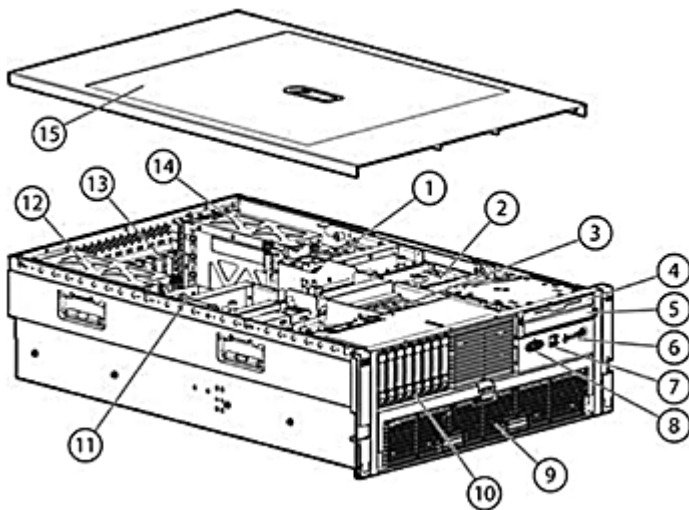


Overview

The HP ProLiant DL585 G2 Storage Server is a powerful and ready-to-deploy gateway solution that provides high performance multi-protocol file and print serving (as well as iSCSI connectivity) to both enterprise and workgroup array/SAN environments. It is ideal for environments with limited IT bandwidth and a desire to leverage existing Fibre Channel array or SAN storage resources for file and/or iSCSI services. This NAS/SAN fusion solution can help administrators centralize block and file storage and create inexpensive IP-based access to the SAN for application servers. At the same time, it can help lower equipment acquisition and management costs and help preserve the value of storage investments.

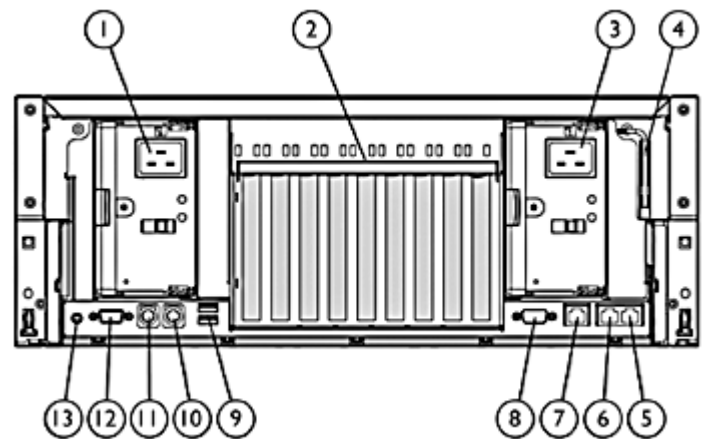
Microsoft's Windows Unified Data Storage Server 2003 (Enterprise x64 Edition) is pre-installed and it delivers all of the storage-optimized functionality available in Windows Storage Server 2003 R2 plus the Microsoft iSCSI Software Target, clustering capability, and enhanced remote administration support. You also get a familiar Microsoft Management Console (MMC)-based management interface with intelligent storage-specific tools and features like Indexed Search and Single-instance Storage (SIS), which de-duplicates file storage and helps save the amount of disk space it requires.

The DL585 G2 Storage Server is based on a high-performance industry-standard 4U rack mount platform that delivers the flexibility you need now and in the future. It features support for up to four processors and up to 128GB of SDRAM, eight available expansion slots ready for Fibre- Channel HBAs or additional network adapters, and fully redundant hot-plug power supplies and fans.



Front View:

1. Hot Plug Redundant Fans
2. System Insight Display
3. Hot Plug Redundant Fans
4. 1.44 MB Diskette Drive (optional)
5. HP DVD+R/RW 8x Slim
6. Front Panel LED Display (internal and external health, Unit ID light) and Power Button
7. Two USB ports
8. One video port
9. Front accessible processor / memory cage
10. Eight bay Small Form Factor (SFF) Serial Attached SCSI (SAS) drive cage; 2 HDDs loaded for mirrored O/S



Rear View:

1. Redundant hot-plug power supply
2. PCI Express and PCI-X non-hot-plug expansion slots
3. Hot-plug power supply (primary)
4. T-15 Torx screwdriver
5. NIC connector 2
6. NIC connector 1
7. Integrated Lights-Out 2 (iLO 2) connector
8. Serial connector
9. USB connectors (two)
10. Mouse connector
11. Keyboard connector
12. Video connector

Overview

11. 4U (7" Height) Rack Form Factor
 12. Hot Plug Redundant Power Supply
 13. Nine PCI I/O Slots (2 64-bit/100MHz PCI-X, 4 PCI-Express x4, 3 PCI-Express x8); one occupied by SA P400 controller
 14. Hot Plug Redundant Power Supply
 15. Removable Top Access Panel
13. Rear UID button and LED

What is a ProLiant Storage Server? ProLiant Storage Servers are enhanced Windows-powered file and print server solutions for small or medium business, branch office, workgroup, or data center IT environments. These network storage devices are built on industry-standard HP ProLiant servers and come with either Microsoft Windows Storage Server 2003 R2 or Windows Unified Data Storage Server 2003 operating system pre-installed. Like many Network Attached Storage (NAS) devices, they support heterogeneous file serving environments and are pre-configured to install in minutes. And since they're Windows-based, network integration is easy, your antivirus and backup applications run right on the box, and management has a familiar look and feel. So you can add storage to your network quickly and spend less time on storage management, then get back to what matters most: running your business.

Highlights

The HP ProLiant DL585 G2 Storage Server is based on one of the best price/performance 4-way servers in the industry and is a great way to add more data services to your Fibre Channel array or SAN environment.

- **Operating System:**
 - Microsoft Windows Unified Data Storage Server 2003, Enterprise x64 Edition
- **Processors:**
 - Dual-Core AMD Opteron 8220SE 2.8 GHz
 - Two processors standard; up to four supported
- **Memory:**
 - 4GB (4 x 1GB) standard
- **Storage Controller:**
 - Smart Array P400/512MB Controller (RAID 0/1/5/6) with battery-backed write cache (BBWC)
- **Drive Support:**
 - Eight small form factor (SFF) hot-plug internal bays that support SAS or SATA HDDs
 - Two SAS SFF HDDs for mirrored OS
 - Slimline DVD+R/RW 8x drive to support System Restore
- **Network Controller:**
 - Dual embedded NC371i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
- **Expansion Slots:**
 - Nine total slots: Three x8 PCI-Express; Four x4 PCI-Express; Two PCI-X (100MHz)
 - One PCIe slot occupied by Smart Array P400 Controller
- **Redundancy:**
 - Hot-plug mirrored SAS hard disk drives for OS
 - Redundant hot plug power supplies
 - Fully redundant hot plug fans
- **Management:**
 - Microsoft Management Console (MMC)-based user interface
 - Remote system management via Remote Desktop or Telnet
 - Remote hardware management via Integrated Lights Out 2 (iLO 2) - Advanced License included
- **Form Factor:**
 - Rack (4U); Depth 26.5 inches

Overview

- **Warranty:**
 - Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty (three year parts, three years labor, three years on-site support). Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives. SATA hard drives have a one-year warranty.

The fast and easy way to add services to your Fibre Channel array or SAN The Windows-powered operating system is pre-installed and pre-configured, so it's a quick, secure, and easy way to add file and iSCSI services to your Fibre Channel array or Storage Area Network (SAN).

NAS/SAN fusion network storage solution The DL585 G2 Storage Server is designed for use as a file serving and/or iSCSI gateway into a Fibre Channel array or SAN, providing IP-based access to virtually unlimited storage. It can facilitate consolidation of islands of direct-attached storage to the SAN, and it can help tier block storage for application servers by creating access to the SAN via inexpensive Ethernet infrastructure.

