

Overview

Introduction

The HP ProLiant ML370 Storage Server is for small and medium business (SMB) or a remote office that needs higher performance when deploying file, print and/or Exchange solutions. The Storage Server is built upon proven HP ProLiant server technology that provides industry-leading performance and availability in a dual processor expansion server. Windows Storage Server 2003 (WSS2003) operating system along with HP value added features provide a solution that delivers quick-to-install and simple-to-manage networked storage with multi-protocol file sharing for small or branch office locations. Because the software is pre-installed and the hardware is pre-configured and tested, you are up and running in minutes with confidence.

In a small or branch office, the HP ProLiant ML370 Storage Server serves as the file storage device hosting local user files and/or Exchange database and log files. With optional host-based data replication, data on the HP ProLiant ML370 Storage Server can be exchanged with a main office easily to support business continuity needs.

HP ProLiant ML370 Storage Server is available as a Base Model, Int SCSI or High Performance model. User storage is provided only on the Int SCSI model.

Upgrade Kit for Windows Storage Server Release 2 for:

- Improved productivity, more robust storage management and simple branch office integration with new Windows Storage Server 2003 Release 2 version of the operating system
- Easier to use, HP enhanced Microsoft Management Console - based User Interface

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 support heterogeneous files in a high-capacity storage solution on Ethernet based networks. 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 a Storage Server

Rapid Deployment

- Using standard network infrastructure and an interface that guides the setup user are up and running quickly

HP Value Add Manageability Features

- All hardware and software are configured and pre-tested so it works right out of the box
- HP provides value add manageability features such as Services for Unix (SFU), Storage Manager Directory quota management and Array Configuration Utility (ACU) which can be administered through the web UI.
- A Rapid Start Up wizard steps a user through the initial setup

Reduced Management Costs

- All setup, configuration and management can be done from any place that is accessible via the network. Management from a centralized location simplifies the deployment and management tasks.
- Snapshot capability frees valuable IT resources when users can revert back to older copies of files without IT intervention
- SNMP management support with pre-installed agents that work with management software such as HP OpenView, Tivoli TME, IBM Netview, CA Unicenter and BMC
- Windows Storage Server 2003 provides unlimited CAL (Client Access License) for Storage Server clients
- Separate file serving from application servers enables you to consolidate servers, increase satisfaction because there is less interruption due to application demands or application server failures.

Support for Heterogeneous Environments

- The Storage Server supports all the major file serving protocols including SMB/CIFS, NFS, NCP, AppleTalk, HTTP and FTP

Integration & Compatibility

- The HP Storage Server quickly and easily integrates into the Windows ADS environment
- Windows supported third party software packages that complement file serving such as antivirus, backup, replication, etc. are supported.

Product Features

- | | |
|---------------------------------|---|
| Processor | <ul style="list-style-type: none">• Intel Xeon Processor 3.4 GHz/800MHz - 1 MB L2 (Base model has 1 processor while the High Performance model ships with 2 processors). |
| Form Factor | <ul style="list-style-type: none">• Tower (5U) Optional rack conversion kit available |
| Standard Memory | <ul style="list-style-type: none">• 1 GB standard (Base Model) or 2 GB standard (High Performance Model); DDR-II 400 MHz memory |
| Operating System | <ul style="list-style-type: none">• Windows Storage Server 2003 Service Pack 1 (SP1)OS - 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• A trial copy of OpenView Storage Mirroring (See optional Software from HP for Storage Server for further details can be downloaded from http://www.openview.hp.com/products/mirror/tc_mirror_0001.html) |
| Storage Controller | <ul style="list-style-type: none">• HP Smart Array 6402/128 - storage controller - Ultra320 SCSI - PCI-X with 128MB BBWC. |
| Maximum Internal Storage | <ul style="list-style-type: none">• Up to 1.8T utilizing 6 X 300 GB with the optional 2-bay Hot Plug SCSI drive cage. Note that 2 drive slots are utilized for the OS image.• High Performance model includes 2-bay Hot Plug SCSI drive cage. |
| Scalability | <ul style="list-style-type: none">• Optional 2-bay hot plus SCSI cage increases internal storage capacity• Smart Array 6402 Controller with 128MB BBWC provides 2 SCSI channels |
| Network Connections | <ul style="list-style-type: none">• Integrated NC7781 PCI-X Gigabit NIC (single port) |
| Backup | <ul style="list-style-type: none">• See the complete listings of backup options for the base ProLiant ML370 hardware platform http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html |
| Warranty | <ul style="list-style-type: none">• The HP ProLiant ML370 Storage Server ML370 has a standard 3-3-3 warranty (3 years parts exchange, three year labor and three year on-site, next business day response). |
| Fans and Power Supplies | <ul style="list-style-type: none">• 1 fan standard (Base Model) , 2 fans standard (High Performance model); Additional fans for Base Model can be ordered as option• 1 hot plug 775 Watt Power Supply (Base Model); 2 hot plug 775 Watt Power Supply (High Performance Model); Additional power supply for Base Model can be ordered as an option |
| Remote Management | <ul style="list-style-type: none">• Integrated Light-Out (iLO) Standard Management standard on both models<ul style="list-style-type: none">○ Virtual Text Remote Console○ Virtual Power Button Control○ Virtual Unit Identification Light Control○ Virtual Serial Port Redirection○ Dedicated LAN Connectivity○ Automatic IP Configuration via DHCP/DNS/WINS○ Industry Standard 128-bit Secure Sockets Layer (SSL) Security○ IML and iLO Event Logging○ Support for 12 user accounts with customizable access privilege |

