Front View:
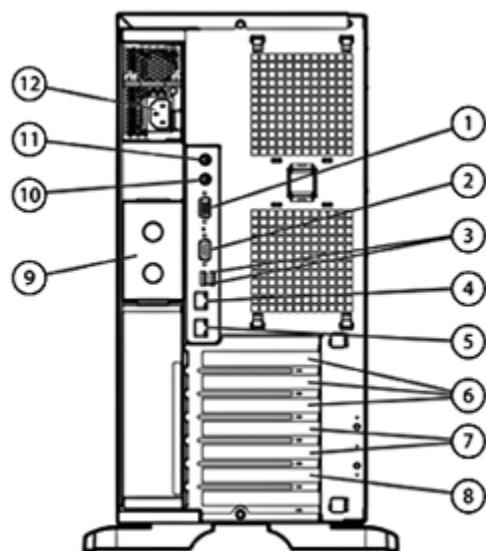
1. Five removable media bays
2. Front display panel; includes power button, UID, two USB 2.0 ports, and system status LED's
3. CD-ROM Drive (Dual-Core models), DVD-ROM Drive (Quad-Core models)
4. Eight SFF (2.5") (shown) or six LFF (3.5") SAS or SATA Hot Plug drive bays
5. Six expansion slots (three PCI Express, three PCI-X)
6. Two system fans standard with support for optional redundant system fans
7. Support for two Intel® Dual-Core or Quad-Core Xeon® 5000 sequence processors
8. Eight PC2-5300 FB-DIMM (DDR2 667) memory sockets
9. Single Hot-Plug power supply standard, optional second redundant supply for availability

Rear View:

1. Monitor port
2. Serial port
3. USB ports
4. Integrated Lights-Out 2 (iLO2) port
5. Network port
6. PCI Express x4
7. PCI-X 64/100
8. PCI-X 64/133
9. Access to add 2nd redundant power supply
10. Mouse port
11. Keyboard port
12. Power

What's New

- Intel's latest Dual-Core Xeon 5200 series processors with 6 MB (1x6MB) L2 cache

At A Glance

Building on a tradition of excellence, the HP ProLiant family introduces the fifth generation HP ProLiant ML350 server. The HP ProLiant ML350 G5 server provides Multi-Core performance, enterprise level management, and highly available redundant options in a modular server form factor. New for this generation is a smaller and quieter chassis, embedded Smart Array E200i Controller and 5 media bays.

- **Processors:**
  - Quad-Core and Dual-Core Intel® Xeon® processors for blazing performance; systems support up to 2 processors
  - 1333/1066/667 MHz front side bus (FSB)
  - Intel® 5000Z chipset
- **Memory:**
  - Eight PC2-5300 Fully Buffered DIMMs (DDR2 667) sockets with online-spare support for cost-effective memory configuration and expansion and 2:1 interleaving
  - Up to 16 GB of memory supported on Dual-Core Models (5000 and 5100 series)
  - Up to 32 GB of memory supported on Quad-Core Models (5300 and 5400 series)
- **Storage Controllers:**
  - Entry Models: HP Smart Array E200i/64MB Controller (integrated SAS/SATA Hot-Plug Controller with RAID 0/1/1+0 support)
    - 128MB BBWC optional upgrade kit for RAID 5 support also available
  - Base Models: HP Smart Array E200i/128 BBWC Controller (RAID 0/1/1+0/5)
- **Internal Drive Support:**
  - Up to eight SFF (2.5") or six LFF (3.5") Hot Plug Serial Attached SCSI (SAS) or Serial-ATA (SATA) hard drives
  - Maximum of 4.50TB of internal storage capacity (using Hot-Plug SATA drives)
- **Network Controller:**
  - Embedded NC373i Multifunction Gigabit Network Adapter with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- **Expansion Slots:**
  - Six total expansion slots
  - One 64-bit/133-MHz PCI-X; two 64-bit/100-MHz PCI-X; three x8 PCI Express (x4 speed)
  - Optional PCI-X Expander provides additional two 64-bit/100-MHz PCI-X slots by converting a single PCI Express slot
  - A single x8 PCI Express slot with x8 bus speed can be achieved by attaching the x4/x8 PCIE Bus Expander option kit. (Please see the chart and notes in the Expansion Slots under Standard Features below for more details)
- **USB Ports:**
  - Six USB 2.0 ports: (2) front; (2) rear; (2) internal
- **Redundancy:**
  - Optional Hot plug redundant power supplies
  - Support for optional redundant system fans
- **Management:**
  - HP Insight Control Environment server management software
  - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - Support for ROM-Based Setup Utility (RBSU) and redundant ROM
  - Systems Insight Manager, SmartStart, and Automatic Server Recovery 2 (ASR-2)
  - HP Power Meter and Power Regulator for ProLiant, delivering integrated power consumption monitoring and server level, policy based power management for industry leading energy efficiency and savings on system power and cooling costs
- **Deployment/Serviceability:**
  - Optional parallel and second serial port available without using a PCI slot
  - Tool-free chassis entry and component access
  - Tool-free motherboard removal
  - Universal rail solution supporting both square and round hole rack environments
- **Warranty:**
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. 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. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.
  - **NOTE:** Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Processor One of the following depending on Model	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)*
	Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB)*
	Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)*
	Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)*
	Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)*
	Quad-Core Intel® Xeon® Processor 5160 (3.00 GHz, 80 Watts, 1333 FSB)*
	Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB)*
	Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB)*
	Dual-Core Intel® Xeon® Processor 5110 (1.60 GHz, 65 Watts, 1066 FSB)*
	Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)
	Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)
	Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB)
	Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)
	Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)
	Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)
	Dual-Core Intel® Xeon® Processor 5130 (2.00 GHz, 65 Watts, 1333 FSB)
	Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)
	Dual-Core Intel® Xeon® Processor 5080 (3.73 GHz, 130 Watts, 1066 FSB)
	Dual-Core Intel® Xeon® Processor 5060 (3.2 GHz, 130 Watts, 1066 FSB)
	Dual-Core Intel® Xeon® Processor 5050 (3.0 GHz, 95 Watts, 667 FSB)
	*Available via Contigure-To-Order only. See Factory Integrated Models section for more information.
Cache Memory One of the following depending on Model	12MB (2 x 6MB) Level 2 cache (5400 series)
	8MB (2 x 4MB) Level 2 cache (5300 series)
	6MB (1 x 6MB) Level 2 cache (5200 series)
	4MB (1 x 4MB) Level 2 cache (5100 series)
	4MB (2 x 2MB) Level 2 cache (5000 series)
Upgradeability	Upgradeable to 2 processors (4 or 8 cores)
	Future upgradeable to Xeon® Series 5400/5300 Quad-Core processors (Please contact your regional sales support to determine quad core upgradeability. Some of the earlier shipping models may not support this upgrade). 5100 Dual-Core models are not upgradeable to the 5200 Dual-Core processors.
Chipset	Intel® 5000Z Chipset **NOTE:** For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Memory Protection	Online spare
	Advanced ECC

Memory One of the following depending on model	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667)
	Standard (Entry Models)	1 GB (2 x 512 MB) on Quad-Core 5400 series
		1 GB (2 x 512 MB) on Quad-Core 5300 series
		512 MB (1 x 512 MB) on Dual-Core Models
	Standard (Base Models)	2 GB (2 x 1 GB) on Quad-Core 5400 series
		1 GB (2 x 512 MB) on Quad-Core 5300 series
		1 GB (2 x 512 MB) on Dual-Core Models
	Maximum (Dual-Core Models)	16 GB (8 x 2 GB)
	Maximum (Quad-Core Models)	32 GB (8 x 4 GB)

Network Controller	Embedded NC373i Multifunction Gigabit Network Adapter with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit

Expansion Slots	Slot Number	Bus Speed/Connector	Maximum Card Length	Bus Number*	Device Number**	Hot Plug	PCI Voltage
	6****	PCI Express x4/x8	12.28"	15	0	no	N/A
	5	PCI Express x4/x8	12.28"	6	0	no	N/A
	4***	PCI Express x4/x8	12.28"	9	0	no	N/A
	3	64-bit/100MHz PCI-X	12.28"	12	2	no	3.3 Volt
	2	64-bit/100MHz PCI-X	12.28"	12	1	no	3.3 Volt
	1	64-bit/133MHz PCI-X	12.28"	20	1	no	3.3 Volt

*NOTE: Bus number listed reflects the default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

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

***NOTE: A single PCI Express slot with x8 Bus Speed can be achieved by attaching the x4/x8 PCIE Bus Expander option kit (403724-B21) to slot number 4. The installation of this kit uses both slots 4 and 5 to create the single x8 speed PCI Express slot.

