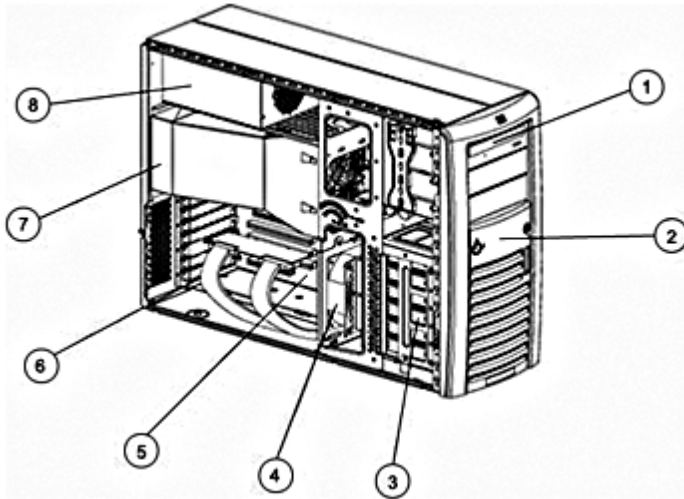
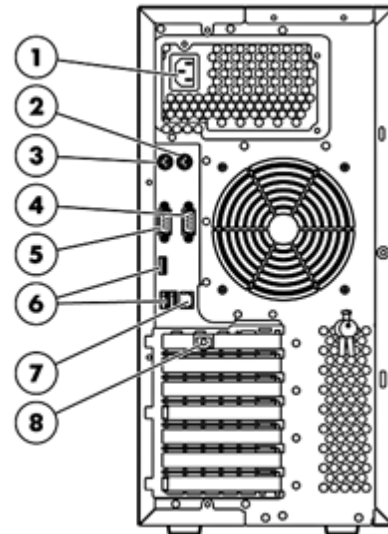


### Overview



#### Front View:

1. 48x CD-ROM (2 media bays available)
2. Locking front bezel
3. Six 3.5" SAS/SATA HDD bays
4. Front system fan
5. Main System Board
6. Six PCI slots
7. Processor and processor air duct
8. Power Supply



#### Rear View:

1. Power
2. Mouse Port
3. Keyboard Port
4. Serial Port
5. Monitor Port
6. USB Port
7. Network Port
8. Dedicated LO100 LAN Management Port

### What's New

The ML150 G3 now supports:

- Intel Quad-Core processors 1.60 GHz 1066, 1.86 GHz 1066 FSB and 2.00 GHz 1333 FSB
- Supporting up to six (6) HP 300GB 15K SAS 3.5 SP HDD

### Overview

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#### At A Glance

- **Processor:**
  - Quad-Core Intel Xeon processor 5300 sequence
  - Dual-Core Intel Xeon processor 5000 and 5100 sequence
  - Intel® 5000V chipset
  - 667 MHz, 1066 MHz or 1333MHz Front Side Bus
- **Memory:**
  - PC2-5300 Fully Buffered DIMMs (DDR2-667)Memory
  - SAS/SATA - 4 sockets, 1 GB standard, 8 GB maximum
  - SATA - 4 sockets, 512 MB, 8 GB maximum
- **Storage Controller:**
  - HP Embedded SATA RAID Controller
  - HP Smart Array E200/128 BBWC Controller
- **Internal Drive Support:**
  - Internal SAS storage capacity of up to 1.8TB (6 x 300GB SAS drives)
  - Internal SATA storage capacity of up to 4.5TB (6 x 750GB SATA drives)
  - Supports up to 6 SAS/SATA hard drives via HBA or RAID Controller
- **Network Controller:**
  - Single PCI Gigabit NIC (embedded)
- **Expansion Slots:**
  - Six expansion slots: Three (3) PCI-X (64-bit/100MHz), 2 PCI-Express (x4/x8), and 1 PCI (32-bit/33MHz). One slot designated for optional HP ProLiant Lights-Out 100 Remote Management card
- **USB Ports:**
  - Seven USB 2.0 ports:- 3 rear, 2 front, 2 Internal(1 standard and 1HP 5-pin)
- **Redundancy:**
  - One 650W Power Supply
- **Form Factor:**
  - 5U Tower Models. Rack models via optional rack mounting kit
- **Management:**
  - Optional HP ProLiant Lights-Out 100 Remote Management Card
- **Deployment/Serviceability:**
  - Easy chassis entry and component access
- **Warranty:**
  - Protected by HP Services and a worldwide network of resellers and service providers. One-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply.

