

Overview

Introduction

The HP ProLiant DL580 G2 Storage Server is the ultimate in NAS performance, scalability and availability by providing a gateway to the enterprise SAN for file level data. The ProLiant DL580 G2 Storage Server provides the maximum return on data center storage investment and the confidence that is expected in an enterprise environment is built in. The ProLiant DL580 G2 Storage Server connects to the industry's broadest range of SAN arrays - the fusion of NAS and SAN for the enterprise.

The HP ProLiant DL580 G2 Storage Server models are available with several supported storage arrays including: EVA5000, EVA3000, XP, EMA, MA, VA, MSA1000 and MSA1500 cs.

What's New

- The HP ProLiant DL580 G2 Storage Server was previously known as the HP StorageWorks NAS 9000s. As of November 2004, HP re-branded all of its HP StorageWorks NAS products to the new brand name of HP ProLiant Storage Server. Other than the name, there is no difference between an HP ProLiant DL580 G2 Storage Server and an HP StorageWorks NAS 9000s.

What is a Storage Server? HP uses the Storage Server product name to describe its Network Attached Storage (NAS) solutions. NAS solutions are specialized file-serving devices that provide support for heterogeneous files in a high-capacity package. NAS solutions also provide specific features to simplify the tasks and reduce the resources associated with data storage and management. The objective of NAS technology is to simplify manageability and improve data access to clients and applications. A NAS solution will generally provide network accessible storage to a mix of clients and servers running different operating systems.

Benefits of the HP ProLiant DL580 Storage Server

Controllable

- **NAS/SAN fusion:** integration of file or block data leads to increased efficiency of the storage network.
- **Manageable:** simpler management of file or block level data leading to decreased costs for storage.
- **Affordable:** NAS/SAN fusion provides an architecture that offers better efficiency for your storage.

Resilient

- **Reliable:** HP's experience is the key to success with affordable optimized NAS solutions.
- **Redundant:** configurations that allow for redundancy at every level.

Extensible

- **Extensive:** low-end, remote/workgroup solutions, to consolidated fusion solutions for the enterprise.
- **Optimized:** HP provides the right NAS solution for each customer, no need to settle for trade-offs.

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 the limits of the SAN 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 be available when needed. From redundant components, to replication, to no single point of failure deployments, 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.

Overview

Product Features

Processor	<ul style="list-style-type: none">● (2) Two 2.8 GHz Intel Xeon
Form Factor	<ul style="list-style-type: none">● 4U rack mount
Memory	<ul style="list-style-type: none">● 4 GB standard, expandable to 8 GB
Storage Controller	<ul style="list-style-type: none">● Smart Array 5i Plus Controller (embedded on system board)
Internal Storage	<ul style="list-style-type: none">● Two 36 GB 10K RPM U320 SCSI 1" Hard Disk Drive for mirrored OS only (no user data)
External Storage	<ul style="list-style-type: none">● User Data is stored on external SAN arrays attached to the HP ProLiant DL580 Storage Server. The DL580 Storage Server supports XP, EVA, EMA, VA, MSA 1000 and MSA 1500 arrays.
Network Connections	<ul style="list-style-type: none">● NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter (in a slot)
Backup	<ul style="list-style-type: none">● SCSI connector on back of storage server for tape devices
Bundled Software	<ul style="list-style-type: none">● Windows Storage Server 2003 OS - latest file serving OS from Microsoft® providing advanced file services in a familiar easy to manage package. Windows storage server provides customers better storage management via Storage Manager 2.0 (quotas), enhanced data protection, snapshots via Shadow Copy, client side snapshot management, DFS (Distributed Files System Support), and faster performance (both CIFS and NFS). Management options include GUI, Integrated Lights Out functionality, Terminal Services, and Command Line interface.● Web based management GUI for remote management and configuration of advanced file services● SNMP management support● NIC Teaming software● Quick Restore DVD for restoration of Storage Server OS image● Trial copy of OpenView Storage Mirroring (See optional Software from HP for Storage Server for further details)
Warranty	<ul style="list-style-type: none">● The HP ProLiant DL580 G2 Storage Server comes with a 3-3-3 warranty (3 years parts exchange, 3 years labor, and 3 years on-site, next business day response)
Fans and Power Supplies	<ul style="list-style-type: none">● Redundant Cooling Zones for major subsystems (Memory, I/O, CPUs) assure 7x24 cooling (7 total hot plug redundant fans, individually removable)● 2 x 800-Watt (low line or high line) Hot Plug Power Supplies

Software Components

Included Software

- **HP StorageWorks Secure Path** - Secure Path is multi-path, high availability software that manages and maintains continuous data access to HP storage systems, enabling no-single-point-of-failure from server to storage. Secure Path is host-resident software that monitors the data paths between server and storage to increase availability of information. In the event that a path failure is detected, Secure Path fails over to an alternative path. When that path becomes available, Secure Path can automatically failback to the original path. Included with the HP ProLiant DL580 G2 Storage Server. <http://h18006.www1.hp.com/products/sanworks/secure-path/index.html>

Optional Software

- **HP Insight Manager** - The ProLiant DL580 G2 Storage Server supports Insight Manager through SNMP. For more information on HP Insight Manager: <http://h18013.www1.hp.com/products/servers/management/hpsim/index.html>
- **HP OpenView Management tools** - The ProLiant DL580 G2 Storage Server supports Open View through SNMP. For more information HP OpenView: <http://www.managementsoftware.hp.com/>
- **HP OpenView Storage Data Protector** - The HP OpenView Storage Data Protector software is enterprise data protection and disaster recovery, ensuring recovery from any disruption. Data Protector integrates a variety of techniques to eliminate backup and recovery windows. The capabilities to eliminate planned downtime range from online backup and backup of open files to zero-downtime, zero-impact backup. The software provides industry-leading instant recovery as well as several disaster recovery alternatives to eliminate unplanned downtime, allowing recovery of entire data centers in minutes.

Data Protector is enabling organizations to reduce costs by automating routine tasks to maximize the effectiveness of the data protection staff. For the price of an entry-level product, it provides the enterprise functionality customers need. Data Protector scales from single server to distributed enterprise, covering an extensive range of heterogeneous applications, operating environments and storage configurations with a single solution.

The ProLiant DL580 G2 Storage Server supports using Data Protector as the backup software solution. For more information on HP OpenView Data Storage Protector:

<http://h18006.www1.hp.com/products/storage/software/dataprotector/index.html>

- **HP OpenView Storage Mirroring** - The ProLiant DL580 G2 Storage Server supports using Storage Mirroring as the replication software solution (see Options section for more details)

Compatibility

Compatibility – HBA Support

NOTE: HBA selection left to customer choice based on desired array support. Please see the following URL for additional information: <http://h18006.www1.hp.com/storage/saninfrastructure.html>.