****NOTE: The optional PCI-X expander can utilize slot 6 to provide an additional two (2) 64-Bit PCI-X full length, full height slots. Please see "Server Specific Options" below for more information. (435670-B21)

NOTE: Slots 1-3 can accept 3.3V or universal keyed PCI cards.

Storage Controller	Entry Models	HP Smart Array E200i/64MB Controller
	Base Models	HP Smart Array E200i/128 BBWC Controller

NOTE: Supports RAID 0/1/1+0 with 64MB of Cache, upgradeable to 128MB with BBWC for RAID 5 support.

Storage	Diskette Drives	None included standard
	Optical Drive One of the following depending on model	Quad-Core 5400 series: 16x SATA DVD-ROM drive
		Quad-Core 5300 series: 16x PATA DVD-ROM drive
		Dual-Core: 48x IDE CD-ROM drive
		NOTE: Quad-Core 5400 series BTO Models are configured with SATA optical drive.
	Hard Drives	None included standard

Maximum Internal Storage	Hot Plug LFF (3.5") Serial ATA (SATA)	4.50TB	6 x 750GB
One of the following depending on model	Hot Plug LFF (3.5") Serial Attached SCSI (SAS)	1.80TB	6 x 300GB
	Hot Plug SFF (2.5") SATA	960GB	8 x 120GB
	Hot Plug SFF (2.5") SAS	1.168TB	8 x 146GB

Interfaces	Parallel	Optional parallel port available
	Serial	1 (optional 2nd serial port available)
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	Network RJ-45	2 (1 dedicated for iLO 2)
	USB 2.0 Ports	6 (2 front, 2 rear, 2 internal)

NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

Graphics

Integrated ATI ES1000, 32MB video standard

- 16 bit color: maximum resolution of 1600 x 1200
- 32 bit color: maximum resolution of 1280 x 1024

NOTE: Maximum resolution available via iLO 2 remote console is 1280 x 1024.

Form Factor

Tower or Rack (5U)

NOTE: Rack models (and rack conversion kit) support:

- Square or round hole racks 24"- 36" deep, including HP Rack System /E and HP Systems
- Telco racks with 3rd part option kit from Rack Solutions http://www.racksolutions.com/hp

HP Insight Control Environment

HP Insight Control Environment delivers foundation management, including remote monitoring, hardware resource deployment, health monitoring, software version control, performance monitoring, vulnerability scanning and patch management, and power management.

HP Insight Control Environment installs and licenses the following components by default using a wizard-based integrated installer:

- HP Systems Insight Manager
- HP iLO Advanced Pack
- HP Rapid Deployment Pack
- HP Insight Power Manager
- HP Performance Management Pack
- HP Vulnerability and Patch Management Pack

Additional ProLiant Essentials software and management tools included on the Insight Control Management kit can be installed manually:

- HP Server Migration Pack - Universal Edition
- HP Open Service Event Manager
- HP Instant Support Enterprise Edition

NOTE: Server Migration Pack - Universal Edition can be installed from the SMP Universal CD included in the Insight Control Management media kit.
NOTE: For additional product and licensing information about HP Insight Control Environment, visit: http://www.hp.com/go/ice.

HP Insight Control management suites and most HP ProLiant Essentials include a one year of 24

x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.

Server Management Stand Alone Software Product – ProLiant Essentials	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
	ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install HP ProLiant Support Pack drivers using images and scripted profiles. For more information, visit: http://www.hp.com/servers/rdp.
	ProLiant Essentials Server Migration Pack - Universal Edition	Upgrading, replacing, or virtualizing your existing server? Effortlessly transition to new virtual or physical HP ProLiant servers or BladeSystem with automated, accurate and affordable migration of OS, application and data. SMP Universal automates the manual processes required for migrating servers between physical or virtual platforms, whether migrating to VMware or Microsoft virtual machines. SMP Universal allows all of the following migrations: ● physical to ProLiant ● physical to virtual ● virtual to virtual ● virtual to ProLiant **NOTE:** For more information, visit: http://www.hp.com/go/migrate.
	ProLiant Essentials Performance Management Pack	Performance Management Pack (offered exclusively through the Insight Control suites) – 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
	Integrated Lights-Out Advanced Pack	Upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, and enterprise security (directory services and two-factor authentication).
	iLO Power Management Pack	Energy-efficient management software that delivers centralized control, reliable security, and energy savings for your BladeSystem infrastructure. iPMP combines the total control of iLO 2 Advanced in the area of remote management with the energy monitoring and control of the Insight Power Manager to deliver a robust solution capable of full remote control and power management of ProLiant servers through a unified interface within HP Systems Insight Manager.
	ProLiant Essentials Accelerated iSCSI Pack	Enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.

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.

Core Infrastructure Management	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 7.60.
	Insight Management Agents	The 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 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.
	ProLiant Support Packs and ROMPaq, software	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from software and drivers download pages website at: http://www.hp.com/go/support.

Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.2 Compliant PXE Support WOL Support PCI-X 1.0a Compliant Novell Certified Microsoft® Logo certifications USB 2.0

Availability	Optional Hot-Plug, Redundant Power supply Online-Spare Memory Optional Dual Redundant System Fans

Remote Management   Integrated Lights-Out (iLO 2) Management 2

- Virtual Text Remote Console (pre-OS only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console (ActiveX Control client)
- Dedicated & full function shared network connectivity with VLAN
- Embedded system health
- Present power consumption
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- Advanced Encryption Standard (AES)/Triple Data Encryption Standard (3DES)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

System Management	HP Systems Insight Manager SmartStart Redundant ROM System Firmware Update ROMPaq ProLiant RBSU (ROM-Based Setup Utility) Automatic Server Recovery-2 (ASR-2) Dynamic Sector Repairing (with Smart Array Controller) Drive Parameter Tracking (with Smart Array Controller) Pre-Failure Warranty (covers processors, memory, and SAS hard drives)
Security	Power-on password Setup password Diskette boot control Parallel and serial interface control Disk configuration lock Power switch security
Server Power Cords	ProLiant ML servers in a rack-mount configuration no longer ship standard with NEMA power cords that allow connection to 110V US wall outlets in a home or office. These servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant ML rack-mount server using a 110V receptacle (NEMA-15), the NEMA power cord must be ordered separately. The 12' cord (AF556A) or 6' cord (187335-001) can be purchased online at HP.COM. In a tower configuration, the servers ship standard with a 6' country specific NEMA power cord. If customers require a local power cord, they can check the power cord matrix for the appropriate country specific sku. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html
Power Supply	800 Watt-CE Mark Compliant Hot Plug Power Supply (1000 Watt high line) Optional second Power Supply provides redundant capability **NOTE:** Please see the "Power Specifications" section later in this document for low line and high line requirements.
System Fans	2 fans ship standard, dual redundant fans are optional, 4 fans total supported (does not include power supply or processor heat sink fans)
Required Cabling	For required cabling information, refer to the HP ProLiant ML350 G5 cabling matrix at: http://www.hp.com/servers/proliantML350. **NOTE:** Please see the "Storage" section of this QuickSpecs for important information on controllers and cables required to support SAS or SATA hard drives as well as storage management software available for SATA hard drives.

