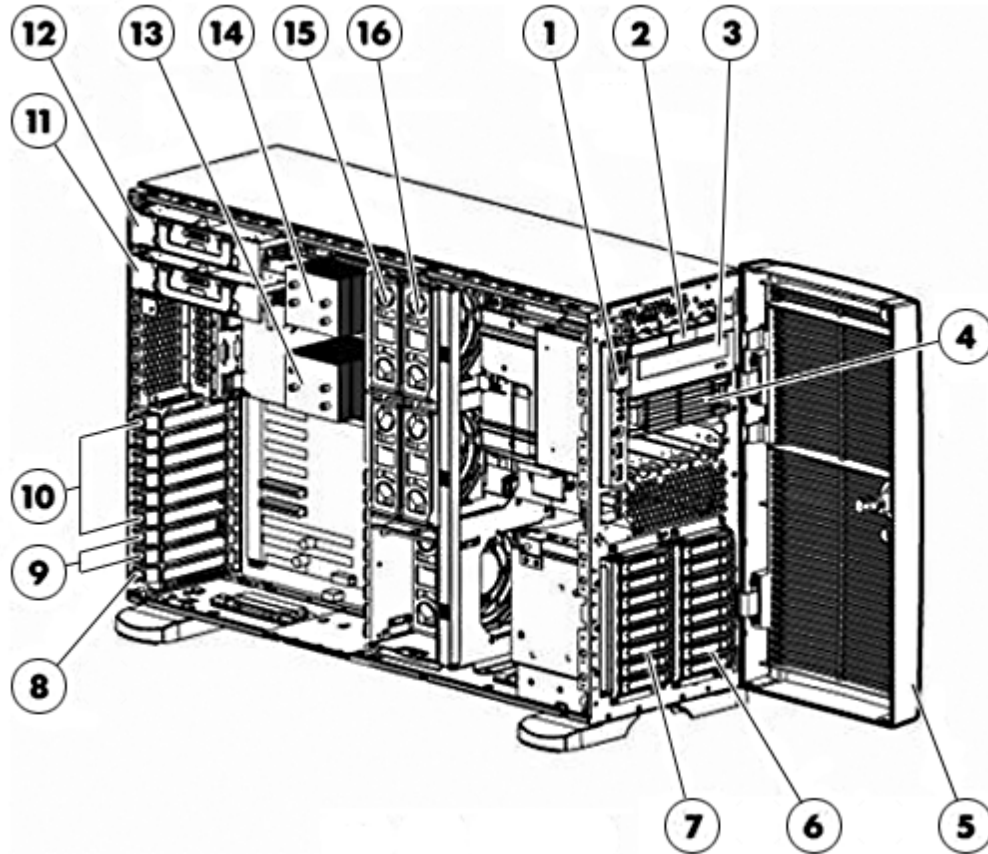


Overview

HP ProLiant ML370 G5 Tower

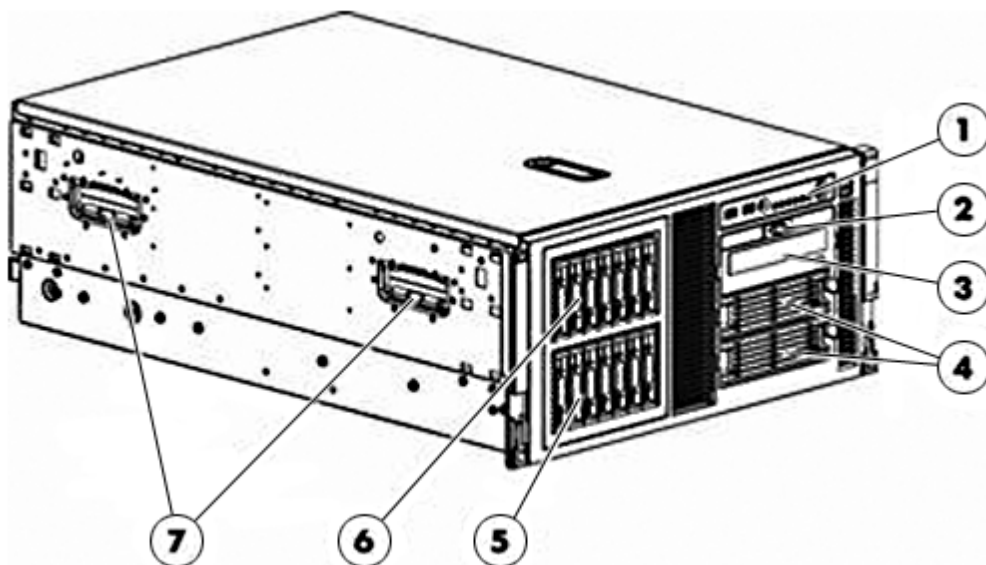


HP ProLiant ML370 G5 Tower call-outs

1. System Insight Display (SID)
2. Media Bay Spacer (Tower)/Video Connector (Rack)
3. DVD/CD-ROM Drive
4. Removable Media Bays
5. Front Bezel (Tower Model Only)
6. Hard Drive Bays 1-8 (Serial-attached SCSI (SAS) drives supported - SFF)
7. Hard Drive Bays 9-16 - Optional Drive Cage (Serial-attached SCSI (SAS) drives supported - SFF)
8. Integrated RAID Controller Slot
9. (2) PCI-X 64 Bit/133MHz Slot
10. (6) PCI-Express x4 Slot
11. (8) PC2-5300 Fully Buffered DIMM Slots per memory card - Standard
12. (8) PC2-5300 Fully Buffered DIMM Slots per memory card - Optional
13. Dual-Core Intel Xeon processor - Optional
14. Dual-Core Intel Xeon processor - Standard (2 processors standard on all Performance Models)
15. (3) Hot Plug Redundant Fans - Standard
16. (3) Hot Plug Redundant Fans - Optional

Overview

HP ProLiant ML370 G5 Rack



HP ProLiant ML370 G5 Rack call-outs

1. System Insight Display (SID)
2. Video Connector
3. DVD/CD-ROM Drive
4. Removable Media Bays
5. Hard Drive Bays 1-8 (Serial-attached SCSI (SAS) drives supported - SFF)
6. Hard Drive Bays 9-16 - Optional Drive Cage (Serial-attached SCSI (SAS) drives supported - SFF)
7. Rack Handles

What's New

- Quad-Core Intel Xeon Processor 5300 Series with 1333MHz Front Side Bus

At A Glance

The flagship ML370 G5 provides industry-leading management, performance and availability in a dual processor expansion server engineered to excel in a variety of environments - from corporate work groups in growing businesses to critical remote sites requiring continuous accessibility and uptime.