### Standard Features

<b>Processor</b> <a href="#">One of the following depending on configuration</a>	<p>Quad-Core Intel® Xeon® processor E5335 (2.00 GHz, 1333 MHz FSB, 80 W)*</p> <p>Quad-Core Intel Xeon processor E5320 (1.86 GHz, 1066 FSB, 80W)*</p> <p>Dual-Core Intel Xeon processor 5060 (3.2 GHz, 1066 FSB, 130W)*</p> <p>Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB, 65W)*</p> <p>Dual-Core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB, 65W)*</p> <p><b>*NOTE:</b> Available via Configuration To Order only. Please see <a href="#">Configuration Information- Factory Integrated Models</a> section of this QuickSpecs.</p> <p>Quad-Core Intel Xeon processor E5310 (1.6 GHz, 1066 FSB, 80W)</p> <p>Dual-Core Intel Xeon processor 5050 (3.0 GHz, 667 FSB, 130W)</p> <p>Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB, 65W)</p> <p>Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB, 65W)</p> <p>Dual-Core Intel Xeon processor 5130 (2.0 GHz, 1333 FSB, 65W)</p>	
<b>Cache Memory</b>	<p>Integrated 2x2MB level 2 cache (5000 sequence)</p> <p>Integrated 4MB level 2 cache (5100 sequence)</p> <p>Integrated 2x4MB level 2 cache (5300 sequence)</p>	
<b>Upgradeability</b>	<p>Upgradeable to dual processor</p> <p><b>NOTE:</b> Future upgradeable to Xeon Series 5300 Quad-Core, or 5100 Dual-Core processors (Please contact your regional sales support to determine quad core upgradeability. Some of the earlier shipping models may not support this upgrade)</p>	
<b>Chipset</b>	<p>Intel® 5000V Chipset</p>	
<b>Memory</b>	<p>Type</p> <p>Standard for SATA Models</p> <p>Standard for SAS/SATA Model</p> <p>Maximum</p>	<p>PC2-5300 Fully Buffered DIMMs (DDR2-667)</p> <p>512 MB</p> <p>1 GB</p> <p>8 GB</p>
<b>Network Controller</b>	<p>Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL (Wake on LAN)</p>	
<b>Expansion Slots</b>	<p>I/O (6 Total, 6 Available)</p> <p>PCI-X (64-bit/100MHz)</p> <p>PCI-Express (x4/x8)</p> <p>PCI (32-bit/33MHz)</p>	<p>PCI Voltage:</p> <p>3.3 volts</p> <p>3.3 volts</p> <p>3.3 volts</p>
<b>Storage Controller</b>	<p>HP Embedded SATA RAID Controller or HP 8 Internal Port SAS Host Bus Adapter with RAID</p>	

### Standard Features

<b>Storage</b>	Diskette Drive	None ship standard 1.44 MB USB Diskette Drive Option available
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Hard Drives	None ship standard SAS and SATA HDD options are available
<hr/>		
<b>Maximum Internal Storage</b>	SATA	4.5TB (6 x 750GB) SATA (With standard SATA controller)
	SAS	1.8TB (6 x 300GB) SAS (With optional SAS controllers)
<p><b>NOTE:</b> Support for a single logical drive limited to 2TB.</p> <p><b>NOTE:</b> Information below pertains to SATA configuration:</p> <p>- In BIOS revisions prior to 11/03/2006, the default configuration for SATA models will not recognize when more than four drives are installed while running Microsoft Windows operating system. To recognize all six drives, AHCI mode has to be enabled and SATA AHCI driver installed. For further information on how to enable AHCI mode, please refer to the RTF card that is shipped with the server or posted on <a href="http://www.hp.com">http://www.hp.com</a>.</p> <p>- When configuring RAID using the embedded SATA RAID controller, two arrays have to be set up to recognize all six drives.</p>		
<hr/>		
<b>Interfaces</b>	Parallel	0
	Serial	1
	Pointing Device (Mouse, PS2)	1
	Graphics	1
	Keyboard (PS2)	1
	USB 2.0 Ports	7 (3 Rear, 2 Front, and 2 Internal)
	Dedicated USB	1 (available for USB tape connectivity)
		<b>NOTE:</b> Please see the following URL for additional information regarding USB support: <a href="http://h18004.www1.hp.com/products/servers/platforms/usb-support.html">http://h18004.www1.hp.com/products/servers/platforms/usb-support.html</a> .
	Network RJ-45 (Ethernet)	1 (10/100/100 Gbits/s)
	Remote Management	1 (10/100 via optional Lights-Out 100 Remote Management Card)
<hr/>		
<b>Graphics</b>	Integrated 2MB SRAM video	
<hr/>		
<b>Form Factor</b>	Tower (5U). Rack mounting available via rack mount option kit (P/N 408697-B21)	
<hr/>		
<b>Industry Standard Compliance</b>	ACPI V2.0 compliant	
	PCI 2.3 compliant	
	PXE Support	
	WOL Support	
	Microsoft® Logo certifications	
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### Standard Features