OS Support	Microsoft Windows Server 2003/R2 (Standard, Web, and Enterprise Editions) Microsoft Windows Small Business Server 2003 Microsoft Windows Small Business Server 2003, R2 Microsoft Windows 2000 Server and Advanced Server Microsoft Windows Server 2008 Novell NetWare 6.5/Open Enterprise Server Red Hat Enterprise Linux SUSE Linux Enterprise Server SCO OpenServer 5.0.7/6.0 SCO UnixWare 7.1.3/7.1.4
	NOTE: For a complete and up-to-date listing of supported operating systems please visit our OS Support Matrix at: http://www.hp.com/go/supportos. **NOTE:** For more Linux OS support & certification information, please visit the ProLiant & BladeSystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html **NOTE:** Optional hardware may be required to support some operating systems. **NOTE:** For 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 an up-to-date listing of the latest software and drivers available for your server, please select your server: http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=135&prodTypeId=15351&prodCatId=241435. **NOTE:** For more information on VMware support, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html.
Installation of Server into Telco Racks	Support for all 2-post Telco racks requires the use of the HP ProLiant ML350 G5 rack kit and an additional option kit from Rack Solutions. http://www.racksolutions.com/hp.
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.
HP 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.

| **Service and Support** | HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs. |

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, and 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.

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 your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service - simplify ProLiant solution implementation, maintenance, and management.

- **Support** - 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- **Deployment Service** - Installation and Start up only

Enhanced Service - optimize service level to increase IT performance and availability.

- **Support** - 3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on 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, excluding 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

NOTE: Please note that SFF tower or rack models can only be configured with SFF 2.5" SAS or SATA hard drives and LFF tower or rack models can be only configured with LFF 3.5" SAS or SATA hard drives.

HP ML350 G5 Entry Models **Tower** **Quad-Core Models** **HP ML350T05 E5420 LFF** 458239-xx1 **HP ML350T05 E5410 LFF** 458244-xx1 **HP ML350T05 E5310 LFF** 440188-xx1 **Dual-Core Models** **HP ML350T05 5130 LFF** 416893-xx1 **HP ML350T05 5120 LFF** 416892-xx1 **Rack** **Quad-Core Models HP ML350R05 E5420 LFF** 458240-xx1 **Dual-Core Models HP ML350R05 5130 LFF** 416894-xx1	**Processor(s)** One of the following depending on Model	(1) Quad-Core Intel® Xeon® E5420 Processor (2.50 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® E5410 Processor (2.33 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® E5310 Processor (1.6 GHz, 80 Watts, 1066 FSB) (1) Dual-Core Intel® Xeon® 5130 Processor (2.0GHz, 65 Watts, 1333 FSB) (1) Dual-Core Intel® Xeon® 5120 Processor (1.86 GHz, 65 Watts, 1066 FSB)
	Cache Memory	12MB (2x6MB) Level 2 cache - 5400 Series 8MB (2 x 4MB) Level 2 cache - 5300 Series 4MB (1 x 4MB) Level 2 cache - 5100 Series
	Memory One of the following depending on Model	Quad-Core 5400 Series: 1GB (2 x 512MB) Quad-Core 5300 Series: 1GB (2x512MB) Dual-Core: 512 MB (1 x 512 MB)
	Network Controller	Embedded NC373i Multifunction Gigabit Server Adapter
	Storage Controller	Smart Array E200i/64 Controller (RAID 0/1/1+0)
	Hard Drive	None Ship Standard; (0/6 LFF)
	Internal Storage	1.80TB LFF SAS; 4.50TB LFF SATA
	Optical Drive One of the following depending on Mode	Quad-Core: 16x DVD-ROM standard Dual-Core: 48x CD-ROM standard
	PCI-Express Slots	Six expansion slots (three PCI Express, three PCI-X)
	Power Supplies	800-Watt CE-mark compliant Hot-Plug power supply Optional second power supply provides redundant operation
	Fans	2 fans ship standard, 4 fans total supported (does not include power supply or processor heatsink fans)
	Form Factor One of the following depending on Model	Tower Rack (5U), (8.75 in/22.25 cm)

HP ML350 G5 Base Models **Tower** **Quad-Core Models** **HP ML350T05 E5430 SFF** 458238-xx1 **HP ML350T05 E5420 SFF** 458242-xx1 **HP ML350T05 E5410 SFF** 458246-xx1 **HP ML350T05 E5320 SFF** 438730-xx1 **HP ML350T05 E5310 SFF** 434717-xx1 **Dual-Core Models** **HP ML350T05 5140 SFF** 417605-xx1	**Processor(s)** One of the following depending on Model	(1) Quad-Core Intel® Xeon® E5430 Processor (2.66 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® E5420 Processor (2.50 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® E5410 Processor (2.33 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® E5320 Processor (1.86 GHz, 80 Watts, 1066 FSB) (1) Quad-Core Intel® Xeon® E5310 Processor (1.6 GHz, 80 Watts, 1066 FSB) (1) Dual-Core Intel® Xeon® 5140 Processor (2.33 GHz, 65 Watts, 1333 FSB) (1) Dual-Core Intel® Xeon® 5130 Processor (2.0 GHz, 65 Watts, 1333 FSB)
	Cache Memory One of the following depending on Model	12MB (2 x 6MB) Level 2 cache - 5400 Series 8MB (2 x 4MB) Level 2 cache - 5300 Series 4MB (1 x 4MB) Level 2 cache - 5100 Series
	Memory	Quad-Core 5400 Series: 2 GB (2 x 1GB) standard Quad-Core 5300 Series: 1 GB (2 x 512MB) standard Dual-Core: 1 GB (2 x 512MB) standard
	Network Controller	Embedded NC373i Multifunction Gigabit Server Adapter

HP ML350T05 5130 SFF 417536-xx1	**Storage Controller**	Smart Array E200i/128 BBWC Controller (RAID 0/1/1+0/5)
	Hard Drive	None Ship Standard; (0/8 SFF)
Rack **Quad-Core Models** **HP ML350R05 E5430 SFF** 458237-xx1 **HP ML350R05 E5420 SFF** 458243-xx1 **HP ML350R05 E5320 SFF** 440189-xx1	**Internal Storage**	1.168TB SFF SAS; 480GB SFF SATA
	Optical Drive One of the following depending on Mode	Quad-Core: 16x DVD-ROM standard Dual-Core: 48x CD-ROM standard
	PCI-Express Slots	Six expansion slots (three PCI Express, three PCI-X)
	Power Supplies	800-Watt CE-mark compliant Hot-Plug power supply Optional second power supply provides redundant operation
Dual-Core Models **HP ML350R05 5140 SFF** 417538-xx1 **HP ML350R05 5130 SFF** 417537-xx1	**Fans**	2 fans ship standard, 4 fans total supported (does not include power supply or processor heatsink fans)
	Form Factor One of the following depending on Model	Tower Rack (5U), (8.75 in/22.25 cm)

Country Code Key		Tower Code Key	Rack Code Key
	XX=00	U.S. English	U.S. English
	XX=01	Australia	N/A
	XX=03	UK	N/A
	XX=04	Germany	N/A
	XX=05	France	N/A
	XX=20	Brazil	N/A
	XX=29	Japan	Japan
	XX=37	APD	APD
	XX=42	Europe	Europe
	XX=AA	PRC	PRC

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 information on CTO product offerings and requirements.

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.