- **Processors:**
 - Quad-core Intel® Xeon™ 5300 sequence processors with 8MB Level 2 cache (2MB per core) for blazing performance
 - Dual-core Intel Xeon 5100 & 5000 sequence processors with 4MB Level 2 cache (2MB per core) for blazing performance
 - Servers support up to 2 processors (2 processors standard on all Performance models)
 - Preconfigured Performance models save valuable deployment time at a discounted bundle price
 - Intel 5000P chipset
- **Memory:**
 - Maximum 64 GB of PC2-5300 Fully Buffered DIMMs (DDR2-667) running at 667MHz of 4:1 interleaved memory with Advanced ECC capabilities including Online Spare and Mirrored Memory (8 FB DIMMs per memory card; up to 2 supported)
 - NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.
- **Storage Controller:**
 - Base Models: HP Smart Array P400/256MB Controller
 - Performance Models: HP Smart Array P400/512MB BBWC Controller

Overview

- Entry Models: HP Smart Array E200/64MB Controller
- **Internal Drive Support:**
 - Up to (16) hot-plug Serial-attached SCSI (SAS) drives supported
 - (8) drive bays in standard configurations
 - Optional 8-bay drive cage available for maximum storage support (2nd drive bay cage will require additional SAS controller)
 - Two open half-height media bays; supports full height or half height internal tape drive
- **Network Controller:**
 - Two embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional ProLiant Essentials Licensing Kit
- **Expansion Slots:**
 - Nine total expansion slots
 - Eight available: (6) PCI-Express x4 and (2) PCI-X 64-Bit/133MHz
- **USB Ports:**
 - USB 2.0 support
 - Six total ports: (2) ports up front; (2) ports in back; (2) ports internal (one standard connection and one USB tape connection)
- **Redundancy:**
 - Optional Hot plug redundant power supplies and cooling fans
 - Hot plug redundant fans and power supplies included on all Performance models
- **Management:**
 - New Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
 - HP Power Regulator for ProLiant, delivering integrated power monitoring and server level, policy based power management for industry leading energy efficiency and savings on system power and cooling costs
 - Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart
 - Systems Insight Display for quick and easy server diagnostics (front drop-down panel)
- **Form Factor:**
 - 5U tower and rack models available (front VGA connection on rack models)
- **Deployment/Serviceability:**
 - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers
 - Tool-less access to all system components for easy in-rack serviceability
- **Warranty:**
 - Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives. SATA hard drives have a one-year warranty.

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor	Quad-Core Intel Xeon Processor X5355 (2.66 GHz, 120 Watts, 1333 Front Side Bus (FSB))
One of the following depending on Model	Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)
	Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)
	Quad-Core Intel Xeon Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)
	Quad-Core Intel Xeon Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)
	Dual-Core Intel Xeon Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB)
	Dual-Core Intel Xeon Processor 5150 (2.67 GHz, 65 Watts, 1333 FSB)
	Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)
	Dual-Core Intel Xeon Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB)
	Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)
	Dual-Core Intel Xeon Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB)
	Dual-Core Intel Xeon Processor 5080 (3.73 GHz, 130 Watts, 1066 FSB)
	Dual-Core Intel Xeon Processor 5060 (3.2 GHz, 130 Watts, 1066 FSB)
	Dual-Core Intel Xeon Processor 5050 (3.0 GHz, 95 Watts, 667 FSB)

NOTE: Up to 2 processors supported. Performance configurations include two processors.

Cache Memory	4MB (2 x 2MB) Level 2 cache (5000 series)
One of the following depending on Model	4MB (1 x 4MB) Level 2 cache (5100 series)
	8MB (2 x 4MB) Level 2 cache (5300 series)

Chipset	Intel 5000P Chipset
	NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/ .

Upgradeability	Upgradeable to 2 processors
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Memory Protection	Advanced ECC, Online Spare and Mirroring
	NOTE: Mirroring requires optional 2nd memory card.

Standard Features

Memory One of the following depending on Model	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667) running at 533 MHz with 4:1 interleaving NOTE: 4-way interleaving requires optional 2nd memory card.
	Standard (Entry Models)	1 GB (2 x 512 MB)
	Standard (Base Models)	2 GB (2 x 1 GB)
	Standard (Performance Models)	4 GB (4 x 1 GB)
	Maximum	64 GB (16 x 4 GB with 2 memory cards) NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

Network Controller	Two embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional ProLiant Essentials Licensing Kit
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Expansion Slots	Slot Number	Bus Speed	Bus Number*	Device Number**	PCI Voltage	Notes
	1	PCI Express x4	6	0	N/A	Reserved for integrated RAID controller
	2	64-bit/133MHz PCI-X	18	1	3.3 Volt	Shared bus with slot 3
	3	64-bit/133MHz PCI-X	18	2	3.3 Volt	Shared bus with slot 2
	4	PCI Express x4	14	0	N/A	
	5	PCI Express x4	11	0	N/A	Optional x8 if PCIE expander is installed in slot 4
	6	PCI Express x4	31	0	N/A	
	7	PCI Express x4	28	0	N/A	Optional x8 if PCIE expander is installed in slot 6
	8	PCI Express x4	25	0	N/A	
	9	PCI Express x4	22	0	N/A	Optional x8 if PCIE expander is installed in slot 8

NOTE: x8 cards are supported but will run at x4 speeds. X8 speed can be supported with optional PCIE x4/x8 expansion card option on select slots

***NOTE:** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

****NOTE:** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

Standard Features

Storage Controller One of the following depending on Model	Base Models	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5) Available upgrades: 512MB memory BBWC module for, or battery for battery-backed write cache (BBWC) RAID 0/1/1+0/5/6.
	Performance Models	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
	Entry Models	HP Smart Array E200/64MB Controller (RAID 0/1/1+0) Available upgrades: 128MB memory module for RAID 0/1/1+0/5, battery for battery-backed write cache (BBWC).

Storage One of the following depending on Model	Diskette Drive	None standard
	Optical Drive	DVD-ROM Drive (Performance Models) 48x IDE CD-ROM Drive (Base and Entry Models)
	Hard Drives	None standard

Maximum Internal Storage	Hot Plug Serial-Attached SCSI (SAS)	1.168TB	8 x 146GB with standard 8-bay hot plug Serial SCSI/ATA drive cage
		2.336TB	16 x 146GB with optional 2nd SAS drive cage

Remote Management	Integrated Lights Out 2 (iLO2) Standard Management:		
	<ul style="list-style-type: none"> • Virtual Text Remote Console (pre OS-only) • Remote Serial Console • Virtual Power Button Control • Virtual Unit ID control • Integrated Remote Console • Dedicated & full function shared network connectivity • Embedded system health • 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 Logging • Support for 12 user accounts with customizable access privilege 		

Standard Features

Intelligent Manageability	HP Systems Insight Manager SmartStart Management Agent Redundant ROM Remote Flash ROM ROM-Based Setup Utility (RBSU) Integrated Management Log Automatic Server Recovery (ASR) Dynamic Sector Repairing (with Smart Array controller) Drive Parameter Tracking (with Smart Array controller) Hot Spare Boot NOTE: Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and attempt to use the remaining good processor. Pre-Failure Warranty (covers processors, SAS hard drives and memory)
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Interfaces	Serial	1 (2nd serial and parallel port available via option Kit)
	Pointing Device (Mouse)	1
	VGA	1 (+ 1 front VGA on rack models)
	Keyboard	1
	Network RJ-45	2
	iLO 2 remote management port	1
	USB 2.0 Ports	5 (2 on the rear, 2 on the front, 1 internal) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html
	Dedicated USB 2.0 Port	1 (available for DAT USB tape connectivity) NOTE: Internal USB ports are optimal for the attachment of HP DAT USB Internal Tape Drives

Graphics	Integrated ATI ES1000 1280 x 1024 x 16M colour (32MB video standard)
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Form Factor	Tower and Rack (5U) models available
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Standard Features

ProLiant Essentials Foundation Pack Software

HP Systems Insight Manager

HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible environment to centrally manage servers, storage and other infrastructure devices across multiple operating system platforms.

Through a single management view, HP SIM provides core management services that include device discovery and identification, event views, health monitoring, inventory data collection, software version control and reporting. HP SIM is built on industry standards and is extensible with value-added ProLiant Essentials, Integrity Essentials and Storage Essentials software to meet individual management needs. For more details on HP SIM visit <http://www.hp.com/go/hpsim>.