<b>Manageability</b>	Optional HP ProLiant Lights-Out 100 Remote Management Card Embedded IPMI standard reporting
<b>Security</b>	Power-on password Setup password Diskette boot control
<b>Server Power Cords</b>	One Lowline NEMA power cord
<b>Power Supply</b>	One 650 W Power, Non-hot plug, non-redundant
<b>System Fans</b>	2 - Non-hot plug, Non-redundant system fans
<b>OS Support</b>	Microsoft Small Business Server 2003 (32 and 64 bit) Microsoft Windows 2003 Server, Standard Edition (32 and 64 bit) Microsoft Windows 2003 Server, Web Edition Microsoft Windows 2003 Server, Enterprise Edition (32 and 64 bit) Microsoft Windows 2000 Server Netware 6.5 SP6 SCO OpenServer Legend 6.0 SCO Unixware 7.1.4 Red Hat Enterprise Linux SUSE Linux Enterprise Server <b>NOTE:</b> For an up-to-date listing of the latest ML150 OS support matrix, please see: <a href="http://www.hp.com/go/supportos">http://www.hp.com/go/supportos</a> <b>NOTE:</b> For an up-to-date listing of the latest drivers available for the HP server ML150, please see: <a href="http://h18023.www1.hp.com/support/files/server/us/index.html">http://h18023.www1.hp.com/support/files/server/us/index.html</a> <b>NOTE:</b> For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix <a href="http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html">http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html</a>
<b>Factory Express Portfolio for Servers and Storage</b>	<p>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.</p> <p>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 to meet customer needs. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant &amp; HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.</p> <p>For more information on Factory Express services on your specific server model please contact your sales representative or go <a href="http://www.hp.com/go/factory-express">http://www.hp.com/go/factory-express</a>.</p>

### Standard Features

#### HP Enterprise Configurator

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

#### HP ProLiant Smart Buys (NA only)

The HP Smart Buy program offers mainstream business solutions at competitive prices with excellent availability and superior HP quality. It offers a wide range of industry-leading HP products at compelling prices, allowing you to receive richer configurations with additional options. **NOTE:** ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: <ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf>

#### 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 1 year Parts, 1 year Labor, 1-year on-site support. (ROW) Limited warranty included 3 years parts; 1 year Labor; 1 year on-site support (AP only). Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

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

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

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

Extended 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*

Committed Care - Cost-effective service options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem resolution.

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

Committed Response - Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, consistent hardware and software services

### Standard Features

- *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 people 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>

### Models

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

### SAS/SATA Models

<p><b>HP ML150G3 E5310 HP-SAS/SATA, 1GB</b> 438786-xx1</p>	<p><b>Processor(s)</b> One of the following depending on Model</p>	<p>(1)Quad-Core Intel® Xeon® processor E5310 (1.60 GHz, 1066 FSB, 80W) (1)Dual-Core Intel Xeon processor 5050 (3.00 GHz, 667 FSB, 130W) (1)Dual-Core Intel Xeon processor 5130 (2.0 GHz, 1333 FSB, 80W)</p>
<p><b>HP ML150G3 5050 HP-SAS/SATA,1GB</b> 399155-xx1</p>	<p><b>Cache Memory</b> One of the following depending on Model</p>	<p>Integrated 2x2MB L 2 cache (5000 sequence) Integrated 4MB L 2 cache (5100 sequence) Integrated 2x4MB L2 cache (5300 sequence)</p>
<p><b>HP ML150G3 5130 HP-SAS/SATA,1GB</b> 416773-xx1</p>	<p><b>Memory</b> <b>Network Controller</b> <b>Storage Controller</b> <b>Hard Drive</b> <b>Internal Storage</b> One of the following depending on Model <b>Optical Drive</b> <b>Form Factor</b></p>	<p>1 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL HP 8 Internal Port SAS Host Bus Adapter with RAID None ship standard 1.8TB (6 x 300GB) SAS 4.5TB (6 x 750GB) SATA (With standard/optional SAS controllers and 6 optional HDD) 48x CD-ROM Tower standard; 5U Rack via optional rack mounting kit</p>

### SATA Models

<p><b>HP ML150G3 5050 NHP-SATA,512MB</b> 399151-xx1</p>	<p><b>Processor(s)</b> One of the following depending on Model</p>	<p>(1)Dual-Core Intel® Xeon® processor 5050 (3.00 GHz, 667 FSB, 130W) (1)Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB,65W) (1)Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB, 65W) (1)Dual-Core Intel Xeon processor 5130 (2.0 GHz, 1333 FSB, 65W)</p>
<p><b>HP ML150G3 5050 HP-SATA,512MB</b> 399154-xx1</p>	<p><b>Cache Memory</b></p>	<p>Integrated 2x2MB L2 cache (5000 sequence) Integrated 4MB L2 cache (5100 sequence) Integrated 2x4MB L2 cache (5300 sequence)</p>
<p><b>HP ML150G3 5110 NHP-SATA,512MB</b> 416769-xx1</p>	<p><b>Memory</b> <b>Network Controller</b></p>	<p>512 MB PC2-5300 Fully Buffered DIMMs (DDR2-667) Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL</p>
<p><b>HP ML150G3 5110 HP-SATA,512MB</b> 416768-xx1</p>	<p><b>Storage Controller</b> <b>Hard Drive</b></p>	<p>HP Embedded SATA RAID Controller None ship standard</p>
<p><b>HP ML150G3 5120 HP-SATA,512MB</b> 416770-xx1</p>	<p><b>Internal Storage</b></p>	<p>4.5TB (6 x 750GB) SATA (With standard SATA controller and 6 optional HDD)</p>
<p><b>HP ML150G3 5130 HP-SATA,512MB</b> 416772-xx1</p>	<p><b>Optical Drive</b> <b>Form Factor</b></p>	<p>48x CD-ROM Tower standard; 5U Rack via optional rack mounting kit</p>

### Models

**NOTE:** In BIOS revisions prior to 11/03/2006, the default configuration for SATA models will not recognize when more than four drives are installed while running Microsoft Windows operating system. To recognize all six drives, AHCI mode has to be enabled and SATA AHCI driver installed. For further information on how to enable AHCI mode, please refer to the RTF card that is shipped with the server or posted on <http://www.hp.com>.