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

Models **ML350 G5 Tower Models**

LFF - 3.5" Drives

HP ProLiant ML350G5 LFF SAS/SATA Tower CTO Chassis 412645-B21

Includes:

Embedded NC373i Multifunction Gigabit Server Adapter

Integrated Smart Array E200i Controller

Six Hot-Plug (LFF) SAS/SATA Drive Bays

Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, and three x4 PCI Express (with x8 connectors)

Six USB ports

800W Hot-Plug Power Supply

Tower Form Factor

Keyboard

2-button Mouse

SFF - 2.5" Drives

HP ProLiant ML350G5 SFF SAS/SATA Tower CTO Chassis 395570-B21

Includes:

Embedded NC373i Multifunction Gigabit Server Adapter

Integrated Smart Array E200i Controller

Eight Hot-Plug (SFF) SAS/SATA Drive Bays

Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, and three x4 PCI Express (with x8 connectors)

Six USB ports

800W Hot-Plug Power Supply

Tower Form Factor

Keyboard

2-button Mouse

ML350 G5 Rack Models

LFF - 3.5" Drives

HP ProLiant ML350G5 LFF SAS/SATA Rack CTO Chassis 412644-B21

Includes:

Embedded NC373i Multifunction Gigabit Server Adapter

Integrated Smart Array E200i Controller

Six Hot-Plug (LFF) SAS/SATA Drive Bays

Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, and three x4 PCI Express (with x8 connectors)

Six USB ports

800W Hot-Plug Power Supply

Rack (5U) Form Factor

SFF - 2.5" Drives

HP ProLiant ML350G5 SFF SAS/SATA Rack CTO Chassis 395569-B21

Includes:

Embedded NC373i Multifunction Gigabit Server Adapter

Integrated Smart Array E200i Controller

Eight Hot-Plug (SFF) SAS/SATA Drive Bays

Six expansion slots: one 64-bit/133-MHz PCI-X, two 64-bit/100-MHz PCI-X, and three x4 PCI Express (with x8 connectors)

Six USB ports

800W Hot-Plug Power Supply

Rack (5U) Form Factor

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

Processors		
	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	458257-L21
	Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	458259-L21
	Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	458265-L21
	Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	458267-L21
	Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	458269-L21
	Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB) ML350G5 FIO Kit	436015-L21
	Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	436013-L21
	Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	437444-L21
	Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB) ML350G5 FIO Kit	435512-L21
	Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB) ML350G5 FIO Kit	435513-L21
	Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB) ML350G5 FIO Kit	458725- L21
	Dual-Core Intel® Xeon® Processor 5160 (3.00 GHz, 80 Watts, 1333 FSB) ML350G5 FIO Kit	416891-L21
	Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB) ML350G5 FIO Kit	416890-L21
	Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB) ML350G5 FIO Kit	416889-L21
	Dual-Core Intel® Xeon® Processor 5130 (2.00 GHz, 65 Watts, 1333 FSB) ML350G5 FIO Kit	416888-L21
	Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB) ML350G5 FIO Kit	416887-L21
	Dual-Core Intel® Xeon® Processor 5110 (1.60 GHz, 65 Watts, 1066 FSB) ML350G5 FIO Kit	416886-L21
Base Memory	512 MB FBD PC2-5300 1 x 512 MB Kit	413507-B21
	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	2 GB FBD PC2-5300 2 x 1 GB LP Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	4 GB FBD PC2-5300 2 x 2 GB LP Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
	8 GB FBD PC2-5300 2 x 4 GB LP Kit	466440-B21

NOTE: Memory Option Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit:
http://h18004.www1.hp.com/products/servers/platforms/energyefficient/

Smart Array E200i Controller Cache	HP SA E200 64MB Cache FIO Kit **NOTE:** Select this option for RAID 0/1/1+0	405102-B21
	128-MB Battery-Backed Write Cache (BBWC) **NOTE:** Select this option for RAID 0/1/1+0/5.	351580-B21
Optical Drive	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP 48X CD-ROM ALL (no screws)	384758-B21
	HP DVD±R/RW 16X Half Height	383974-B21
	16X DVD-ROM Drive Option Kit (Carbon)	217053-B21
	HP Half-Height SATA DVD-ROM Optical Drive	447326-B21
	HP Half-Height SATA DVD RW Optical Drive	447328-B21

Step 3: Choose Additional Factory Integratable Options

Controllers	HP Smart Array P400/256MB Controller **NOTE:** SAS Controller supporting RAID 0/1/1+0/5.	405132-B21
	HP Smart Array P600/256 BBWC Controller **NOTE:** SAS Controller supporting RAID 0/1/1+0/5/6.	337972-B21
	Smart Array 642 Controller **NOTE:** U320 Controller.	291967-B21
	Smart Array 6402/128 Controller **NOTE:** U320 Controller.	273915-B21
	Smart Array 6404/256 Controller **NOTE:** U320 Controller.	273914-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	HP Smart Array 6404/512 FIO CNTRLR	452240-B21

Step 4: Choose Additional Options for Factory Integration
NOTE: For additional options, please refer to the "Options" section below.

HP ProLiant ML350 G5 Unique Options	HP Redundant Fan ML350 G5 Kit	409579-B21
	HP PCI-X Expander Kit (2 x 64-bit 100MHz PCI-X slots) **NOTE:** The HP PCI-X Expander kit converts a single PCI Express slot (slot 6) into two full height, full length 64-bit 100MHz PCI-X slots. **NOTE:** The HP PCI-X Expander kit can support a maximum of one (1) HP Smart array, HBA, or SCSI PCI-X adapter. Prioritize internal slots for use with PCI-X storage controllers. Please refer to the ML350G5 user guide for additional details.	435670-B21
	HP Tower to Rack Conversion Kit - ML350 G5 Kit **NOTE:** See "Redundant Options" section below for Hot Plug Redundant Power supplies.	412640-B21

HP Insight Control Management Suites	**NOTE:** Electronic licensing options are available for Insight Control suites software products. Please see the appropriate Insight Control QuickSpecs for additional information.	
	HP Insight Control Environment	
	HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates	452148-B21
	HP Insight Control Management Software Media Kit **NOTE:** Insight Control Management DVD media without licenses. Contains Insight Manager and Essentials software products and components licensed by Insight Control Management suites. Uses an integrated installer to perform quick and accurate software installation and updates. **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	436222-B21
	Integrated Lights-Out Power Management Pack	
	HP iLO Power Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates **NOTE:** This option kit includes 1 license for iLO Advanced and Insight Power Manager. **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12632_div/12632_div.html	452145-B21

Server Management Stand Alone Software Product - ProLiant Essentials	**NOTE:** Electronic licensing options are available for select ProLiant Essentials software products. Please see the appropriate ProLiant Essentials QuickSpecs for additional information.	
	Deploy	
	ProLiant Essentials Rapid Deployment Pack	
	ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates **NOTE:** This license allows 1 server to be deployed and managed via RDP. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.html	452151-B21
	HP Server Migration Pack - Universal Edition	
	HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to ProLiant Single Migration License, including 1 year of 24x7 Technical Support and Updates **NOTE:** This license allows 1 physical to ProLiant or virtual to ProLiant migration. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	460750-B21
	HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to Virtual Single Migration License, including 1 year of 24x7 Technical Support and	460753-B21

Updates

HP Server Migration Pack - Universal Edition, No Media, 1-Year Unlimited Migration License, including 1 year of 24x7 Technical Support	460756-B21

NOTE: This license allows unlimited migrations (physical to ProLiant, physical to virtual, virtual to virtual, and virtual to ProLiant) for one year. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12855_div/12855_div.html

Control

Integrated Lights-Out Select Pack

ProLiant Essentials Integrated Lights-Out Select Pack, No Media, 1-Server License	452158-B21

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html

Integrated Lights-Out Advanced Pack

Integrated Lights-Out Advanced Pack, No Media ,1 Server License	452141-B21

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/10861_div/10861_div.html

Optimize

Accelerated iSCSI Pack

ProLiant Essentials Accelerated iSCSI Pack, No Media, Single License	452679-B21

NOTE: For use with a single NIC port. Contains one license with a unique license activation key and documentation.