HP SIM provides organizations with the following benefits:

- Simplifies and consolidates infrastructure lifecycle management using task and query based functionality
- Provides the foundation for infrastructure automation and virtualization
- Enables IT management based on business processes not hardware platforms
- Lowers infrastructure maintenance cost and frees resources for innovation
- Maximizes resource utilization with virtualization technologies
- Provides a central point of integration between infrastructure and Enterprise management tools such as HP OpenView

SmartStart

SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at <http://www.hp.com/servers/smartstart>.
SmartStart version supported (minimum): SmartStart 7.51

Insight Management Agents

Insight Management Agents should be installed on 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,

Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack. For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at <http://www.hp.com/servers/manage>.

Subscriber's Choice

Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at <http://www.hp.com/go/subscriberschoice> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.

ROMPaq, support software, and configuration utilities

The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages <http://www.hp.com/go/support>.

Standard Features

Insight Diagnostics	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	<p>Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:</p> <ul style="list-style-type: none">• Rapid Deployment Pack (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP includes the ProLiant Integration Module featuring ProLiant server pre-configured events for OS installation, and optimized software drivers, firmware and management agents. Every RDP disc includes 7-day, 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: http://www.hp.com/servers/rdp.• Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server.• Performance Management Pack - identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources.• Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus• Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats• Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.• Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V).• Accelerated iSCSI Pack - enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.• Remote Directory Memory Access (RDMA) Pack for Embedded Multifunction Gigabit Server Adapters - provides direct and faster communication between application buffers in separate servers for tasks that involves moving large amounts of data, such as network backups, database read/write, and high performance computing.

Standard Features

Optional Remote Management Packs

- Integrated Lights-Out Advanced Pack - upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, virtual media (floppy, CD/DVD, USB key), historical power reporting and enterprise security (directory services and two-factor authentication).
- Integrated Lights-Out Select Pack - upgrades the iLO 2 processor with virtual media (floppy, CD/DVD, USB key), historical power reporting and enterprise security (directory services and two-factor authentication) for servers managed using iLO 2 Standard remote consoles.
- Insight Power Manager (IPM) - upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager.
- Insight Control Environment - Includes a single product key to license the ProLiant Essentials Performance Management Pack, ProLiant Essentials Vulnerability and Patch Management Pack, and Insight Power Manager, plus separate product registration codes to license the ProLiant Essentials Rapid Deployment Pack and the iLO Advanced Pack.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/ProLiantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/ProLiantessentials>.

Industry Standard Compliance

ACPI 1.0b Compliant
PCI 2.2 Compliant
WOL Support
Microsoft® Logo certifications
PXE Support

Security

Power-on password
Keyboard password
Diskette drive control
Diskette boot control
QuickLock, Network Server Mode
Parallel and serial interface control
Administrator's password
Disk configuration lock

Server Power Cords

110V NEMA -6ft. (1.83m) cord included. IEC 6 ft. (1.83m) cords also included with rack models.
NOTE: HP ProLiant ML370 a C13 to C14 2.8M jumper cord ships standard. If customers require a local power cord, they can check the power cord matrix for the appropriate country specific sku. Please see the following power cord matrix: <http://www.hp.com/go/powercordmatrix>.

Standard Features

Power Supply	800 Watt-CE Mark Compliant Hot Plug Power Supply (1000 Watt high line) Optional second Power Supply provides redundant capability NOTE: Please see the "Power Specifications" section later in this document for low line and high line requirements.
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: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf .
System Fans	Three hot-plug fans standard. Redundant fan kit includes three additional fans.
Required Cabling	For external storage cabling information, refer to the Web site at http://h18000.www1.hp.com/products/servers/ProLiantML370/ .
OS Support	Microsoft Windows 2000 Server Windows Server 2003 Server Novell NetWare SCO OpenServer and OpenUNIX Red Hat Enterprise Linux SUSE Linux Enterprise Server VMware Virtualization Software NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant ML370 G5, please see: http://h18023.www1.hp.com/support/files/server/us/index.html NOTE: For more Linux OS support & certification information, please visit the ProLiant & BladeSystem Server Linux matrix http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html

Standard Features

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>.

Installation of HP ProLiant ML370 G5 servers with Round Hole, Third Party or Telco Racks

ProLiant rack mount servers and tower-to-rack kits include snap-on quick deploy side rails designed to accommodate both round and square hole rack rails. Telco rack solutions for ProLiant servers are available through the following URL: <http://www.racksolutions.com/hp>.

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to <http://www.hp.com/go/factory-express>.

HP ProLiant Smart Buys

The HP Smart Buy program offers mainstream business solutions at competitive prices with excellent availability and superior HP quality. It offers a wide range of industry-leading HP products at compelling prices, allowing you to receive richer configurations with additional options.

NOTE: For detailed specification information on ProLiant Smart Buys please click on the following link: <ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf>

Standard Features

HP Enterprise Configurator

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Centre or an Authorized Partner for assistance.

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: Server Warranty includes 3 year Parts, 3 year Labour, 3-year on-site support. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

HP Care Pack services include coverage for the HP branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3kVA; these items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Enhanced Care - Minimum recommended service support offer designed to ensure customers have access to expert assistance, whenever they need it.

- *4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years*

Continuous Care - Recommended service delivering cost-effective support options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem identification and resolution.

- *6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years*

Total Care - Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, integrated hardware and software services

- *Support Plus 24 - Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays*

Deployment Services - HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of ProLiant servers - and free customers IT support staff to focus on what they do best, their business.

- *Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer*

Standard Features

Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays

NOTE: For a complete listing of service offerings and information visit:

<http://www.hp.com/services/proliantservices>

<http://www.hp.com/go/proliant/carepack>

Models

NOTE: For detailed specification information on ProLiant Smart Buys please click on the following link:

<ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf>.

<p>HP ML370 G5 Performance Models</p> <p>Tower Models: Quad-Core: ML370T05 E5345 433752-001 Dual-Core: ML370T05 5150 416619-001</p> <p>Rack Models: Quad-Core: ML370R05 E5345 433753-001 Dual-Core: ML370R05 5150 416620-001</p>	<p>Processor Two of the following depending on Model</p> <p>Cache Memory One of the following depending on Model</p> <p>Memory</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Hard Drive</p> <p>Internal Storage</p> <p>Optical Drive</p> <p>Availability</p> <p>Form Factor One of the following depending on Model</p>	<p>(2) Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)</p> <p>(2) Dual-Core Intel Xeon Processor 5150 (2.67 GHz, 65 Watts, 1333 FSB)</p> <p>8MB (2 x 4MB) Level 2 cache - 5300 Sequence 4MB (1 x 4MB) Level 2 cache - 5100 Sequence</p> <p>4 GB (4 x 1 GB); 2 memory cards (2 x 1GB ea.card)</p> <p>Embedded NC373i Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)</p> <p>None ship standard</p> <p>1.168TB maximum</p> <p>DVD-ROM Drive (diskette drive optional)</p> <p>Hot Plug Fully Redundant fans and Hot Plug supplies standard</p> <p>Tower Rack (5U), (8.75-inch)</p>
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<p>HP ML370 G5 Base Models</p> <p>Tower Models: Quad-Core: ML370T05 E5320 433750-001 ML370T05 E5335 437437-001</p> <p>Dual-Core: ML370T05 5150 417188-001 ML370T05 5140 417446-001 ML370T05 5060 410635-001</p> <p>Rack Models: Quad-Core: ML370R05 E5320 433751-001 ML370R05 E5335 437438-001</p> <p>Dual-Core: ML370R05 5150 417188-001</p>	<p>Processor(s) One of the following depending on Model</p> <p>Cache Memory One of the following depending on Model</p> <p>Memory</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Hard Drive</p> <p>Internal Storage</p> <p>Optical Drive</p> <p>Availability</p>	<p>(1) Quad-Core Intel Xeon Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)</p> <p>(1) Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)</p> <p>(1) Dual-Core Intel Xeon Processor 5150 (2.67 GHz, 65 Watts, 1333 FSB) (1) Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB) (1) Dual-Core Intel Xeon Processor 5060 (3.2GHz, 130 Watts, 1066 FSB)</p> <p>8MB (2 x 4MB) Level 2 cache - 5300 Sequence 4MB (1 x 4MB) Level 2 cache - 5100 Sequence 4MB (2 x 2MB) Level 2 cache - 5000 Sequence</p> <p>2 GB (2 x 1 GB); 1 memory card</p> <p>Embedded NC373i Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)</p> <p>None ship standard</p> <p>1.168TB maximum</p> <p>48x CD-ROM Drive (diskette optional)</p> <p>Redundant Power/Fans Optional</p>
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Models