Software Components

Optional Software from HP for Storage Server

- **HP OpenView Storage Mirroring** - The HP ProLiant ML370 Storage Server supports using Storage Mirroring as the data replication software solution (see Options section for list of part numbers).
- **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
- Asynchronous replication allows hosts to continue processing for maximum performance
- **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 HP ProLiant ML370 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 Insight Manager** - The HP ProLiant ML370 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** - HP ProLiant ML370 Storage Server supports Open View through SNMP. For more information HP OpenView: <http://www.managementsoftware.hp.com/>

Software Components

Non-HP Software for Exchange Backup and Archive

HP has qualified CommVault Systems to provide simplified and cost-effective Exchange data management and protection solutions for HP ProLiant Storage Server customers. The solution helps SMB customers address the issues of growing business and regulatory compliance requirements for data retention, reduced data backup windows and increasing storage management administration cost and complexity.

CommVault's QiNetix software suite running on an HP ProLiant Storage Server device includes the following key features:

- Complete protection and management of Microsoft® Exchange and Storage Server data, including backup, restore, archiving and data migration to secondary storage devices.
- Use of HP ProLiant Storage Server devices as backup and archive targets to stage Microsoft® Exchange and other data.
- Content-based indexing of Exchange data to assist in compliance and specific searching of Exchange e-mail text, e-mail attachments and Windows files.

For more information on CommVault QiNetix software for HP ProLiant Storage Server, please visit:

http://www.commvault.com/hp/hp_nas.asp

NOTE: Support for this software is provided by CommVault.

Service and Support, HP Care Pack, and Warranty Information

Storage Service Packages 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 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)

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 sales offices or visit our web site at: <http://www.hp.com/hps/support>.

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/>

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
- Service tools installed, configured and verified
- Customer orientation

Warranty

The HP ProLiant ML370 Storage Server has a standard 3-3-3 warranty (Three years parts exchange, three year labor and three year on-site, next business day response).

Service and Support, HP Care Pack, and Warranty Information

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

The HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

- HP Care Pack is not available for less than the product's warranty duration.
- HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
- HP Care Pack services are prepaid.
- For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:

<http://h18005.www1.hp.com/services/carepaq/index.html>

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.

NOTE: Options ship separately and are not factory integrated.