**NOTE:** When configuring RAID using the embedded SATA RAID controller, two arrays have to be set up to recognize all six drives.

**NOTE:** Only hot plug drives are supported on the ML150 G3; these hot plug drives, when installed on Non-hot plug models, will not have hot plug functionality.

**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.

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Country Code Key		
	XX=00	NA
	XX=01	Australia
	XX=03	UK
	XX=04	Germany
	XX=05	France
	XX=20	Brazil
	XX=29	Japan
	XX=37	AP
	XX=42	Euro
	XX=AA	PRC
	XX=AB	Taiwan
	XX=AD	Korea

### Configuration Information-Factory Integrated Models (North America only)

**NOTE:** For Configure to Order requirements within EMEA region, please consult local Sales Contact.

**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:** 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 (Select only one model from the following selections)

<b>Models</b>	HP ProLiant ML150 G3 Non-hot Plug SATA CTO Chassis	403111-B21
	<b>Factory Integrated Models ship with:</b>	
	Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL	
	Single 650W Power Supply	
	Tower 5U Form Factor	
	HP ProLiant ML150 G3 Hot Plug SATA CTO Chassis	403112-B21
	<b>Factory Integrated Models ship with:</b>	
	Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL	
	Single 650W Power Supply	
	Tower 5U Form Factor	

#### Step 2: Choose Required Options (Select only one option from each category unless otherwise noted)

<b>Processors</b>	<b>Quad-Core Processor Option Kits</b>	
	Quad-Core Intel® Xeon® processor E5335 (2.00 GHz, 80 W, 1333 MHz FSB)	437905-L21
	<b>NOTE:</b> If 2 processors are desired, select one 437905-L21 and one 437905-B21	
	Quad-Core Intel Xeon processor E5310 ( 1.6 GHz, 1066 FSB, 80W)	437903-L21
	<b>NOTE:</b> If 2 processors are desired, select one 437903-L21 and one 437903-B21	
	Quad-Core Intel Xeon processor E5320 ( 1.86 GHz, 1066 FSB, 80W)	436460-L21
	<b>NOTE:</b> If 2 processors are desired, select one 436460-L21 and one 436460-B21	
	<b>Dual-Core Processor Option Kits</b>	
	Dual-Core Intel Xeon processor 5050 (3.00 GHz, 667 FSB, 130W), FIO	411776-L21
	<b>NOTE:</b> If 2 processors are desired, select one 411776-L21 and one 411776-B21	
	Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB, 65W), FIO	417555-L21
	<b>NOTE:</b> If 2 processors are desired, select one 417555-L21 and one 417555-B21	
	Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB, 65W), FIO	417556-L21
	<b>NOTE:</b> If 2 processors are desired, select one 417556-L21 and one 417556-B21	
	Dual-Core Intel Xeon processor 5130 (2.0 GHz, 1333 FSB, 65W), FIO	417557-L21
	<b>NOTE:</b> If 2 processors are desired, select one 417557-L21 and one 417557-B21	
	Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB, 65W), FIO	417558-L21
	<b>NOTE:</b> If 2 processors are desired, select one 417558-L21 and one 417558-B21	
	Dual-Core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB, 65W), FIO	418226-L21
	<b>NOTE:</b> If 2 processors are desired, select one 418226-L21 and one 418226-B21	
<b>Memory</b>	512MB FBD PC2-5300 1x512MB Kit	413507-B21
	1GB FBD PC2-5300 2X512MB Kit	397409-B21
	2GB FBD PC2-5300 2X1GB Kit	397411-B21
	4GB FBD PC2-5300 2X2GB Kit	397413-B21

### Configuration Information-Factory Integrated Models (North America only)

<b>Optical Drives</b>	48X CD-ROM Kit	398972-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	
	USB Floppy Drive, External	DC361B	
	<b>NOTE:</b> For the installation of Windows and other OS's, a floppy drive may be required to complete driver installation. A USB drive key may not work to complete driver installation.		
<b>Hard Drives</b>	<b>SATA Hot Plug Drives</b>		
	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	
	<b>SAS Hot Plug Drives</b>		
	HP 300GB 3G SAS 15K 3.5" SP HDD	431944-B21	
	HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21	
	HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21	
	HP 36GB 3G SAS 15K 3.5" SP HDD	375868-B21	
		<b>NOTE:</b> SAS hard drives require a SAS HBA or Smart Array Controller.	
		<b>NOTE:</b> Only hot plug drives are supported on the ML150 G3; these hot plug drives, when installed on Non-hot plug models, will not have hot plug functionality.	

