

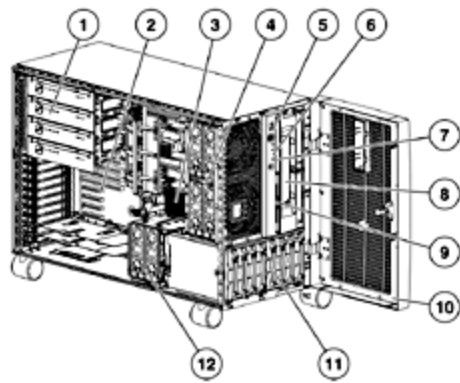


Overview

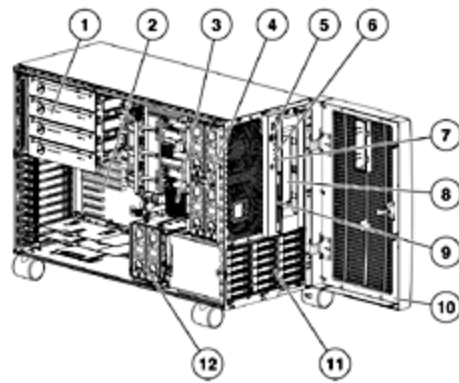
HP ProLiant ML570 Generation 3 (G3)

SCSI Model

SAS Model

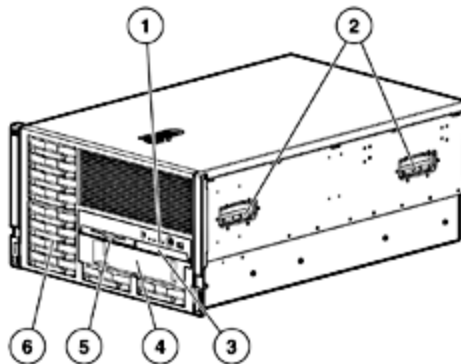


1. Four Memory Boards
2. Ten PCI slots
3. Four Intel Xeon Processors
4. Four Hot Plug Fans
5. USB (on front)
6. Front Panel LEDs - Diagnostic Lighting
7. High Speed IDE Slimline DVD Drive



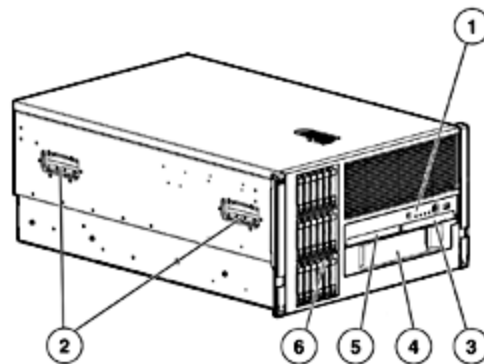
8. 5.25-inch Removable Media Bay (optional)
9. 1.44-MB Diskette Drive (optional)
10. Front Bezel
11. Ultra320 Hot Plug Drive Bays (8+2 Standard) or Hot Plug Drive SFF SAS Bays (18 Standard)
12. Two Hot Plug Fans

SCSI Model



1. Front Panel LEDs - Diagnostic Lighting
2. Rack handles
3. High Speed IDE Slimline DVD Drive
4. 5.25-inch Removable Media Bay (optional)

SAS Model



5. 1.44-MB Diskette Drive (optional)
6. Ultra320 Hot Plug Drive Bays (8+2 Standard) or Hot Plug Drive SFF SAS Bays (18 Standard)

What's New

- Support for Dual-core 64-bit Intel Xeon Processors
- Maximum 64 GB of memory with 4 GB dual-rank DIMMs

At A Glance

The HP ProLiant ML570 G3 server is the industry's first 4 processor expansion server that offers not only exceptional performance, but increased reliability with hot-plug RAID memory, powerful management capabilities, and unmatched internal expansion.

With expansion capabilities featuring up to 64GB max memory, support for up to 10×1" hot-plug Ultra 320 SCSI hard drives or 18 Small Form Factor (SFF) SAS drives, and up to 10 PCI I/O slots, the ProLiant ML570 G3 is a truly expandable and reliable server for a data center or remote enterprise environment. The ML570 G3 now supports Intel's new Xeon dual core processor technology providing performance gains for multi-threaded applications, for example database, financial services, and supply-chain management.

- **Processors:**
 - Intel Xeon Processors 7040 (3.00 GHz/2x2MB), 3.33 GHz/8MB, 3.00 GHz/8MB, 7020 (2.66 GHz/2x1MB), 2.83 GHz/4MB, 3.66 GHz/1MB or 3.16 GHz/1MB

- 667 MHz dual independent front-side bus
 - Intel E8500 chipset
- **Memory:**
 - 1 GB (2 x 512 MB) standard, 2 GB (4 x 512 MB) standard on 2P models
 - Maximum 64 GB of 2-way interleaved PC2-3200R Registered ECC SDRAM Memory with Advanced ECC capabilities
 - Advanced Memory Protection now including Hot-plug RAID Memory
- **Storage Controller:**
 - SCSI models: Integrated Dual Channel Ultra320 SCSI Adapter
 - SAS Models: HP Smart Array P600/256 BBWC Controller
 - The existing embedded SCSI controller can be used for a tape drive in the removable media bay or external storage connect
- **Internal Drive Support:**
 - Ultra320 compatible SCSI Drive Cage standard (standard duplex backplane 8 + 2) in SCSI models
 - SFF SAS Drive Cage standard (18 drives) in SAS models
 - Internal mass storage capacity up to 3.00TB (8 x 300GB + 2 x 300GB U320 hot plug drives) or 2.628TB (18 x 146GB hot plug SFF SAS drives)
- **Network Controller:**
 - Embedded NC7782 PCI-X Gigabit Server Adapter
- **Expansion Slots:**
 - 10 Total: (4) 64-bit/100 MHz PCI-X slots, hot-plug: (2) full length; (2) half length; (2) 64-bit/133MHz PCI-X slots, hot-plug; (4) PCI-Express x4 slots
- **USB Ports:**
 - 3 Total: (1) front; (2) rear accessible ports
- **Redundancy:**
 - Optional hot plug redundant power supplies and cooling fans
 - On 2P models, hot plug redundant fans and power supplies standard
- **Management:**
 - Integrated Lights-Out industry leading remote management with new support for two-factor authentication, schema-free Microsoft Active Directory integration, Power Regulator p-state reporting, USB key virtual media and VLAN on the shared network port
 - Integrated Remote Console and Automatic Server Recovery-2 (ASR-2)
- **Form Factor:**
 - Denser form factor - 6U rack and tower models
- **Deployment/Serviceability:**
 - Industry-standard PCI Hot Plug with Push Button Functionality
 - New Quick Find Diagnostic Display provides location of degraded component
 - Tool-free, spring loaded snap-on slide rails designed to accommodate both round and square hole racks
- **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 SCSI/SAS hard drives. SATA hard drives have a one-year warranty.

contents

[Overview](#)
[Standard Features](#)
[Models](#)
[Configuration Information - Factory Integrated Models](#)
[Options](#)
[Memory](#)



Standard Features

Processor

One of the following
depending on Model

- Dual-core Intel Xeon Processor at 3.00 GHz\2x2MB
- Intel Xeon Processor at 3.33 GHz\8MB
- Intel Xeon Processor at 3.00 GHz\8MB
- Dual-core Intel Xeon Processor at 2.66 GHz\2x1MB
- Intel Xeon Processor at 2.83 GHz\4MB
- Intel Xeon Processor at 3.66 GHz\1MB
- Intel Xeon Processor at 3.16 GHz\1MB

NOTE: 2P models ship standard with two processors while all other models ship with one processor as standard.