417109-001
ML370R05 5140
417447-001
ML370R05 5060
410636-001

Form Factor
One of the following
depending on Model

Tower
Rack (5U), (8.75-inch)

HP ML370 G5 Entry Models

Tower Models:
Dual-Core:
ML370T05 5120
417444-001

Rack Models:
Dual-Core:
ML370R05 5120
417445-001

Processor
Cache Memory
Memory
Network Controller
Storage Controller
Hard Drive
Internal Storage
Optical Drive
Availability
Form Factor
One of the following
depending on Model

(1) Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB))
2x2MB Level 2 cache (4MB per processor) - 5100 Sequence
1 GB (2 x 512 MB) Level 2 cache
Embedded NC373i Multifunction Gigabit Server Adapters
HP Smart Array E200/64MB Controller (RAID 0/1/1+0)
None ship standard
1.168TB maximum
48x CD-ROM (diskette optional)
Redundant Power/Fans Optional
Tower
Rack (5U), (8.75-inch)

Configuration Information - Factory Integrated Models

NOTE: HP does not allow factory integration of options into standard models listed above.

Configure-to-order (CTO) servers must start with a CTO Chassis.

NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.

NOTE: FIO indicates that this option only available as a Factory Installable Option.

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

Step 1: Base Configuration (choose one of the following configurable models)

Models	HP ML370 G5 Rack SAS CTO Chassis	400606-B21
	Factory Integrated Model ships with:	
	Two embedded NC373i Multifunction Gigabit Server Adapters	
	Eight Hot Plug SAS Drive Bays	
	9 expansion slots - 7 PCI-Express x4 and 2 PCI-X 64-bit 133 MHz	
	Integrated Lights-Out 2 (iLO2)	
	800 Watt-CE Mark Compliant Hot Plug Power Supply	
	Three fans	
	Rack (5U)	
	HP ML370 G5 Tower SAS CTO Chassis	400607-B21
	Factory Integrated Model ships with:	
	Two embedded NC373i Multifunction Gigabit Server Adapters	
	Eight Hot Plug SAS Drive Bays	
	9 expansion slots - 7 PCI-Express x4 and 2 PCI-X 64-bit 133 MHz	
	Integrated Lights-Out 2 (iLO2)	
	800 Watt-CE Mark Compliant Hot Plug Power Supply	
	Three fans	
	Keyboard	
	2-button Mouse	
	Tower (5U)	

Step 1A: Choose SAS Controller (only one of the following)

SAS Controller	Smart Array P400/256MB Controller	405132-B21
	NOTE: PCI Express	
	HP Smart Array P400/512MB BBWC Controller	411064-B21
	NOTE: PCI Express	
	HP Smart Array E200/64MB Controller	409180-B21
	NOTE: PCI Express	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	NOTE: PCI Express	
	HP Smart Array P600/256 BBWC Controller	337972-B21
	NOTE: PCI-X . SA-P600 has internal and external connectors.	

Configuration Information - Factory Integrated Models

Step 2: Choose Required Options (only one of the following from each list)

Processors	Quad-core Intel X5355 (2.66 GHz, 120 Watts, 1333 FSB) ML370 G5 FIO Kit	433104-L21
	Quad-core Intel E5345 (2.33 GHz, 80 Watts, 1333 FSB) ML370 G5 FIO Kit	433102-L21
	Quad-core Intel E5335 (2.00 GHz, 80 Watts, 1333 FSB) ML370G5 FIO Kit	437391-L21
	Quad-core Intel E5320 (1.86 GHz, 80 Watts, 1066 FSB) ML370 G5 FIO Kit	433098-L21
	Quad-core Intel E5310 (1.60 GHz, 80 Watts, 1066 FSB) ML370 G5 FIO Kit	433100-L21
	Dual-core Intel X5160 (3.0 GHz, 80 Watts, 1333 FSB) ML370G5 FIO Kit	416198-L21
	Dual-core Intel X5150 (2.67 GHz, 65 Watts, 1333 FSB) ML370G5 FIO Kit	416196-L21
	Dual-core Intel X5140 (2.33 GHz, 65 Watts, 1333 FSB) ML370G5 FIO Kit	416194-L21
	Dual-core Intel X5130 (2.0 GHz, 65 Watts, 1333 FSB) ML370G5 FIO Kit	416192-L21
	Dual-core Intel X5120 (1.86 GHz, 65 Watts, 1066 FSB) ML370G5 FIO Kit	416190-L21
	Dual-core Intel X5110 (1.6 GHz, 65 Watts, 1066 FSB) ML370G5 FIO Kit	416188-L21
	Dual-core Intel X5080 (3.73 GHz, 130 Watts, 1066 FSB) ML370G5 FIO Kit	403768-L21
	Dual-core Intel X5060 (3.2 GHz, 130 Watts, 1066 FSB) ML370G5 FIO Kit	400500-L21
	Dual-core Intel X5050 (3.0 GHz, 95 Watts, 667 FSB) ML370G5 FIO Kit	400376-L21
	NOTE: If High Performance Model features are desired, 2nd processor is included in the Performance Pack part numbers in Step 3 below.	
Base Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21

Step 3: Choose Additional Factory Integratable Options

Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP DVD±R/RW 16X Half Height	383974-B21
	DVD-ROM Drive Option Kit	217053-B21
	CD-ROM 48X FIO	367920-B21
Performance Packs	The HP ProLiant ML370 G5 Performance Packs are necessary to configure a HP ProLiant ML370 G5 High Performance Model which includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The Performance Pack includes a 2nd processor, redundant fan, power supply, and memory expansion board.	
	NOTE: Must also select 217503-B21 to achieve parity to ML370 G5 High Performance Models.	
	HP ML370G5 E5345 HPM FIO Perf Pack	436374-B21
	HP ML370G5 X5150 HPM FIO Perf Pack	430086-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

Options

NOTE: Some options may not be factory configurable. Please contact your local sales representative for additional information.