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.html

HP Insight Power Manager (IPM)

HP Insight Power Manager, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates	452677-B21

NOTE: Customers purchasing this upgrade must already have an iLO Advanced or Select license on each managed server. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12623_div/12623_div.html

RDMA Pack

RDMA Pack for Embedded Multifunction Gigabit Server Adapters, No Media, 1-Server License	452681-B21

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_div/12573_div.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 QuickSpecs for more information.

Processors	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)	458257-B21
	Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)	458259-B21
	Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)	458265-B21
	Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB)	458267-B21
	Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB)	458269-B21
	Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)	436015-B21
	Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)	436013-B21
	Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)	437444-B21
	Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)	435512-B21
	Quad-Core Intel® Xeon® Processor E5310 (1.6 GHz, 80 Watts, 1066 FSB)	435513-B21
	Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB)	458725-B21
	Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB)	416891-B21
	Dual-Core Intel® Xeon® Processor 5150 (2.67 GHz, 65 Watts, 1333 FSB)	416890-B21
	Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)	416889-B21
	Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz,65 Watts, 1333 FSB)	416888-B21
	Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)	416887-B21
	Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB)	416886-B21
	Dual-Core Intel® Xeon® Processor 5080 (3.73 GHz, 130 Watts, 1066 FSB)	409397-B21
	Dual-Core Intel® Xeon® Processor 5060 (3.2 GHz, 130 Watts, 1066 FSB)	409401-B21
	Dual-Core Intel® Xeon® Processor 5050 (3.0 GHz, 95 Watts, 667 FSB)	409400-B21

Memory (DIMMs)	512 MB FBD PC2-5300 1 x 512 MB Kit	413507-B21
	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	2 GB FBD PC2-5300 2 x 1 GB LP Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	4 GB FBD PC2-5300 2 x 2 GB LP Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
	8 GB FBD PC2-5300 2 x 4 GB LP Kit	466440-B21

NOTE: Memory Option Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/

Optical Drives	Floppy Drive ML350/370 G5 Kit	409582-B21
	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP DVD±R/RW 16X Half Height	383974-B21
	16X DVD-ROM Drive Option Kit (Carbon)	217053-B21
	HP Half-Height SATA DVD-ROM Optical Drive	447326-B21
	HP Half-Height SATA DVD RW Optical Drive	447328-B21

NOTE: Please note that some of the earlier BTO models may not support adding SATA Optical Drives. To ensure compatibility of the SATA Optical Drives, please add additional optical drives only on models with Quad-Core 5400 Series processors.

| **Serial Port Kit** | Parallel/Serial Port ML370/350 G5 Kit | 401222-B21 |

Hard Drives	**Hot Plug SFF SAS 2.5" Drives**	
	NOTE: Please note that SFF 2.5" (small form factor) drives can only be installed on tower or rack models with SFF chassis (models).	
	HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
	HP 36GB 3G SAS 15K SFF SP HDD	431933-B21
	HP 36GB 3G SAS 15K SFF DP HDD	418369-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 146GB 3G SAS 10K SFF DP HDD	418367-B21

Hot Plug SAS 3.5" Drives

NOTE: Please note that LFF 3.5" (large form factor) drives can only be installed on tower or rack models with LFF chassis (models).

	HP 300GB 3G SAS 15K 3.5" SP HDD	431944-B21
	HP 300GB 3G SAS 15K 3.5" DP HDD	416127-B21
	HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21
	HP 146GB 3G SAS 15K 3.5" DP HDD	384854-B21
	HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21
	HP 72GB 3G SAS 15K 3.5" DP HDD	384852-B21
	HP 36GB 3G SAS 15K 3.5" SP HDD	375868-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_div/12244_div.html (Worldwide)

SFF SATA Hot Plug Drives

NOTE: Please note that SFF 2.5" (small form factor) drives can only be installed on tower or rack models with SFF chassis (models).

	HP 120GB 1.5G SATA 5.4K SFF HDD	431786-B21
	HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21

NOTE: SATA hard 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_div/11940_div.html (Worldwide)

3.5" SATA Hot Plug Drives

NOTE: Please note that LFF 3.5" (large form factor) drives can only be installed on tower or rack models with LFF chassis (models).

	HP 750GB 1.5G SATA 7.2K 3.5" HDD	432341-B21
	HP 500GB 1.5G SATA 7.2K 3.5" HDD	395473-B21
	HP 250GB 1.5G SATA 7.2K 3.5" HDD	349239-B21
	HP 160GB 1.5G SATA 7.2K 3.5" HDD	349238-B21
	HP 80GB 1.5G SATA 7.2K 3.5" HDD	349237-B21

NOTE: SATA hard drives have a 1-year warranty. Please see the SATA Hard Drive QuickSpecs for additional technical information on the hard drives Support details, please see the following:
http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html (Worldwide)

PCI Option	HP x4-x8 PCI-E Bus Expander Option Kit	403724-B21
	NOTE: The HP x4/x8 PCI Express Bus Expander kit converts 2 x4 PCI Express slots into a single x8 PCI Express slot for high performance x8 PCI Express cards	

Storage Controllers	**SAS Controllers**	

Smart Array E200 Controller

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

NOTE: Supports the Smart Array E200 Controller and Smart Array 642 Controller.

Smart Array E500 Controller

HP Smart Array E500/256MB Controller	435129-B21

Smart Array P400 Controller

HP Smart Array P400/512MB BBWC Controller	411064-B21

NOTE: Supports RAID 0/1/1+0/5/6.

HP Smart Array P400/256MB Controller	405132-B21

NOTE: Supports RAID 0/1/1+0/5.

512MB Battery-backed cache (BBWC) upgrade	405148-B21

NOTE: for Smart Array P400 Controller.

Battery-backed write cache (BBWC) upgrade	383280-B21

NOTE: for Smart Array P400 Controller.

Smart Array P400 Battery Attach Kit	417836-B21

NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.

Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller	337972-B21

NOTE: Supports external drive attach.

512MB Battery-backed write cache (BBWC) upgrade	372538-B21

NOTE: For Smart Array P600 Controller.

Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller	381513-B21

NOTE: Supports external drive attach.

NOTE: Please see the following QuickSpecs additional information:
http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.html (Smart Array E200 Controller)
http://h18000.www1.hp.com/products/quickspecs/12700_div/12700_div.html (Smart Array E500 Controller)
http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.html (Smart Array P400 Controller)
http://h18000.www1.hp.com/products/quickspecs/12247_div/12247_div.html (Smart Array P600 Controller)
http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 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_div/12617_div.html (SC44Ge HBA)
http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (8 Internal Port SAS HBA)

SCSI Controllers for External Drive/Storage Support

Smart Array 6402/128 Controller	273915-B21

NOTE: Ultra320 SCSI.

Smart Array 6404/256 Controller	273914-B21

NOTE: Ultra320 SCSI.

Smart Array 642 Controller	291967-B21

NOTE: Ultra320 SCSI.

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

NOTE: Supports the Smart Array E200 Controller and Smart Array 642 Controller.