Compatibility – SAN Support

HP StorageWorks Enterprise Virtual Array (EVA) EVA5000 EVA3000	http://h18006.www1.hp.com/products/storageworks/enterprise/index.html (EVA5000) http://h18006.www1.hp.com/products/storageworks/eva3000/index.html (EVA3000)
HP StorageWorks Virtual Array (VA) VA 7410 VA 7400 VA 7110 VA 7100	http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7410/index.html (VA 7410) http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7400/index.html (VA 7400) http://h18006.www1.hp.com/products/storageworks/va7110/index.html (VA 7110) http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7100/index.html (VA 7100)
HP StorageWorks Enterprise Module Array (EMA) EMA16000 EMA12000 FC	http://h18006.www1.hp.com/products/storageworks/ema16000/index.html (EMA16000) http://h18006.www1.hp.com/products/storageworks/ma8kema12k/index.html (EMA12000 FC)
HP StorageWorks Module Array (MA) MA8000	http://h18006.www1.hp.com/products/storageworks/ma8kema12k/index.html (MA8000)
HP StorageWorks Disk Array XP XP1024 XP128 XP48 XP512	http://www.hp.com/products1/storage/products/disk_arrays/highend/xp1024/index.html (XP1024) http://www.hp.com/products1/storage/products/disk_arrays/highend/xp128/index.html (XP128) http://www.hp.com/products1/storage/products/disk_arrays/highend/xp48/index.html (XP48) http://www.hp.com/products1/storage/products/disk_arrays/highend/xp512/index.html (XP512)
HP StorageWorks Modular Smart Array 1000 (MSA) MSA1000	http://h18006.www1.hp.com/products/storageworks/msa1000/index.html (MSA1000)
HP StorageWorks Modular Smart Array 1500 cs (MSA) MSA1500 cs	http://h18006.www1.hp.com/products/storageworks/msa1500cs/index.html (MSA1500 cs)

Service and Support, HP Care Pack, and Warranty Information

Warranty

The HP ProLiant DL580 G2 Storage Server comes with a 3-3-3 warranty (3 years parts exchange, 3 years labor, and 3 years on-site, next business day response)

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 minimum period of 1 year or multiple years

HP offers a portfolio of services ranging from Storage Design and Architecture that provides a complete multi-site design and implementation, to various levels of on-going maintenance support. Additionally the basic warranty service can be enhanced and/or HP Installation services can be purchased. Specifically HP Care Pack services include:

- Proactive 24 (P24)
- Support Plus 24 for Storage
- Support Plus for Storage
- 4-Hour, 24x7 Onsite, HW Support
- 4-Hour, 13x5 Onsite, HW Support
- Next Business Day Onsite, HW Support
- Installation for Storage (per event)
- Installation & Startup for Storage (per event)

Software Product Services

- HP warrants only that the Software media will be free of physical defects for a period of 90 days from delivery.
- Upgrades to the 90 day media defect warranty are available as HP Care Pack services. These services are available to upgrade the warranty to (1 or 3) full year of 9 hours by 5 days (or 24x7) software advisory and remedial software telephone support, new version license rights, and media and documentation distribution service.

Service and Support, HP Care Pack, and Warranty Information

- 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
 - Migration service consulting via statement of work

For additional hardware installation and maintenance information, please refer to the URLs listed below:

<http://h18005.www1.hp.com/services/carepaq/us/install/>

<http://h18005.www1.hp.com/services/carepaq/us/hardware/>

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- Installation & Startup for Storage (per event)

Our Proactive 24 annuity service (with the SAN Module) allows continuous SAN/NAS growth by ensuring that your entire SAN/NAS is safely kept updated with analysis and recommendations on relevant, ongoing firmware (FW) changes and it ensures rapid resolution of complex SAN/NAS issues. Our SAN Solution Service is a one-time review of your entire SAN/NAS and all the components (applications, HBAs, switches and FW, arrays etc) to ensure that all components are at tested, HP Certified levels. The HP SAN Design/Architecture Service provides as broad and as deep a review and recommendation as needed of how your SAN/NAS environment can be designed and implemented to meet your business storage needs.

The on-going support offerings include various response times (4 hour same day, next day, etc) as well as coverage periods (Monday – Friday, 24x7, 1 yr, 3 yr, etc). These services are available for both hardware and software to ensure all customer support needs are met and can be purchased from either value or volume channels.

Finally HP offers an optional migration service to assist the customer in moving to the newest product release. This may be in the form of a defined kit and service, or may alternatively be performed on a time & material basis.

HP Services allows the customer to leverage HP's experience in selecting and configuring the most widely used security features, and provides an environment that is immediately more available due to increased change control and significantly improved data security.

For more information on these and other service options, please contact any of our worldwide sales offices or visit our Web site at: <http://www.hp.com/hps/support>.

Installation and Startup Services

The Installation and Startup Service package provides installation and configuration of HP StorageWorks products. Major categories of work could include:

- Pre-installation consulting and planning
- Hardware installation, configuration and verification
- RAID array configuration and initialization
- Installation, configuration and verification of StorageWorks software
- Service tools installed, configured and verified
- Customer orientation

Storage Service Packages

The Storage Services Packaging takes the existing storage product along with the existing services and creates a package of the storage hardware and appropriate services. The increased level of support provides for a higher level of storage system availability for the customer. The package includes 24x7 support with a 4-hour response for 3 years as well as installation and startup service.

Service and Support, HP Care Pack, and Warranty Information

Components

The following brick level options/components do not have individual HP Care Pack Services. These items will be included in product HP Care Pack Services into which they are installed.