Cache Memory One of the following depending on Model	8MB Integrated Level 3 cache (per processor) NOTE: Available with 3.33 GHz, 3.00 GHz models only.	
	4MB Integrated Level 3 cache NOTE: 2.83 GHz Model only.	
	2x2MB Integrated Level 2 cache NOTE: Dual-core 3.00 GHz Model only.	
	2x1MB Integrated Level 2 cache NOTE: Dual-core 2.66 GHz Model only.	
	1MB Integrated Level 2 cache NOTE: 3.66 GHz, 3.16 GHz Models only.	
Upgradeability	Upgradeable to quad processing	
Chipset	Intel E8500 chipset NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/ .	
Memory Protection	Advanced ECC Hot-Plug RAID Memory Hot-Plug Mirrored Memory Online Spare Memory	
Memory	Type	PC2-3200R MHz Registered ECC SDRAM DIMM Memory
	Standard (2P models)	2048 MB (4 x 512 MB)
	Standard (base models)	1024 MB (2 x 512 MB)
	Maximum	64 GB
	NOTE: For more information regarding Advanced Memory Protection, please see the following URL: http://h18000.www1.hp.com/products/servers/technology/memoryprotection.html .	
Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter	

Expansion Slots	Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug	PCI Voltage	Notes
	1	64-bit/100MHz PCI-X	7	1	no	3.3 Volt	
	2	64-bit/100MHz PCI-X	7	2	no	3.3 Volt	
	3	64-bit/100MHz PCI-X	3	1	no	3.3 Volt	
	4	64-bit/100MHz PCI-X	3	2	no	3.3 Volt	Supported RILOE slot
	5	PCI Express x4	11	1	no	N/A	
	6	PCI Express x4	14	1	no	N/A	
	7	PCI Express x4	17	1	no	N/A	
	8	PCI Express x4	20	1	no	N/A	
	9	64-bit/133MHz PCI-X	27	1	yes	3.3 Volt	Recommended Smart Array P600 Controller slot

10	64-bit/133MHz PCI-X	24	1	yes	3.3 Volt
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NOTES:

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

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

NOTE: All PCI-X slots can only accept universal keyed PCI cards running at 3.3 volts.

NOTE: x8 PCI-Express cards are supported in all PCI-Express slots but will run at x4 speeds.

Storage Controllers One of the following depending on Model	Integrated Dual Channel Ultra320 SCSI Adapter		
	HP Smart Array P600/256 BBWC Controller (standard in SAS models) NOTE: For SAS/SATA drives and integrated Dual Channel Ultra320 SCSI Adapter can be used for tape drive in removable media bay or external storage support.		
Storage	Diskette Drives	1.44 MB Slimline Drive (optional)	
	Optical Drive	8x/24x IDE (ATAPI) Slimline DVD-ROM Drive	
	Hard Drives	None	
Maximum Internal Storage Type	Hot Plug SCSI	3.0TB	8 x 300GB + 2 x 300GB Ultra320
	Hot Plug SAS	2.628TB	18 x 146GB SFF SAS
Interfaces	Parallel	1	
	Serial	1	
	Pointing Device (Mouse)	1	
	Graphics	1	
	Keyboard	1	
	iLO	1	
	USB Ports	3 Total: 1 front; 2 rear NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html	
	Network RJ-45	2	
	External SCSI	1	
Graphics	Integrated ATI RAGE XL Video Controller with 8MB Video Memory		
Form Factor	Tower or Rack (6U)		
Product Demo	To view the Product Demo, please see the following URL, then click on "PRODUCT TOUR": http://h18004.www1.hp.com/products/servers/proliantml570/index.html .		
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 7.20.
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.
ROMPq, 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, linked from the SmartStart website at http://www.hp.com/servers/smartstart .
Survey Utility and diagnostics utilities	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: • 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 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

- Performance Management Pack - a performance management solution that 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).

Optional Remote
Management Packs

- Integrated Lights-Out Advanced Pack - upgrades the Integrated Lights-Out processor to full virtual presence and control with graphical console and virtual media.

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 2.0 Compliant
PCI 2.2 Compliant
PXE Support
WOL Support
Physical Address Extension (PAE) Support
Microsoft® Logo certifications

Availability

Advanced Memory Protection Technology – delivers unsurpassed memory protection and server availability:

- Advanced ECC Memory

ECC protection provides the ability to detect and correct single bit memory errors while Advanced ECC extends this coverage to include protection against multiple simultaneous errors on a DIMM. Advanced ECC detects and corrects up to 4 bit memory errors that occur within a single DRAM chip on a DIMM. Advanced ECC algorithms work in combination with industry standard ECC DIMMS.

Advanced Memory Protection Configurations

- Online Spare Memory

Offers a higher level of memory protection than Advanced ECC alone. The system is configured with a spare bank of memory. If the number of single-bit correctable errors on a bank exceeds the pre-defined error threshold, the failing bank will fail over to the Online Spare bank without intervention or server interruption. The failed memory can then be replaced at the user's convenience during a scheduled maintenance window.

- Hot Plug Mirrored Memory

Hot Plug Mirrored Memory is a fault-tolerant memory feature that provides a higher level of availability than Advanced ECC or Online Spare Memory because it protects against multi-bit errors and does not require any server downtime to replace failed DIMMs. Hot Plug Mirrored Memory requires that two memory boards be installed, one an exact mirror of the other, which run in parallel and provide protection against multi-bit memory errors. When configured for Hot Plug Mirrored Memory, the system writes to both memory boards, but reads from one. If a read error occurs, the system fails over to the redundant memory board. At that point the memory board containing the failed DIMMs can be hot replaced. Once the failed DIMMs are replaced and the memory board re-installed into the server, the system goes back to full mirrored status. All this occurs without bringing the server down.

- Hot Plug RAID Memory

Hot Plug RAID Memory (RAID Memory) provides a similar level of memory protection as Mirrored Memory but obtains this protection using less total memory. For example, in a RAID Memory configuration, 25% of the installed memory is not available to the operating system. In a Mirrored Memory configuration, however, 50% of the installed memory is not available to the operating system. RAID Memory protects the server against uncorrectable memory errors that would otherwise result in a server failure.

NOTE: All Advanced Memory Protection modes require the use of additional memory cards. All HP ProLiant ML570 G3 servers ship standard with a single memory board. Additional memory boards are optional (P/N 348107-B21).

NOTE: All Advanced Memory Protection modes are user configurable through the ROM-Based Setup Utility (RBSU) and viewable through Systems Insight Manager and the Integrated Management Log (IML.).