HP ProLiant ML370 Unique Options	ML370 G5 SAS SFF 8-bay Drive Cage Kit NOTE: 2nd drive cage requires a storage controller.	401415-B21
	ML370 G5 Memory Board Kit NOTE: 2 Memory Boards required for support of 4:1 interleaving; 2 included with Performance models.	403766-B21
	Tower to Rack Conversion ML370 G5 Kit	400899-B21
	X4/X8 PCIE Bus Expander	403724-B21
	Hot Plug Redundant Fan ML370 G5 Kit	400693-B21

ProLiant Essentials Value Pack Software	ProLiant Essentials Accelerated iSCSI Pack ProLiant Essentials Accelerated iSCSI Pack, 1 License NOTE: For additional Accelerated iSCSI Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_ca/12466_ca.HTML	407484-B22
	ProLiant Essentials Intelligent Networking Pack ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License NOTE: For use with a single server. Contains one license with a unique license activation key and documentation. NOTE: For additional ProLiant Intelligent Networking Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12062_ca/12062_ca.HTML	436225-B21
	ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License NOTE: For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12327_ca/12327_ca.HTML	436229-B21
	ProLiant Essentials Performance Management Pack ProLiant Essentials Performance Management Pack, No Media, Single-Server License NOTE: This option kit includes 1 license with a unique license activation key. NOTE: The most recent version of the software can always be downloaded at http://www.hp.com/products/pmp . NOTE: For additional ProLiant Performance Management Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11925_ca/11925_ca.HTML	436770-B21
	ProLiant Essentials Rapid Deployment Pack Rapid Deployment Pack, Single-Server License NOTE: This license allows 1 server to be deployed and managed via RDP. NOTE: For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_ca/11053_ca.HTML	267196-B21
	ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition HP ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition. 1 Year Unlimited Migration Lic NOTE: For additional ProLiant Essentials Physical to ProLiant Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12467_ca/12467_ca.HTML	412982-B21
	ProLiant Essentials Workload Management Pack	

Options

ProLiant Essentials Workload Management Pack, Single Server License	303284-B21
NOTE: For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11452_ca/11452_ca.HTML	
ProLiant Essentials Virtualization Management Software	
ProLiant Essentials Virtual Machine Management Pack, Single-Server License	435661-B21
NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	
ProLiant Essentials Server Migration Pack, Single-Migration License	435663-B21
NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation.	
NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.	
NOTE: For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_ca/12328_ca.HTML	
HP ProLiant Essentials Remote Directory Memory Access (RDMA) Pack	
HP ProLiant Essentials RDMA Pack for Embedded Multifunction Gigabit Server Adapters, 1 License	407478-B22
HP ProLiant Essentials RDMA Pack for Standup Multifunction Gigabit Server Adapters, 1 License	407481-B22
NOTE: For additional ProLiant Essentials RDMA Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_ca/12573_ca.HTML	
ProLiant Essentials Vulnerability and Patch Management Pack	
ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License	371645-B21
NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	
NOTE: For additional ProLiant Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12111_ca/12111_ca.HTML	
NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.	
NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials .	

Options

Remote Management	Integrated Lights-Out Advanced Pack Integrated Lights-Out Advanced Pack, 1 server Featuring: Sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites. NOTE: For additional Integrated Light-Out Advanced Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_ca/12362_ca.HTML	263825-B21
	Integrated Lights-Out Select Pack Integrated Lights-Out Select Pack, 1 server License Featuring: sophisticated remote control and security features for HP BladeSystem servers and ProLiant ML/DL servers in text console environments. NOTE: For additional Integrated Light-Out Select Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_ca/12362_ca.HTML	413119-B21
	HP Integrated Lights-Out (iLO) Power Management Pack HP iLO Power Management Pack, No Media Single-Server License NOTE: This option kit includes 1 license for iLO Advanced and Insight Power Manager. NOTE: For additional Integrated Lights-Out Power Management Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12632_ca/12632_ca.HTML	436210-B21
	HP Insight Control Environment HP Insight Control Environment , No Media 1 License NOTE: For additional Insight Control Environment License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_ca/12631_ca.HTML	436214-B21
	HP Insight Power Manager (IPM) HP Insight Power Manager Pack, No Media, Single-Server License NOTE: This option kit includes 1 license for Insight Power Manager. NOTE: For additional Insight Power Manager License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12623_ca/12623_ca.HTML	433691-B21

Options

Processor	Quad-Core Intel Xeon Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)	433104-B21
	Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)	433102-B21
	Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)	437941-B21
	Quad-Core Intel Xeon Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)	433098-B21
	Quad-Core Intel Xeon Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)	433100-B21
	Dual-Core Intel Xeon Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB)	416198-B21
	Dual-Core Intel Xeon Processor 5150 (2.67 GHz, 65 Watts, 1333 FSB)	416196-B21
	Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)	416194-B21
	Dual-Core Intel Xeon Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB)	416192-B21
	Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)	416190-B21
	Dual-Core Intel Xeon Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB)	416188-B21
	Dual-Core Intel Xeon Processor 5080 (3.73 GHz, 130 Watts, 1066 FSB)	403768-B21
	Dual-Core Intel Xeon Processor 5060 (3.2 GHz, 130 Watts, 1066 FSB)	400500-B21
	Dual-Core Intel Xeon Processor 5050 (3.0 GHz, 95 Watts, 667 FSB)	400376-B21
Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
	ML370 G5 Memory Board Kit NOTE: 2 Memory Board required for support of 4:1 interleaving; 2 boards included on Performance models.	403766-B21
Internal Storage	ML370 G5 SAS SFF 8-bay Drive Cage Kit NOTE: Optional 2nd drive cage requires a dedicated storage controller.	401415-B21
Diskette Drive	Floppy Drive ML350/370 G5 Kit	409582-B21
Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP DVD±R/RW 16X Half Height	383974-B21
Serial Port Kit	Parallel/Serial Port ML370/350 G5 Kit	401222-B21

Options

Hard Drives

SFF SAS - Universal Hot Plug

HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
HP 36GB 3G SAS 15K SFF SP HDD	431933-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_ca/12244_ca.HTML

SFF SATA Hot Plug

HP 120GB 1.5G SATA 5.4K SFF HDD	431786-B21
HP 60GB 1.5G 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_ca/11940_ca.HTML

Storage Controllers

SAS Controllers

Smart Array E200 Controller

HP Smart Array E200/64MB Controller	409180-B21
HP Smart Array E200/128 BBWC Controller	411508-B21
128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21

NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, Smart Array 642 Controller.

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
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NOTE: Supports RAID 0/1/5.

HP Smart Array P400/512MB BBWC Controller	411064-B21
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NOTE: Supports RAID 0/1/1+0/5/6.

512MB Battery-backed cache upgrade	405148-B21
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NOTE: Supports the Smart Array P400 Controller.

Battery-backed write cache upgrade	383280-B21
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NOTE: Supports the Smart Array P400 Controller.

Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller	337972-B21
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NOTE: Supports external drive attach.

Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller	381513-B21
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NOTE: Supports external drive attach.

Options

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

http://h18000.www1.hp.com/products/quickspecs/12460_ca/12460_ca.HTML
(Smart Array E200 Controller)

http://h18000.www1.hp.com/products/quickspecs/12700_ca/12700_ca.HTML
(Smart Array E500 Controller)

http://h18000.www1.hp.com/products/quickspecs/12400_ca/12400_ca.HTML
(Smart Array P400 Controller)

http://h18000.www1.hp.com/products/quickspecs/12247_ca/12247_ca.HTML
(Smart Array P600 Controller)

http://h18000.www1.hp.com/products/quickspecs/12616_ca/12616_ca.HTML
(Smart Array P800 Controller)

SAS HBA

HP 8 Internal Port SAS HBA with RAID 347786-B21

NOTE: Please see the HBA QuickSpecs for additional information:

http://h18004.www1.hp.com/products/quickspecs/12332_ca/12332_ca.html
(8 Internal Port SAS HBA)

SCSI Controllers for External Drive/Storage Support

Smart Array 6402/128 Controller 273915-B21

NOTE: Ultra320 SCSI.