Disk Drives

Tape Drives

CD/DVD ROM

SCSI Hubs in SBBs

Bus Converters

Backplane RAID Controllers

Power Supplies

Cabling

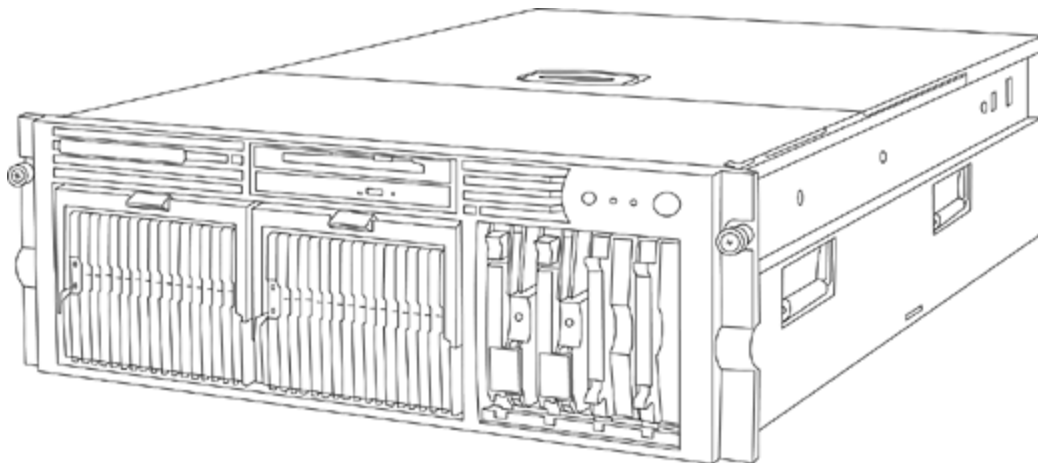
Product Configuration Wizard

In the following steps you will be guided through a series of steps to help you configure a customized model.

Step 1 – Order model

HP ProLiant DL580 G2 Storage Server 348937-B22	Processor(s)	(2) Intel Xeon Processor 2.8 GHz standard (up to 4 supported)
	Cache Memory	2-MB Integrated Level 3 Cache
	Memory	4 GB Memory 200-MHz Double Data Rate (DDR) SDRAM (PC1600 Registered SDRAM Memory with Advanced ECC functionality)
	Network Controller	HP NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter (in a slot)
	Storage Controller	Smart Array 5i Plus Controller (Dual Channel, Ultra3) with Battery-Backed Write Cache Enabler (integrated on system board)
	Manageability	Integrated Lights-Out (iLO) Standard management (integrated on system board) (Advance License included)
	Hard Drive (internal storage)	Standard two 36.4-GB 10,000 rpm U320 Universal Hard Drives (1") (for mirrored OS internal to server) NOTE: Maximum of two hard drives are supported. Hard drives are for user data and are based on the SAN chosen.
	External Storage	Supports attachment to XP, EVA, MSA, VA and MSA1000/1500 in a SAN
	Multi-Path software	HP StorageWorks Secure Path included with this model.
	Cooling Fans	7 Hot Plug Redundant Fans (individually removable)
	Power Supplies	2 x 800-Watt Hot Plug Power Supplies
	Diskette Drive	1.44 MB Diskette Drive (slim line)
	Optical Drives	Slimline DVD-ROM (8x24x)
	Form Factor	Rack 4U, 7 inches

HP ProLiant DL580 G2 Storage Server



Step 2 – add additional processors

Processor	Intel Xeon MP X2.8 GHz-2MB Processor Option Kit NOTE: The ProLiant DL580 G2 Storage Server comes standard with two processors. Up to two additional processors can be added for a total of four processors maximum.	325254-B21
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Product Configuration Wizard

Step 3 – add additional memory

HP ProLiant DL580 G2 Storage Server Models

Standard Memory

4096-MB 200 MHz Double Data Rate (DDR) SDRAM (PC1600 Registered SDRAM Memory With Advanced ECC Functionality)

Standard Memory with Optional Memory

Up to 8192-MB memory is available with the optional installation of PC1600 Registered ECC SDRAM Memory kits.

NOTE: Chart does not represent all possible configurations

Standard Memory Summary		Standard Memory Board (Slots)							
		1	2	3	4	5	6	7	8
Standard	4096 MB	1024 MB	1024 MB	1024 MB	1024 MB	Empty	Empty	Empty	Empty
		Optional 2nd Memory Board (Slots)							
Optional	8192 MB	1024 MB	1024 MB	1024 MB	1024 MB	1024 MB	1024 MB	1024 MB	1024 MB
Optional Memory	8192MB PC1600 Registered ECC SDRAM Memory Kit (4 x 2048MB)								202173-B21
	4096MB PC1600 Registered ECC SDRAM Memory Kit (4 x 1024MB)								202172-B21
	2048MB PC1600 Registered ECC SDRAM Memory Kit (4 x 512MB)								202171-B21
	1024MB PC1600 Registered ECC SDRAM Memory Kit (4 x 256MB)								202170-B21

Step 4 – add cluster kit

With the following components, your storage capacity and performance can be scaled to new levels:

Storage Server Cluster Kit	ProLiant Storage Server Cluster Kit	331474-B21
	NOTE: Windows Storage Server 2003 clusters can include up to eight nodes. One ProLiant Storage Server Cluster Kit (PN 331474-B21) is required for each node in a cluster.	

Step 5 – add external storage array

Array Support: XP, EVA, EMA, MA, MSA1000, and MSA1500	Please see the Storage Array Systems QuickSpecs below to determine configuration requirements	External	Please see the URL's listed below appropriate Array QuickSpecs for the latest list of supported HBA's.
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<http://h18006.www1.hp.com/products/storageworks/enterprise/index.html> (EVA5000)
<http://h18006.www1.hp.com/products/storageworks/eva3000/index.html> (EVA3000)
http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7410/index.html (VA 7410)
http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7400/index.html (VA 7400)
<http://h18006.www1.hp.com/products/storageworks/va7110/index.html> (VA 7110)
http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7100/index.html (VA 7100)
<http://h18006.www1.hp.com/products/storageworks/ema16000/index.html> (EMA16000)
<http://h18006.www1.hp.com/products/storageworks/ma8kema12k/index.html> (EMA12000 FC)
<http://h18006.www1.hp.com/products/storageworks/ma8kema12k/index.html> (MA8000)
http://www.hp.com/products1/storage/products/disk_arrays/highend/xp1024/index.html (XP1024)
http://www.hp.com/products1/storage/products/disk_arrays/highend/xp128/index.html (XP128)
http://www.hp.com/products1/storage/products/disk_arrays/highend/xp48/index.html (XP48)
http://www.hp.com/products1/storage/products/disk_arrays/highend/xp512/index.html (XP512)
<http://h18006.www1.hp.com/products/storageworks/msa1000/index.html> (MSA1000)
<http://h18006.www1.hp.com/products/storageworks/msa1500cs/index.html> (MSA1500 cs)

Processor	Intel Xeon MP X2.8 GHz-2MB Processor Option Kit	325254-B21
	NOTE: This processor option kit (PN 325254-B21) supports the ProLiant ML570 G2, ProLiant DL580 G2, and the NAS 9000s.	