Remote Management

Integrated Lights Out (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) and Secure Shell Security
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

Integrated Lights Out Advanced Pack (optional) Remote Graphical Console:

- Microsoft Remote Desktop for Administrators integration
- Virtual media (floppy, CD, USB key, floppy images and ISO images)
- User access management via Directory Services
- Two-factor authentication

Intelligent Manageability

HP Systems Insight Manager
SmartStart
Redundant ROM
Remote Flash ROM
Management Agent
Integrated Management Log
Automatic Server Recovery (ASR)
Dynamic Sector Repairing (with Smart Array Controllers)
Drive Parameter Tracking (with Smart Array Controllers)
Pre-Failure Warranty (covers processors, SCSI/SAS hard drives and memory)

Security	Power-on password Hot plug keyboard password Diskette drive control Diskette boot control QuickLock, Network Server Mode Parallel and serial interface control Administrator's password Disk configuration lock Locking tower bezel door Lockable access hood	
Server Power Cords	Tower Models • Tower models ship with one local (-001) power cord.	Rack Models • Rack models ship with one local (-001) power cord and one C19 to C14 jumper cable.
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 .	
Power Supply	One 910W/1300W Hot Plug Power Supply ships standard on all Tower Models and on 1P Rack Models. Second power supply is needed for redundancy. Two 910W/1300W Hot Plug Power Supplies ship standard with the 2P models.	
System Fans	Three fans ship standard with three additional option fans for redundancy NOTE: 2P models ship standard with redundant fans.	
Required Cabling	For required cabling information, refer to the Web site at http://h18000.www1.hp.com/products/servers/ProLiantml570/ .	
OS Support	Microsoft Windows 2003 Server Microsoft Windows 2000 Server Red Hat Enterprise Linux SuSE Enterprise Linux Novell NetWare SCO OpenServer, UnixWare Sun Solaris Intel Platform Edition VMware Virtualization Software 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 a listing of the latest drivers available for the HP ProLiant ML570 G3, please see: http://h18023.www1.hp.com/support/files/server/us/index.html . NOTE: For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html 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 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 .	
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/ProLiantML570/index.html>.

Rack Kit	HP ProLiant ML570 G3 rack models have universal sliding rails which provide tool-free support for square and round hole racks (including Compaq/HP 7000, 9000, 10000, HP/E series and H9 series) with an adjustment range from 23 ¾" to 36" depth. The snap-on cable management arm is now ambidextrous.
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Telco Rack Support	Support for all 2-post Telco racks requires an additional option kit from Rack Solutions. The Rack Solutions brackets can be purchased at: http://www.racksolutions.com/hp .
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HP Factory Express Capabilities	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.
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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 Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator.
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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 Labor, 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
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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 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>

contents

[Overview](#) [Standard Features](#) [Models](#) [Configuration Information - Factory Integrated Models](#) [Options](#) [Memory](#)



Models

SAS Models

ML570R03 X3.00-8MB,2GB (2P) SAS 391120-001	Processor	(2) Intel Xeon Processors MP 3.00 GHz standard (up to four supported)
	Cache Memory Memory	8MB Integrated Level 3 Cache 2048 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology)

	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	HP Smart Array P600/256 BBWC Controller NOTE: For SAS/SATA drives and integrated Dual Channel Ultra320 SCSI Adapter can be used for tape drive in removable media bay or external storage support.
	Hard Drive	None ship standard
	Internal Storage	2.628TB maximum (with optional hard drives)
	Power Supplies	Two 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Rack (6U)
ML570T03 X3.00-8MB, 1GB (1P) SAS 391113-001	Processor	(1) Intel Xeon Processors MP 3.00 GHz standard (up to four supported)
	Cache Memory	8MB Integrated Level 3 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	HP Smart Array P600/256 BBWC Controller NOTE: For SAS/SATA drives and integrated Dual Channel Ultra320 SCSI Adapter can be used for tape drive in removable media bay or external storage support.
	Hard Drive	None ship standard
	Internal Storage	2.628TB maximum (with optional hard drives)
	Power Supplies	One 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)

SCSI Models

ML570R03 X7040 2GB (2P) 399364-001	Processor	(2) Dual-core 64-bit Intel Xeon Processors 3.00 GHz standard (up to four supported)
	Cache Memory	2 x 2MB Integrated Level 2 Cache
	Memory	2048 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum (with optional hard drives)
	Power Supplies	Two 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive

	Diskette Drive Form Factor	Optional Rack (6U)
ML570T03 X7040 1GB (1P) 399363-001	Processor	(1) Dual-core 64-bit Intel Xeon Processors 3.00 GHz standard (up to four supported)
	Cache Memory Memory	2 x 2MB Integrated Level 2 Cache 1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum (with optional hard drives)
	Power Supplies	One 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive Diskette Drive Form Factor	IDE Slimline DVD-ROM Drive Optional Tower (6U)
ML570R03 X7020 1GB (1P) 399366-001	Processor	(1) Dual-core 64-bit Intel Xeon Processors 2.66 GHz standard (up to four supported)
	Cache Memory Memory	2 x 1MB Integrated Level 2 Cache 1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum (with optional hard drives)
	Power Supplies	One 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive Diskette Drive Form Factor	IDE Slimline DVD-ROM Drive Optional Rack (6U)
ML570T03 X7020 1GB (1P) 399365-001	Processor	(1) Dual-core 64-bit Intel Xeon Processors 2.66 GHz standard (up to four supported)
	Cache Memory Memory	2 x 1MB Integrated Level 2 Cache 1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive Internal Storage	None ship standard 3.00TB maximum (with optional hard drives)

	Power Supplies	One 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)
ML570R03 X3.33-8MB, 2GB (2P) 348140-001	Processor	(2) Intel Xeon Processors MP 3.33 GHz standard (up to four supported)
	Cache Memory	8MB Integrated Level 3 Cache
	Memory	2048 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum (with optional hard drives)
	Power Supplies	Two 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Rack (6U)
ML570R03 X3.00-8MB, 2GB (2P) 348138-001	Processor	(2) Intel Xeon Processors MP 3.00 GHz standard (up to four supported)
	Cache Memory	8MB Integrated Level 3 Cache
	Memory	2048 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum (with optional hard drives)
	Power Supplies	Two 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Rack (6U)
ML570R03 X2.83-4MB, 1GB (1P) 348135-001	Processor	(1) Intel Xeon Processor MP 2.83 GHz standard (up to four supported)
	Cache Memory	4MB Integrated Level 3 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard

	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Rack (6U)
ML570R03 X3.66-1MB, 1GB (1P) 385943-001	Processor	(1) Intel Xeon Processor MP 3.66 GHz standard (up to four supported)
	Cache Memory	1MB Integrated Level 2 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 464 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Rack (6U)
ML570R03 X3.16-1MB, 1GB (1P) 375367-001	Processor	(1) Intel Xeon Processor MP 3.16 GHz standard (up to four supported)
	Cache Memory	1MB Integrated Level 2 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Rack (6U)
ML570T03 X3.33-8MB, 1GB (1P) 348139-001	Processor	(1) Intel Xeon Processor MP 3.33 GHz standard (up to four supported)
	Cache Memory	8MB Integrated Level 3 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard

	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)
ML570T03 X3.00-8MB, 1GB (1P) 348137-001	Processor	(1) Intel Xeon Processor MP 3.00 GHz standard (up to four supported)
	Cache Memory	8MB Integrated Level 3 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)
ML570T03 X2.83-4MB, 1GB (1P) 348134-001	Processor	(1) Intel Xeon Processor MP 2.83 GHz standard (up to four supported)
	Cache Memory	4MB Integrated Level 3 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)
ML570T03 X3.66-1MB, 1GB (1P) 385942-001	Processor	(1) Intel Xeon Processor MP 3.66 GHz standard (up to four supported)
	Cache Memory	1MB Integrated Level 2 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard

	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)
ML570T03 X3.16-1MB, 1GB (1P) 375366-001	Processor	(1) Intel Xeon Processor MP 3.16 GHz standard (up to four supported)
	Cache Memory	1MB Integrated Level 2 Cache
	Memory	1024 MB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology)
		NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs.
	Network Controller	Embedded NC7782 PCI-X Gigabit Server Adapter
	Storage Controller	Integrated Dual Channel Ultra320 SCSI Adapter
	Hard Drive	None ship standard
	Internal Storage	3.00TB maximum
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy)
	Optical Drive	IDE Slimline DVD-ROM Drive
	Diskette Drive	Optional
	Form Factor	Tower (6U)

contents

[Overview](#)
[Standard Features](#)
[Models](#)
[Configuration Information - Factory Integrated Models](#)
[Options](#)
[Memory](#)