### Step 3: Choose Additional Options for Factory Integration

**NOTE:** For additional options, please refer to the "Options" section below. Some options may not be available for factory integration. Please contact an HP sales representative for additional information.

<b>Operating Systems</b>	Pre-install Microsoft Windows 2003 Standard (English)	409167-B21
	Pre-install Microsoft Windows 2003 Small Business Server, Premium Edition (English)	379603-B21
	<b>NOTE:</b> For additional language part numbers, please visit: <a href="http://www.hp.com/go/microsoft">http://www.hp.com/go/microsoft</a> and select 'HP & Windows OS'.	
	<b>NOTE:</b> For additional options, please refer to the "Options" section below.	

### Options

<b>Processors</b>	<b>Quad-Core Processor Option Kits</b>		
	Quad-Core Intel® Xeon® processor E5335 (2.00 GHz, 80 W, 1333 MHz FSB)	437905-B21	
	Quad-Core Intel Xeon processor E5310 ( 1.6 GHz, 1066 FSB)	437903-B21	
	Quad-Core Intel Xeon processor E5320 ( 1.86 GHz, 1066 FSB, 80W)	436460-B21	
	<b>Dual-Core Processor Option Kits</b>		
	Dual-Core Intel Xeon processor 5050 (3.00 GHz, 667 FSB)	411776-B21	
	Dual-Core Intel Xeon processor 5060 (3.2 GHz, 1066 FSB, 130W)	411777-B21	
	Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB)	417555-B21	
	Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB)	417556-B21	
	Dual-Core Intel Xeon processor 5130 (2.0 GHz, 1333 FSB)	417557-B21	
	Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB,65W)	417558-B21	
	Dual-Core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB, 65W)	418226-B21	
	<hr/>		
	<b>Memory</b>	512MB FBD PC2-5300 1x512MB Kit	413507-B21
1GB FBD PC2-5300 2X512MB Kit		397409-B21	
2GB FBD PC2-5300 2X1GB Kit		397411-B21	
4GB FBD PC2-5300 2X2GB Kit		397413-B21	
<hr/>			
<b>Optical Drives</b>	48X CD-ROM Kit	398972-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	
	USB Floppy Drive, External	DC361B	
	<b>NOTE:</b> For the installation of Windows and other OS's, a floppy drive may be required to complete driver installation. A USB drive key may not work to complete driver installation.		
<hr/>			
<b>Hard Drives</b>	<b>SATA Hot Plug Drives</b>		
	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	
	<b>SAS Hot Plug Drives</b>		
	HP 300GB SAS 15K 3.5" SP HDD	431944-B21	
	HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21	
	HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21	
	HP 36GB SAS 15K 3.5" HDD	375868-B21	
	<b>NOTE:</b> SAS hard drives require a SAS HBA or Smart Array Controller.		
	<b>NOTE:</b> Only hot plug drives are supported on the ML150 G3; these hot plug drives, when installed on Non-hot plug models, will not have hot plug functionality.		
	<b>NOTE:</b> The purchase of SAS HBA or array controller is required.		

### Options

<b>Storage Controllers</b>	HP SC44Ge Host Bus Adapter	416096-B21
	HP SC11Xe Host Bus Adapter	412911-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	HP 8 Internal Port SAS Host Bus Adapter with RAID	347786-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
	128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21
	<b>NOTE:</b> Supports the Smart Array E200 Controller.	
	HP ML150G3 1-PORT SATA RAID Cable	413748-B21
	<b>NOTE:</b> This cable is required for each additional SATA hard drive	
	HP SAS/SATA 4 in 1 to 4 in Cable	438160-B21
<b>NOTE:</b> This cable is required when adding either the HP 8 Internal Port SAS HBA with RAID or the HP Smart Array E200 on a hot-plug SATA model		
HP Internal SAS/SATA 4-Port Cable	430479-B21	
<b>NOTE:</b> This cable is required when adding either the HP 8 Internal Port SAS HBA with RAID or the HP Smart Array E200 on a non hot-plug SATA model		
<b>NOTE:</b> Hot plug SATA servers come with a hot plug backplane, making them hot plug ready. For full hot plug capability on the hot plug SATA models, a hot plug controller (347786-B21) must also be purchased		
<b>Communications</b>	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	HP NC150T PCI 4-port Gigabit Combo Switch Adapter	367132-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC1020 PCI Single Port Gigabit Server Adapter	353377-B21
	Agere2006 PCI Hi-Speed 56K Modem	440519-B21
<b>Remote Management</b>	HP ProLiant ML150 G3 Lights-Out 100 Remote Management Card	403582-B21
<b>Tape Drives</b>	<b>NOTE:</b> A separate SCSI Controller is required for connecting SCSI tape drives to this server.	
	<b>NOTE:</b> For the complete listing of Tape Drive offerings, please see: <a href="http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html">http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html</a>	
	For recommended tape drive offerings for this ProLiant server see the following:	
	<b>USB Tape Drives</b>	
	HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
	HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
	<b>DAT Tape Drives</b>	
	HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
	HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
	<b>Ultrium Tape Drive</b>	
HP StorageWorks Ultrium 232 SCSI Internal Tape Drive	DW064A	