Product Configuration Wizard

Memory	4096 MB PC1600 Registered ECC SDRAM Memory Kit (4 x 1024 MB)	202172-B21
	2048 MB PC1600 Registered ECC SDRAM Memory Kit (4 x 512 MB)	202171-B21
	1024 MB PC1600 Registered ECC SDRAM Memory Kit (4 x 256 MB)	202170-B21

Hard Drives	Ultra320 SCSI – Universal Hot Plug	
	36.4-GB 10,000 rpm U320 Universal Hard Drive (1")	286713-B22
	36.4-GB 15,000 rpm U320 Universal Hard Drive (1")	286776-B22
	NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds.	
NOTE: Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:		
U320 Hard Drive QS:		
http://h18000.www1.hp.com/products/quickspecs/11531_na/11531_na.HTML		

Step 6 – add network cards

NOTE: The system comes standard with a HP NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter (in a slot). Select additional cards for higher performance and further redundancy.

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
NC6132 Gigabit Module 1000 SX Upgrade Module for NC3134	338456-B23
NC6136 Gigabit Server Adapter, 64-bit/66-MHz, PCI, 1000 SX	203539-B21
NC7131 Gigabit Server Adapter, 64-bit/66-MHz, PCI, 10/100/1000-T	158575-B21
NC7132 10/100/1000-T Upgrade Module for NC3134 and NC3131	153543-B21
NC7770 PCI-X Gigabit Server Adapter	244948-B21
HP NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter	313881-B21
HP NC6170 Dual Port PCI-X 1000SX Gigabit Server Adapter	313879-B21
Alacritech 1000x1 Single Port Gigabit Server and Storage Accelerator Copper wire (Model Number: 2000-100007)	
NOTE: To purchase or for additional information, please see the following URL:	
http://www.alacritech.com/html/1000x1_copper_accelerator.html	
Alacritech 1000x1 Single Port Gigabit Server and Storage Accelerator Fibre (Model Number: 2000-100009)	
NOTE: To purchase or for additional information, please see the following URL:	
http://www.alacritech.com/html/1000x1_fiber_accelerator.html	
Alacritech 100x4 Quad-Port Fast Ethernet Server Accelerator (Model Number: 2000-100000)	
NOTE: To purchase or for additional information, please see the following URL:	
http://www.alacritech.com/html/100x4.html	
NOTE: Additional technical and purchasing information regarding Alacritech can be obtained at	
http://www.alacritech.com/hp	

Product Configuration Wizard

Step 7 – add Host Based Data Replication

HP OpenView Storage Mirroring (SM) is an ideal entry host-based software product for IP networks. SM does not require high bandwidth Fibre Channel networks, high capacity replication and zero down time service levels. Storage Mirroring provides near real-time full application or file recovery up to the last byte replication. SM is an excellent choice for low bandwidth; low storage volume changes and meets business recovery goals within tens of minutes or hours. The immediate return on investment is realized in the reduced management cost associated with branch or small offices networks.

Product Highlights:

- High availability with Microsoft Windows 2000/NT/2003 servers
- Application aware and supported with Exchange, SQL and Oracle
- Host-based remote storage copy with TCP/IP networks
- Data distribution one-to-many or 'fan-out' to multiple destinations
- Data migration utility for transferring large data projects
- Centralize backup, data protection and recovery operations
- Built in scheduler for off hours replication
- Built in network bandwidth utilization management
- Disaster recovery between source and destination failover sites
- Powered by NSI Software's Double-Take patented 'Sequential Transfer Asynchronous Replication' technology

Sequential transfer maintains write sequential across multiple files for data integrity

Host Based Data Replication	HP OpenView Storage Mirroring v4.3.3 MS media doc 60d	T2557AA
	HP OpenView Storage Mirroring Workgroup NAS Edition v4.3 LTU 1	344954-B21
	HP OpenView Storage Mirroring Workgroup NAS Edition v4.3 LTU 25	T2536AA
	For more information go to the HP OpenView Storage Mirroring website at: http://h18006.www1.hp.com/products/storage/software/sm/index.html	

Step 8 – add a Tape Backup Solution

Tape Drives

NOTE: External tape devices, including both tape drives and tape arrays/enclosures, can be directly connected to the VHDCI SCSI port located on the back of the server. Use of a SCSI adapter to connect these devices is optional, not required.

Ultrium Tape Drives

HP StorageWorks Ultrium 215 Tape Drive, External (Carbon)	Q1545A
HP StorageWorks Ultrium 215 rack-mount (Carbon) - Single drive installed in a 3U rack-mount kit	350544-B21
HP StorageWorks Ultrium 215 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7492B
HP StorageWorks Ultrium 230 Tape Drive, External (Carbon)	Q1517A
HP StorageWorks Ultrium 230, Rack-mount (Carbon) - Single drive installed in a 3U rack-mount kit	350545-B21
HP StorageWorks Ultrium 230 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7470B
HP StorageWorks Ultrium 460 Tape Drive, External (Carbon)	Q1520A
HP StorageWorks Ultrium 460, Rack-mount (Carbon) - Single drive installed in a 3U rack-mount kit	350546-B21
HP StorageWorks Ultrium 460 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	Q1512B

NOTE: Please see the HP StorageWorks Ultrium 215, 230, and 460 Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:

http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html

For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: <http://www.hp.com/go/connect>

External, Hot-Plug, and Rack-Mount DAT Drives

HP StorageWorks DAT 72 Tape Drive, External (Carbon)	Q1523A
HP StorageWorks DAT 72 Tape Drive, Internal Hot-Plug (Carbon)	Q1529A
HP StorageWorks DAT 72 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	Q1524B
HP StorageWorks DAT 40 Tape Drive, External (Carbon)	C5687C
HP StorageWorks DAT 40 Tape Drive, Internal Hot-Plug (Carbon)	Q1546A
HP StorageWorks DAT 40 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7497B
HP DAT 24e External Tape Drive	C1556D
HP StorageWorks DAT 24 Array Module (Carbon) - Offline hot-swap drive for Tape Array 5300	C7498A

Product Configuration Wizard

NOTE: Please see the DAT Tape Drive QuickSpecs for controllers, media, and other options:

http://h18000.www1.hp.com/products/quickspecs/11883_na/11883_na.HTML

For an up-to-date listing of the latest O/S and software support details for HP DAT drives, please visit: <http://www.hp.com/go/connect>

External DLT VS Tape Drives

HP StorageWorks DLT VS80 Tape Drive, External (Carbon)

337699-B22

NOTE: Please see the DLT VS80 Tape Drive QuickSpecs for additional options such as host bus adapters, controllers, media, and other options:

http://h18006.www1.hp.com/products/quickspecs/11403_na/11403_na.HTML

For an up-to-date listing of the latest O/S and software support details for the DLT VS80, please visit: <http://www.hp.com/go/connect>

External and Rack-mount SDLT Tape Drives

HP StorageWorks SDLT 320 Tape Drive, External (Carbon)

257319-001

NOTE: Please see the SDLT 320 Tape Drive QuickSpecs for additional options such as adapters, controllers, and media.

http://h18006.www1.hp.com/products/quickspecs/11840_na/11840_na.HTML

For an up-to-date listing of the latest O/S and software support details for HP SDLT tape drives, please visit: <http://www.hp.com/go/connect>

Rack-Mount Tape Drive Enclosures

HP StorageWorks 3U Rack-Mount Kit

274338-B21

NOTE: The 3U Rack-Mount Kit 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 DAT, DLT VS80, SDLT 320, Ultrium 215, Ultrium 230, and Ultrium 460 Tape Drives.