Smart Array 6404/256 Controller 273914-B21

NOTE: Ultra320 SCSI.

Smart Array 642 Controller 291967-B21

NOTE: Ultra320 SCSI.

128-MB BBWC (Battery-Backed Write Cache) Enabler 351580-B21

NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, Smart Array 642 Controller.

256MB DDR, Battery-Backed Cache Upgrade Kit for SA-6400 273913-B21

NOTE: This 256MB DDR, Battery-Backed Cache upgrade kit supports the Smart Array 6400 series controller only.

Ultra320 Expansion Module for SA-6402 273911-B21

64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 374654-B21

SCSI HBA

HP SC11Xe Host Bus Adapter 412911-B21

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

http://h18000.www1.hp.com/products/quickspecs/11943_ca/11943_ca.HTML
(Single Channel Ultra320 SCSI HBA)

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

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

http://h18000.www1.hp.com/products/quickspecs/10429_ca/10429_ca.HTML
(SCSI Adapter)

http://h18000.www1.hp.com/products/quickspecs/12566_ca/12566_ca.HTML
(SC11Xe HBA)

Options

Communications	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC320T PCI Express 1000T Gigabit Server Adapter	367047-B21
	HP NC340T PCI-X 4-port Gigabit Server Adapter	391661-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	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 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 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 NC1020 PCI 1000T Gigabit Server Adapter	353377-B21	

Redundant Options	Redundant Power Supply 350/370/380 G5 IEC Kit	399771-B21
	Redundant Power Supply 350/370/380 G5 NEMA Kit	399771-001
	Hot Plug Redundant Fan ML370 G5 Kit	400693-B21

Tape Drives

NOTE: A separate SCSI Controller is required for connecting SCSI tape drives to this server.

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

For recommended tape drive offerings for this ProLiant server see the following:

USB Tape Drives

HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
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SAS Tape Drives

NOTE: 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.

HP StorageWorks Ultrium 448 SAS Internal Tape Drive	DW085A
HP StorageWorks Ultrium 920 SAS Internal Tape Drive	EH847A

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.

Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
HP StorageWorks Ultrium 460 Internal Tape Drive (Carbon)	Q1518B
HP StorageWorks Ultrium 448 Internal Tape Drive (Carbonite)	DW016A
HP StorageWorks Ultrium 920 SCSI Internal Tape Drive	EH841A
HP StorageWorks Ultrium 960 Internal Tape Drive (Carbonite)	Q1538A

Options

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_ca/11739_ca.html

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

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

Internal DAT Drives

HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)

Q1522B

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

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

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

Tape Autoloaders

HP StorageWorks DAT Autoloader

HP StorageWorks DAT 72x10 tape autoloader

AE313A

HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 Ultrium 960 Tape Autoloader

AF204A

HP StorageWorks 1/8 Ultrium 920 G2 Tape Autoloader

AH165A

HP StorageWorks 1/8 Ultrium 448 G2 Tape Autoloader

AH164A

HP StorageWorks 1/8 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

1/8 Tape Autoloader Rackmount Kit

C9268R

NOTE: Required to install the unit 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>

Options

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
HP StorageWorks MSL2024 1 Ultrium 960 4GB FC Drive Library	AG326B
HP StorageWorks MSL2024 1 Ultrium 920 Drive Library	AH169A
HP StorageWorks MSL2024 2 Ultrium 920 Drive Library	AH170A
HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A
HP StorageWorks MSL2024 2 Ultrium 448 Drive Library	AG117A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 Ultrium 448 Drive Library	AG320A
HP StorageWorks MSL4048 2 Ultrium 448 Drive Library	AG321A
HP StorageWorks MSL4048 1 Ultrium 920 Drive Library	AH171A
HP StorageWorks MSL4048 2 Ultrium 920 Drive Library	AH172A
HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Drive Library	AG324B
HP StorageWorks MSL4048 2 Ultrium 960 Drive Library	AG323A
HP StorageWorks MSL4048 2 Ultrium 960 4GB FC Drive Library	AG325B

HP StorageWorks MSL6000 Tape Library

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

Ultrium 460 technology

HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library	AD598B
HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library	AD600B
HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library	AD599B
HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library	AD601B

NOTE: Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>.

HP Data Protector Express Software

HP DP Express Backup Server Upgrade for ProLiant Software	BB117AP
HP DP Express Package for Microsoft Small Business Server	BB118AA

NOTE: To obtain a free licensed copy of HP Data Protector Express for ProLiant edition software, please visit the "Protect Your Data" link accessible from your ProLiant server's System Management Homepage (SMH) software (SmartStart 7.5 or later).

NOTE: Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software: http://h18000.www1.hp.com/products/quickspecs/12337_ca/12337_ca.html

Options

Cluster Options	ProLiant Cluster Starter Kit	364023-B22
	NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_ca/11935_ca.html	
	HP HA/F200 for Entry SAN Cluster	364026-B22
	NOTE: For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11932_ca/11932_ca.html	
	NOTE: For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: http://www.hp.com/solutions/highavailability/oracle	
	HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (2 node license cluster kit)	305199-B26
	HP Serviceguard for Linux A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (single license version)	307754-B26
	HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription	T2798AA#001
	HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription	T2798AA#003
	NOTE: For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_ca/11518_ca.html	
	NOTE: For configuration/certification options for HP Serviceguard for Linux please go to: http://www.hp.com/info/sglx	

StorageWorks Options

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:

<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

HP StorageWorks Modular Smart Array 20

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.

Options

HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies.	302969-B21
	HP StorageWorks Modular Smart Array 30 DB 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.	302970-B21
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional options and configuration information at http://h18000.www1.hp.com/products/quickspecs/12245_ca/12245_ca.HTML	364430-B21
HP StorageWorks Modular Smart Array 500	HP StorageWorks Modular Smart Array 500 Generation 2 NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_ca/11956_ca.HTML	335880-B21
HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000 NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at http://h18000.www1.hp.com/products/quickspecs/11033_ca/11033_ca.HTML	201723-B22
HP StorageWorks Modular Smart Array 1500 cs	Modular Smart Array 1500 Controller Shelf NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs	AA986A
Uninterruptible Power Systems - Rack Mountable	HP, R1.5kVA UPS, 1U HP R3000 VA UPS, 2U, L5-30 HP R3000 VA UPS, 2U, L6-20 HP R5500 VA UPS	AF419A AF422A AF423A AF426A

Options

HP Monitored Power Distribution Unit (PDU)	HP Monitored Power Distribution Unit: Full Rack Version	
	17.3 kVA Monitored PDU Model S2324	AF503A
	8.6 kVA Monitored PDU Model S1324	AF504A
	16.6 kVA Monitored PDU Model S2140	AF505A
	8.3 kVA Monitored PDU Model S1140	AF506A
	22 kVA Monitored PDU Model S2316	AF507A
	11 kVA Monitored PDU Model S1316	AF508A
	14.7 kVA Monitored PDU Model S2132	AF509A
	7.3 kVA Monitored PDU Model S1132	AF510A
4.9kVA Monitored PDU model S124	AF914A	
7.3kVA Monitored PDU model S132	AF915A	

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).	Fixed Cord Extension Bars NOTE: Two extension bar sticks; each with (7) C13 plugs.	351655-B21
	Fixed Cord PDU NOTE: Four Fixed Cord Extension Bars, and one 24A, HV mPDU L6-30P core.	351655-D72
	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	252663-D71
	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) NOTE: This mPDU (252663-B21), 40A model has a hardwired input.	252663-B21
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC)	252663-B24
	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A, Attached Cord NOTE: This PDU has a detachable input power cord and may also be used with the high volt UPSs R3000 XR and R6000, 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_ca/11041_ca.HTML	252663-D73

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and colour: http://h18000.www1.hp.com/products/quickspecs/12074_ca/12074_ca.HTML NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower .	358254-B21
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Options

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

NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.