Microsoft® Windows Unified Data Storage Server 2003 Operating System pre-installed The DL585 G2 Storage Server comes with Microsoft Windows Unified Data Storage Server 2003, a dedicated file and print server operating system with iSCSI connectivity and clustering capability built-in. It's all based on the proven Windows Storage Server 2003 R2 code base, taking advantage of its security, stability, performance and management features. It fully integrates with Microsoft Active Directory and Distributed File System (DFS) environments and you are probably already familiar with the Microsoft Management Console (MMC)-based management interface for the Unified Share and Storage Management Snap-in.

Multi-protocol file serving Support for SMB/CIFS, NFS, HTTP, FTP, WebDAV, AppleTalk, and NetWare file protocols means you can deploy in wide range of heterogeneous file serving environments.

Intelligent storage management features Make more efficient use of storage space using the file de-duplicating Single-instance Storage (SIS) feature and enjoy the benefits of other storage-specific tools like Indexed search, SharePoint® Services support, Quotas, File Screening, Storage Reporting, and Distributed File System (DFS) Replication.

Remote manageability You can manage and troubleshoot from anywhere at both the system level (with Remote Desktop or HTTTPS) and at the hardware component level (using Integrated Lights-out 2).

HP ProLiant industry-standard hardware Relax--your investment is protected because you're not locked into a proprietary platform. The DL585 G2 Storage Server is based on the HP ProLiant DL585 G2 Server, which combines AMD Opteron processor technology with best-in-class management and availability. In addition, you can seamlessly integrate into HP ProLiant or StorageWorks management environments.

Reliable high performance The 64-bit operating system takes full advantage of support for up to four 2.8GHz Dual Core AMD Opteron processors, up to 128GB of memory, 8 available I/O expansion slots, multi-function Gigabit NICs, Hardware RAID for O/S drives, and redundant power and cooling.

Print server support Don't forget that it's a Windows print server, too; the print management console is integrated into the core functionality of the operating system and it allows you to manage multiple printers from a single interface.

Standard Features

Operating System

Microsoft Windows Unified Data Storage Server 2003, Enterprise x64 Edition

Includes all Windows Storage Server 2003 R2, Standard x64 Edition features:

- 64-bit processing (compatible with 32-bit applications)
- Optimized for File Serving: Up to 20% faster file serving performance than a general-purpose Windows Server 2003 R2 installation on the same hardware.
- HP-enhanced File Server Management Console: Features the familiar look and feel of the Microsoft Management Console (MMC).
- HP Rapid Start-up Wizard: Simplifies and accelerates new device deployment by walking you through basic system settings step-by-step.
- Single-instance Storage (SIS): Recovers up to 35% of disk space by de-duplicating files and reducing the amount of redundant data stored. Identifies identical files, stores a single copy of the file in a central repository, and replaces the files with pointers to the file in the SIS common store.
- Search Enhancements: Indexing Service extracts the information from a set of documents and organizes it in a way that makes it quick and easy to access that information through the Search function for computers running Windows 2000 or Windows XP.
- File Server Resource Manager (FSRM): Provides both on-demand and scheduled reports detailing storage use, allows administrators to create and manage folder and volume quotas, and permits both name-based screening of files and allowing/disallowing file creation on specified folder trees.
- Windows SharePoint® Services: A powerful Web-based team collaboration environment that provides an integrated portfolio of collaboration and communication services designed to connect people, information, processes, and systems.
- Distributed File System (DFS) Management Console: Updated DFS namespace failover, failback and prioritization controls.
- Distributed File System Replication (DFS-R): State-based, multi-master replication engine that supports replication scheduling and bandwidth throttling. DFS-R uses a new compression algorithm that efficiently updates files over limited bandwidth networks by replicating only the changes needed to ensure global file consistency.
- Full support of Volume Shadow Copy Service, which creates point-in-time copies of files and folders at predetermined time intervals that can then be accessed from client computers.
- Unlimited Client Access Licenses (CALs) included
- Microsoft Services for Network File System (NFS)
- Support for multiple file serving protocols, including SMB/CIFS, NFS, HTTP, FTP, WebDAV, AppleTalk, and NetWare
- Print Management Console: Manage multiple printers (license for unlimited printer support) from a single console, whether locally or over the WAN.
- Support for any number of SATA or SAS drives and multiple network ports

Also includes the following features unique to Windows Unified Data Storage Server 2003:

- Microsoft Windows iSCSI Software Target: Adds block storage capability and creates a single platform that delivers file, print, and application storage services, all over existing Ethernet networks. New wizards give you the ability to easily create and manage iSCSI targets, create and manage disks for storage, and implement backup and recovery support using snapshots.
- Microsoft Cluster Server (MSCS) license included
 - **NOTE:** The DL585 G2 Storage Server may only be clustered with servers also running Microsoft Windows Unified Data Storage Server 2003, Enterprise x64 Edition operating system (HP recommends like hardware as well). Microsoft Windows Unified Data Storage Server 2003, Enterprise x64 Edition can not be clustered with ProLiant Storage Servers based on 32-bit (Windows Storage Server 2003 R2 or older) operating systems
- Storage Manager for SANs (SMFS): Natively provides basic SAN management (such as device discovery, LUN creation, and storage allocation) for SAN gateway installations. Moreover, SMFS

Standard Features

enables shared storage solutions and clustering.

- Unified Share and Storage Management Snap-in: With a consistent and familiar interface, simplifies management of shares and volumes by unifying SMB and NFS share provisioning, integrating share and storage provisioning, and providing an overview of storage and shares.
- Remote Administration Enhancements: Key new functionality enables Windows Storage Server to be used and managed in environments that are not predominantly Windows-based.

For more information about this OS see:

<http://www.microsoft.com/windowsserversystem/storage/wudss.msp>

Processor Dual-Core AMD Opteron 8220SE (2.8 GHz, 120 Watts)

Cache Memory 2MB (2 x 1MB) Level 2

Chipset nVidia NForce Professional 2200 and 2050 chipsets, and AMD-8132 chipset

Memory

Type	PC2-5300 Registered DIMMs at 667 MHz
Memory Protection	Advanced ECC
DIMM Sockets	32
Maximum configuration	128 GB (32 x 4GB)
Standard	4 GB (4 x 1GB)

Network Controller

Dual Embedded NC371i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine

NOTE: Supports the Microsoft Windows Server 2003 Scalable Networking Pack (a free download from Microsoft), which includes TCP Chimney Offload, Receive-side Scaling (RSS), and NetDMA features

NOTE: Also supports RDMA through optional ProLiant Essentials Licensing Kits

Expansion Slots	Bus speed	Bus number	PCI Voltage	Notes
1	64-bit / 100 MHz PCI-X	Bus 0x42 = 66	3.3 Volt	Half-length Slot
2	64-bit / 100 MHz PCI-X	Bus 0x42 = 66	3.3 Volt	-
3	PCI-Express x4	Bus 0x49 = 73	-	-
4	PCI-Express x4	Bus 0x4C = 76	-	-
5	PCI-Express x8	Bus 0x46 = 70	-	-
6	PCI-Express x4	Bus 0x4F = 79	-	-
7	PCI-Express x8	Bus 0x02 = 2	-	-
8	PCI-Express x8	Bus 0x05 = 5	-	-
9	PCI-Express x4	Bus 0x08 = 8	-	Half-length slot; Occupied by integrated Smart Array P400 Controller

NOTE: All slots are non-hot-plug Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number. Slots are enumerated from lowest to highest Device ID by bus (starting with the lowest bus).

Standard Features

Storage Controller	HP Smart Array P400/512MB Controller with battery-backed write cache (BBWC)	
	<ul style="list-style-type: none"> ● RAID 0/1/1+0/5 and RAID 6 with Advanced Data Guarding ● 8 2.5G PCIe host interface 	
	Fibre Channel SAN connectivity requires a Host Bus Adapter (must be purchased separately). Please see 'SAN Compatibility' for more information.	