Step 1 - Order required models

Select one of the three models available

HP ProLiant ML370 Storage Server Base Model 375639-001	Processor Cache Memory Memory Expansion Slots Network Controller Storage Controller SCSI Cable Kit Hard Drive (Internal storage) Diskette Drive Optical Drive Standard Storage Maximum storage Internal to server Form Factor	(1) Intel Xeon Processor 3.4 GHz/ 800MHz standard (up to 2 supported) 1 MB Level 2 cache 1GB (Standard) to 4GB (OS Maximum) DDR-II 400 MHz memory One 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express NC7781 PCI-x Gigabit NIC (Embedded) Smart Array 6402 Controller w/128 MB BBWC VHDCI SCSI internal to external cable kit Standard two (2) 36 GB Ultra320 15K 1" drives (for OS internal to server) NOTE: No internal data storage drives installed on this model 1.44 MB diskette drive DVD-ROM Drive (8x24) None Up to 1.8T utilizing 6 X 300 GB with the optional 2-bay hot plug SCSI drive cage. Note that 2 drive slots are utilized for the OS image. Tower (5U)
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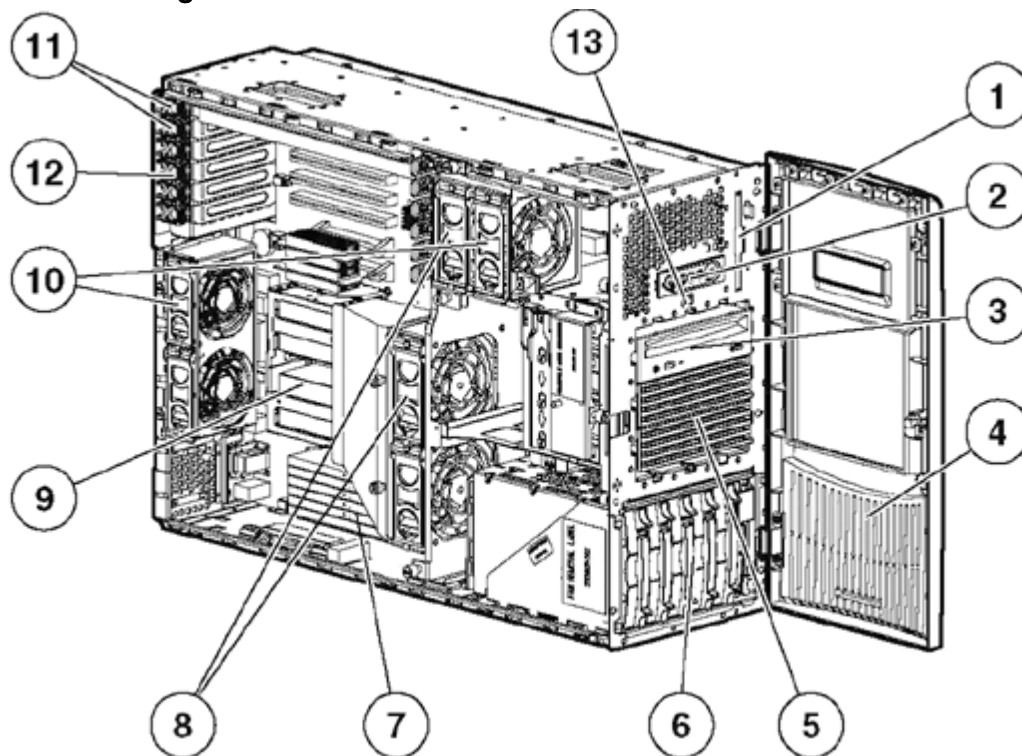
HP ProLiant ML370 Int SCSI Storage Model 381862-001	Processor Cache Memory Memory Expansion Slots Network Controller Storage Controller SCSI Cable Kit Hard Drive (Internal storage) Diskette Drive Optical Drive Standard Storage Maximum storage Internal to server Form Factor	(1) Intel Xeon Processor 3.4 GHz/ 800MHz standard (up to 2 supported) 1 MB Level 2 cache 1GB (Standard) to 4GB (OS Maximum) DDR-II 400 MHz memory One 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express NC7781 PCI-x Gigabit NIC (Embedded) Smart Array 6402 Controller w/128 MB BBWC VHDCI SCSI internal to external cable kit Standard two (2) 36 GB Ultra320 15K 1" drives (for OS internal to server) 1.44 MB diskette drive DVD-ROM Drive (8x24) 1.2 TB raw storage capacity (4 x 300 GB Ultra320 1") Up to 1.8 TB utilizing 6 X 300 GB with the optional 2-bay hot plug SCSI drive cage. Note that 2 drive slots are utilized for the OS image. Tower (5U)
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Product Configuration Wizard