Configuration Information - Factory Integrated Models

NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order 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 ProLiant ML570 G3 Tower Chassis	379933-405
Factory Integrated Model ships with:		

Embedded NC7782 PCI-X Gigabit Server Adapter	
Ultra320 Controller (integrated on system board)	
Ten Standard I/O Expansion slots	
Tower models ship with one Hot Plug Power Supply and one local power cord.	
Three Hot Plug Fans	
Ultra320 Duplex Drive Cage (can be Simplex configured)	
Integrated Lights-Out (iLO) Standard Management	
Keyboard and Mouse	
Tower (6U)	
HP ProLiant ML570 G3 Rack Chassis	379934-405
Factory Integrated Model ships with:	
Embedded NC7782 PCI-X Gigabit Server Adapter	
Ultra320 Controller (integrated on system board)	
Ten Standard I/O Expansion slots	
Rack models ship with one Hot Plug Power Supply, and local power cord(s)	
Three Hot Plug Fans	
Ultra320 Duplex Drive Cage (can be Simplex configured)	
Integrated Lights-Out (iLO) Standard Management	
Rack (6U)	
ML570T03 SAS Tower Chassis	391224-405
Factory Integrated Model ships with:	
Embedded NC7782 PCI-X Gigabit Server Adapter	
Ten Standard I/O Expansion slots	
Tower models ship with one Hot Plug Power Supply and one local power cord	
Three Hot Plug Fans	
SFF SAS Drive Cage	
Integrated Lights-Out (iLO) Standard Management	
Keyboard and Mouse	
Tower (6U)	
ML570R03 SAS Rack Chassis	391225-405
Factory Integrated Model ships with:	
Embedded NC7782 PCI-X Gigabit Server Adapter	
Ten Standard I/O Expansion slots	
Rack models ship with one Hot Plug Power Supply, and local power cord(s)	
Three Hot Plug Fans	
SFF SAS Drive Cage	
Integrated Lights-Out (iLO) Standard Management	
Rack (6U)	

Step 1A: If SAS Model, Choose SAS Starter Kit or Controller (only one of the following)

SAS Controller	HP Smart Array P600 Controller NOTE: This is a required selection if one of the two following SAS Starter Kits is not selected. If choosing this part number, SFF SAS hard drives must still be selected under Step 4.	337972-B21
SAS Starter Kit	SAS Starter Kit - 36GB NOTE: Includes HP Smart Array P600/256 BBWC Controller and (2) 36GB SFF SAS Universal Hard Drives.	396221-B21

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

Processors	X3.00-2x2MB 570 G3 FIO	399889-L21
	X2.66-2x1MB 570 G3 FIO	399888-L21
	X3.33-8MB 570 G3 FIO	348111-L21
	X3.00-8MB 570 G3 FIO	348110-L21
	X2.83-4MB 570 G3 FIO	348109-L21
	X3.66-1MB 570 G3 FIO	385903-L21
	X3.16-1MB 570 G3 FIO	375369-L21
NOTE: Up to 3 additional xxxxxx-B21 processors for each HP ProLiant ML570 server may be ordered. If selecting a Performance Pack option (404476-001, 380927-001 or 380928-001), a second processor (399889-B21, 348111-B21 or 348110-B21) is included and should not be ordered.		
Base Memory	8 GB (2 x 4 GB 2RANK) PC2-3200R 400MHz DDR2 with Advanced ECC and online spare memory capabilities	348106-B21
	4 GB (2 x 2 GB 2RANK) PC2-3200R 400MHz DDR2 with Advanced ECC and online spare memory capabilities	375004-B21
	4 GB (2 x 2 GB 1RANK) PC2-3200R 400MHz DDR2 with Advanced ECC and online spare memory capabilities	343057-B21
	2 GB (2 x 1 GB 1RANK) PC2-3200R 400MHz DDR2 with Advanced ECC and online spare memory capabilities	343056-B21
	1 GB (2 x 512 MB 1RANK) PC2-3200R 400MHz DDR2 with Advanced ECC and online spare memory capabilities	343055-B21
Optical Drive	Slimline CD-RW/DVD-ROM 24X Combo Drive Option Kit (Servers)	331903-B21
	Slimline DVD-ROM Drive (8X/24X) Option Kit (Servers)	264007-B21

Step 3: Choose Additional Factory Integratable Options

The HP ProLiant ML570 G3 performance packs are necessary to configure a HP ProLiant ML570 G3 High Performance Model. HP ProLiant ML570 G3 High Performance models include the latest performance technologies and enterprise class availability features pre-installed for convenience and value. In addition to the standard features listed in Step 1, the High Performance Model includes the following:

- Second Intel Xeon Processor
- Redundant Power Supplies and Fans

ML570G3 X7040 Rack Optimized Pack	404476-001
ML570G3 X3.33GHz/667-8MB Rack Optimized Pack	390927-001
ML570G3 X3.00GHz/667-8MB Rack Optimized Pack	390928-001

Step 4: Choose Additional Options for Factory Integration

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

contents

[Overview](#) [Standard Features](#) [Models](#) [Configuration Information - Factory Integrated Models](#) [Options](#) [Memory](#)



Options

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

HP ProLiant ML570 G3 Unique Options	ProLiant Tower to Rack Conversion Kit	348112-B21
	ProLiant Rack to Tower Conversion Kit	348113-B21
Processor	Dual-Core Intel Xeon 7040 (3.00GHz-2x2MB) Processor Option Kit NOTE: This processor option kit (PN 399889-B21) supports the HP ProLiant ML570 G3 and the HP ProLiant DL580 G3.	399889-B21
	Dual-Core Intel Xeon 7020 (2.66GHz-2x1MB) Processor Option Kit NOTE: This processor option kit (PN 399888-B21) supports the HP ProLiant	399888-B21

ML570 G3 and the HP ProLiant DL580 G3.	
Intel Xeon MP X3.33 GHz-8MB Processor Option Kit	348111-B21
NOTE: This processor option kit (PN 348111-B21) supports the HP ProLiant ML570 G3 and the HP ProLiant DL580 G3.	
Intel Xeon MP X3.00 GHz-8MB Processor Option Kit	348110-B21
NOTE: This processor option kit (PN 348110-B21) supports the HP ProLiant ML570 G3 and the HP ProLiant DL580 G3.	
Intel Xeon MP X2.83 GHz-4MB Processor Option Kit	348109-B21
NOTE: This processor option kit (PN 348109-B21) supports the HP ProLiant ML570 G3 and the HP ProLiant DL580 G3.	
Intel Xeon MP X3.66 GHz-1MB Processor Option Kit	385903-B21
NOTE: This processor option kit (PN 385903-B21) supports the HP ProLiant ML570 G3 and the HP ProLiant DL580 G3.	
Intel Xeon MP X3.16 GHz-1MB Processor Option Kit	375369-B21
NOTE: This processor option kit (PN 375369-B21) supports the HP ProLiant ML570 G3 and the HP ProLiant DL580 G3.	
NOTE: Processor mixing of different frequencies and cache sizes is not supported.	