Storage	Hard Drives	Internal: <ul style="list-style-type: none"> ● 2 x 36GB or 2 x 72GB 3G SAS 10K SFF HDDs for mirrored OS
	Optical Drive	HP DVD+R/RW 8X Slim

Maximum Storage Capacity (raw)	Internal (Hot Plug SFF SAS) 948GB	2 x 36GB SFF SAS HDDs + 6 x 146GB SFF SAS HDDs
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Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Video	1 front, 1 rear
	Keyboard	1
	USB 2.0 Ports	2 front, 2 rear, 1 internal
	iLO 2 Remote Management	1
	Network RJ-45	2

Graphics	Integrated ATI-RN50 with 32MB DDR memory
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Management	<p>Microsoft Management Console (MMC)-based user interface (also accessible via HTTPS)</p> <p>Remote system management via Remote Desktop or Telnet</p> <p>Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access (Advanced License included standard)</p> <ul style="list-style-type: none"> ● Virtual Text Remote Console ● Virtual Power Button Control ● Integrated Remote Console ● Dedicated & full function shared network connectivity ● Browser, command line and scripted access ● Automatic IP Configuration via DHCP/DNS/WINS ● Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH) ● OS independent hardware health status ● IML and iLO Event Loggin ● Support for 12 user accounts with customizable access privilege ● Advanced license: upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM graphical console, virtual media, and enterprise security.
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Standard Features

Form Factor Rack (4U = 7 inches), ships with sliding rails and cable management system
Space saving form factor (4U) provides space efficiencies while providing maximum deployment flexibility

Industry Standard Compliance ACPI 1.0a
PCI 2.2
PXE Support
WOL Support (with embedded NC371i Multifunction Gigabit Network Adapters)
Physical Address Extension (PAE) Support
Microsoft® Logo certification
USB 2.0 Support

Server Power Cords Two 6-foot IEC 320-C14 to IEC320-C19 jumper cords

Power Supply 910W (low line), 1300W (high line) with 12V main output. Size is 2.8"(H) X 4.9"(W) X 7.5"(L).
NOTE: Two Hot Plug Power Supplies standard.

UPS and PDU Power Cord Matrix Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:
<http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html>.

System Fans 6 Hot plug, redundant fans (individually removable)

Rack Airflow Requirements Rack 10000 series Cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: <http://h18000.www1.hp.com/products/servers/proliantdl380/index.html>.

Standard Features

Rack Kit

HP ProLiant DL585 G2 Storage Server provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000, HP/E series, H9 series and third party racks) with an adjustment range from 24" - 36" in depth. The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

HP ProLiant DL585 G2 Storage Server in Telco Racks Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions (<http://www.racksolutions.com/hp/>)

Optional Software

Optional Software from HP for Storage Servers

NOTE: The ProLiant DL585 G2 Storage Server comes with Windows Unified Data Storage Server (Enterprise x64 Edition) pre-installed; check software compatibility with 64-bit Windows operating systems before purchase and installation.

- **HP StorageWorks Storage Mirroring Software** - HP StorageWorks Storage Mirroring offers a host-based application that performs remote copy over an IP LAN/WAN. Key features include asynchronous replication that can be scheduled to a fine granular level, Logical Unit Number (LUN), file or byte level. Other features include multiple replication configuration options including peer-to-peer and many-to-one. In addition, Storage Mirroring is a very cost effective disaster recovery alternative from one host to another within a LAN, storage center, or between direct attached storage in metro offices and regional centers. Additional configurations allow replication from small office environments to ensure business continuity without an outside IT staff.

For more information: <http://h18000.www1.hp.com/products/storage/software/sm/index.html>

- **HP Data Protector Software** - HP 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.

All ProLiant Storage Servers support using Data Protector as their backup software solution.

For more information on HP Data Protector:

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

- **HP Systems Insight Manager Software** - HP SIM 5.x is the first unified server and storage management platform. Now, from a single management console, administrators can manage their complete HP server and storage environment with a feature rich, extensible and secure management tool set.

HP SIM also serves as a central access point for ProLiant Essentials, Integrity Essentials, and Storage Essentials software options that deliver targeted functionality for these platforms.

For more information:

<http://h18013.www1.hp.com/products/servers/management/hpsim/index.html>

- **Insight Management Agents** - Allow all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers.
- **HP Storage Essentials NAS Manager Software** - Provides comprehensive Network Attached Storage (NAS) management capabilities for HP ProLiant Storage Servers. Visualize your distributed HP NAS solutions and centrally manage their capacity, performance, events, and dependencies to

Optional Software

ensure NAS availability and performance and unify SAN and NAS management.

For more information on the complete line of HP Storage Essential products go to:
<http://www.hp.com/go/storageessentials>

SAN Compatibility

The DL585 G2 Storage Server is designed and optimized for integration with a Fibre Channel SAN or storage array (Fibre Channel HBA not included). Note that it can also support internal storage and/or direct attach storage with a Smart Array P800 controller and MSA50/60/70 enclosures.

Host Bus Adapter (HBA) Support HBA selection is left as your choice based on existing infrastructure and/or desired array support. Please see compatible HBAs listed in Step 5 of the product configuration wizard below.

NOTE: Please see the following URL for additional information about Fibre Channel HBAs:
<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

Compatibility – SAN Support

HP StorageWorks Enterprise Virtual Array (EVA) <http://h18006.www1.hp.com/products/storageworks/eva/index.html>

HP StorageWorks Disk Array XP <http://h18006.www1.hp.com/storage/xparrays.html>

HP StorageWorks Modular Smart Array (MSA) http://h18006.www1.hp.com/storage/disk_storage/msa_diskarrays/index.html

HP ProLiant Storage Servers and third-party storage arrays/SAN interoperability statement

HP acknowledges that some third party storage arrays/SAN environments have been successfully tested for interoperability with the HP ProLiant Storage Server or HP StorageWorks NAS products. HP will provide support for the HP ProLiant Storage Servers or HP StorageWorks NAS products when connected to third-party storage arrays, but HP will not provide support on third party storage arrays/SAN unless specifically called out in an HP Support contract. HP may support the third party SAN environment attached to both the HP ProLiant Storage Servers or the HP StorageWorks NAS products when specifically under contract with HP, but that SAN coverage does not extend to supporting the SAN connectivity of the third-party array.

If a customer calls HP Services and the problem is determined to be caused by a third-party storage array or the storage arrays' connectivity into a non-HP supported SAN, the customer will be directed to contact the third-party storage array supplier for support. Please refer to the third-party supplier for information relating to specific support of their storage arrays with Windows Storage Server 2003 platforms.

Service and Support, HP Care Pack, and Warranty Information

Warranty The DL585 G2 Storage Server comes with a standard 3-3-3 warranty (3 years parts exchange, 3 years labor and 3 years onsite next business day response)

Services Included with the Product One year of HP Software Support, standard 9x5 business hours (software technical support and software product and documentation updates).

- Service and Support 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:

Product number(s)	Care Pack	Duration	Commercial reseller channels	Direct & Enterprise channels	
AG630A	HP Software Support for Storage, 9 x 5	1 year	Bundled	Bundled	
		3 years	n/a	HA106A3 - 87Q	
		4 years	n/a	HA106A4 - 87Q	
		HP Software Support for Storage, 24 x 7	5 years	n/a	HA106A5 - 87Q
			1 year	n/a	HA107A1 - 87Q
			3 years	n/a	HA107A3 - 87Q
		Support Plus for Storage	4 years	n/a	HA107A4 - 87Q
			5 years	n/a	HA107A5 - 87Q
			1 year	UF995E	HA109A1 - 87Q
		Support Plus 24 for Storage	3 years	UF998E	HA109A3 - 87Q
			4 years	n/a	HA109A4 - 87Q
			5 years	n/a	HA109A5 - 87Q
		Proactive 24 (P24)	Post Warranty	UG002PE	n/a
			1 year	UF996E	HA110A1 - 87Q
			3 years	UF999E	HA110A3 - 87Q
		Critical Support (CS)	4 years	n/a	HA110A4 - 87Q
			5 years	n/a	HA110A5 - 87Q
			Post Warranty	UG003PE	n/a
		Critical Support (CS)	1 year	n/a	HA111A1 - 87Q
			3 years	n/a	HA111A3 - 87Q
4 years			n/a	HA111A4 - 87Q	
	Critical Support (CS)	5 years	n/a	HA111A5 - 87Q	
		1 year	n/a	HA112A1 - 87Q	
		3 years	n/a	HA112A3 - 87Q	
	Critical Support (CS)	4 years	n/a	HA112A4 - 87Q	
		5 years	n/a	HA112A5 - 87Q	