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

http://h18000.www1.hp.com/products/quickspecs/12402_ca/12402_ca.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 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. 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 colour:

http://h18000.www1.hp.com/products/quickspecs/10995_ca/10995_ca.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 Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

Options

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 1x 4 Console 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 .		

Options

Service and Support Offerings (HP Care Pack Services)	Hardware Services On-site Service	
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4528E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4529E
	Hardware Services 6-Hour Call to Repair On-site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4530E
	Installation & Start-up Services	
	Hardware Installation, Electronic	U4538E
	Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4539E
	Support Plus	
	Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4540E
	Support Plus 24	
	Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4541E
	Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6311E
Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8333E	

NOTE: For additional information on HP Care Pack Services, please see <http://www.hp.ca/hps/carepack/>.

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

HP ProLiant ML370 G5 Models

Minimum Memory

1 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) running at 533 MHz (2 x 512 MB)

Maximum Memory Replaced with Optional Memory

Up to 64 GB of memory is available with the removal of the standard 1 GB of memory. With 2 memory cards: 4 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) running at 533 MHz (16 x 4 GB with 2 memory cards).

NOTE: Not all FB DIMM sizes available at product launch.

NOTE: This chart does not represent all possible memory configurations.

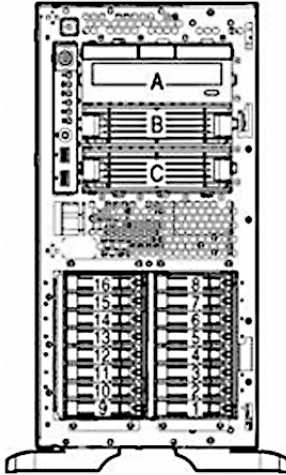
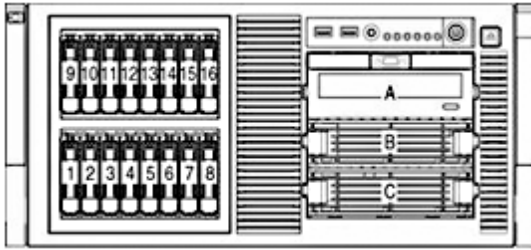
NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

Memory			Slot							
			1	2	3	4	5	6	7	8
Standard	1 GB		512 MB	Empty	Empty	Empty	512 MB	Empty	Empty	Empty
Maximum	64 GB	1 st card	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
		2 nd card	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

- 1 GB FBD PC2-5300 2 x 512 MB Kit 397409-B21
- 2 GB FBD PC2-5300 2 x 1 GB Kit 397411-B21
- 4 GB FBD PC2-5300 2 x 2 GB Kit 397413-B21
- 8 GB FBD PC2-5300 2 x 4 GB Kit 397415-B21

Storage



A	DVD-ROM Drive (Performance Models)/48x IDE CD-ROM Drive (Base and Entry Models)
B, C	DVD-ROM Drive (Performance Models)/48x IDE CD-ROM Drive (Base and Entry Models)
1-16	(16) hot-plug Serial-attached SCSI (SAS) drives supported
A	DVD-ROM Drive (Performance Models)/48x IDE CD-ROM Drive (Base and Entry Models)
B, C	DVD-ROM Drive (Performance Models)/48x IDE CD-ROM Drive (Base and Entry Models)
1-16	(16) hot-plug Serial-attached SCSI (SAS) drives supported

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
IDE CD-ROM Drive	Up to 2	A, B	Integrated IDE
DVD-ROM Drive Option Kit (optional)	Up to 2	A, B	Integrated IDE

Storage

Hard Drives

Serial-ATA (SATA) - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K	Up to 16	1-16	HP Smart Array E200/64MB Controller
60GB 1.5G SATA 5.4K			HP Smart Array E200/128 BBWC Controller
			HP Smart Array E500/256MB Controller
			HP Smart Array P400/256MB Controller
			HP Smart Array P400/512MB BBWC Controller
			HP Smart Array P600/256 BBWC Controller
			HP Smart Array P800/512 BBWC Controller

SFF SAS - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP	Up to 16	1-16	HP Smart Array E200/64MB Controller
72GB 3G SAS 10K SP			HP Smart Array E200/128 BBWC Controller
72GB 3G SAS 15K SP			HP Smart Array E500/256MB Controller
36GB 3G SAS 10K SP			HP Smart Array P400/256MB Controller
36GB 3G SAS 15K SP			HP Smart Array P400/512MB BBWC Controller
			HP Smart Array P600/256 BBWC Controller
	HP Smart Array P800/512 BBWC Controller		

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family	1 per external VHDCI SCSI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller
Modular Smart Array 30 Family	1 per external VHDCI SCSI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller 64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter
Modular Smart Array 50 Enclosure	1 per external VHDCI SCSI connector	External	HP Smart Array P600/256 BBWC Controller
Modular Smart Array 500 G2 System	1	External	Smart Array 642 Controller (used as Host Bus Adapter) Please see the Modular Smart Array 500 G2 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500
Modular Smart Array 1500 cs or 1000	Please see the Modular Smart Array 1500 cs or Modular Smart Array 1000 QuickSpecs links to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/MSA1000 Please see the Modular Smart Array 1500 cs QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/MSA1500cs

Storage

Tape Drives, Tape Autoloaders, & Tape Libraries

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/Canada/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/Canada/10809.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.

NOTE: For complete listing of tape drive offerings see
<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks Tape Drives, USB Internal DAT 24 USB DAT 40 USB DAT 72 USB	B-C	Internal USB 2.0 port	N/A
HP StorageWorks Tape Drives, USB External DAT 24 USB DAT 40 USB DAT 72 USB	External	USB 2.0 port	N/A
HP StorageWorks SCSI Tape Drives, Internal Ultrium 232 Ultrium 448 Ultrium 460 Ultrium 920 Ultrium 960 DAT 40 DAT 72 DLT VS160 SDLT 600	B-C	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks Tape Drives, SAS Internal Ultrium 448 SAS Ultrium 920 SAS	B-C	HP 8 Internal Port SAS HBA with RAID 0/1 HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller	347786-B21 405132-B21 411064-B21

NOTE: Please visit <http://www.hp.com/go/connect> for details about minimum SAS controller firmware version and SAS cabling requirements.

Storage

HP StorageWorks Tape Drives, SCSI External Ultrium 232 Ultrium 448 Ultrium 460 Ultrium 920 Ultrium 960 DAT 40 DAT 72 DLT VS160 SDLT 600	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks Tape Drives, SAS External Ultrium 448 SAS Ultrium 920 SAS	External	HP 8 Internal Port SAS HBA with RAID 0/1 HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller NOTE: Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	347786-B21 405132-B21 411064-B21
HP StorageWorks SCSI Rack-Mount Tape Drive Enclosures 1U Rack-Mount Kit 3U Rack-Mount Kit	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks USB Rack-Mount Tape Drive Enclosures 1U Rack-Mount Kit	External	USB 2.0 port	N/A
HP StorageWorks SAS Rack-Mount Tape Drive Enclosures 1U Rack-Mount Kit	External	HP 8 Internal Port SAS HBA with RAID 0/1 HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller NOTE: Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	347786-B21 405132-B21 411064-B21
HP StorageWorks Autoloaders, External DAT 72x10 Autoloader 1/8 Tape Autoloader	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

Storage

HP StorageWorks Tape Libraries, External

MSL2024 (Ultrium 448 Ultrium 920 and 960-based)
MSL4048 (Ultrium 448 and 960-based)
MSL6000 (Ultrium 960 and 460-based)
MSL6000 (SDLT 600-based)

External

Please consult the EBS connectivity matrix at <http://www.hp.com/go/ebs> for detailed connectivity information.