ProLiant Essentials Value Pack Software

ProLiant Essentials Intelligent Networking Pack

ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License	436225-B21
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_na/12062_na.HTML

ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License	436229-B21
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NOTE: For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12327_na/12327_na.HTML

ProLiant Essentials Performance Management Pack

ProLiant Essentials Performance Management Pack, Single-Server License	306696-B21
NOTE: For use with a single server. Contains one license with a unique license activation key, HP Management CD and documentation.	

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_na/11925_na.HTML

ProLiant Essentials Rapid Deployment Pack Windows Edition Release

Rapid Deployment Pack, Single-Server License	267196-B21
NOTE: This license allows 1 server to be deployed and managed via RDP.	

ProLiant Essentials Rapid Deployment Pack - Physical Media Kit	434559-B21
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ProLiant Essentials Rapid Deployment Pack Flatpack - single-server license	434560-B21
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NOTE: For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.HTML

ProLiant Essentials Workload Management Pack

ProLiant Essentials Workload Management Pack, Single Server License	303284-B21
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NOTE: For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11452_na/11452_na.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 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.	435663-B21
	ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition, Single-Migration License	412978-B21
	HP ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition. 1 Year Unlimited Migration License NOTE: For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.HTML	412982-B21
	ProLiant Essentials Vulnerability and Patch Management Pack ProLiant Essentials Vulnerability and Patch Management Pack, 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 Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12111_na/12111_na.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 .	371645-B21
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/12326_div/12326_div.HTML	263825-B21
Memory (DIMMs)	8 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 4096 MB) Dual Rank	348106-B21
	4 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 2048 MB) Dual Rank	375004-B21
	4 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 2048 MB) Single Rank	343057-B21
	2 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 1024 MB)	343056-B21
	1 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 512 MB)	343055-B21
	Hot-plug Memory Expansion Board	348107-B21
	NOTE: Four memory boards would be required to configure 48 GB of memory using 2 GB DIMMs.	
Optical Drives	Slimline DVD-ROM Drive (8X/24X) Option Kit (Servers)	264007-B21
	NOTE: This drive is supported in the removable media bay. Slimline CD-RW/DVD-ROM Combo Drive Option Kit	331903-B21
	NOTE: This drive is supported in the DVD-ROM bay and floppy bay HP DVD±R/RW 8X Slim	383975-B21
	Slimline CD-ROM Drive 24X	356963-B21
Diskette Drive	Slimline Floppy Diskette Drive Option Kit	390164-B21

SAS Drive Cage	ML570G3 SAS Drive Cage Option Kit	378101-B21
Hard Drives	Ultra320 SCSI ↻ Universal Hot Plug	
	HP 300GB U320 10K Universal HDD	350964-B22
	HP 146GB U320 10K Universal HDD	286716-B22
	HP 72GB U320 10K Universal HDD	286714-B22
	HP 300GB U320 15K Universal HDD	411089-B22
	HP 146GB U320 15K Universal HDD	347708-B22
	HP 72GB U320 15K Universal HDD	286778-B22
	HP 36GB U320 15K Universal HDD	286776-B22
	NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds.	
	NOTE: Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/11531_na/11531_na.HTML	
	Serial Attached SCSI (SAS) SFF 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_na/12244_na.HTML	
	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_na/11940_na.HTML	
Storage Controllers	SAS Controllers	
	Smart Array P600 Controller	
	HP Smart Array P600/256 BBWC Controller	337972-B21
	NOTE: Included in SAS Server Models. Only needed with SAS Drive Cage Option Kit.	
	512MB DDR BBWC Upgrade	372538-B21
	NOTE: Please see the following Controller QuickSpecs for additional information including Technical Specifications: http://h18000.www1.hp.com/products/quickspecs/12247_na/12247_na.HTML (Smart Array P600 Controller)	
	SAS HBA	
	HP SC44Ge Host Bus Adapter	416096-B21
	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/12617_na/12617_na.html (SC44Ge HBA) http://h18004.www1.hp.com/products/quickspecs/12332_na/12332_na.html (8 Internal Port SAS HBA)	
	SCSI Controllers	

Smart Array 6402/128 Controller	273915-B21
Smart Array 6404/256 Controller	273914-B21
Smart Array 641 Controller	291966-B21
Smart Array 642 Controller	291967-B21
128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21

NOTE: This 128MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.

Ultra320 Expansion Module for SA-6402	273911-B21
64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

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

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

http://h18000.www1.hp.com/products/quickspecs/12067_na/12067_na.HTML
(Smart Array 641)

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

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

Communications

HP NC110T PCI Express Gigabit Server Adapter	434905-B21
HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
HP NC340T PCI-X 4-port 1000T Gigabit Server Adapter	391661-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-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 NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21

Redundant Options

Hot-plug Redundant Fan Kit	348108-B21
NOTE: Includes three fans. Included in 2P models.	
910W (low line), 1300W (high line) Hot Plug Redundant Power Supply	348114-001
910W (low line), 1300W (high line) Hot Plug Redundant Power Supply	348114-B21
NOTE: Includes C14 to C19 IEC cable.	

Management Options

Remote Insight Lights-Out Edition II	227251-001
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Tape Drives

NOTE: For complete listing of tape drive offerings 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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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

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

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

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

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>

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_na/11883_na.HTML

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

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit

A7445B

NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232, Ultrium 448 and Ultrium 920 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit

A8007A

NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 24 USB, DAT 40 USB and DAT 72 USB tape drives.

HP StorageWorks 3U Rack-mount kit

274338-B22

NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple LVD SCSI tape drives including DAT 40, DAT 72, DLT VS160, SDLT 320, SDLT 600, Ultrium 232, Ultrium 460, Ultrium 448, Ultrium 920 and Ultrium 960 tape drives.

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

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

Tape Autoloaders

HP StorageWorks DAT Autoloader

HP StorageWorks DAT 72x10 tape autoloader

AE313A

HP StorageWorks Tape 1/8 Autoloader

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

NOTE: Please reference the 1/8 Tape Autoloader QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>

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: 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_na/12337_na.html

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).

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_na/11935_na.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_na/11932_na.html	
	ProLiant Cluster HA/F500 for the Enterprise SAN	364024-B21
	NOTE: For additional information regarding the ProLiant Cluster HA/F500 for Enterprise SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11933_na/11933_na.html	
	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_na/11518_na.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 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.	
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB	302969-B21
	NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies	
	HP StorageWorks Modular Smart Array 30 DB	302970-B21
	NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies	
	NOTE: The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.	
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
	NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.HTML	
HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000	201723-B22
	NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML	
HP StorageWorks Modular Smart Array 1500	Modular Smart Array 1500 Controller Shelf	AA986A
	NOTE: Please see the StorageWorks Modular SAN Array 1500 QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs	
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 Uninterruptible Power Systems - Tower	HP, T1000 UPS	AF403A
	HP, T1500 UPS	AF406A
	HP, R/T 2200 UPS	AF409A
Uninterruptible Power Systems  Rack	HP, R1.5kVA UPS, 1U	AF419A