Service and Support, HP Care Pack, and Warranty Information

	6 hour CTR	1 year	UF997E	HA105A1 - 87Q
		3 years	UG001E	HA105A3 - 87Q
		4 years	n/a	HA105A4 - 87Q
		5 years	n/a	HA105A5 - 87Q
	Installation (including clustering)	n/a	U7986A	HA113A1 - 5D6
	Installation and Startup	n/a	n/a	n/a
HP Software Support	<ul style="list-style-type: none"> ● Connect with HP Response Center engineers via telephone, electronic communication, or FAX for assistance in resolving software implementation or operations problems. ● HP Services provides corrective support to resolve identifiable and reproducible software product problems, and to help you identify problems that are difficult to reproduce. ● 9x5 coverage - Service is available during standard business hours, Monday through Friday (excluding holidays). 			
HP Software Support, 24 x 7 HP Support Plus	<ul style="list-style-type: none"> ● Provides all the benefits of the regular Software Support, plus HP Services engineers are available around the clock 365 days per year. ● Increases the performance and availability of your IT infrastructure with comprehensive, consistent hardware and software services. HP Services engineers deliver onsite hardware support and over-the-phone software support 13 hours per day, 5 days per week. ● Encompasses the HP ProLiant Storage Server products, selected multi-vendor hardware and provides trouble-shooting software problems which range from the Storage Server 2003 operating system to the available utilities. In addition, this service makes software updates available to you at substantial savings. ● Provides recovery and re-configuration assistance of the HP ProLiant Storage Server using the recovery disk and your saved configuration file. 			
HP Support Plus 24	<ul style="list-style-type: none"> ● Provides all the benefits of the regular Support Plus Care Pack, plus HP Services engineers are available to deliver onsite hardware and over-the-phone software support around-the-clock 365 days per year. 			
HP Proactive 24	<ul style="list-style-type: none"> ● An integrated hardware and software support solution that combines efficient problem prevention with responsive technical assistance whenever you need it. ● Improves the effectiveness of technologies across your IT infrastructure, and also, establishes a collaborative relationship between you and HP that strengthens your IT team and gives you rapid access to our expertise as issues arise 			

Software Product Services

- Standard HP warranty ensures Software media will be free of physical defects for a period of 90 days from delivery.
- 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://www.hp.com/hps/storage/ns_nas.html

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.

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/storage/ns_nas.html

Installation Services

The service deployment activities will include:

- Unpacking the product, performing initial inspection, and setting up product hardware and power connectivity
- Connecting Customer-provided cables
- Setting the network address and setting appropriate domain variables in the NAS operating system
- Configuring the storage by creating a file share
- Configuring user mapping to make the share available for access
- Creating a sample file data copy or Snapshot

Service and Support, HP Care Pack, and Warranty Information

Product number(s):	Care Pack	Duration	Commercial reseller channels	Direct & Enterprise channels
All	Installation for Storage (per event)	One time	Available	HA113A1 - 5D6

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 you will be guided through a series of steps to help you configure your ProLiant Storage Server.

NOTE: Options ship separately and are not factory integrated.

Step 1 - Order Model

HP ProLiant DL585 G2 x64 SAN Storage Server AG630A	Operating System	Microsoft Windows Unified Data Storage Server 2003, Enterprise x64 Edition
	Processor	Dual-Core AMD Opteron 8220SE (2.8 GHz, 120 Watts)
	Cache Memory	2 MB (2 x 1MB) Level 2
	Number of Processors	2
	Memory	4 GB (4 x 1GB)
	Memory Type	PC2-5300 Registered DIMMs at 667 MHz
	Storage Controller	Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6); occupies single PCIe slot
	Internal Storage	2 x 36GB or 2 x 72GB 3G SAS 10K SFF HDDs (for mirrored OS internal to server); No internal hard drives designated for user storage shipped with this model
	Network Controller	Dual embedded NC371i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
	Expansion Slots	Nine total slots: <ul style="list-style-type: none">• Three x8 PCI-Express• Four x4 PCI-Express (one slot occupied by Smart Array P400 Controller)• Two PCI-X (100MHz)
	Optical Drive	HP DVD+R/RW 8x Slim
	Redundancy	Hot plug redundant power supplies and fully redundant hot plug fans
	Remote Management	iLO2 Port with Advanced License Pack Included
	Form Factor	Rack (4U), (7 inches)
Factory Racking	Factory integrates the Storage Server with other HP products such as HP ProLiant Servers or Enterprise Virtual Arrays. NOTE: #OD1 will appear after the part number on the sales order if HP factory integration is indicated.	

Step 2 - Add More Processors

You can add two more processors to a DL585 G2 Storage Server.

NOTE: The DL585 G2 Storage Server comes standard with two processors.

Processor	AMD Opteron Processor 8220SE, Dual-Core (2.8 GHz, 120 Watts) 2P Option Kit	413934-B21
	NOTE: This kit contains two additional processors	

Product Configuration Wizard

Step 3 - Add More Memory

NOTE: The DL585 G2 Storage Server comes with 4 GB (4 x 1GB) of memory standard and is expandable to 128GB. See the 'Memory' section below for more detail about memory configurations and upgrades.

Memory	1 GB REG PC2-5300 (2 x 512 MB) single rank	408850-B21
	2 GB REG PC2-5300 (2 x 1 GB) single rank	408851-B21
	4 GB REG PC2-5300 (2 x 2 GB) dual rank	408853-B21
	8 GB REG PC2-5300 (2 x 4 GB) dual rank	408854-B21

NOTE: Memory must be ordered in like-pairs, i.e. two of the same size.

NOTE: If all four banks on a memory node are populated, the maximum memory clock speed will be 533 MHz. If two or fewer banks on a memory node are populated, the maximum memory clock speed will be 667 MHz.

Step 4 - Add Network Adapters

Dual embedded NC371i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine standard. Select additional cards for higher performance and redundancy.

NOTE: Multifunction Server Adapters (including the dual embedded NC371i) require installation of the Microsoft Windows Server 2003 Scalable Networking Pack (a free download from Microsoft) to enable TCP Chimney offload, Receive-side Scaling (RSS), and Network Direct Memory Access (NetDMA) features.

Network Adapters	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	NOTE: There is a maximum of five NC364T PCI Express Quad Port Gigabit Server Adapter NICs allowed in this server.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21

Step 5 - Add More Storage

NOTE: The DL585 G2 Storage Server is designed and optimized for integration with a Fibre Channel array/SAN gateway, but it does not ship with a standard Fibre Channel HBA. HBA selection is left as your choice based on existing infrastructure and/or desired array support.

NOTE: The DL585 G2 Storage Server can also support internal storage and/or direct attach storage. It ships with two 36GB SFF SAS drives on which the Operating System is mirrored; these drives are not designed to accommodate user data, but up to six more data drives can be installed internally. Likewise, it can direct external expansion with a Smart Array P800 controller and MSA50/60/70 enclosures.

Fibre Channel Host Bus **NOTE:** For the complete listing of Fibre Channel Host Bus Adapters, please see:



Product Configuration Wizard

Adapters

<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A

Storage Controllers

SCSI Controllers

Smart Array 6402/128 Controller	273915-B21
Smart Array 6404/256 Controller	273914-B21
Smart Array 642 Controller	291967-B21
128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21
NOTE: This 128MB BBWC supports the Smart Array 642 Controller.	
Ultra320 Expansion Module for SA-6402	273911-B21
64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

SCSI HBAs

HP SC11Xe Host Bus Adapter	412911-B21
HP U320e SCSI Host Bus Adapter	AH627A

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11587_na/11587_na.html
(Smart Array 6400 Series)

http://h18000.www1.hp.com/products/quickspecs/12069_na/12069_na.html
(Smart Array 642)

http://h18000.www1.hp.com/products/quickspecs/11943_na/11943_na.html
(U320 SCSI G2 HBA)

http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html
(SC11Xe HBA)

SAS Controllers

Smart Array E500 Controller

HP Smart Array E500/256MB Controller	435129-B21
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Smart Array P400 Controller

HP Smart Array P400/256MB Controller	405132-B21
HP Smart Array P400/512MB BBWC Controller	411064-B21
512MB Battery-backed cache upgrade	405148-B21

NOTE: Contains batter and memory module. For Smart Array P400 Controller.

