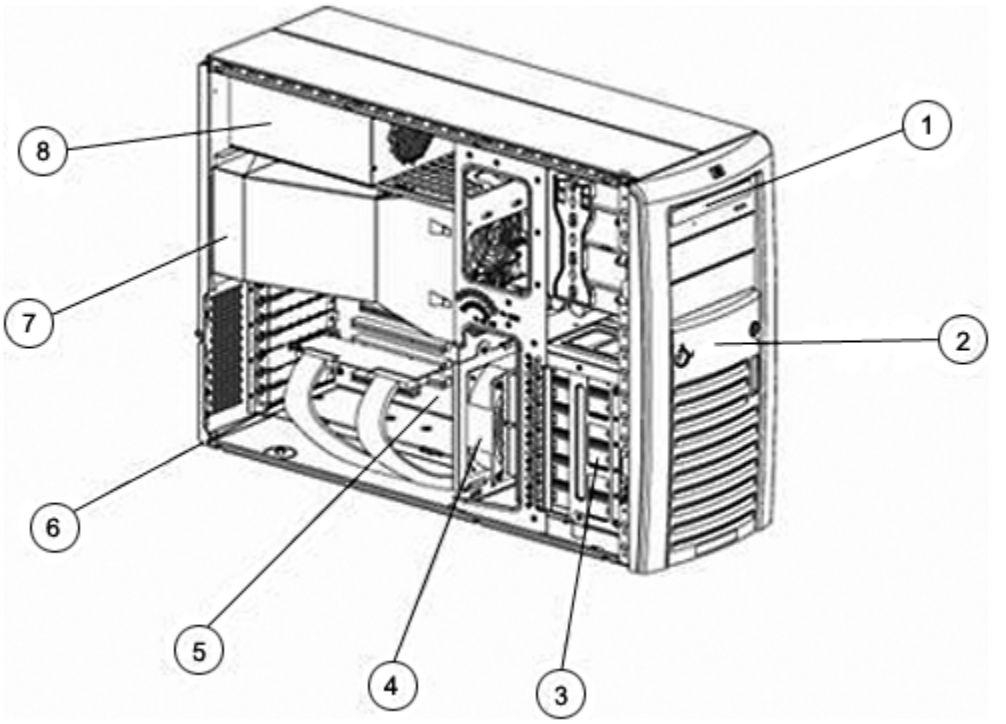
Overview



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

What's New

The ML150 G3 now supports:

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

At A Glance

- **Processor:**
  - Dual-Core Intel Xeon processor 5000 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 E200/64MB Controller or
  - 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:**

Overview

- 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

Processor One of the following depending on configuration	Quad-Core Intel® Xeon® processor E5320 (1.86 GHz, 1066 FSB, 80W)* Dual-Core Intel® Xeon® processor 5060 (3.2 GHz, 1066 FSB, 130W)* Dual-Core Intel® Xeon® processor 5140 (2.33 GHz, 1333 FSB,65W)* Dual-Core Intel® Xeon® processor 5150 (2.66 GHz, 1333 FSB, 65W)* ***NOTE:** Available via Configuration To Order only. Please see Configuration Information- Factory Integrated Models section of this QuickSpecs. Quad-Core Intel® Xeon® processor E5310 (1.6 GHz, 1066 FSB, 80W) Dual-Core Intel® Xeon® processor 5050 (3.0 GHz, 667 FSB, 130W) Dual-Core Intel® Xeon® processor 5110 (1.6 GHz, 1066 FSB, 65W) Dual-Core Intel® Xeon® processor 5120 (1.86 GHz, 1066 FSB, 65W) Dual-Core Intel® Xeon® processor 5130 (2.0 GHz, 1333 FSB, 65W)		
Cache Memory	Integrated 2x2MB level 2 cache (5000 sequence) Integrated 4MB level 2 cache (5100 sequence) Integrated 2x4MB level 2 cache (5300 sequence)		
Upgradeability	Upgradeable to dual processor		
Chipset	Intel® 5000V Chipset		
Memory	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667)	
	Standard for SATA Models	512 MB	
	Standard for SAS/SATA Model	1 GB	
	Maximum	8 GB	
Network Controller	Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL (Wake on LAN)		
Expansion Slots	I/O (6 Total, 6 Available)		PCI Voltage:
	PCI-X (64-bit/100MHz)	3	3.3 volts
	PCI-Express (x4\x8)	2	3.3 volts
	PCI (32-bit/33MHz)	1	3.3 volts
Storage Controller	HP Embedded SATA RAID Controller or HP 8 Internal Port SAS Host Bus Adapter with RAID		
Storage	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	