HP StorageWorks 5U Rack-Mount Kit

274339-B21

NOTE: The 5U Rack-Mount Kit can support up to 4 full-height tape drives and is compatible with SDLT 320, Ultrium 230, and Ultrium 460 tape drives.

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:

http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML

HP StorageWorks Tape Array 5300

C7508A

NOTE: The Tape Array 5300 is a 3U enclosure that supports up to 2 full-height or 4 half-height hot-swap array modules, including DAT and Ultrium tape drives. Cables and terminators are not included and must be ordered separately.

NOTE: Please see the Tape Array 5300 QuickSpecs for additional information regarding this product.

http://h18000.www1.hp.com/products/quickspecs/11878_na/11878_na.HTML

Accessories for 3U & 5U Rack-mount Tape Drive Kits

LVD Cable Kit, VHDCI/HD68

168048-B21

NOTE: For use with the 3U Rack-mount Kit and 5U Rack-mount Kit only.

LVD Cable Kit, HD68/HD68

242381-B21

NOTE: For use with the 3U Rack-mount Kit and 5U Rack-mount Kit only.

Accessories for 3U & 5U Rack-mount Tape Drive Kits

PSU/Fan Upgrade Kit - Redundant hot-swap power supply unit and fan for Tape Array 5300.

68-pin HD multi-mode terminator

C2364A

1.0m 68-pin VHDCI to 68-pin HD cable

C2361B

2.5m 68-pin VHDCI to 68-pin HD cable

C2362B

5.0m 68-pin VHDCI to 68-pin HD cable

C2365A

10.0m 68-pin VHDCI to 68-pin HD cable

C2363B

0.5m 68-pin HDI to 68-pin HD cable LVD/SE

C2978B

1.5m 68-pin HDI to 68-pin HD cable LVD/SE

C2979B

0.9m 68-pin HDI to 68-pin HD cable LVD/SE

C2911C

2.5m 68-pin HDI to 68-pin HD cable LVD/SE

C2924C

NOTE: For use with Tape Array 5300 only

Product Configuration Wizard

Tape Autoloaders

DAT Autoloader

HP StorageWorks DAT 40x6 Tape Autoloader, External (Flint) C5717C

NOTE: Please see the DAT Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:

http://h18000.www1.hp.com/products/quickspecs/11985_na/11985_na.HTML

HP StorageWorks 1/8 Tape Autoloader

1/8 Ultrium 460 Tape Autoloader, Tabletop AA927A

1/8 SDLT 320 Tape Autoloader, Tabletop AA926A

1/8 Ultrium 230 Tape Autoloader, Tabletop C9572CB

1/8 DLT VS80 Tape Autoloader, Tabletop C9264CB

1/8 Tape Autoloader Rackmount Kit C9268R

NOTE: Required to install the 1/8 tape autoloader in a standard 19-inch rack

NOTE: Please reference the 1/8 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>

HP StorageWorks SSL1016 Tape Autoloader

SSL1016 Ultrium 460 Tape Autoloader 330821-B21

SSL1016 SDLT 320 Tape Autoloader 330816-B21

NOTE: Please reference the SSL1016 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 MSL6000 Tape Library

MSL6030, 1 drive, 30 slots, Ultrium 460, RM 330731-B22

MSL6030, 2 drive, 30 slots, Ultrium 460, RM 330731-B23

MSL6030, 1 drive, 30 slots, Ultrium 460, RM with embedded FC router 330731-B24

MSL6030, 2 drive, 30 slots, Ultrium 460, RM with embedded FC router 330731-B25

MSL6030, 1 drive, 30 slots, Ultrium 460, TT 330788-B21

MSL6030, 2 drive, 30 slots, Ultrium 460, TT 330788-B22

MSL6060, 2 drive, 60 slot, Ultrium 460, RM 331196-B21

MSL6060, 2 drive, 60 slot, Ultrium 460, RM with embedded FC router 331196-B22

MSL6060, 2 drive, 60 slot, Ultrium 460, TT 331195-B21

NOTE: Please reference the MSL6000 Tape Library 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>

HP StorageWorks MSL5026S2 Tape Library

MSL5026S2, 1 drive, 26 slots, SDLT 320, RM 293472-B22

MSL5026S2, 2 drive, 26 slots, SDLT 320, RM 293472-B23

MSL5026S2, 1 drive, 26 slots, SDLT 320, RM with embedded FC router 293472-B24

MSL5026S2, 2 drive, 26 slots, SDLT 320, RM with embedded FC router 293472-B25

MSL5026S2, 1 drive, 26 slots, SDLT 320, TT 293473-B21

MSL5026S2, 2 drive, 26 slots, SDLT 320, TT 293473-B22

NOTE: Please reference the MSL5026S2 Tape Library QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution;



Product Configuration Wizard

reference current compatibility information at <http://www.hp.com/go/ebs>

HP StorageWorks MSL5052S2 Tape Library

MSL5052S2, 2 drive, 52 slots, SDLT 320, RM	293474-B21
MSL5052S2, 2 drive, 52 slots, SDLT 320, RM with embedded FC router	293474-B24
MSL5052S2, 2 drive, 52 slots, SDLT 320, TT	293476-B21

NOTE: Please reference the MSL5052S2 Tape Library 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>

HP StorageWorks MSL5030 Tape Library

MSL5030, 1 drive, 30 slots, Ultrium 230, RM	301897-B22
MSL5030, 2 drive, 30 slots, Ultrium 230, RM	301897-B23
MSL5030, 1 drive, 30 slots, Ultrium 230, RM with embedded FC router	301897-B24
MSL5030, 2 drive, 30 slots, Ultrium 230, RM with embedded FC router	301897-B25
MSL5030, 1 drive, 30 slots, Ultrium 230, TT	301898-B21
MSL5030, 2 drive, 30 slots, Ultrium 230, TT	301898-B22

NOTE: Please reference the MSL5030 Tape Library 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>