Battery-backed write cache upgrade	383280-B21
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NOTE: Contains battery only. For Smart Array P400 Controller.

Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller	337972-B21
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Product Configuration Wizard

512 MB DDR BBWC Upgrade	372538-B21
NOTE: For Smart Array P600 Controller only.	
Smart Array P800 Controller	
HP Smart Array P800/512 BBWC Controller	381513-B21
NOTE: Please see the following Controller QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/12700_na/12700_na.html (Smart Array E500 Controller)	
http://h18000.www1.hp.com/products/quickspecs/12400_na/12400_na.html (Smart Array P400 Controller)	
http://h18000.www1.hp.com/products/quickspecs/12247_na/12247_na.html (Smart Array P600 Controller)	
http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.html (Smart Array P800 Controller)	
SAS HBAs	
HP SC44Ge Host Bus Adapter	416096-B21
HP 8 Internal Port SAS HBA with RAID	347786-B21
NOTE: Please see the following QuickSpecs for additional information:	
http://h18004.www1.hp.com/products/quickspecs/12617_na/12617_na.html (SC44Ge HBA)	
http://h18004.www1.hp.com/products/quickspecs/12332_na/12332_na.html (SAS HBA)	

External Storage Enclosures

HP StorageWorks Modular Smart Arrays	
HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
NOTE: Rack-mountable 10-drive (2.5" 3G SAS/1.5G SATA) 1U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.	
HP StorageWorks 60 Modular Smart Array	418408-B21
NOTE: Rack-mountable 12-drive (3.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.	
HP StorageWorks MSA60 1.8TB SAS HDD Bundle (MSA60 w/12 146GB 15K SAS LFF HDD)	AG822A
HP StorageWorks MSA60 9TB SATA HDD Bundle (MSA60 w/12 750GB 15K SATA LFF HDD)	AG823A
HP StorageWorks MSA60 3.6TB SAS HDD Bundle (MSA60 w/12 300GB 15K SAS LFF HDD)	AG824A
NOTE: The MSA60 bundles are available in the Americas, Asia Pacific (AP) and Japan only. They are not available in Europe, Middle East and Africa.	
HP StorageWorks 70 Modular Smart Array	418800-B21
NOTE: Rack-mountable 25-drive (2.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.	
HP StorageWorks MSA70 1.8TB SAS HDD Bundle (MSA70 w/25 72GB 15K SAS SFF HDD)	AG825A
HP StorageWorks MSA70 3.6TB SAS HDD Bundle (MSA70 w/25 146GB 10K SAS SFF HDD)	AG893A

Product Configuration Wizard

NOTE: The MSA70 bundles are available in the Americas, Asia Pacific (AP) and Japan only. They are not available in Europe, Middle East and Africa.

HP StorageWorks Modular Smart Array 30 SB 302969-B21

NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies.

HP StorageWorks Modular Smart Array 30 DB 302970-B21

NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies.

NOTE: The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.

HP StorageWorks Modular Smart Array 20 335921-B21

NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.

HP StorageWorks Modular Smart Array 20 Starter Kit 366172-B21

NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller.

NOTE: The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.

HP StorageWorks 1000 Modular Smart Array 201723-B22

NOTE: This array enclosure requires addition of a Fibre Channel Host Bus Adapter
NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at:

http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.html
(Worldwide)

HP StorageWorks 1500 cs Modular Smart Array AA986A

NOTE: This array enclosure requires addition of a Fibre Channel Host Bus Adapter
NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at:

<http://www.hp.com/go/MSA1500cs>

HP StorageWorks 2012fc Single Controller Modular Smart Array AJ742A

HP StorageWorks 2012fc Dual Controller Modular Smart Array AJ743A

HP StorageWorks 2212fc Dual Enhanced Controller Modular Smart Array AJ745A

HP StorageWorks 2000fc Modular Smart Array Controller AJ744A

NOTE: All 2000fc series array enclosures require addition of a Fibre Channel Host Bus Adapter

NOTE: Please see the 2000fc Modular Smart Array QuickSpecs for additional options and configuration information at:

http://h18000.www1.hp.com/products/quickspecs/12991_na/12991_na.html
(Worldwide)

HP StorageWorks 2012i Single Controller Modular Smart Array AJ746A

HP StorageWorks 2012i Dual Controller Modular Smart Array AJ747A

HP StorageWorks 2000i Modular Smart Array Controller AJ748A

NOTE: Please see the 2000i Modular Smart Array QuickSpecs for additional options and configuration information at:

http://h18000.www1.hp.com/products/quickspecs/12992_na/12992_na.html
(Worldwide)

Product Configuration Wizard

Additional Fibre Channel SAN / Array Support: XP and EVA

NOTE: Requires addition of a Fibre Channel Host Bus Adapter

NOTE: Please see the Storage Array Systems QuickSpecs below for more information about configuration requirements.

HP StorageWorks Enterprise Virtual Array Family

http://h18006.www1.hp.com/products/quickspecs/12408_na/12408_na.html

HP StorageWorks XP Disk Arrays

http://h18006.www1.hp.com/products/quickspecs/12072_na/12072_na.html

(XP 12000)

http://h18000.www1.hp.com/products/quickspecs/12275_na/12275_na.html

(XP 10000)

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)

Hard Drives (Internal Expansion)

Serial Attached SCSI (SAS) Hard Drives

Hot Plug 2.5" (SFF) SAS

HP 146GB 3G SAS 10K SFF SP HDD 431958-B21

HP 146GB 3G SAS 10K SFF DP HDD 418367-B21

HP 72GB 3G SAS 10K SFF SP HDD 375861-B21

HP 72GB 3G SAS 10K SFF DP HDD 384842-B21

HP 72GB 3G SAS 15K SFF SP HDD 431935-B21

HP 72GB 3G SAS 15K SFF DP HDD 418371-B21

HP 36GB 3G SAS 15K SFF SP HDD 431933-B21

HP 36GB 3G SAS 15K SFF DP HDD 418369-B21

NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html

Serial ATA (SATA) Hard Drives

Hot Plug 2.5" (SFF) SATA

HP 120GB SATA 5.4K SFF HDD 431786-B21

HP 60GB SATA 5.4K SFF HDD 379306-B21

NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/11940_na/11940_na.html

Product Configuration Wizard

Hard Drives (External Array Expansion)

Serial Attached SCSI (SAS) Hard Drives

Hot Plug 3.5" (LFF) SAS

HP 300GB 3G 15K SAS 3.5" SP HDD	431944-B21
HP 300GB 3G 15K SAS 3.5" DP HDD	416127-B21
HP 146GB 3G 15K SAS 3.5" SP HDD	375872-B21
HP 146GB 3G 15K SAS 3.5" DP HDD	384854-B21
HP 72GB 3G 15K SAS 3.5" SP HDD	375870-B21
HP 72GB 3G 15K SAS 3.5" DP HDD	384852-B21
HP StorageWorks MSA2 146GB 3G 15K 3.5 inch Dual-port SAS HDD (MSA2000 series only)	AJ735A
HP StorageWorks MSA2 300GB 3G 15K 3.5 inch Dual-port SAS HDD (MSA2000 series only)	AJ736A

Hot Plug 2.5" (SFF) SAS

HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
HP 146GB 3G SAS 10K SFF DP HDD	418367-B21
HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
HP 36GB 3G SAS 15K SFF SP HDD	431933-B21
HP 36GB 3G SAS 15K SFF DP HDD	418369-B21

NOTE: Please see the [SAS Hard Drive QuickSpecs](#) for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html