	HP R3000 VA UPS, 2U, L5-30 NOTE: Replaces non-RoHS compliant part number 192186-001.	AF422A
	HP R3000 VA UPS, 2U, L6-20 NOTE: Replaces non-RoHS compliant part number 192186-002.	AF423A
HP Monitored Power Distribution Unit (PDU)	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 17.3 kVA S2324 Monitored PDU- dual input, 3U, 24A NOTE: Replaces non-RoHS compliant part number 370959-D71.	AF503A
	HP 8.3 kVA S1324 Monitored PDU- single input, 3U, 24A NOTE: Replaces non-RoHS compliant part number 370960-D71.	AF504A
	HP 16.6 kVA S2140 Monitored PDU- dual input, 1U, 40A NOTE: Replaces non-RoHS compliant part number 37061-D71.	AF505A
	HP 8.6 S1140 Monitored PDU- single input, 1U, 40A NOTE: Replaces non-RoHS compliant part number 370962-D71.	AF506A
	HP Monitored Power Distribution Unit: Half Rack Version	
	HP 17.3 kVA S348 Monitored PDU- single input, 3-phase, 60A	AF916A
	HP 4.9kVA S124 Monitored PDU- single input, 1U, 24A	AF914A
Modular PDUs 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	3.6kVA Model - mPDU, 16A, High	252663-B24
	2.8 kVA Model - mPDU, 24A, Low	252663-D71
	4.9kVA Model - mPDU, 24A, High	252663-D72
	8.3kVA Model - mPDU, 40A, High	252663-B21
	8.3kVA Model - mPDU, 40A, High (power cord attached)	252663-D73
	8.3kVA Model - mPDU 40A, High (core only)	252663-D75
	4.9kVA Model - mPDU 24A, High (core only)	252663-D74
	NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables: http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML	
USB Options	USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#xxx
	USB 2.0 4-port HUB	DG954A
	HP 1GB Drive Key II- USB 2.0 Flash Drive	AG382AA
	HP 512MB DriveKey II- USB Flash Drive	ED516AA
Rack Conversion Kit	ProLiant Tower to Rack Conversion Kit	348112-B21
	ProLiant Rack to Tower Conversion Kit	348113-B21
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 color: http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_na.HTML NOTE: For additional information regarding Rack Cabinets, please see the following URL: www.hp.com/go/rackandpower .	358254-B21
HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A

10622 G2 (22U) Rack Cabinet - Pallet	AF021A
10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
10647 G2 (47U) Rack Cabinet - Pallet	AF031A

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

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

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

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

HP Rack 10000 Series (Graphite Metallic)	10642 (42U) Infrastructure Rack (Low Voltage)	379006-001
	10642 (42U) Infrastructure Rack (High Voltage)	379005-001
	HP Rack S10614 (14U) Rack Cabinet – Shock Pallet	292302-B22
	HP Rack 10842 (42U, 800mm wide) ♦ Pallet	257415-B21
	HP Rack 10842 (42U, 800mm wide) ♦ Shock Pallet	257415-B22
	HP Rack 10647 (47U) ♦ Pallet	245160-B21
	HP Rack 10647 (47U) ♦ Crated	245160-B23
	HP Rack 10622 (22U) ♦ Pallet	245163-B21
	HP Rack 10622 (22U) ♦ Shock Pallet	245163-B22
	HP Rack 10622 (22U) ♦ Crated	245163-B23

NOTE: xxxxxx-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). xxxxxx-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://www.hp.com/go/rackandpower>.

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

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

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>.

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	U4591E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4592E
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4593E
	Installation & Start-up Services	
	Hardware Installation, Electronic	U4601E
	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	U4602E
	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	U4603E
	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	U4604E
	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	U6314E
	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	U9237E

NOTE: For more information, customer/resellers can contact <http://www.hp.com/services/carepack>.

contents

[Overview](#) [Standard Features](#) [Models](#) [Configuration Information - Factory Integrated Models](#) [Options](#) [Memory](#)



Memory

HP ProLiant ML570 G3 - 7040, 3.33 GHz and 3.00 GHz 1P Tower Models and all 7020, 2.83 GHz, 3.66 GHz, 3.16 GHz Models

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

Standard Memory

1 GB PC2-3200R MHz Registered ECC SDRAM DIMM installed (2 x 512 MB SDRAM DIMM)

Standard Memory Plus Optional Memory

Up to 57 GB of memory is available with the optional installation of 4 GB DIMMs.

Standard Memory Replaced with Optional Memory

Up to 64 GB of memory is available with the removal of the standard 1024 MB of memory and the optional installation of 4

GB DIMMs.

- Loads:
 - Single rank (SR) DIMM => 1 load
 - Dual rank (DR) DIMM => 2 loads
- DIMMs must be installed in pairs on board.
 - Each DIMM pair must be identical, e.g. both SR or both DR, and same capacity, technology and density.
- Each HP ProLiant ML570 G3 memory board supports 8 loads, thus valid maximum DIMM configurations per memory board for the HP ProLiant ML570 G3 are:
 - 6 SR DIMMs = 6 loads, or
 - 4 DR DIMMs = 8 loads, or
 - 2 DR DIMMs + 4 SR DIMMs = 8 loads
- Advance Memory Protection support
 - Online Spare is supported with 1, 2, 3 or 4 boards
 - Each board can failover to its Online Spare Bank independent of the other memory boards.
 - The minimum valid Online Spare configuration for a memory board requires at least one bank of dual-rank DIMMs or two banks of single-rank DIMMs.
 - HP Recommends (for maximum memory usage efficiency):
 - If only single -rank DIMMs are used on a memory board, all DIMMs should be of the same size on that memory board.
 - If only dual-rank DIMMs are used on a memory board, all DIMMs should be of the same size on that memory board.
 - If a mixture of single- and dual-rank DIMMs are used on a memory board, the dual-rank DIMMs should be two times (2x) the size of any single-rank DIMM
 - Hot-Plug Mirrored Memory is supported with 2 or 4 boards
 - Memory boards within a mirrored pair must have the same amount of total memory. However, each board of the mirrored pair may have different DIMM configurations as long as they have equal total size.
 - The amount of memory between mirrored pairs can be different in quadboard Mirrored Memory mode.
 - Hot-Plug RAID Memory is only supported with 4 boards
 - All four memory boards must have the same amount of total memory. However, each board may have different DIMM configurations as long as they have equal total size

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

NOTE: Four memory boards would be required to configure up to 512GB or maximum memory using 4GB DIMMs.

Memory		Slot					
		1	2	3	4	5	6
Standard	1 GB	512 MB	512 MB	Empty	Empty	Empty	Empty
Optional	57 GB	512 MB	512 MB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Memory		Slot					
		7	8	9	10	11	12
Standard	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	57 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Memory		Slot					
		13	14	15	16	17	18
Standard	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	57 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Memory		Slot					
		19	20	21	22	23	24
Standard	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	57 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty

Following are memory options available from HP:

- 8 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 4 GB) Dual Rank

- 4 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 2 GB) Dual Rank 375004-B21
- 4 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 2 GB) Single Rank 343057-B21
- 2 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 1 GB) 343056-B21
- 1 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 512 MB) 343055-B21
- Hot-plug Memory Expansion Board 348107-B21

HP ProLiant ML570 G3 - 7040, 3.33 GHz and 3.00 GHz 2P Rack Models

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

Standard Memory

2 GB PC2-3200R MHz Registered ECC SDRAM DIMM installed (4 x 512 MB SDRAM DIMM)

Standard Memory Plus Optional Memory

Up to 58 GB of memory is available with the optional installation of 4 GB DIMMs.

Standard Memory Replaced with Optional Memory

Up to 64 GB of memory is available with the removal of the standard 2GB of memory and the optional installation of 4 GB DIMMs.

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

NOTE: Four memory boards would be required to configure up to 58 GB or maximum memory using 4 GB DIMMs.