HP StorageWorks MSL5060 Tape Library

MSL5060, 2 drive, 60 slots, Ultrium 230, RM	301899-B22
MSL5060, 2 drive, 60 slots, Ultrium 230, RM with embedded FC router	301899-B23
MSL5060, 2 drive, 60 slots, Ultrium 230, TT	301900-B21

NOTE: Please reference the MSL5060 Tape Library 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>

HP StorageWorks ESL E-Series Tape Libraries

ESL Extended 712e Tape Library, 0 drive, 712 LTO slots	AA934A
ESL Extended 630e Tape Library, 0 drive, 630 SDLT slots	AA935A
ESL E Ultrium 460 drive kit	AA937A
ESL E SDLT 320 drive kit	AA936A

NOTE: Please reference the ESL E-Series Tape Libraries 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>

HP StorageWorks ESL9000 Series Tape Libraries

ESL9595 Extended Tape Library, 0 drive, 400 slots (card cage, Interface Mgr card, Command View license)	343378-B21
ESL9322 Extended Tape Library, 0 drive, 222 slots (card cage, Interface Mgr card, Command View license)	343377-B21
ESL9000 Ultrium 460 drive kit	330834-B21
ESL9000 Ultrium 230 drive kit	301930-B21
ESL9000 SDLT 320 drive kit	293414-B21

NOTE: Please reference the ESL9000 Series Tape Libraries QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution;

Product Configuration Wizard

reference current compatibility information at <http://www.hp.com/go/ebs>

Step 9 – add UPS, rack and Power Distribution Unit (PDU)

UPS Power Cord Reference *Please see the UPS and PDU cable matrix that lists Power Cord Reference Guide for that lists cable descriptions, requirements, and specifications for UPS and PDU units.*

<ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf>.

Uninterruptible Power Systems – Rack	UPS R1500 XR (1440VA, 1340 Watt), Low Voltage	204404-001
	UPS R3000 XR (2880VA, 2700 Watt), Low Voltage	192186-001
	UPS R3000 XR (3000VA, 2700 Watt), High Voltage	192186-002
	Rackmountable UPS R6000 (6000VA, 6000 Watt) High Voltage	347207-001
	UPS R12000 XR, N+ x (12KVA, 12KW) High Voltage	207552-B22

NOTE: UPS R6000 has a hardwired input; and the UPS R12000 XR has a hardwired input and output connection.

Product Configuration Wizard

UPS Options	SNMP Serial Port Card	192189-B21
	NOTE: Supports tower and rack UPS XR models ranging from 1000 – 3000VA.	
	Six Port Card	192185-B21
	NOTE: Supports tower and rack UPS XR models ranging from 1000 – 3000VA.	
	High to Low Voltage Transformer (250VA)	388643-B21
	NOTE: 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
	NOTE: 2U each, two ERM maximum.	
	Extended Runtime Module, R3000 XR, 2U	192188-B21
	NOTE: 3U each, one ERM maximum.	
	Extended Runtime Module, R6000, 3U	347224-B21
	NOTE: 3U each, two ERM maximum.	
	Extended Runtime Module, R12000 XR, 4U	217800-B21
	NOTE: 4U each, two ERM maximum.	
	SNMP-EN Adapter	347225-B21
	NOTE: Supports R6000 UPS series only.	
	Multi-Server UPS Card	123508-B21
	NOTE: Supports R6000 UPS series only.	
	Scalable UPS Card	123509-B21
	NOTE: Supports R6000 UPS series only.	
	Cable, 16A, IEC320-C20 to IEC320-C19	295633-B21
	NOTE: Power cord (295633-B21) connects ProLiant servers to PDUs or UPSs with IEC320-C19 output connections.	
	Cable, 10A, IEC320-C14 to IEC320-C19	291034-B21
	NOTE: Power cord (291034-B21) connects ProLiant DL580 G2 servers to PDUs or UPSs with IEC320-C13 output connections. This power cord has been specifically designed to work with the ProLiant DL580 G2 server. Please NOTE the following important precautions when deploying this power cord:	
	<ul style="list-style-type: none">● Use the cord only in conjunction with the ProLiant DL580 G2 server.● Use the cord to connect the ProLiant DL580 G2 server only to PDUs or UPSs with IEC320-C13 output connections.● Do not use the cord with any other ProLiant or third party server.● Do not use the cord with any other office equipment or computers.● Do not use the cord as an extension cord.● Do not plug the cord into a wall outlet.● Failure to adhere to these precautions may invalidate the server warranty.	

Product Configuration Wizard

Modular PDUs 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) NOTE: This model has a detachable input power cord and is adaptable to country specific requirements. The 16A PDU also connects to the high volt models of the UPS R3000 XR and R6000 models. Cable P/N 340653-001 required if connecting to UPS R3000 XR (192186-002 NA -High Volt model only).	252663-B24
	Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) NOTE: This model has a detachable input power cord and is adaptable to country specific requirements. The 16A PDU also connects to the high volt models of the UPS R3000 XR and R6000 models. Cable P/N 340653-001 required if connecting to UPS R3000 XR (192186-002 NA -High Volt model only).	252663-D71
	Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) NOTE: L6-30 input.	252663-B31
	Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) NOTE: The 40A model has a hardwired input. NOTE: 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: http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML	252663-B21
Third Party Rack Kit	DL580 G2 rack model support: The DL580 G2 Third Party rack kit 287528-B21 provides support for any rack, square hole or round hole, (including HP Rack System /E and HP Systems), with an adjustment range from 23 1/2" – 34" deep. NOTE: The Third party rack kit is required for round hole racks or for square hole racks that do not conform to the adjustment range of the standard rail that ships with the server.	287528-B21
Telco Rack Support	DL580 G2 rack model support: Support for all 2-post Telco racks requires the Third Party option kit 287528-B21, plus an additional option kit from Rack Solutions. The Rack Solutions brackets can be purchased at: http://www.racksolutions.com/hp .	287528-B21
	Rack Adapter Kit NOTE: This kit allows HP rack servers to fit in racks that are 24" wide.	332815-B21

Product Configuration Wizard

HP Rack 10000 Series (Graphite Metallic)	HP Rack S10614 (14U) Rack Cabinet – Shock Pallet	292302-B22
	HP Rack 10842 (42U, 800mm wide) – Pallet	257415-B21
	HP Rack 10842 (42U, 800mm wide) – Shock Pallet	257415-B22
	HP Rack 10647 (47U) – Pallet	245160-B21
	HP Rack 10647 (47U) – Crated	245160-B23
	HP Rack 10642 (42U) – Pallet	245161-B21
	HP Rack 10642 (42U) – Shock Pallet	245161-B22
	HP Rack 10642 (42U) – Crated	245161-B23
	HP Rack 10636 (36U) – Pallet	245162-B21
	HP Rack 10636 (36U) – Shock Pallet	245162-B22
	HP Rack 10636 (36U) – Crated	245162-B23
	HP Rack 10622 (22U) – Pallet	245163-B21
	HP Rack 10622 (22U) – Shock Pallet	245163-B22
	HP Rack 10622 (22U) – Crated	245163-B23