Serial ATA (SATA) Hard Drives

Hot Plug 3.5" (LFF) SATA

HP 750GB SATA 7.2K 3.5" HDD	432341-B21
HP 500GB SATA 7.2K 3.5" HDD	395473-B21
HP 250GB SATA 7.2K 3.5" HDD	349239-B21
HP StorageWorks MSA2 500GB 7.2K 3.5 inch SATA HDD (MSA2000 series only)	AJ738A
HP StorageWorks MSA2 750GB 7.2K 3.5 inch SATA HDD (MSA2000 series only)	AJ739A

Hot Plug 2.5" (SFF) SATA

HP 120GB SATA 5.4K SFF HDD	431786-B21
HP 60GB SATA 5.4K SFF HDD	379306-B21

NOTE: SATA drives have a 1 year warranty. Please see the [SATA Hard Drive QuickSpecs](#) for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/12091_na/12091_na.html

Step 6 - Add Optional Software



Product Configuration Wizard

HP x64 Windows Unified Data Storage Server OS Upgrade Software-only Microsoft Windows Unified Data Storage Server 2003, Enterprise x64 Edition operating system upgrade for select ProLiant Storage Server SAN gateway models running Microsoft Windows Storage Server 2003 (Enterprise Edition only): T5322A

- DL380 G5 SAN Storage Server (AG456A)
- DL585 Storage Server (AE454A)
- DL585 Storage Server (383719-B21)
- DL585 Storage Server (393973-B21)
- DL380 G4 SAN Storage Server (AE438A)
- DL380 G4 SAN Storage Server (371227-B21)

This upgrade requires a clean install and includes all Windows Unified Storage Server 2003, Enterprise x64 Edition features, including Microsoft iSCSI Software Target, Microsoft Cluster Server (MSCS), and 64-bit processing.

NOTE: Check for HP and 3rd-party software qualification with 64-bit Windows operating systems before purchase and installation

HP StorageWorks Storage Mirroring Software HP StorageWorks Storage Mirroring (SM) Software 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
- Asynchronous replication allows hosts to continue processing for maximum performance
- Introducing a new software option (Server Recovery Option) that captures a server's configuration information including OS, patches, drivers, and Service Packs. The IT department can respond to a server failure and use the Server Recover Option to re-create the boot sequence on a new server plus all of the data captured during the replication and send that data to the production site for replacement.
- Introducing a new software feature (Full Server Failover) that creates a one-to-one relationship between two servers. Should a production server fail, the server running Full Server Failover would assume the identity of the production server. The failover can occur over any distance and does not require "Enterprise"

Product Configuration Wizard

versions of the operating system or applications

Special note about Microsoft iSCSI Software Target and replication:

All HP ProLiant Storage Servers include the Distributed File System Replication (DFS-R) feature in the pre-installed Windows Storage Server 2003 R2 and Windows Unified Data Storage Server 2003 operating systems. DFS-R is a file-based replication technology that only replicates files when they are closed. Microsoft iSCSI Software Target (included with Windows Unified Data Storage Server 2003) does not close the virtual disk files (.vhd files) while they are in use, and so these files are not replicated during normal usage when replicating using DFS-R. Therefore, if iSCSI Software Target virtual disk files need to be replicated, DFS-R should not be used, and HP StorageWorks Storage Mirroring software should be considered instead. Storage Mirroring software asynchronously replicates each write into the file system to a secondary system, and therefore it can be used to effectively replicate iSCSI Software Target virtual disk files.

StorageWorks Storage Mirroring Media Kit v5 T5437A

StorageWorks Storage Mirroring NAS Edition 1 LTU T5442A

StorageWorks Storage Mirroring NAS Edition 10 LTU T5443A

NOTE: For more information go to the [HP StorageWorks Storage Mirroring website](http://h18006.www1.hp.com/products/storage/software/sm/index.html) at: <http://h18006.www1.hp.com/products/storage/software/sm/index.html>

Step 7 - Add a Backup Solution

Tape Drives

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

USB Tape Drives

HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB drive AG703A

SAS Tape Drives

NOTE: HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive DW085A

NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive EH847A

NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.

HP StorageWorks LTO-4 Ultrium 1840 SAS Internal Tape Drive EH860A

NOTE: HP recommends combining this tape drive with the 3U SAS Rack-Mount kit (AG576A) for a complete rack-mount solution.

NOTE: Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.

SCSI Tape Drives

NOTE: HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.

HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite) DW028B

HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920 EH903A

HP StorageWorks 3U SCSI Rack-Mount with 1 LTO-4 Ultrium 1840 Tape Drive EH926A

Product Configuration Wizard

NOTE: Please see the HP StorageWorks Ultrium 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

http://h18006.www1.hp.com/products/quickspecs/12128_na/12128_na.html

NOTE: 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>

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit A7445B

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

HP StorageWorks 1U USB Rack-Mount Kit A8007A

NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 40 USB, DAT 72 USB and DAT 160 tape drives.

HP StorageWorks 1U SAS Rack-Mount Kit AE459A

NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the LTO-2 Ultrium 448 SAS and LTO-3 Ultrium 920 SAS tape drives.

HP StorageWorks 3U Rack-mount kit 274338-B22

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

HP StorageWorks 3U SAS Rack-mount Kit AG576A

NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple SAS tape drives including DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS, and LTO-4 Ultrium 1840 SAS 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 D2D Backup System	HP StorageWorks D2D110 Backup System EH880A
	NOTE: 1TB of Disk Storage.
	HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit EH923A
	NOTE: 1TB of Disk Storage.
	HP StorageWorks D2D120 Backup System EH884A
	NOTE: 2TB of Disk Storage.
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit EH924A
	NOTE: 2TB of Disk Storage.
HP StorageWorks D2D130 Backup System EH950A	
NOTE: 3TB of Disk Storage.	
HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit EH951A	
NOTE: 3TB of Disk Storage.	
HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive EH952A	
NOTE: 3TB of Disk Storage.	

Product Configuration Wizard

NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12651_na/12651_na.html

Tape Autoloaders

HP StorageWorks DAT Autoloader	
HP StorageWorks DAT 72x10 tape autoloader	AE313B
HP StorageWorks 1/8 Tape Autoloader	
HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
HP StorageWorks 1/8 LTO-3 Ultrium 920 G2 Tape Autoloader	AH165A
HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
HP StorageWorks 1/8 LTO-2 Ultrium 448 G2 Tape Autoloader	AH164A
HP StorageWorks 1/8 LTO-1 Ultrium 232 G2 Tape Autoloader	AH163A
HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions.	
NOTE: Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs	

Tape Libraries

HP StorageWorks MSL2024 Tape Library	
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
HP StorageWorks MSL4048 Tape Library	
HP StorageWorks MSL4048 1 Ultrium 448 SCSI Drive Library	AG320A
HP StorageWorks MSL4048 1 Ultrium 920 SAS Drive Library	AH560A
HP StorageWorks MSL4048 1 Ultrium 920 SCSI Drive Library	AH171A
HP StorageWorks MSL4048 1 Ultrium 960 SCSI Drive Library	AG322A
HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Library	AG324B
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
HP StorageWorks MSL8096 Tape Library	
HP StorageWorks MSL8096 2 Ultrium 920 SAS Drive Library	AH561A
HP StorageWorks MSL8096 2 Ultrium 960 4GB FC Library	AH218A
HP StorageWorks MSL8096 2 Ultrium 960 SCSI Drive Library	AH219A

Product Configuration Wizard

HP StorageWorks MSL8096 2 LTO-4 Ultrium 1760 SAS Drive Library	AK382A
HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ039A
HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 4GB FC Library	AJ040A
HP StorageWorks MSL6000 Tape Library	
LTO-4 Ultrium 1840 technology	
HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ029A
HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 4GB FC Library	AJ030A
HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ031A
HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 4GB FC Library	AJ032A
LTO-3 Ultrium 960 technology	
HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B