Memory		Slot					
		1	2	3	4	5	6
Standard	2 GB	512 MB	512 MB	512 MB	512 MB	Empty	Empty
Optional	58 GB	512 MB	512 MB	512 MB	512 MB	4 GB	4 GB
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Memory		Slot					
		7	8	9	10	11	12
Standard	2 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	58 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Memory		Slot					
		13	14	15	16	17	18
Standard	2 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	58 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Memory		Slot					
		19	20	21	22	23	24
Standard	2 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	58 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty
Maximum	64 GB	4 GB	4 GB	4 GB	4 GB	Empty	Empty

Following are memory options available from HP:

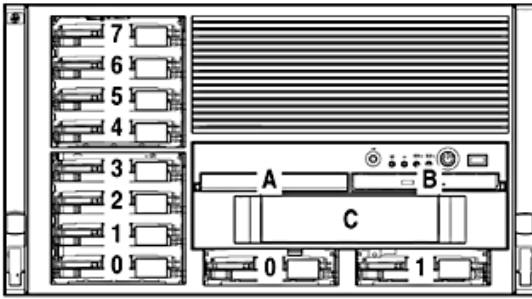
- 8 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 4 GB) Dual Rank 348106-B21
- 4 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 2 GB) Dual Rank 375004-B21
- 4 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 2 GB) Single Rank 343057-B21
- 2 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 1 GB) 343056-B21
- 1 GB PC2-3200R Registered ECC SDRAM Memory Kit (2 x 512 MB) 343055-B21

contents

Overview	Standard Features	Models	Configuration Information - Factory Integrated Models	Options	Memory
Storage	Power Specifications	Technical Specifications			

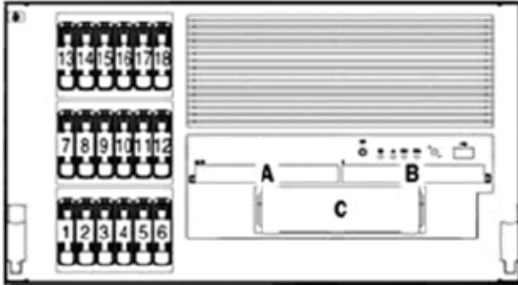


Storage



1-inch Drive Locations

- 0-7, 0-1 Ten Ultra320 SCSI Drive Bays (8 on one channel, 2 on another)
- A 1.44-MB Slimline Diskette Drive (optional)
- B 8x/24x IDE Slimline DVD-ROM
- C One available removable media bay for storage. A half-height tape drive or a USB tape drive may be installed in the removable media bay.



SFF SAS Drive Locations

- 1-18 Eighteen SFF SAS Drive Bays
- A 1.44-MB Slimline Diskette Drive (optional)
- B 8x/24x IDE Slimline DVD-ROM
- C One available removable media bay for storage. A half-height tape drive or a USB tape drive may be installed in the removable media bay.

Drive Support

Hard Drives

Ultra320 Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
300GB U320 10K	Up to 10	0-7 and 0-1	Integrated Dual Channel Ultra320 SCSI Adapter
146GB U320 10K			Smart Array 6402/128 Controller
72GB U320 10K			Smart Array 6404/256 Controller
300GB U320 15K			Smart Array 641 Controller
146GB U320 15K			Smart Array 642 Controller
72GB U320 15K			
36GB U320 15K			

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.

SFF SATA Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K	Up to 18	1-18	HP Smart Array P600/256 BBWC Controller
60GB 1.5G SATA 5.4K			

SFF SAS Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP	Up to 18	1-18	HP Smart Array P600/256 BBWC Controller
72GB 3G SAS 10K SP			
72GB 3G SAS 15K SP			
36GB 3G SAS 10K SP			
36GB 3G SAS 15K SP			

NOTE: SAS Drives supported by the HP ProLiant ML570 G3 SAS Models only or with HP ProLiant ML570 G3 model upgraded SAS Drive Cage Option Kit.

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 30 Family	Up to 28	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 50 Enclosure	Up to 2	External	HP Smart Array P600/256 BBWC Controller
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/MSA1000
Modular Smart Array 1500 cs	Please see the Modular Smart Array 1500 cs QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1500 cs QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/MSA1500cs

Maximum Storage Capacity – (ML570 10 Bay Hot Plug Ultra320 SCSI Drive Cage, 4 channel controller in 4 full-length PCI-X slots & MSA30 enclosures)

Internal	3.00TB ((10 x 300GB) Ultra320 SCSI Drives)
External	67.20TB hot plug SCSI storage (16 x (14 x 300GB Ultra320 SCSI Drives))
Total	70.20TB

Maximum Storage Capacity SAS Models – (ML570 SFF SAS Drive Cage, 8 port SAS controller in 4 slots & MSA50 enclosures)

Internal	2.628TB ((18 x 146GB) SFF SAS Drives)
External	11.680TB hot plug SFF SAS storage (4 x (20 x 146GB SFF SAS Drives))
Total	14.308TB

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/North_America/10233.html

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

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

NOTE: For complete listing of tape drive offerings see

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

	Position Supported	Controller	Controller Part Number
HP StorageWorks Tape Drives, Internal DAT 24 USB DAT 40 USB DAT 72 USB	B or C	USB 2.0 Port	N/A
HP StorageWorks Tape Drives, External DAT 24 USB DAT 40 USB DAT 72 USB	External	USB 2.0 Port	N/A

HP StorageWorks Tape Drives, Internal Ultrium 232 Ultrium 448 Ultrium 920 DAT 40 DAT 72 DLT VS160	B or C	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks Tape Drives, Internal Ultrium 460 Ultrium 960 SDLT 600	B or C	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks Tape Drives, 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 Autoloaders, External DAT 72x10 Autoloader 1/8 G2 Tape Autoloader	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-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 Tape Libraries, External MSL2024 (Ultrium 448, Ultrium 920 and 960-based) MSL4048 (Ultrium 448, Ultrium 920 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based)	External	Please consult the EBS connectivity matrix at <u>http://www.hp.com/go/ebs</u> for detailed connectivity information.	N/A

contents

[Overview](#) [Standard Features](#) [Models](#) [Configuration Information - Factory Integrated Models](#) [Options](#) [Memory](#)



Power Specifications

Part Number

337867-001

Spare Kit

364360-001

Operational Input Voltage Range (Vrms)

90 to 264

Frequency Range (Nominal) (Hz)

47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	910	910	1300	1300	1300	1300
Nominal Input Current (A rms)	11.9	10.2	7.7	7.3	6.9	6.6

Max Rated Input Wattage Rating (Watts)	1163	1148	1566	1566	1548	1548
Max. Rated VA (Volt-Amp)	1186	1172	1598	1598	1579	1579
Efficiency (%)	80	81	83	83	84	84
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.43	0.50	0.90	0.96	1.00	1.04
Maximum Inrush Current (A peak)	100	100	100	100	100	100
Maximum Inrush Current duration (mS)	10	10	10	10	10	10

System Specifications

To determine power specifications for various system configurations, please use the online HP Power Calculator Tool referenced below.

Power cord requirements	Tower model comes with local power cord	Option no. See chart below Spare no. See chart below
	Rack models come with PDU jumper cord and/or local power cord.	Option no. See chart below Spare no. See chart below

NOTES:

* - 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/calc/power%20calculator%20catalog.xls>

- Click on the Power Calculator for the server of interest. Example: ML570 G3

- There are certain Dual-core, lowline, max configurations that are not supported. All highline configurations are supported. Consult the Power Calculator to determine if your lowline configuration is supported.