HP ProLiant ML370
Storage Server High
Performance Model
375640-001

Processor	(2) Intel Xeon Processor 3.4 GHz/ 800MHz standard
Cache Memory	1 MB Level 2 cache
Memory	2 GB (Standard) up to 4 GB (Maximum) DDR-II 400 MHz memory
Expansion Slots	One 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, one 64-bit/66-MHz PCI-X, one x4 PCI-Express, and one x8 PCI-Express
Network Controller	NC7781 PCI Gigabit NIC (Embedded)
Storage Controller	Smart Array 6402 Controller w/128 MB BBWC
SCSI Cable Kit	VHDCI SCSI internal to external cable kit
Hard Drive (Internal storage)	Standard two (2) 36 GB Ultra320 15K 1" drives (for OS internal to server) NOTE: No internal data storage drives installed on this model
Diskette Drive	1.44 MB diskette drive
Optical Drive	DVD-ROM Drive (8x24)
Maximum storage Internal to server	1.8 TB (6 x 300 GB Ultra320 1")
Form Factor	Tower (5U)

Model Design



1. 1.44 Diskette Drive
2. Front Panel LEDs (show server status)
3. DVD Drive
4. Front bezel
5. Removable Media Bays
6. Six 1" Hot Plug Drive Bays
7. 8 PC2-3200R Memory Slots
8. Hot Plug Fans (standard)
9. Intel Xeon Processors
10. Hot Plug Redundant Fans (Optional base) (Standard High Performance Model)
11. 2 PCI-Express Non Hot Plug slots
12. 4 PCI-X 64-Bit 100 MHz Non Hot Plug slots
13. USB 2.0 (on the front)

Product Configuration Wizard

Step 2 - add second processor

You may add a second processor to a HP ProLiant ML370 Storage Server Model

Processor Intel Xeon X3.4-1MB/800MHz Processor Option Kit 311583-B21
NOTE: Base model can support one additional processor

Step 3 - add additional memory

System comes standard with either 1 GB or 2 GB of memory and is expandable to OS limit of 4 GB

Base Memory 1GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2 x 512 MB) 343055-B21
 2GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2x1024 MB) 343056-B21

Common Memory Upgrades from Standard Memory. This chart does not represent all possible memory configurations.

Std. Memory	Total Memory	Slot							
		1	2	3	4	5	6	7	8
1 GB	512 MB	512 MB	512 MB	Empty	Empty	Empty	Empty	Empty	Empty
2 GB	512 MB	512 MB	512 MB	512 MB	512 MB	Empty	Empty	Empty	Empty
2 GB	1 GB	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
4 GB	512 MB	512 MB	512 MB	512 MB	512 MB	1 GB	1 GB	Empty	Empty

Step 4 - add Windows Storage Server 2003 Release 2 Upgrade (optional)

Windows Storage Server 2003 SP1, Standard Edition to Windows Storage Server 2003 Release 2, Standard Edition Upgrade Kit T4388A

Note: This upgrade kit is optional does not have to be ordered if only want Windows Storage Server 2003 Service Pack 1 which ships with the system.

- Windows Storage Server Release 2 2003 includes:
 - HP Enhanced, File Server Management Console
 - File Server Resource Manager for quotas, file screening and storage reporting
 - Print Server support
- New print management console
- Unlimited printer support in Standard Edition
 - Microsoft Services for Network File System (NFS)
 - Distributed File System Replication, including
- DFS Management Console
- Configuration and Diagnostic Tools
 - MS Exchange Feature Pack for WSS 2003
 - Unlimited Client Access License (CAL) included
 - Upgrade Documentation

Product Configuration Wizard

Step 5 - add internal storage upgrades

Backplane	Duplex SCSI Backplane Option Kit	339323-B21
Drive Cage	ML3xx Two Bay Hot Plug SCSI Drive Cage FIO BASE NOTE: Included with High Performance Model.	244059-B21

Step 6 - add storage controller options

Storage Controllers	256MB Battery-Backed Cache Upgrade Kit for SA-6400	273913-B21
BBWC Upgrade	NOTE: This 256-MB Battery-Backed Cache Module upgrade kit supports the Smart Array 6400 series controller only.	
	Ultra320 Expansion Module for SA-6402	273911-B21

Step 7 - ProLiant ML370 unique options

NOTE: The Int SCSI and High Performance Model include redundant power supply and fan.

Options	G4 Hot Plug Redundant Power Supply Option Kit	356544-001
	G2/G3/G4 Redundant Hot Plug Fan Option Kit	225073-B21

Step 8 - additional network cards

The system comes per default with 1 integrated NC7781 PCI-X Gigabit NIC. Select additional cards for higher performance and further redundancy.