### Options

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

<b>Uninterruptible Power Systems - Tower Supply</b>	HP T750 UPS, Low Voltage (NA/JPN)	378439-D71
	HP T750 UPS, High Voltage (INTL)	378439-B31
	HP T1000 UPS	AF403A

<b>Installation of Server into Racks</b>	ProLiant ML150 G3 Tower to Rack Conversion Kit	408697-B21
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<b>HP KVM Switch Options</b>	IP Console Switch with Virtual Media (KVM/IP), 4x1x16	AF602A
	IP Console Switch with Virtual Media (KVM/IP), 2x1x16	AF601A
	Server Console Switch with Virtual Media (KVM), 0x2x16	AF600A
	PS2 Virtual Media Interface Adapter, 1 Pack	AF604A
	<b>NOTE:</b> The AF604A is only compatible with the Console Switches with Virtual Media	
	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
	<b>NOTE:</b> Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	
	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack	AF613A
	<b>NOTE:</b> required for supporting USB peripherals. <b>NOTE:</b> For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	

<b>USB Options</b>	HP 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

### Options

<b>Service and Support Offerings</b> (HP Care Pack Services)	<b>Extended Care - Minimum recommended service support offer designed to ensure customers have access to expert assistance, whenever they need it.</b> Next Business Day On-Site Service, 9-Hour x 5-Day Coverage, 3 Years, Electronic	U8184E
	<b>Committed Care - Cost-effective service options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem resolution.</b> 4-Hour On-Site Service -13-Hour x 5-Day Coverage, 3 Years, Electronic	U8192E
	<b>Committed Response - Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, consistent hardware and software services</b> 4-Hour On-Site Service - 24-Hour x 7-Day Coverage, 3 Years, Electronic	U8193E
	<b>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 people to focus on what they do best, their business.</b> Hardware Installation, Electronic (install services)	U8195E
	<b>NOTE:</b> For more information, customer/resellers can contact <a href="http://www.hp.com/services/carepack">http://www.hp.com/services/carepack</a> .	

### Memory

#### HP ProLiant ML150 Generation 3 Server

##### Standard Memory

512 MB of PC2-5300 Fully Buffered DIMMs (DDR2-667)

##### Standard Memory Plus Optional Memory

Up to 5120 MB memory is available with the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) Memory kits.

##### Standard Memory Replaced with Optional Memory

Up to 8192 MB of memory is available with the removal of the standard 512-MB of memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) Memory kits.

**NOTE:** Charts do not represent all possible memory configurations. Memory must be populated in one of the following ways: Slot 1 only; slots 1 and 3 only (pairs must be of the same size); or slots 1, 2, 3, and 4 (pairs must be of the same size and in the example below with slots 1 and 3 the same and slots 2 and 4 the same)

Memory		Slot			
		1	2	3	4
Standard	512 MB	512 MB	Empty	Empty	Empty
Optional	5120 MB	512 MB	2048 MB	512 MB	2048 MB
Maximum	8192 MB	2048 MB	2048 MB	2048 MB	2048 MB

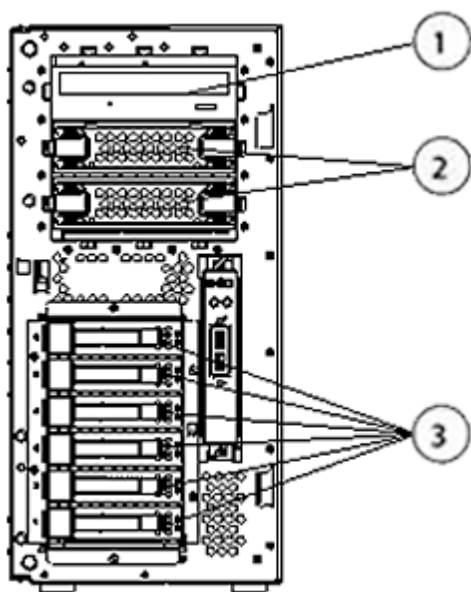
**NOTE:** Please make sure socket 1 is populated, otherwise the system will not boot, also please make sure the DIMM socket 1,3 and 2,4 should be the same size, otherwise the capacity will not be correct.