NOTE: -B21 (pallet) used to ship empty racks shipped on a truck

-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)

-B23 (crated) used for air shipments of empty racks

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML

NOTE: For additional information regarding Rack Cabinets, please see the following URL:

<http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

Product Configuration Wizard

Rack Options for HP Rack 10000 Series

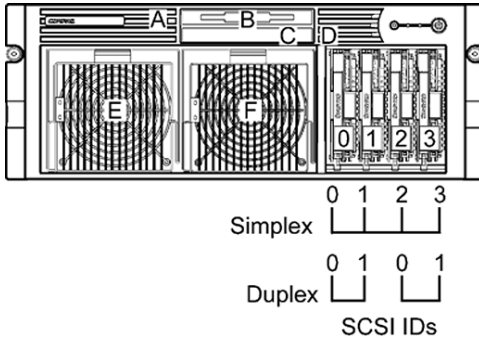
HP Rack Light Kit (Neon)	361589-B21
HP Rack Plinth Kit (Carbon)	251960-B21
42U Side Panel – Graphite Metallic	246099-B21
36U Side Panel – Graphite Metallic	246102-B21
47U Side Panel – Graphite Metallic	255486-B21

NOTE: For additional information regarding Rack Options, please see the following URL:
<http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

KVM USB Interface Adapter	336047-B21
Server Console Switch 1 x 4 port (100-230 VAC)	400336-001
Server Console Switch, 0 x 1 x 8 port	336044-B21
Server Console Switch, 0 x 2 x 16 port	336045-B21
IP Console Switch Box, 1 x 1 x 16	262585-B21
IP Console Switch Box, 3 x 1 x 16	262586-B21
IP Console Interface Adapter, 8 pack	262587-B21
IP Console Interface Adapter, 1 pack	262588-B21
IP Console Expansion Module	262589-B21
CPU to Server Console Cable, 12'	110936-B21
CPU to Server Console Cable, 3'	110936-B24
CPU to Server Console Cable, 7'	110936-B25
IP CAT5 Cable 3', 4 pack	263474-B21
IP CAT5 Cable 6', 8 pack	263474-B22
IP CAT5 Cable 12', 8 pack	263474-B23
IP CAT5 Cable 20', 4 pack	263474-B24
IP CAT5 Cable 40', 1 pack	263474-B25
TFT5600 Rack Keyboard Monitor	221546-001
1U Rack Keyboard & Drawer (Carbon)	257054-001

NOTE: For additional information regarding Rack Options, please see the following URL:
<http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

Storage



- A Diskette Drive eject button
 - B Ejectable: DVD (Slimline)
 - C Ejectable: 1.44-MB Diskette Drive (Slimline)
 - D DVD Drive eject button
 - E 800-Watt (low line or high line) Redundant Hot Plug Power Supply
 - F 800-Watt (low line or high line) Primary Hot Plug Power Supply
 - 0-1 Hot Plug SCSI Drive Cage
- NOTE:** Maximum of two hard drives are supported. Hard drives are for user data and are based on the SAN chosen.

Drive Support

	Quantity Supported	Position Supported	Controller
Ejectable Slim Line Drives			
1.44-MB slim-line Diskette Drive	Up to 1	C	Integrated
Slim-line DVD Drive	Up to 1	B	Integrated IDE

Hard Drives

Ultra320 Hot Pluggable Drives

1-inch	2	0-1	Integrated Smart Array 5i Plus Controller
36.4 GB 10,000 rpm	(for mirrored OS in server. User data drive support is dependent upon the array chosen)		
36.4 GB 15,000 rpm			

NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds.

Storage

External Storage

Array Support:
XP, EVA, EMA, MA,
MSA1000, and MSA1500

Please see the
Storage Array
Systems QuickSpecs
below to determine
configuration
requirements

External

Please see the URL's listed below appropriate Array QuickSpecs for the latest list of supported HBA's.

- <http://h18006.www1.hp.com/products/storageworks/enterprise/index.html> (EVA5000)
- <http://h18006.www1.hp.com/products/storageworks/eva3000/index.html> (EVA3000)
- http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7410/index.html (VA 7410)
- http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7400/index.html (VA 7400)
- <http://h18006.www1.hp.com/products/storageworks/va7110/index.html> (VA 7110)
- http://www.hp.com/products1/storage/products/disk_arrays/midrange/va7100/index.html (VA 7100)
- <http://h18006.www1.hp.com/products/storageworks/ema16000/index.html> (EMA16000)
- <http://h18006.www1.hp.com/products/storageworks/ma8kema12k/index.html> (EMA12000 FC)
- <http://h18006.www1.hp.com/products/storageworks/ma8kema12k/index.html> (MA8000)
- http://www.hp.com/products1/storage/products/disk_arrays/highend/xp1024/index.html (XP1024)
- http://www.hp.com/products1/storage/products/disk_arrays/highend/xp128/index.html (XP128)
- http://www.hp.com/products1/storage/products/disk_arrays/highend/xp48/index.html (XP48)
- http://www.hp.com/products1/storage/products/disk_arrays/highend/xp512/index.html (XP512)
- <http://h18006.www1.hp.com/products/storageworks/msa1000/index.html> (MSA1000)
- <http://h18006.www1.hp.com/products/storageworks/msa1500cs/index.html> (MSA1500 cs)

Quantity Supported	Position Supported	Controller
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Tape Drives

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:

http://h18000.www1.hp.com/products/quickspecs/North_America/10233.html

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Storage Systems listed below, please see the following:

http://h18000.www1.hp.com/products/quickspecs/North_America/10809.html

Internal AIT 100-GB, Hot Plug	Up to 1	0 & 1 or 2 & 3	Smart Array 5i Controller (integrated on system board)
Internal AIT 50-GB, Hot Plug			
Internal AIT 35-GB, LVD, Hot Plug			
Internal 20/40-GB DAT, Hot Plug			