N/A

Power Specifications

Part Number	380622-001
Spare Kit	403781-001
Operational Input Voltage Range (V rms)	90 to 264
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	120	208	220	230	240
Max Rated Output Wattage Rating	800	950	1000	1000	1000	1000
Nominal Input Current (A rms)	10.0	8.8	5.85	5.5	5.2	4.97
Max Rated Input Wattage Rating (Watts)	980	1035	1193	1186	1172	1169
Max. Rated VA (Volt-Amp)	1000	1056	1217	1210	1196	1193
Efficiency (%)	81.5	82	84	84	85	85.5
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.44	0.52	0.91	0.96	1.00	1.04
Maximum Inrush Current (A peak)	30	30	30	30	30	30
Maximum Inrush Current duration (mS)	3	3	3	3	3	3

NOTES:

- The Active Answers Power Calculator should be used prior to deployment to determine the system power ratings. For proper operation, ensure the nominal input voltage selected (e.g. low line or high line) provides a max rated output wattage rating greater than the system power ratings.
- The Active Answers Power Calculator 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 G5
 - Click on: "Power Calculator" link. (You may need to scroll down to see it)

Power Cords (13 Cord Sets)	Power Cord Part Number
	163719-002

Technical Specifications

System Unit - Tower	Dimensions (H x W x D)	18.38 x 8.63 x 28.5 in (46.67 x 21.92 x 72.39 cm)
	Weight	<p>Tower: 1 Processor, 1 hard drive cage, 1 Memory Board, 1 Power Supply, 1 Controller card, 3 fans 68 lbs (30.84 kg)</p> <p>Tower: 1 Processor, 1 HDD, 1 Memory Board, 2 Power Supplies, 2 Controller cards, 6 fans 77 lbs (34.93 kg)</p>
	Input Requirements	<p>Range Line Voltage 100-132 VAC, 200-240 VAC</p> <p>Rated Input Voltage 7.5A (100VAC), 3.8A (200VAC)</p> <p>Rated Input Frequency 50 to 60 Hz</p> <p>Rated Input Current 735W</p> <p>Rated Input Power 1001W (100VAC)</p>
	BTU Rating	3,420 BTU/HR
	Power Specifications	<p>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.</p> <p>To drill down to calculators:</p> <ul style="list-style-type: none"> - Click on: "ProLiant Servers" - Click on the Server of interest. Example: ML370 G5 - Click on: "Power Calculator" link. (You may need to scroll down to see it)
	Power Supply Output Power	<p>Steady State Power 775W</p> <p>Maximum Peak Power 775W</p>
	Maximum Wet Bulb Temperature	
	Shock	<p>Operating: 2 G's</p> <p>Non-Operating: 15 G's</p>
	Vibration	<p>Operating: Random vibration at 0.000075 G²/Hz, 10Hz to 300Hz, (0.15 G's nominal)</p> <p>Non-Operating: Random vibration at 0.0005 G²/Hz, 10Hz to 500Hz, (0.5 G's nominal)</p>
	<p>Listed are the levels of shock the product can withstand with NO damage being incurred. The values represent a peak input acceleration during an 11 ms half-sine shock pulse.</p> <p>Listed are the levels of vibration the product can withstand with NO damage being incurred. The values represent a flat random vibration input acceleration profile across the given frequency range.</p>	

Technical Specifications

Environmental Requirements

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 305m (1.8°F per every 1000ft) above sea level to a maximum of 3050m (10,000ft), 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).

Humidity

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 - Redundant Configuration

Idle
(Fixed Disk Drives Spinning)

L WAd (BELS) 6.2

Average Bystander 43

L pAm (dBA)

Operating
(Random Seeks to Fixed Disks)

L WAd (BELS) 6.2

Average Bystander 43

L pAm (dBA)

Technical Specifications

Acoustic Noise - Non-Redundant Configuration	Idle (Fixed Disk Drives Spinning)	
	L WAd (BELS)	6.3
	Average Bystander	44
	L pAm (dBA)	
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	6.3
	Average Bystander	44
	L pAm (dBA)	

System Unit - Rack	Dimensions (H x W x D)	8.63 x 17.5 x 26.5 in (21.92 x 44.45 x 67.31 cm)	
	Weight	Rack (no skins): 1 Processor, 1 Hard drive cage, 1 Memory Board, 1 Power Supply, 1 Controller card, 3 fans	59 lbs (26.76 kg)
		Rack (no skins): 1 Processor, 2 Hard Drive cages, 1 Memory Board, 2 Power Supplies, 2 Controller cards, 6 fans	68 lbs (30.84 kg)
	Input Requirements	Range Line Voltage	90 to 264 VAC
		Rated Input Voltage	100 to 240 VAC
		Rated Input Frequency	47 to 63 Hz
		Rated Input Current	10A (110 V) to 4.8A (220 V)
		Rated Input Power	1001W (100VAC)
	BTU Rating	3,420 BTU/HR	
	Power Supply Output Power	Steady State Power	775W
Maximum Peak Power		775W	

Technical Specifications

Environmental Requirements

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 305m (1.8°F per every 1000ft) above sea level to a maximum of 3050m (10,000ft), 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).

Humidity

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).

Maximum Wet Bulb Temperature

101.7° F (38.7° C)

Shock

Listed are the levels of shock the product can withstand with NO damage being incurred. The values represent a peak input acceleration during an 11ms half-sine shock pulse.

Operating: 2 G's

Non-Operating: 15 G's

Vibration

Listed are the levels of vibration the product can withstand with NO damage being incurred. The values represent a flat random vibration input acceleration profile across the given frequency range.

Operating: Random vibration at 0.000075 G²/Hz, 10Hz to 300Hz, (0.15 G's nominal)

Non-Operating: Random vibration at 0.0005 G²/Hz, 10Hz to 500Hz, (0.5 G's nominal)

Technical Specifications

Acoustic Noise - Redundant Configuration	Idle (Fixed Disk Drives Spinning)	
	L WAd (BELS)	6.2
	Average Bystander	43
	L pAm (dBA)	
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	6.2
Acoustic Noise - Non-Redundant Configuration	Idle (Fixed Disk Drives Spinning)	
	L WAd (BELS)	6.3
	Average Bystander	44
	L pAm (dBA)	
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	6.3
	Average Bystander	44
	L pAm (dBA)	

Smart Array P400 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Maximum Logical Drive Capacity	3 TB (6 x 500GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Technical Specifications

Smart Array E200 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR1-266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Maximum Logical Drive Capacity	3 TB (6 x 500GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade RAID 5 (Distributed Data Guarding) RAID 1, 1+0 (Striping & Mirroring) RAID 0 (Striping)

Two embedded NC373i Multifunction Gigabit Server Adapters	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX	
	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
		1000BaseTX (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)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
1000Base-TX		Category 5 or higher UTP; up to 328 ft (100 m)	

Technical Specifications

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