##### Following are memory options available from HP:

512MB FBD PC2-5300 1x512MB Kit	413507-B21
1GB FBD PC2-5300 2X512MB Kit	397409-B21
2GB FBD PC2-5300 2X1GB Kit	397411-B21
4GB FBD PC2-5300 2X2GB Kit	397413-B21

### Storage

#### Non-Hot Plug SATA or Hot Plug SAS/SATA



- 1 48x IDE CD-ROM
- 2 Removable Media Bay (1.6" each)
- 3 Six Hot Plug SAS/SATA or Six Non-Hot Plug SATA Drive Bays

#### Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
IDE CD-ROM Drive	Up to 2	1 or 2	Integrated IDE

#### Hard Drives

##### SAS (Hot Plug Drives)

	Quantity Supported	Position Supported	Controller
300GB SAS 15K SPP SP	Up to 6	3 (Drive slots 1-6)	HP 8 Internal Port SAS Host Bus Adapter with RAID Optional Smart Array E200
146GB SAS 15K SPP SP			
72GB SAS 10K SPP SP			
36GB SAS 10K SPP SP			

#### Hard Drives

##### SATA

	Quantity Supported	Position Supported	Controller
750GB	Up to 6	3 (Drive slots 1-6)	Integrated 6 port SATA Adapter Optional HP 8 Internal Port SAS Host Bus Adapter with RAID
500GB			
250GB			
160GB			
80GB			

### Storage

**NOTE:** In order to realize Hot-Plug functionality in the HP SATA Models of the ML150 G3, the 8 Port Internal Port SAS Host Bus Adapter with RAID (P/N 347786-B21) must be purchased and installed.

#### Maximum Storage Capacity - SAS Models

Internal 1.8TB (6 x 300GB SAS hard drives)  
 Total 1.8TB (6 x 300GB SAS hard drives)

#### Maximum Storage Capacity - SATA Models

Internal 4.5TB (6 x 750GB SATA drives)  
 Total 4.5TB (6 x 750GB SATA drives)

### Tape Drives

**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>

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

	Position Supported	Controller	Controller/HBA Option Kit Part Number
<b>HP StorageWorks USB Tape Drives, Internal</b> DAT 40 USB DAT 72 USB	2	USB 2.0 port	N/A
<b>HP StorageWorks USB Tape Drives, External</b> DAT 40 USB DAT 72 USB	External	USB 2.0 port	N/A
<b>HP StorageWorks SCSI Tape Drives, Internal</b> DAT 40 DAT 72 Ultrium 232	2	64-Bit/133MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
<b>HP StorageWorks SCSI Tape Drives, External</b> DAT 40 DAT 72 Ultrium 232	External	64-Bit/133MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

### Power Specifications

<b>Part Number</b>	402075-001
<b>Spare Kit</b>	407730-001
<b>Operational Input Voltage Range (Vrms)</b>	90 to 135 and 180 to 264 V ac full ranging
<b>Frequency Range (Nominal) (Hz)</b>	47 to 63 Hz

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	600	600	600	600	600	600
Nominal Input Current (A rms)	10	10	5	5	5	5
Max Rated Input Wattage Rating (Watts)	800	800	750	750	750	750
Max. Rated VA (Volt-Amp)	800	800	780	780	780	780
Efficiency (%)	75	77	79	80	80	80
Power Factor	0.95	0.95	0.9	0.9	0.9	0.9
Leakage Current (mA)	3.5mA	3.5mA	3.5mA	3.5mA	3.5mA	3.5mA
Maximum Inrush Current (A peak)	50	50	50	50	50	50
Maximum Inrush Current duration (mS)	3	3	3	3	3	3

### System Specifications

	Power**
HP ProLiant ML150 G3 Fully Configured	(see**)
Fully Loaded System Input Wattage (W)	420W
Fully Loaded System Input Current (A rms)	5A @ 115V, 2.5A @ 230V
Fully Loaded System Thermal (BTU- Hr)r	1435 BTU
Fully Loaded System VA (Volt-Amp)	420
System Leakage with all power supplies loaded (mA)	3.5mA
System Inrush Current with all power supplies loaded (A)	50A
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
<b>**Power shown is for a fully configured system consisting of</b>	
(2) CPU (4) double-sided DIMMs (6) HDDs SAS/SATA (1) CD-ROM (0) DVD-ROM (3) PCI-X 64 100MHz (1) x4 PCI-E (1) x8 PCI-E (1) PCI 32 3.3V (1) Lights-Out Remote Management (1) 650 watts power supply	

### Power Specifications

Power Cords (13 Cord Sets)	
Country	Power Cord Part Number
APD	100614-009, 100613-008, 139867-004, 187487-004(India)
Brazil	285052-001
Italy	109197-008
Australia/New Zealand	100661-001
Euro	100614-009
France	100614-009
Germany	100614-009
Japan	139867-004
PRC	286496-001
UK/Singapore	100613-008
US, Taiwan	121565-001

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (HxWxD)	17.83 in x 8.62 in x 25.59 in (45.3 x 21.9 x 65.0 cm)	
	<b>Weight</b> (approximate)	69 lb (31.3 kg)	
	<b>Input Requirements</b> (per power supply)	Range Input Voltage	90 to 135 VAC/180 to 265 VAC
		Normal Line Voltage	100 to 120/200 to 240 VAC
	<b>Line Frequency</b>	50 to 60 Hz	
	<b>Rated Input Current</b>	load 11.6A at 115VAC, 5.5A at 220VAC	
	<b>BTU Rating</b>	2218 BTU	
	<b>Power Supply Output Power</b> (per power supply)	Rated Steady-State Power	600W
		Maximum Peak Power	660W
	<b>Temperature Range*</b>	Operating	50° to 93° F (10° to 35° C)
		Shipping	-40° to 140° F (-40° to 60° C)
	<b>Relative Humidity</b> (non-condensing)	Operating	10% to 90%
		Non-operating**	10% to 95%
	<b>Acoustic Noise</b>	Idle	38 dBA
		(Fixed Disk Drives Spinning)	
		L WAd (BELS)	5.5
		Operating (Random Seeks to Fixed Disks)	43 dBA
L WAd (BELS)	6.0		