Power Specifications

Operational Input Voltage Range (Vrms)	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	800	800	800	800	800	800
Nominal Input Current (Arms)	11.7	9.9	5.2	4.9	4.7	4.5
Max Rated Input Wattage Rating (Watts)	1143	1111	1067	1067	1067	1053
Max. Rated VA (Volt-Amp)	1166	1134	1088	1088	1088	1074
Efficiency (%)	70	72	75	75	75	76
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.43	0.50	0.90	0.96	1.00	1.04
Maximum Inrush Current (A peak)	25	25	25	25	25	25
Maximum Inrush Current duration (mS)	20	20	20	20	20	20

Technical Specifications

File Protocol Support	CIFS, NFS, NCP, AppleTalk, HTTP, FTP	
O/S Support	Windows Storage Server 2003	
Dimensions (HxWxD)	6.94 x 19 x 26.5 in (17.6 x 48.3 x 67.3 cm)	
Weight	110.2 lb (49.8 kg)	
Data Transfer Method	Fibre Channel	
Input Requirements	Nominal Line Voltage	100 to 120 VAC/200 to 240 VAC
	Range Line Voltage	1135W @ 110 VAC/1125W @ 220 VAC
	Line Frequency	50 to 60 Hz
	Typical Input Current	12A (100 VAC), 9.8A (120 VAC), 4.9A (220 VAC)
Maximum Number of Drives	Dependent upon SAN array	
Power	800W/800W (lowline/highline)	
Power Supply Weight		
Reliability Features	Redundant OS, redundant power supplies, hot plug PCI	
Relative Humidity (non-condensing)	Operating	10% to 70%
	Temperature Range	
	Operating	50° to 95° F (10° to 35° C)
	Shipping	-22° to 122° F (-30° to 50° C)
Max BTUs	4000 BTU	
Max Wet Bulb Temp	101.7° F (38.7° C)	

1.44-MB Diskette Drive	Diskette Size	3.5 in (8.89 cm)		
	LED Indicators (front panel)	Green		
	Read/Write Capacity per Diskette (high/mid/low density)	1.44 MB/1.2 MB/720 KB formatted		
	Drive Supported	One		
	Drive Height	0.50 in (1.27 cm)		
	Drive Rotation	300/360/300 rpm		
	Transfer Rate (high/mid/low)	500/500/250 Kb/s		
	Bytes/Sector	512		
	Sectors/Track (high/mid/low)	18/15/9		
	Tracks/Side (high/low)	80/80		
		Access Times	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	
	Cylinders (high/low)	80/80		
	Read/Write Heads	Two		

Technical Specifications

Slimline DVD-ROM (8x24x) Drive	Disk	Applicable Disk	DVD-ROM DVD-R (Read Only) 4.7 GB/side DVD-RAM (Read Only) 2.6 GB/side DVD-RAM (Read Only) CD-ROM Mode-1 data disc CD-ROM Mode-2 data disc CD Audio disc CD-Extra CD-RW (Read Only) CD-R (Read Only) CD Text
	Capacity	DVD-ROM	DVD-SL/SS (DVD-5) 4.7 GB/per side DVD-DL/SS (DVD-9) 8.5 GB/per side DVD-DS/SL (DVD-10) 9.4 GB/per side DVD-DS/DL (DVD-18) 17.1 GB/per side
		DVD-R	3.95 GB/side
		DVD-ROM	2.6 GB/side
		DVD-ROM	4.7 GB/side
		CD-ROM	Mode-1 650 MB Mode-2 742 MB
		Diameter	120 mm, 80 mm (with adapter at vertical mounting mode)
	Block Size	Loading Mechanism	Tray type Auto Loading
		DVD	2,048 bytes (Mode-1)
		CD	2,336 bytes (Mode-2)
	Interface	EIDE (ATAPI)	
	Access Times (typical)	Random	DVD-ROM < 150 ms, CD-ROM < 100 ms
		Full-Stroke	DVD-ROM < 240 ms, CD-ROM < 225 ms
	Audio Output Level	Line-Out	CD 0.7 Vrms at 47 Kohms Load
	Data Transfer Rate (DVD-ROM)	Single Layer	10.8 MB/sec
	Data Transfer Rate (CD-ROM)	Single Layer	3.6 MB/sec
	Cache Buffer	256 KB	
	Spin-up Time (typical)	DVD-ROM: 19 seconds or less	
	MTBF	60,000 Power On Hours (POH)	
	Ambient Temperatures	Operating	41° to 113° F (5° to 45° C)
		Storage/Transportation	-22° to 140° F (-30° to 60° C)
	Relative Humidity	Operating	15% to 85%
		Storage/Transportation	10% to 90%
	Dimensions	(HxWxD, maximum)	0.5 x 5.04 x 5.09 in (12.7 x 128.0 x 129.4 mm)
	Shipping Dimensions	(HxWxD, maximum)	10.83 x 8.38 x 4.00 in (27.58 x 21.28 x 10.16 cm)
		Shipping Weight	1.50 lb (0.68 kg)

Technical Specifications

Hot Plug Ultra320 SCSI 36.4 GB 10K
Hard Drives

Capacity	36419.2 MB	
Height	1.0 in (2.54 cm)	
Width	4.0 in (10.16 cm)	
Interface	Ultra320 SCSI	
Transfer Rate Synchronous (Maximum)	320 MB/s	
Seek Time (typical reads, including setting)	Single Track	0.55 ms
	Average	4.9 ms
	Full-Stroke	10.0 ms
	Rotational Speed	10,000 rpm
Physical Configuration	Bytes/Sector	512
	Logical Blocks	71,132,000
Operating Temperature	50° to 95° F (10° to 35° C)	

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 NOTE: 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 NOTE: 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 NOTE: 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 NOTE: Maximum is the total number of internal drives on each specific ProLiant server.
	Cache	64 MB Read/Write Cache
	Battery-Backed Write Cache	Yes
	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

NC7170 PCI-X Gigabit NIC (embedded) 10/100/1000 WOL (Wake On LAN)	Network Interface	10Base-T/100Base-TX/1000 Base-TX
	Compatibility	802.3, 802.3u, 802.3x, 802.3ab, 802.3ad (static-mode configuration only), 802.1p, 802.1Q
	Data Transfer Method	64-bit/133MHz bus-master PCI-X
	Network Transfer Rate	
	10Base-T (Half-Duplex)	10 Mb/s
	10Base-T (Full-Duplex)	20 Mb/s
	100Base-TX (Half-Duplex)	100 Mb/s
	100Base-TX (Full-Duplex)	200 Mb/s
	1000BaseTX (Half-Duplex)	1000 Mb/s
	1000BaseTX (Full-Duplex)	2000 Mb/s
	Connector	RJ-45
	Cable Support	
	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
100Base-TX	Category 5 UTP; up to 328 ft (100 m)	
1000BaseTX	Category 5 UTP; up to 328 ft (100 m)	

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