Standard Tower Model Power Cords	Description	
	Nema 5-15P to IEC320-C19	
Standard Rack Model Power Cords	Description	
	Nema 5-15P to IEC320-C19	
	IEC320-C14 to IEC320-C19	
Optional Power Cords and Jumper Cords	Description	Option Power Cord Part Number
	Nema 5-15P to IEC320-C19	235603-001
	Nema 6-20P to IEC320-C19	235604-001
	IEC320-C19, 20A, 250V, US	340653-001
WW	IEC320-C14 to IEC320-C19 Jumper (10A, IEC, 6ft/2.0m)	313227-B21
WW	IEC320-C14 to IEC320-C19 Jumper (10A, IEC, 12ft/3.6m)	313228-B21
	IEC320-C19 to IEC320-C20 Jumper (16A, IEC, 8ft/2.5m)	295633-B22

contents

[Overview](#) [Standard Features](#) [Models](#) [Configuration Information - Factory Integrated Models](#) [Options](#) [Memory](#)



Technical Specifications

System Unit	Tower Dimensions (HxWxD) (with feet/bezel)	20 x 11.1 x 28.8 in (50.8 x 28.2 x 73.2 cm)	
	Rack Dimensions (HxWxD) (with bezel)	11.1 x 19.0 x 28.0 in (28.2 x 48.3 x 71.1 cm)	
	Maximum Weight	137 lb (62.14 kg)	
	Input Requirements (per power supply)	Range Input Voltage	100 to 127 VAC/200 to 240 VAC
		Rated Input Frequency	47 to 63 Hz
		Input Power	1163W @ 110 VAC; 1598W @ 200 VAC

	Rated Input Current	12A / 8A
BTU Rating	BTU/hr (max)	5457 BTU/hr
SCSI Connectors	Two internal HD68 connectors (supporting Ultra320) One external VHDCI connector (supporting Ultra320) One SCSI knockout	
Power Supply Output Power (per power supply)	Rated Steady-State Power	910W/1300W
	Maximum Peak Power	960W/1420W for 10 sec max
Temperature Range	Operating	50° to 95° F (10° to 35° C)
	Non-operating	-20° to 140° F (-29° to 60° C)
	Shipping	-22° to 122° F (-30° to 50° C)
Relative Humidity (non-condensing)	Operating	10% to 70%
	Non-operating	5% to 95%
Maximum Wet Bulb Temperature	101.7° F (38.7° C)	
Acoustic Noise	Listed are the declared A-WEIGHTED SOUND POWER (LWAd) and average bystander position A-WEIGHTED SOUND PRESSURE LEVEL (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74, 7th edition) and declared in accordance with ISO 9296 (ECMA 109). Idle and Operating (Maximum configuration): LWAd = 7.5 Bels, Average Bystander LpAm = 56 dBA (Note 1)	
	NOTE: The values listed apply to both the tower and 6U rack configurations. Maximum configuration tested included four Xeon MP processors, ten SCSI hard drives, two power supplies, and six inlet fans.	

Slimline CD-RW/DVD-ROM 8X/24X Combo Drive (Multibay)	Disk	Disk formats	DVD (single and double layer), DVD-5, DVD-9, DVD-10, DVD-R, CD-ROM Mode 1 & 2, CD-DA, CD-XA (mode 2, Form 1 & 2), CD-I (Mode 2, Form 1 & 2), CD-I ready, CD-Bridge, CD-R, Photo CD(single and multi-session)
		Capacity	4.7 GB (DVD-5), 8.5 GB (DVD-9), 9.4 GB (DVD-10), 550MB (Mode 1, 12 cm), 640 MB (Mode 2, 12 cm), 180 MB (8 cm)
	Block Size	Mode 0	2352 bytes
		Mode 1	2352, 2340, 2336, 2048 bytes
		Mode 2	2352, 2340, 2336, 2048 bytes
		DVD	2048 bytes
	Access Times (typical)	Random	<110 ms CD <180 ms DVD
		Full-Stroke	<200 ms CD <300 ms DVD
	Diameter	12 cm, 8 cm (4.70 in, 3.15 in)	
	Thickness	1.2 mm (0.05 in)	
	Track pitch	0.74 µm (3.15 x 10 ⁻⁷ in) DVD-ROM 1.6 µm (6.3 x 10 ⁻⁷ in) CD-ROM	
	Data Transfer Rate	Sustained	4463 - 10,800 KB/2 (8x CAV DVD mode), 150 KB/s (sustained 1x CD-ROM), 1552 - 3600 KB/s (24x CAV CD-ROM)
		Burst	16.6 MB/s with DMA support
	Cache Buffer		
	Start-up Time (typical)	< 10 seconds	

Stop Time	< 5 seconds (single); < 30 seconds (multi-session)	
Laser Parameters	Type	Semiconductor Laser GaAs
	Wave Length	700 ± 25 nm
	Divergence angle	53.5° ± 1.5°
Output Power	0.14 mW	
Operating Conditions	Temperature	41° to 118° F (5° to 45° C)
	Humidity	5% to 90%
Dimensions	(HxWxD, maximum)	0.5 x 5.2 x 5.2 in (12.7 x 132.08 x 132.08 mm)
	Weight	0.75 lb (0.34 kg)

**Embedded NC7782
PCI-X Gigabit Server
Adapter**

Network Interface	10Base-T/100Base-TX/1000Base-TX	
Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX	
Data Transfer Method	64-bit bus-master PCI-X	
Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
	10Base-T (Full-Duplex)	20 Mb/s
	100Base-TX (Half-Duplex)	100 Mb/s
	100Base-TX (Full-Duplex)	200 Mb/s
	1000Base-TX (Half and Full-Duplex)	2000 Mb/s
Connector	Two 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)

**Smart Array P600
Controller
(SAS models only)**

Disk Drive and Enclosure Protocol Support	3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial AT Attachment)	
Architecture	1.5 Gb SATA	
SAS Connectors	1 internal SFF8484 & 1 external SFF8470 / internal SFF8484 shared x4 Wide SAS Ports 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)	
Data Transfer Method	64-bit wide, PCIX 133 MHz (1 GB/s maximum bandwidth)	
PCI Bus Speed	PCIX-133 and 3.3 volt PCI compatibility only	
Memory Bus Speed	DDR-266 and 72 bit wide bus	
PCI	64-bit, 133-MHz PCI-X (1 GB/s maximum bandwidth)	
Simultaneous Drive Transfer Ports	PCI-X and 3.3 volt PCI compatibility only	
Port Transfer Rate	2 x4 Wide SAS Ports	
Software upgradeable Firmware	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)	
Cache Memory	Yes	
Logical Drives Supported	256 MB Read/Write (512-MB module upgrade available); ECC protection, battery-backed, and removable	

Maximum Capacity	Up to 32 logical drives Up to 2.2 TB per logical drive
Memory Addressing	2.7 TB (38 x 72 GB) 64-bit, supporting servers memory greater than 4 GB
RAID Support	RAID 6 (Advanced Data Guarding) RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)
Upgradeable Firmware Disk Drive and	4-MB flashable ROM
Enclosure Protocol Support	3 Gb SAS and 1.5 Gb SATA

**Integrated Dual
Channel Ultra320 SCSI
Adapter**

Drives Supported	Up to 15 SCSI devices per channel
Data Transfer Method	64-bit PCI bus-master
SCSI Channel Transfer Rate	320 MB/s per channel
Maximum Transfer Rate per PCI Bus (peak)	400 MB/s
SCSI Termination	Active Termination
SCSI Connectors	1 external (VHDCI), 2 internal (68-pin)

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