**\*NOTE:** All temperature ratings shown are for sea level. An altitude derating of 1° C per 304.8 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Upper operating limit is 3,048m (10,000 ft) or 70 Kpa/10.1 psia. Upper non-operating limit is 9,144 m (30,000 ft) or 30.3KPa/4.4 psia. System performance may be reduced if operating with a fan fault or above 30C.

**\*\*NOTE:** Storage maximum humidity of 90% is based on a maximum temperature of 45° C (113° F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

### Technical Specifications

<b>48X Max IDE (ATAPI) CD-ROM Drive</b>	<b>Disk</b>	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) Mixed Mode (Audio and Data combined) CD-R
		Capacity	540 MB (Mode 1, 12 cm) 650 MB (Mode 2, 12 cm)
	<b>Block Size</b>	Mode 1 Mode 2 CD-DA CD-XA	2,048 bytes 2,340 bytes, 2,336 bytes 2,352 bytes 2,328 bytes
	<b>Interface</b>	IDE (ATAPI)	
	<b>Access Times (typical)</b>	Random Full-Stroke	<100 ms <150 ms
	<b>Data Transfer Rate</b>	Sustained Burst Bus Rate	3000 to 7200 KB/s (20X to 48X) 150 KBps to 7,200 KBps 16.7 MBp
	<b>Cache Buffer</b>	128 KB	
	<b>Start-up Time (typical)</b>	< 7 seconds	
	<b>Stop Time</b>	< 4 seconds	
	<b>Laser Parameters</b>	Type Wave Length	Semiconductor Laser GaAlAs 780 ± 25 nm
	<b>Operating Conditions</b>	Temperature Humidity	41° to 113° F (5° to 45° C) 10% to 80%
	<b>Dimensions</b>	(HxWxD, maximum) Weight	1.7 x 5.85 x 8.11 in (42.9 x 150 x 208 cm) 2.09 lb (0.95 kg)

<b>HP 8 Internal Port SAS Host Bus Adapter with RAID (SAS Model only)</b>	<b>Dimensions (excluding bracket)</b>	6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)
	<b>Disk Drive and Enclosure Protocol Support</b>	3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)
	<b>Architecture</b>	64-bit
	<b>SAS Connectors</b>	2 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)
	<b>Data Transfer Method</b>	64-bit wide, PCI-X 133 MHz (1 GB/s maximum bandwidth)
	<b>PCI Bus Speed</b>	PCI-X-133 and 3.3 volt PCI compatibility only
	<b>PCI</b>	PCI-X and 3.3 volt PCI compatibility only
	<b>Simultaneous Drive Transfer Ports</b>	2 x4 Wide SAS Connectors
	<b>Port Transfer Rate</b>	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
	<b>Software upgradeable Firmware</b>	Yes
	<b>Maximum Capacity</b>	576GB (8 x 72GB)

### Technical Specifications

<b>Memory Addressing</b>	64-bit, supporting servers memory greater than 4 GB
<b>Logical Drives Supported</b>	Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 8 Drives per RAID 0
<b>RAID Support</b>	RAID 1 (Mirroring) RAID 0 (Striping)
<b>Upgradeable Firmware</b>	4-MB flashable ROM
<b>Disk Drive and Enclosure Protocol Support</b>	3 Gbps SAS and 1.5 Gbps SATA

<b>Embedded HP NC7781 Gigabit Server Adapter</b> (embedded) <b>10/100/1000 WOL</b> (Wake on LAN)	<b>Network Interface</b>	Ethernet Standards: IEEE 802.3, 802.3u, 802.3ad, and 802.3ab, 802.1x, 802.1Q and 802.1p
	<b>Data Transfer Method</b>	PCI
	<b>Network Transfer Rate</b>	10/100/1000 Mbps, Half- and full-duplex      Auto-negotiated speeds of 10/100/1000 Mbps in both half and full duplex
	<b>Connector</b>	RJ-45 connector
	<b>Cable Support</b>	Category 5 or higher UTP wiring

<b>HP Embedded SATA RAID Controller</b>	<b>Dimensions</b>	N/A (embedded)
	<b>Disk Drive and Enclosure Protocol Support</b>	1.5 Gbps SATA
	<b>Architecture</b>	64-bit
	<b>SAS Connectors</b>	6 internal x1 SATA connectors
	<b>Software Upgradeable Firmware</b>	Yes
	<b>Maximum Capacity</b>	1TB
	<b>Memory Addressing</b>	6GB (maximum)
	<b>Logical Drives Supported</b>	2 (maximum)
	<b>RAID Support</b>	RAID 1 (Mirroring) RAID 0 (Striping)

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