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

SCSI HBA

	HP SC11Xe Host Bus Adapter	412911-B21
	NOTE: Supports external drive attach.	
	NOTE: Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.html (Single Channel Ultra320 SCSI HBA) http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.html (Smart Array 6400 Series) http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.html (Smart Array 642) http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	

Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	NOTE: Does not support Windows 2000.	
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	NOTE: Does not support Windows 2000.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	
	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	Agere 06 PCI Hi-Speed 56K SftMd	440519-B21

Redundant Options	Hot Plug Redundant Power Supply 350/370/380 G5 AU Kit	399771-011
	Hot Plug Redundant Power Supply 350/370/380 G5 EU Kit	399771-021
	Hot Plug Redundant Power Supply 350/370/380 G5 JP Kit	399771-291
	Hot Plug Redundant Power Supply 350/370/380 G5 Worldwide Kit	399771-B21
	Hot Plug Redundant Power Supply 350/370/380 G5 UK Kit	399771-031
	Hot Plug Redundant Power Supply 350/370/380 G5 US Kit	399771-001
	Redundant Fan ML350 G5 Kit	409579-B21

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

USB Tape Drives

HP StorageWorks DAT 160 USB Internal Tape Drive	Q1580A

SAS Tape Drives

NOTE: For the ML350 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape	DW085A
HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A

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

SCSI Tape Drives

NOTE: For the ML350 G5, HP recommends purchasing the HP 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA (374654-B21) for a dedicated SCSI HBA for tape.

HP StorageWorks LTO-1 Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
HP StorageWorks LTO-2 Ultrium 448 SCSI Internal Tape Drive (Carbonite)	DW016A
HP StorageWorks LTO-3 Ultrium 920 SCSI Internal Tape Drive	EH841A

NOTE: Please see the HP StorageWorks LTO Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:
http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html (Worldwide)
http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.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

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit	A7445B

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

HP StorageWorks 1U USB Rack-Mount Kit	A8007A

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

HP StorageWorks 1U SAS Rack-Mount Kit	AE459A

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

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:
http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html (Worldwide)

HP D2D Backup System	HP StorageWorks D2D110 Backup System **NOTE:** 1TB of Disk Storage	EH880A
	HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit **NOTE:** 1TB of Disk Storage	EH923A
	HP StorageWorks D2D120 Backup System **NOTE:** 2TB of Disk Storage	EH884A
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit **NOTE:** 2TB of Disk Storage	EH924A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html (Worldwide)	

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

Tape Libraries	**HP StorageWorks MSL2024 Tape Library**	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
	HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library	AG324B
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Drive Library	AH171A
	HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library	AG320A
	HP StorageWorks MSL8096 Tape Library	
	HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ039A
	HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 4GB FC Library	AJ040A
	HP StorageWorks MSL8096 2 LTO-3 Ultrium 920 SAS Drive Library	AH561A
	HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 4GB FC Library	AH218A
	HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 Drive Library	AH219A
	HP StorageWorks MSL6000 Tape Library	
	LTO-4 Ultrium 1840 technology	
	HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ029A
	HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 4GB FC Library	AJ030A

	HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ031A
	HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 4GB FC Library	AJ032A
	LTO-3 Ultrium 960 technology	
	HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 Dr LVDS Library	AD606B
	HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 Dr FC Library	AD608B
	HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 Dr LVDS Library	AD607B
	HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 Dr FC Library	AD609B
	NOTE: Please reference the MSL2024, MSL4048, MSL8096 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 StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20 **NOTE:** Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. **NOTE:** The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.	335921-B21
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB **NOTE:** Rack-mountable 14 drive enclosure with single bus, redundant power supplies	302969-B21
	HP StorageWorks Modular Smart Array 30 DB **NOTE:** Rack-mountable 14 drive enclosure with dual bus, redundant power supplies **NOTE:** The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.	302970-B21
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure **NOTE:** Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)	364430-B21
HP StorageWorks Modular Smart Array 60	HP StorageWorks 60 Modular Smart Array Enclosure **NOTE:** Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)	418408-B21
HP StorageWorks Modular Smart Array 70	HP StorageWorks 70 Modular Smart Array Enclosure **NOTE:** Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	418800-B21
HP StorageWorks Modular Smart Array 500	HP StorageWorks Modular Smart Array 500 Generation 2 **NOTE:** Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.html (Worldwide)	335880-B21

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://hp.com/go/msa1000	
HP StorageWorks Modular Smart Array 1500 cs	Modular Smart Array 1500 Controller Shelf	AA986A
	NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs	
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_div/11935_div.html (Worldwide)	
	HP Serviceguard for Linux ProLiant Cluster, A.11.18 (2 license version - Red Hat EL 4&5, SUSE SLES10)	305199-B27
	HP Serviceguard for Linux, A.11.18 (single license version - Red Hat EL 4&5, SUSE SLES10)	307754-B27
	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 HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide)	
	NOTE: For configuration/certification options for HP Serviceguard for Linux please go to: http://www.hp.com/info/sglx	
StorageWorks Options	**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
	HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
	HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
	HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A
Uninterruptible Power Systems – Tower	HP, T1000 UPS NA	AF403A
	HP, T1000 UPS JPN	AF404A
	HP, T1000 UPS INTL	AF405A
	HP, T1500 UPS NA	AF406A
	HP, T1500 UPS JPN	AF407A
	HP, T1500 UPS INTL	AF408A
	HP, R/T 2200 UPS NA	AF409A
	HP, R/T 2200 UPS JPN	AF410A
	HP, R/T 2200 UPS INTL	AF411A

Uninterruptible Power Systems - Rack	HP, R1.5kVA UPS, 1U, NA	AF419A
	HP, R1.5kVA UPS, 1U, INTL	AF418A
	HP, R1.5kVA UPS, 1U, JPN/TW	AF421A
	HP R3000 VA UPS, 2U, DTC, INTL	AF414A
	HP R3000 VA UPS, 2U, L5-30, NA	AF422A
	HP R3000 VA UPS, 2U, L6-20, NA	AF423A
	HP R3000 VA UPS, 2U, L6-20, JPN	AF424A
	HP R3000 VA UPS, 2U, L5-30, JPN	AF425A
	HP R5500 VA UPS, INTL	AF416A
	HP R5500 VA UPS, NA/JPN	AF426A

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

Modular 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 (WW)	252663-B24
	2.8 kVA Model - mPDU, 24A, Low (NA/JPN)	252663-D71
	4.9kVA Model - mPDU, 24A, High (NA/JPN)	252663-D72
	7.3kVA Model - mPDU, 32A, High (INT'L)	252663-B31
	8.3kVA Model - mPDU, 40A, High (WW)	252663-B21
	8.3kVA Model - mPDU, 40A, High (power cord attached) (NA/JPN)	252663-D73
	9.2kVA Model - mPDU, 40A, High (power cord attached) (INTL)	252663-B32
	8.3kVA Model - mPDU 40A, High (core only) (NA/JPN)	252663-D75
	9.2kVA Model - mPDU 40 A, High (core only) (Int'l)	252663-B34
	8.3kVA Model - mPDU 32A, High (core only) (Int'l)	252663-B33
	4.9kVA Model - mPDU 24A, High (core only) (NA/JPN)	252663-D74

NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html (Worldwide)

USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	HP USB 04 Standard Keyboard	DT528A# ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21

Rack Conversion Kit	HP ML350 G5 Tower to Rack Conversion Kit	412640-B21
	Shipping Bracket for Round Hole Racks	371482-B21

NOTE: This kit is required if the server will be configured and shipped within a round hole rack.