NC1020 Cu Gigabit Server Adapter 32 PCI Single Port	353377-B21
NC6170 Dual Port PCI-X 1000SX Gigabit Server Adapter	313879-B21
NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter	313881-B21
NC7771 PCI-X 10/100/1000-T Server Adapter	290563-B21
Agere PCI V.92 56K Worldwide Controller less Win Modem	DC131B

NOTE: RJ11 modem adapter is not included.

NOTE: NC61XX, NC71XX, NC77XX, or NC1020 NIC can be used for redundancy with the embedded NC7761 Network Controller. The embedded network controller and the NC1020 use the same chipset and are completely compatible. However, when teaming these two NICs with the other NICs, the lack of Jumbo Frames and LSO features on either of them will cause high end NICs to have those features disabled.

Product Configuration Wizard

Step 9 - add hard drives

The HP ProLiant ML370 Storage Server holds a maximum of 6 data disk drives with the optional 2-bay expansion rack. Each MSA30 disk enclosure holds up to 14 SCSI hard drives and each MSA 20 disk enclosure holds up to 12 SATA hard drives.

NOTE: For detailed specifications on HDD drives please consult HP website at <http://h18004.www1.hp.com/products/servers/proliantstorage/drives-enclosures/index.html>

Hard Drives	Ultra320 SCSI – Universal Hot Plug	
	HP 72 GB U320 10K Universal HDD	286714-B22
	HP 146 GB U320 10K Universal HDD	286716-B22
	HP 300 GB U320 10K Universal HDD	350964-B22
	HP 36 GB U320 15K Universal HDD	286776-B22
	HP 72 GB U320 15K Universal HDD	286778-B22

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

SATA - Hot Plug

HP 80GB 1.5G SATA 7.2K 3.5" HDD	349237-B21
HP 160GB 1.5G SATA 7.2K 3.5" HDD	349238-B21
HP 250GB 1.5G SATA 7.2K 3.5" HDD	349239-B21
HP 500GB 1.5G SATA 7.2K 3.5" HDD	395473-B21

NOTE: For complete compatibility information, refer to the HP Hard Drive Compatibility table located at <http://www.hp.com/products/harddiskdrives>

Step 10 - add disk enclosures

If you require additional capacity beyond the disk drive slots provided in the based models, you may connect up to 13 MSA30 external disk enclosures or 12 MSA20 external disk enclosures.

Modular Smart Array 30 SB	302969-B21
NOTE: Rack-mountable 14 drive (SCSI Hard drives) enclosure with single bus, redundant power supplies.	
Modular Smart Array 30 DB	302970-B21
NOTE: Rack-mountable 14 drive (SCSI Hard Drives) enclosure with dual bus, redundant power supplies.	
Modular Smart Array 20	366172-B21
NOTE: Rack-mountable 12 drive (SATA Hard Drives) enclosure	
NOTE: If desired, previous generation disk enclosures, StorageWorks 4314 and 4354 are also supported.	

Product Configuration Wizard

Step 11 - add tape backup solution

NOTE: A VHDCI SCSI internal to external cable kit is included with both the Base and Int SCSI models. This cable kit can be used for a backup solution.

Tape Backup Devices

Recommended HP StorageWorks Tape solutions for the HP ProLiant ML370 Storage Server

NOTE: For complete listing of tape drive offerings see

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

NOTE: For further articles about choosing the right backup solution for your business.

http://www.hp.com/sbso/productivity/howto/tape_backup/which_solution.html

DAT 24 - dependable, entry-level solutions for data protection in small servers and workstations. DDS-3 tapes have a compressed capacity of 24 GB and a transfer speed of 7.2 GB/hr (assuming 2:1 data compression). Full support for HP One-Button Disaster Recovery.

DAT 40 - fast, dependable backup solution for smaller servers. The DDS-4 tape stores 40 GB of compressed data on a single cartridge at a 21.6 GB/hr (assuming 2:1 data compression). Full support for HP One-Button Disaster Recovery.

DAT 40X6 - tape autoloader solution for smaller servers with limited IT support, such as branch offices and remote sites. DDS-4 stores 40 GB of compressed data on a single cartridge at a rate of 21.5 GB/hr (assuming 2:1 data compression). Full support for HP One-Button Disaster Recovery.