Step 8 - Add UPS, Power, and Rack Options

Uninterruptible Power Systems – Rack	HP, R1.5kVA UPS, 1U	AF419A
	HP R3000 VA UPS, 2U, L5-30	AF422A
	NOTE: Replaces non-RoHs compliant part number 192186-001.	
	HP R3000 VA UPS, 2U, L6-20	AF423A
	NOTE: Replaces non-RoHs compliant part number 192186-002.	
HP Monitored Power Distribution Unit (PDU)	HP R5500 VA UPS	AF426A
	NOTE: Replaces non-RoHs compliant part number 326529-D71.	
	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 17.3 kVA S2324 Monitored PDU - dual input, 3U, 24A	AF503A
	NOTE: Replaces non-RoHs compliant part number 370959-D71.	
	HP 8.3 kVA S1324 Monitored PDU - single input, 3U, 24A	AF504A
	NOTE: Replaces non-RoHs compliant part number 370960-D71.	
HP 16.6 kVA S2140 Monitored PDU - dual input, 1U, 40A	AF505A	
NOTE: Replaces non-RoHs compliant part number 37061-D71.		
HP 8.6 S1140 Monitored PDU - single input, 1U, 40A	AF506A	
NOTE: Replaces non-RoHs compliant part number 370962-D71.		
HP Monitored Power Distribution Unit: Half Rack Version		
HP 17.3 kVA S348 Monitored PDU - single input, 3Ø, 48A	AF916A	
HP 4.9kVA S124 Monitored PDU - single input, 1U, 24A	AF914A	

Product Configuration Wizard

Modular Power Distribution Units 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC)	252663-D71
	NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC)	252663-D72
	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC)	252663-B21
	NOTE: This mPDU (252663-B21), 40A model has a hardwired input.	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC)	252663-B24
	NOTE: 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 UPS R3000 XR. Need to order cable PN 340653-001.	
	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	

USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	USB 2.0 4-port HUB	DG954A
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
	NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_na.html http://www.hp.com/go/rackandpower .	

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet - Pallet	AF021A
	10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	

Product Configuration Wizard

NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

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 10622 (22U) - Pallet	245163-B21
	HP Rack 10622 (22U) - Shock Pallet	245163-B22
	HP Rack 10622 (22U) - Crated	245163-B23

NOTE: xxxxx-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).

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

NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed.

NOTE: Please see the Rack 10000 QuickSpecs for additional options and 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://www.hp.com/go/rackandpower>.

Keyboards and Monitors	TFT7210R Rack Mounted 17" Monitor	348373-B21
	TFT7600 Rackmount Keyboard Monitor	AG052A
	1U Rackmount Keyboard with USB	AG072A

NOTE: For additional information regarding Rack Options, please see the following URL: <http://www.hp.com/go/rackandpower>.

Product Configuration Wizard

HP KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	NOTE: Requires PS/2 and one USB port on server.	
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .	
	HP 1x4 Server Switch	AF611A
	PS2 Server Console Cable, 6 ft, 2 pack	AF612A
USB Server Console Cable, 6 ft, 2 pack	AF613A	
NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm .		

HP Serial Console Server Options	HP 16 Port Serial Console Server	AF101A
	HP 48 Port Serial Console Server	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .	
NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm .		

Step 9 - Order HPTS Service Care Packs

Service Care Packs or warranty upgrades enhance the base hardware warranty provided with your HP ProLiant Storage Server. The Care Packs provide support for product software and operating system with extended hours of coverage and reduced response time. And Care Packs allow the customer to budget fixed cost support rather than variable costs that include parts and labor.

Note that the standard HP warranty ensures software media will be free of physical defect for a period of 90 days from delivery. However ProLiant Storage Server products all come with a full year of 9 hours by 5 days software advisory and remedial software telephone support, new version license rights, and media and documentation distribution service. Extended hours of coverage and additional years of service are available should the customer require more support.

See "**Service and Support Upgrade options**" section for more information on available Care Packs for your ProLiant Storage Server.

Memory

Standard Memory

PC2-5300 Double Data Rate 2 (DDR2) SDRAM (Registered SDRAM) memory running at 667 MHz

- 4 GB (4 x 1GB)

Maximum Memory

- 128 GB (32 x 4GB)

At least one pair of DIMMs must be installed in slots 1A and 2A to operate the server. Observe the following DIMM installation guidelines to add additional memory to the server:

- DIMMs must be installed in pairs.
- DIMM installed on the same memory bank must have the same part number.
- DIMMs installed in different banks can be of different sizes.
- DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.
- DIMM banks are active only when the corresponding processor socket is populated.

NOTE: If all four banks on a memory node are populated, the maximum memory clock speed will be 533 MHz. If two or fewer banks on a memory node are populated, the maximum memory clock speed will be 667 MHz.

Following are memory options available from HP:

- | | |
|--|------------|
| • 1 GB REG PC2-5300 (2 x 512 MB) single rank | 408850-B21 |
| • 2 GB REG PC2-5300 (2 x 1 GB) single rank | 408851-B21 |
| • 4 GB REG PC2-5300 (2 x 2 GB) dual rank | 408853-B21 |
| • 8 GB REG PC2-5300 (2 x 4 GB) dual rank | 408854-B21 |

Standard Memory Configuration
Total Memory = 4 GB

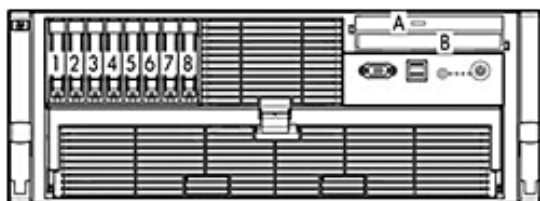
	1 (Slot furthest from processor)	2	3	4	5	6	7	8 (Slot closest to processor)
Processor 1 Memory Bus	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Processor 2 Memory Bus	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Processor 3 Memory Bus	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty
Processor 4 Memory Bus	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty

Examples of other optional configurations include, but are not limited to:

Memory

Example #1: Optional Memory Configuration with upgrade to 4 processors Standard Memory plus Optional Memory and Processors Total Memory = 8 GB								
	1 (Slot furthest from processor)	2	3	4	5	6	7	8 (Slot closest to processor)
Processor 1 Memory Bus	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Processor 2 Memory Bus	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Processor 3 Memory Bus	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Processor 4 Memory Bus	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Example #2: Maximum Memory Configuration Maximum Memory (Standard replaced with Optional Memory) Total Memory = 128 GB								
	1 (Slot furthest from processor)	2	3	4	5	6	7	8 (Slot closest to processor)
Processor 1 Memory Bus	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
Processor 2 Memory Bus	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
Processor 3 Memory Bus	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
Processor 4 Memory Bus	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Storage



Point	Item
A	Slot for Ejectable Slimline Diskette or Optical Drive
B	HP DVD+R/RW 8x Slim (Standard)
1-8	SFF SAS Internal Drive cage

Drive Support

	Quantity Supported	Position Supported	Controller
DVD+R/RW 8x Slimline	1	B	Integrated IDE

Hard Drives

NOTE: Slots 1 and 2 each contain a 36GB or 72GB SFF SAS drive for the Operating System mirror. These drives are not designated to be used for customer data.

Hot Plug 2.5" (SFF) SATA

	Quantity Supported	Position Supported	Controller
120GB SATA 5.4K 60GB SATA 5.4K	Up to 6	3-8	HP Smart Array P400/512MB BBWC Controller

Hot Plug 2.5" (SFF) SAS

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K 72GB 3G SAS 10K 72GB 3G SAS 15K 36GB 3G SAS 10K 36GB 3G SAS 15K	Up to 6	3-8	HP Smart Array P400/512MB BBWC Controller

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs
Modular Smart Array 1500 cs	Please see the Modular Smart Array 1500 cs QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1500 cs QuickSpecs (URL below) for the latest list of supported HBAs
Modular Smart Array 60	Up to 8 per Smart Array controller	External	Smart Array P800 Controller Smart Array E500 controller
Modular Smart Array 70	Up to 4 per Smart Array controller	External	Smart Array P800 Controller Smart Array E500 controller
Modular Smart Array 50 Enclosure	2 per connector (supports 1+1 cascading)	External	Smart Array P800 Controller

Modular Smart Array 1000: http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.html

Modular Smart Array 1500 cs: <http://www.hp.com/go/MSA1500cs>

The DL585 G2 Storage Server can also support Fibre Channel based external storage when FC HBAs are installed. See Product Configuration Wizard for details.