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
	NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet - Pallet	AF021A
	10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	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_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack 10000 Series (Graphite Metallic)	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).	
	NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all 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_div/10995_div.html (Worldwide)	
	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 US	AG052A
	TFT7600 Rackmount Keyboard Monitor UK	AG053A
	TFT7600 Rackmount Keyboard Monitor GR	AG054A
	TFT7600 Rackmount Keyboard Monitor FR	AG055A
	TFT7600 Rackmount Keyboard Monitor IT	AG056A
	TFT7600 Rackmount Keyboard Monitor SP	AG057A
	TFT7600 Rackmount Keyboard Monitor DEN	AG058A
	TFT7600 Rackmount Keyboard Monitor NOR	AG059A
	TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
	TFT7600 Rackmount Keyboard Monitor SWI	AG061A
	TFT7600 Rackmount Keyboard Monitor PORT	AG062A
	TFT7600 Rackmount Keyboard Monitor BEL	AG063A
	TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
	TFT7600 Rackmount Keyboard Monitor RUS	AG065A
	TFT7600 Rackmount Keyboard Monitor INTL	AG066A
	1U Rackmount Keyboard with USB, US	AG072A
	1U Rackmount Keyboard with USB, UK	AG073A
	1U Rackmount Keyboard with USB, GR	AG074A
	1U Rackmount Keyboard with USB, FR	AG075A
	1U Rackmount Keyboard with USB, ITL	AG076A
	1U Rackmount Keyboard with USB, SP	AG077A
	1U Rackmount Keyboard with USB, DEN	AG078A
	1U Rackmount Keyboard with USB, NOR	AG079A
	1U Rackmount Keyboard with USB, SE/FI	AG080A
	1U Rackmount Keyboard with USB, SWI	AG081A
	1U Rackmount Keyboard with USB, PORT	AG082A
	1U Rackmount Keyboard with USB, BEL	AG083A
	1U Rackmount Keyboard with USB, JPN2	AG084A
	1U Rackmount Keyboard with USB, RUS	AG085A
	1U Rackmount Keyboard with USB, INTL	AG086A

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 1x4 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 (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	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)	U4512E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years (Electronic)	U4513E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years (Electronic)	U4514E

O/S and Hardware Installation

| Hardware Installation (Electronic) | U4522E |
| 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) | U4523E |

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) | U4524E |

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	U4525E
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	U6308E
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	U8330E

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

HP ProLiant ML350 G5 Memory Configuration

The HP ProLiant ML350 G5 requires memory interleaving when more than one DIMM is installed. For interleaving, DIMMs must be configured in identical pairs. The system will not boot properly if multiple DIMMs of varying density or type are installed in the system.

Standard Memory

All HP ProLiant ML350 G5 models ship with PC2-5300 Fully Buffered DIMMs (DDR2-667).
Entry models include a single 512 MB DIMM (Dual-Core) or two 512 MB DIMMs (Quad-Core).
Base models include two 512 MB DIMMs (1 GB total memory) or two 1 GB DIMMs (2 GB total memory)
Factory Integrated Models include the memory capacity of your choice.

Common Memory Configuration

Valid DIMM pair combinations use slots 1/5, slots 2/6, slots 3/7, and slots 4/8. Maximum supported memory is 16 GB for Dual-Core and 32 GB on Quad-Core models.
NOTE: Chart does not represent all possible memory configurations.

Memory		Slot							
		1A	**2B**	**3C**	**4D**	**5A**	**6B**	**7C**	**8D**
Standard	1 GB	512 MB	Empty	Empty	Empty	512 MB	Empty	Empty	Empty
Optional	13 GB	512 MB	2 GB	2 GB	2 GB	512 MB	2 GB	2 GB	2 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

512MB FBD PC2-5300 1 x 512 MB Kit	413507-B21
1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
2 GB FBD PC2-5300 2 x 1 GB LP Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
4 GB FBD PC2-5300 2 x 2 GB LP Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
8 GB FBD PC2-5300 2 x 4 GB LP Kit	466440-B21

NOTE: Memory Option Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit:
http://h18004.www1.hp.com/products/servers/platforms/energyefficient/

Online spare memory configuration

FBDIMMs can either be single-rank or dual-rank. Certain FBDIMM configuration requirements are based on these classifications. A dual-rank FBDIMM is similar to having two separate FBDIMMs, or ranks, on the same module. Although only a single FBDIMM module, a dual-rank FBDIMM acts as two separate FBDIMMs.

In online spare mode, a single rank of memory acts as the spare memory. For single-rank FBDIMMs, the entire FBDIMM acts as the spare memory. For a dual-rank FBDIMM, only half of the FBDIMM acts as the spare memory while the other half is available for operating system and application usage.
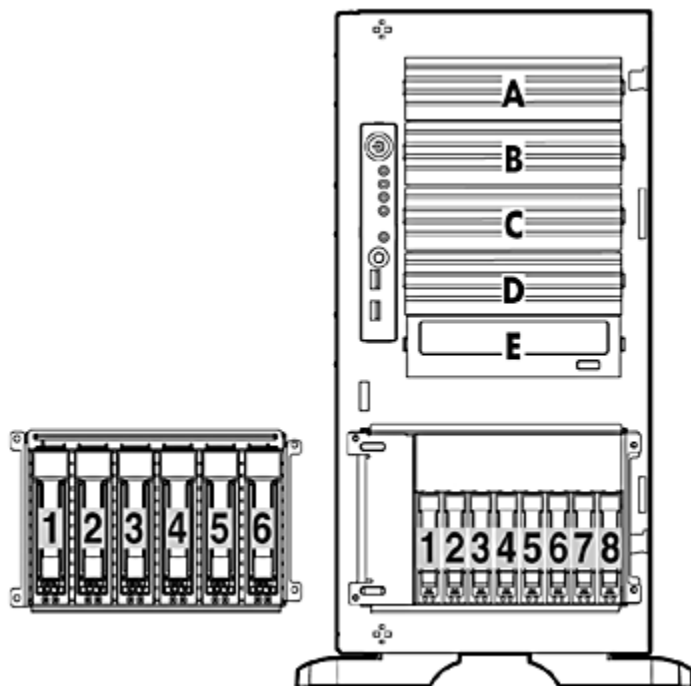
Online spare FBDIMM configuration requirements (in addition to general configuration requirements):

- When only bank A is being used, it must be fully populated with dual-rank FBDIMMs.
- For optimum memory usage, HP recommends all FBDIMMs be the same size with the same HP part number. If different sized FBDIMMs are used, a portion of the installed memory may not be utilized.

In online spare mode, FBDIMMs must be populated as specified in the following table:

- Configuration 1 (Bank A only) is only supported if using bank A, populated with dual-rank FBDIMMs.
- After installing FBDIMMs, use RBSU to configure the system for online spare memory support.

Bank A 1A and 5A	Bank B 2B and 6B	Bank C 3C and 7C	Bank D 4D and 8D
X	—	—	—
X	X	—	—
X	X	X	X

1 - 6	6 x 3.5" (LFF) Hot-Plug SAS/SATA hard drive bays
Or	
1 - 8	8 x 2.5" (SFF) Hot-Plug SAS/SATA hard drive bays
A,B,C,D	Available half height media bays
E	Optical Drive

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
1.44-MB Diskette Drive	Up to 1	A, B, C, D, E	Integrated SATA Controller
IDE (ATAPI) CD-ROM Drive	Up to 1	A, B, C, D, E	Integrated SATA Controller
HP DVD±R/RW 16X Half Height	Up to 1	A, B, C, D, E	Integrated SATA Controller
DVD-ROM Drive Option Kit	Up to 1	A, B, C, D, E	Integrated SATA Controller
HP Half-Height SATA DVD-ROM Optical Drive	Up to 1	A, B, C, D, E	Integrated SATA Controller
HP Half-Height SATA DVD RW Optical Drive	Up to 1	A, B, C, D, E	Integrated SATA Controller

Hard Drives

3.5" SATA Hot Plug Drives
NOTE: Please note that SFF 2.5" (small form factor) drives can only be installed on tower or rack models with SFF chassis (models).
NOTE: Please note that LFF 3.5" (large form factor) drives can only be installed on tower or rack models with LFF chassis (models).