DAT 72 - fifth generation of DDS tape drive for small and medium businesses, remote offices and workgroups. DAT 72 stores 72 GB on a single cartridge with a transfer rate of 21.6 GB/hr (assuming 2:1 data compression). Full support for HP One-Button Disaster Recovery. This combination of tape drive and server is an HP recommended optimal configuration.

DAT 72X6 - tape autoloader solution for small servers with limited IT support such as branch offices and other remote sites. The 6-cartridge magazine can hold a week's worth of data cartridges. The DDS-4 tape stores 72 GB on a single cartridge with a transfer rate of 21.6 GB/hr (assuming 2:1 data compression). Full support for HP One-Button Disaster Recovery.

DLTVS 80 - affordable 80GB backup for smaller servers. Utilizes DLT Type IV media with backward read compatibility with media previously written in the DLT4000 format. Tape cartridge has capacity of 80 GB with a transfer rate of 21.6 GB/hr (assuming 2:1 data compression).

SDLT 320 - high-capacity, high-performance backup solution. Compatible with DLT Type IV media written by DLT 80 and DLT VS80 drives. 320 GB or compressed capacity at a transfer rate of 115 GB/hr (assuming 2:1 data compression). Full support for HP One-Button Disaster Recovery.

Ultrium 215 - entry point for HP's Ultrium tape drive family. Stores 200 GB of compressed data on single tape at a 54 GB/hr (assuming 2:1 data compression) and offers exclusive HP features such as dynamic data rate matching and One-Button Disaster Recovery. This combination of tape drive and server is an HP recommended optimal configuration.

Ultrium 230 - high-performance, first-generation superdrive in the HP Ultrium family. Excellent capacity, superior performance and exceptional reliability. Stores 200 GB of compressed data on a single tape at speeds up to 108 GB/hr (assuming 2:1 data compression) and offers HP features such as data rate matching and One-Button Disaster Recovery.

Ultrium 460 - latest generation of HP's Ultrium drive family with a 400 GB of compressed data capacity on a single cartridge with transfer rate of 216 GB/hr (assuming 2:1 data compression). Fully read- and write-compatible with all first-generation Ultrium drives and offers exclusive HP features such as dynamic data rate matching and One-Button Disaster Recovery.

For more information on HP Tape Backup Devices:

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

Product Configuration Wizard

Step 12 - add host base data replication

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- 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

HP OpenView Storage Mirroring v4.4.2 Media Kit

T2558AA

HP OpenView Storage Mirroring NAS Edition LTU 1

T3841AA

HP OpenView Storage Mirroring NAS Edition LTU 10

T3842AA

NOTE: For more information go to the HP OpenView Storage Mirroring website at:

<http://h18006.www1.hp.com/products/storage/software/sm/index.htm>

Step 13 - add rack, rail kit and PDU

NOTE: the ML370 Storage Server can be racked with the optional ProLiant ML370 Generation 4 Tower to Rack Conversion Kit. Additional information about HP racks and their options can be obtained on the HP website

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html>

Product Configuration Wizard

HP Rack 10000 Series (Graphite Metallic)	HP 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

-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: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all HP equipment is qualified to be shipped in the Rack 10000 series.

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>.

Rail Kit	ProLiant ML370 Generation 4 Tower to Rack Conversion Kit	356545-B21
	Rack Adapter Kit	332815-B21
NOTE: This kit allows HP rack servers to fit in racks that are 24" wide.		

Modular PDUs 1U/0U (Up to 32 outlets)	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC)	252663-B21
	NOTE: The 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. This model may also be used with the high volt UPSs R3000 XR and R6000.	
	NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and specific power cords:	
	http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML	

Product Configuration Wizard

PDU Options	Third Party PDU Mounting Kit NOTE: This kit allows you to mount the Modular PDUs in racks other than the 9000/10000 Series racks (any racks using the standard 19" rail). For more details please refer the Modular PDU QuickSpecs.	310777-B21
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Step 14 - add uninterruptible power systems (UPS)

