cable Support**

10Base-T	Categories 3, 4 or 5 UTP; up to 328 feet (100 meters)
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100Base-TX	Category 5 UTP; up to 328 feet (100 meters)
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1000BaseTX	Category 5 UTP; up to 328 feet (100 meters)
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## Service & Support, CarePack and Warranty Information

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- Software Product Services**
- Stand-alone telephone support
  - Media and documentation updates
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- 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
  - For additional hardware installation and maintenance information, please refer to the URLs listed below:
  - [http://www.hp.com/services/carepaq/cp\\_installation.html](http://www.hp.com/services/carepaq/cp_installation.html)
  - [http://www.hp.com/services/carepaq/cp\\_hardware.html](http://www.hp.com/services/carepaq/cp_hardware.html)
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**Warranty** The b2000 is covered standard with a 3-3-3 warranty

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- Warranty Upgrade Options**
- Response – Upgrade on-site response from next business day to same day 4-hours
  - Coverage – Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
  - Duration – Select duration of coverage for a period of 1, 3, or 5 years
- Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- Care Pack is not available for less than the product's warranty duration.
  - 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.
  - Care Pack services are prepaid.
  - For additional Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:  
<http://www.hp.com/services/carepaq/index.html>
- 

**Components** The following brick-level options/components do not have individual Care Packs. These items will be included in product Care Packs into which they are installed.

Disk Drives	Tape Drives	CD/DVD ROM	SCSI Hubs in SBBs
Bus Converters	Backplane RAID Controllers	Power Supplies	Cabling

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