	Quantity Supported	Position Supported	Controller
750GB 1.5G SATA 7.2K	Up to 6	1-6	HP Smart Array E200i/64MB Controller
500GB 1.5G SATA 7.2K			HP Smart Array E200i/128 BBWC Controller
250GB 1.5G SATA 7.2K			HP Smart Array E500/256MB Controller
160GB 1.5G SATA 7.2K			HP Smart Array P400/256MB Controller
80GB 1.5G SATA 7.2K			HP Smart Array P400/512MB BBWC Controller
			HP Smart Array P600/256 BBWC Controller
			HP Smart Array P800/512 BBWC Controller
			HP 6-Port SATA RAID Controller

SFF SATA Hot Plug Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K	Up to 8	1-8	HP Smart Array E200i/64MB Controller
60GB 1.5G SATA 5.4K			HP Smart Array E200i/128 BBWC Controller

HP Smart Array E500/256MB Controller
HP Smart Array P400/256MB Controller
HP Smart Array P400/512MB BBWC Controller
HP Smart Array P600/256 BBWC Controller
HP Smart Array P800/512 BBWC Controller
HP 6-Port SATA RAID Controller

NOTE: HP Systems Insight Manager should not be used to view the status of SATA hard drives and SATA RAID configurations.

Hot Plug SFF SAS 2.5" Drives

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP	Up to 8 SFF	1-8	HP Smart Array E200i/64MB Controller
146GB 3G SAS 10K DP			HP Smart Array E200i/128 BBWC Controller
72GB 3G SAS 10K SP			HP Smart Array E500/256MB Controller
72GB 3G SAS 10K DP			HP Smart Array P400/256MB Controller
72GB 3G SAS 15K SP			HP Smart Array P400/512MB BBWC Controller
72GB 3G SAS 15K DP			HP Smart Array P600/256 BBWC Controller
36GB 3G SAS 10K SP			HP Smart Array P800/512 BBWC Controller
36GB 3G SAS 15K SP			HP 6-Port SATA RAID Controller
36GB 3G SAS 15K DP			

Hot Plug SAS 3.5" Drives

	Quantity Supported	Position Supported	Controller
300GB 3G SAS 15K 3.5" SP	Up to 6 LFF	1-6	HP Smart Array E200i/64MB Controller
300GB 3G SAS 15K 3.5" DP			HP Smart Array E200i/128 BBWC Controller
146GB 3G SAS 15K 3.5" SP			HP Smart Array E500/256MB Controller
146GB 3G SAS 15K 3.5" DP			HP Smart Array P400/256MB Controller
72GB 3G SAS 15K 3.5" SP			HP Smart Array P400/512MB BBWC Controller
72GB 3G SAS 15K 3.5" DP			HP Smart Array P600/256 BBWC Controller
36GB 3G SAS 15K 3.5" SP			HP Smart Array P800/512 BBWC Controller
			HP 6-Port SATA RAID Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family	Up to 2	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller
Modular Smart Array 30 Family	Up to 2	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 50 Enclosure	Up to 2 Up to 4 Up to 4	External	HP Smart Array P600/256 BBWC Controller HP Smart Array P800
Modular Smart Array 60 Enclosure	Up to 4 Up to 8 Up to 8	External	HP Smart Array P600/256 BBWC Controller HP Smart Array P800 Controller HP Smart Array E500/256 BBWC Controller
Modular Smart Array 70 Enclosure	Up to 2 Up to 4 Up to 4	External	HP Smart Array P600/256 BBWC Controller HP Smart Array P800 Controller HP Smart Array E500/256 BBWC Controller
Modular Smart Array 500 G2	1	External	Please see the Modular Smart Array 500 or 500 G2 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500.

Modular Smart Array 1000	Please see the QuickSpecs to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs for the latest list of supported HBAs: http://hp.com/go/msa1000
Modular Smart Array 1500 cs	Please see the QuickSpecs 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

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Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/division/10233.html (Worldwide)

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/division/10809.html (Worldwide)

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

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

	Position Supported	Controller	Controller/HBA Option Kit Part Number
Internal USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB	A,B,C,D	USB 2.0 Port	N/A
USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
SCSI Tape Drives, Internal LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 DAT 40 DAT 72 DAT 160 DLT VS160	A,B,C,D	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
SCSI Tape Drives, Internal LTO-3 Ultrium 960 LTO-4 Ultrium 1840 SDLT 600	A+B or C+D	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

LTO-2 Ultrium 460
LTO-3 Ultrium 960
LTO-3 Ultrium 920
LTO-4 Ultrium 1840
DAT 40
DAT 72
DAT 160
DLT VS160
SDLT 600
1U Rack-Mount Kit
3U Rack-Mount Kit

SAS Tape Drives, Internal DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS	A,B,C,D	HP SC44Ge Host Bus Adapter	416096-B21
SAS Tape Drives, Internal LTO-4 Ultrium 1840 SAS	A+B or C+D	HP SC44Ge Host Bus Adapter	416096-B21
SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 HP U320e SCSI Host Bus Adapter **NOTE:** Only valid for MSL tape libraries.	374654-B21 AH627A
SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP SC44Ge Host Bus Adapter **NOTE:** Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information	N/A
HP StorageWorks D2D Backup Systems D2D110 D2D120	External	Embedded Network Controller	N/A

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

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

NOTES:
ActiveAnswers Power Calculation
Power calculator is LIVE on ActiveAnswers Web site. This is an external link.
Follow this link: http://h30099.www3.hp.com/configurator/powercalcs.asp

To drill down to calculators:
- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: ML350 G5
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

System Unit			
Tower Dimensions (H x W x D) (with feet/bezel)		18.39 x 8.59 x 23.46 in (46.7 x 21.8 x 59.6 cm)	
Rack Dimensions (H x W x D) (with feet/bezel)		8.54 x 17.5 x 21.9 in. (21.7 x 44.5 x 55.7cm)	
Tower Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	67 lb (30.4 kg)	
	Minimum (one hard drive, power supply, and processor installed)	50 lb (22.7 kg)	
Rack Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	61 lb (27.7 kg)	
	Minimum (one hard drive, power supply, and processor installed)	44 lb (20.0 kg)	
Max Input Requirements (per power supply)	Rated Line Voltage	100 VAC, 120 VAC 200 - 240 VAC	
	Rated Input Current	10A (at 100 VAC) 9A (at 120 VAC) 6.1A (at 200 VAC)	
	Rated Input Frequency	50 to 60 Hz	
	Rated Input Power	980W (at 100 VAC) 1035W (at 120 VAC) 1170W (at 240 VAC)	
BTU Rating	BTU/HR	3350 BTU/hr (at 100 VAC) 3530 BTU/hr (at 120 VAC) 3990 BTU/hr (at 240 VAC)	
Power Specifications		To review typical system power ratings use the 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 system of interest. Example: ML350 G5
- Follow the instructions of the next screens. | |
Power Supply Output (per power supply)	Rated Steady-State Power	800 W (at 100 VAC) 850 W (at 120 VAC) 1000 W (at 200-240 VAC)	
	Maximum Peak Power	800 W (at 100 VAC) 850 W (at 120 VAC) 1000 W (at 200-240 VAC)	
System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).	
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).	
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature,	

		non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise		Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).

Idle

L WAd	5.2 B
L pAm	35 dBA

Operating

L WAd	5.3 B
L pAm	35 dBA

Smart Array E200i Controller	**Disk Drive and Enclosure Interface**	3G SAS (Serial Attached SCSI)
		1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR-1/266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x4 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB ECC read cache or 40-bit 128MB ECC battery backed, transportable read/write cache
	Logical Volumes Supported	Up to 32 logical volumes
	Maximum Volume Capacity	4.5TB (6 x 750GB SATA)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1, 1+0 (Striping & Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware

Embedded NC373i Multifunction Gigabit Server Adapter	**Network Interface Compatibility**	10Base-T/100Base-TX/1000Base-TX	
		IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
		The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.