UPS Power Cord Reference Guide	Please see the UPS Power Cord Reference Guide for that lists cable descriptions, requirements, and specifications for UPS 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 UPS R3000 XR (2880VA, 2700 Watt), Low Voltage UPS R3000 XR (3000VA, 2700 Watt), High Voltage Rack-mountable UPS R6000 (6000VA, 6000 Watt) High Voltage UPS R12000 XR, N+ x (12KVA, 12KW) High Voltage NOTE: UPS R6000 has a hardwired input; and the UPS R12000 XR has a hardwired input and output connection.	204404-001 192186-001 192186-002 347207-001 207552-B22

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

Technical Specifications

System Unit	Dimensions (HxWxD)	18.5 x 8.69 x 28 in (46.88 x 22.07 x 71.12 cm)
	No drives	70 lb (31.75 kg) (without hard drives)
Input Requirements (per power supply)	Range Line Voltage	100 to 132 VAC, 200-240 VAC
	Rated Input Frequency	50 Hz to 60 Hz
	Input Power	906W @ 100VAC
	Rated Input Current	9.2A(100VAC),4.3A(200VAC)
Rated Line Frequency		50 to 60 Hz
BTU Rating		3,420 BTU/hr
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: - Click on: "ProLiant Servers" - Click on the Server of interest. Example: ML370 G4 - Click on: "Power Calculator" link. (You may need to scroll down to see it)
SCSI Connectors		Two internal HD 68 connectors
Power Supply Output Power (per power supply)	Rated Steady-State Power	775 W
Temperature Range	Operating	41° to 95° F (5° to 35° C) (No direct sustaining sunlight)
	Storage (up to one year)	-40° to 158° F (-40° to 70° C)
Relative Humidity (non-condensing)	Operating	5% to 95%
	Non-operating	5% to 95%
Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
	L WAd (BELS)	5.9
	L pAm (dBA)	41
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	6.0
	L pAm (dBA)	42

Technical Specifications

NIC Card	Network Interface	10Base-T/100Base-TX/1000 BaseTX		
	Data Transfer Method	64-bit/133MHz 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 feet (100 m)	
10/100/1000Base-TX		Category 5 UTP; up to 328 feet (100 m)		

Integrated Lights-Out	Architecture	32-bit PCI-based health and remote management ASIC (Application Specific Integrated Circuit)	
	Processor	32-bit RISC processor core running at 66MHz	
	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 dedicated Ethernet network connection (10/100 Mb/s)	
		One shared Ethernet network connection via one of the embedded 1Gb/s system network interfaces	
	Memory	2-MB Flash ROM	
		8-MB SDRAM	
	Client System Support	Windows 2000 and 2000 Professional Windows 2003 Windows 2000 XP Professional Edition Red Hat Advanced Server 2.1, Red Hat Linux V7.2, V7.3, V8.0 SuSE Linux Enterprise Server V7, V8 United Linux 1.0	
	Client Browser Support	Microsoft Internet Explorer 6.0 or later. Netscape Navigator 7.1 (on supported Linux client systems) Mozilla 1.5 (for supported Linux client systems)	
	Command Line Support	Telnet, Secure Shell and serial port access	
	Security	Secure Socket Layer Secure Shell version 2	
	Directory Support Services	Active Directory V1.0 (Windows 2000, 2003) Novell eDirectory V8.6.2, V8.7 (Novell NetWare 5.X, 6.X, Red Hat 7.1, Windows 2000, Windows Server 2003)	
Driver Support	Health Driver (iLO Advanced Server Management Controller Driver) iLO Management Interface Driver		

Technical Specifications

iLO Standard Management	Virtual Text Remote Console Virtual Power Button Control Dedicated & shared LAN Connectivity Browser and command line access Automatic IP Configuration via DHCP/DNS/WINS Industry Standard 128-bit Secure Sockets Layer (SSL) Secure Shell Security IML and iLO Event Logging Support for up to 12 user accounts with customizable access privileges
iLO Advanced Features	Virtual Graphical Remote Console Virtual Floppy Drive

Smart Array 6402 Controller	Controller Interface Type	Ultra320 SCSI
	Data Transfer Rate	320 MBps
	Buffer size	128 MB
	Supported Devices	Hard Drive
	Channel Qty	2
	Max Storage Device Qty	28
	RAID level	RAID 0, RAID 1, RAID 5, RAID 1+0
	Compatible Slots	1 x PCI-X / 133 MHz
	Provided Interfaces	2 x storage - Ultra320 SCSI LVD (external) 2 x storage - Ultra320 SCSI LVD (internal)

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