Maximum Raw Storage Capacity

Internal	1020GB raw (2 x 72GB SFF SAS HDDs for mirrored O/S, plus 6 x 146GB SFF SAS HDDs)
External	Virtually unlimited SAN storage via Fibre Channel HBA (256TB max per volume)

Factory RAID Configuration

	Volume	RAID level	Physical Drives
Logical Disk 1	Operating System	RAID 1	0-1
Logical Disk 2	DON'T ERASE recovery partition	RAID 1	0-1

Storage

Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup

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 Autoloaders and Tape Libraries listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/north_america/10809.html

NOTE: For complete listing of tape drive offerings see:

<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

NOTE: SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-2 Ultrium 460 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 DLT VS160 SDLT 600 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS 1U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter NOTE: Recommended. HP Smart Array E500 Controller NOTE: The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support: HP Smart Array P400/256MB Controller HP Smart Array P400/512MB Controller	416096-B21 435129-B21 405132-B21 411064-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

<p>1/8 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000</p>		<p>HP U320e SCSI Host Bus Adapter NOTE: Only valid for MSL tape libraries.</p>	<p>AH627A</p>
<p>HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096</p>	<p>External</p>	<p>HP SC44Ge Host Bus Adapter NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.</p>	<p>416096-B21</p>
<p>HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL6000</p>	<p>External</p>	<p>HP 8 Internal Port SAS HBA with RAID 0/1 HP Smart Array P800/512 BBWC Controller NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.</p>	<p>347786-B21 381513-B21</p>
<p>HP StorageWorks Tape Libraries, External MSL2024 (Ultrium 448 and 960-based) MSL4048 (Ultrium 448 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based)</p>	<p>External</p>	<p>Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.</p>	<p>N/A</p>
<p>HP StorageWorks D2D Backup Systems D2D110 D2D120 D2D130</p>	<p>External</p>	<p>Embedded Network Controller</p>	<p>N/A</p>

Power Specifications

Part number	348114-001
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	910	910	1300	1300	1300	1300
Nominal Input Current (A rms)	11.9	10.2	7.7	7.3	6.9	6.6
Max Rated Input Wattage Rating (Watts)	1163	1148	1566	1566	1548	1548
Max. Rated VA (Volt-Amp)	1186	1172	1598	1598	1579	1579
Efficiency (%)	80	81	83	83	84	84
Power Factor	0.98		0.98			
Leakage Current (mA)	0.43	0.50	0.90	0.96	1.00	1.04
Max. Inrush Current (A peak)	100	100	100	100	100	100
Max. Inrush Current duration (mS)	10					

***NOTE:** – To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at url: <http://h30099.www3.hp.com/configurator/powercalcs.asp>

To drill down to calculators:

- Click on : "ProLiant Servers"
- Click on the Server of interest. Example : DL585 G2
- Click on : "Power Calculator" link. (You may need to scroll down to see it)
- There are certain Dual-core, lowline, max configurations that are not supported. All highline configurations are supported. Consult the Power Calculator to determine if your lowline configuration is supported.

Standard Rack Model Power Cords / Jumper Cords	Description
	IEC320-C14 to IEC320-C19 Jumper Cord

Optional Power Cords and Jumper Cords	Description	Option Kit Part Number
	Nema 5-15P to IEC320-C19	235603-001
	Nema 6-20P to IEC320-C19	235604-001
	Nema L6-20P to IEC320-C19, 20A, 250V, US	340653-001
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 6 ft/2.0m)	313227-B21
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 8 ft/2.5m)	291034-B21
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 10 ft/3.0m)	310927-B21
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 12ft/3.7m)	313228-B21
	IEC320-C19 to IEC320-C20 Jumper (16A, IEC, 8ft/2.5m)	295633-B22

Technical Specifications

System Unit Rack	Chassis Footprint (HxWxD)	6.94 x 19 x 26.5 in (17.6 x 48.3 x 67.3 cm)	
	Weight No hard drives installed, one power supply	66 lb (29.9 kg)	
	Input Requirements	Rated Input Voltage	100 to 120 VAC/200 to 240 VAC
		Rated Input Frequency	50 to 60 Hz
		Input Power	1135W @ 110 VAC/1125W @ 220 VAC
		Rated Input Current	12A (100 VAC), 9.8A (120 VAC), 4.9A (220 VAC)
	Max BTU Rating	4070 BTU	
	Power Specifications	To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/powercalcs.asp . To drill down to calculators:	
		<ul style="list-style-type: none"> ● Click on: "ProLiant Servers" ● Click on the Server of interest. Example: DL585 G2 ● Click on: "Power Calculator" link (You may need to scroll down to see it.) 	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	800W/800W (lowline/highline)
Maximum Peak Power		800W/800W (lowline/highline)	
System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).	
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).	
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
Acoustic Noise	NOTE: Listed are the declared A-weighted sound power levels LWAd and		

Technical Specifications

the declared average bystander position sound pressure levels LpAm when operating in a 23° C ambient environment. Noise emissions were measured in accordance with ECMA 74 and declared in accordance with ECMA 109.

Idle (Fixed Disk Drives Spinning)

L WAd (BELS) 7.3

L pAm (dBA) 55

Operating Minimum (Random Seeks to Fixed Disks)

L WAd (BELS) 7.3

L pAm (dBA) 55

NOTE: These values apply to 4U rack configuration with the Health Driver Fan Control active. Configuration tested included 2 AMD Opteron 2.2 GHz processors, 1 15 krpm hard drive, 2 power supplies, 4 memory/IO fans and 4 CPU fans.

Dual embedded NC371i Multifunction Gigabit Server Adapters	Network Interface	10/100/1000-T		
	Compatibility	IEEE 802.3 10Base-T		
		IEEE 802.3ab 1000Base-T		
		IEEE 802.3u 100Base-TX		
		PCI Express, four lanes (x4)		
	Data Transfer Method	PCI Express, four lanes (x4)		
	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	
1000Base-TX (Half and Full-Duplex)		2000 Mb/s		
Connector	RJ-45			
Cable Support	10Base-T	Categories 3, 4, or 5 UTP; up to 328 ft (100 m)		
	10/100/1000 Base-TX	Category 5 UTP up to 328 ft (100 m)		

NOTE: The NC371i Multifunction Gigabit Server Adapters require installation of the Microsoft Windows Server 2003 Scalable Networking Pack (a free download from Microsoft) to enable TCP Chimney offload, Receive-side Scaling (RSS), and Network Direct Memory Access (NetDMA) features.

Technical Specifications

Integrated Lights-Out 2 Standard (integrated on system board)	Architecture	32-bit PCI-based health and remote management ASIC (Application Specific Integrated Circuit)
	Processor	32-bit RISC processor core running at 66 MHz
	Upgradeability	Option firmware upgradeable via flash ROM
	Video Support	Utilizes the host server's embedded video chip. Supports VGA/SVGA, 640 x 480 (256 to 16.7M colors), 800 x 600 (256 to 16.7M colors), 1024 x 768 (256 to 65K colors), 1280 x 1024 (256 colors)
	Interfaces	One Ethernet network connection (10/100 Mb/s)
	Memory	2-MB Flash ROM 8-MB SDRAM
	Operating System Support	Windows 2000 Server Windows 2000 Advanced Server Red Hat 7.x SuSE 7.0
	Client Browser Support	Microsoft Internet Explorer 5.5 or later.
	iLO 2 Standard Features	Virtual Text Remote Console Virtual KVM Virtual Power Button Control Virtual UID Control Power Regulator Control Dedicated LAN Connectivity Secure access using web browser Secure access using Secure Shell (SSH) client Serial connectivity Automatic IP Configuration via DHCP/DNS/WINS Industry Standard 128-bit Secure Sockets Layer (SSL) Security IML and iLO2 Event Logging Support for up to 12 user accounts with customizable access privileges
	iLO Advanced Features (optional)	Virtual Graphical Remote Console Virtual Floppy/USB Key drive Virtual CD-ROM drive Directory Services Integration Processor States Reporting Terminal Services Integration

Technical Specifications

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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