Standard Features

Maximum Internal Storage	SATA	4.5TB (6 x 750GB) SATA (With standard SATA controller)
	SAS	1.8TB (6 x 300GB) SAS (With optional SAS controllers)
	NOTE: Support for a single logical drive limited to 2TB. **NOTE:** Information below pertains to SATA configuration: - 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. - When configuring RAID using the embedded SATA RAID controller, two arrays have to be set up to recognize all six drives.	

Interfaces	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) **NOTE:** Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.
	Network RJ-45 (Ethernet)	1 (10/100/100 Gbits/s)
	Remote Management	1 (10/100 via optional Lights-Out 100 Remote Management Card)

Graphics	Integrated 2MB SRAM video

Form Factor	Tower (5U). Rack mounting available via rack mount option kit (P/N 408697-B21)

RoHS Requirement	For Resellers with RoHS legislation (see NOTE) The use of the noted material in a solution and subsequent resale of that solution will result in the solution no longer meeting the requirements of RoHS legislation. **NOTE:** Directive 2002/95/EC restricts the use of lead, mercury, cadmium, hexavalent chromium, PBBs and PBDEs in electronic products. References to 'RoHS legislation' mean requirements of Directive 2002/95/EC or to similar substance restriction legislation enacted by any country/region outside the EU.

Industry Standard Compliance	ACPI V1.0b compliant PCI 2.2 compliant PXE Support WOL Support Microsoft® Logo certifications

Standard Features

Manageability	Optional HP ProLiant Lights-Out 100 Remote Management Card Embedded IPMI standard reporting
Security	Power-on password Setup password Diskette boot control
Server Power Cords	One Lowline NEMA power cord
Power Supply	One 650 W Power, Non-hot plug, non-redundant
System Fans	2 - Non-hot plug, Non-redundant system fans
OS Support	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 SCO OpenServer Legend 6.0 SCO Unixware 7.1.4 Red Hat Enterprise Linux 4 (32 and 64 bit) SuSE Linux Enterprise Server 9 (32 and 64 bit) **NOTE:** For an up-to-date listing of the latest ML150 OS support matrix, please see: http://www.hp.com/go/supportos **NOTE:** For an up-to-date listing of the latest drivers available for the HP server ML150, please see: http://h18023.www1.hp.com/support/files/server/us/index.html **NOTE:** For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at:: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html **NOTE:** Drivers may also found on the base media for some Linux OS's. When configuring your server, please consult your base media driver base, or visit HP.com at: http://h18023.www1.hp.com/support/files/server/us/index.html
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 to meet customer needs. 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 on your specific server model please contact your sales representative or go http://www.hp.com/go/factory-express.

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

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

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

- *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*

Standard Features

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: 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

HP ML150G3 E5310 HP-SAS/SATA, 1GB 438786-001 **HP ML150G3 5050 HP-SAS/SATA,1GB** 399155-001 **HP ML150G3 5130 HP-SAS/SATA,1GB** 416773-001	**Processor(s)** One of the following depending on Model	(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)
	Cache Memory One of the following depending on Model	Integrated 2x2MB L 2 cache (5000 sequence) Integrated 4MB L 2 cache (5100 sequence) Integrated 2x4MB L2 cache (5300 sequence)
	Memory	1 GB PC2-5300 Fully Buffered DIMMs (DDR2-667)
	Network Controller	Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL
	Storage Controller	HP 8 Internal Port SAS Host Bus Adapter with RAID
	Hard Drive	None ship standard
	Internal Storage One of the following depending on Model	1.8TB (6 x 300GB) SAS 4.5TB (6 x 750GB) SATA (With standard/optional SAS controllers and 6 optional HDD)
	Optical Drive	48x CD-ROM
	Form Factor	Tower standard; 5U Rack via optional rack mounting kit

SATA Models

HP ML150G3 5050 NHP-SATA,512MB 399151-001 **HP ML150G3 5050 HP-SATA,512MB** 399154-001 **HP ML150G3 5110 NHP-SATA,512MB** 416769-001 **HP ML150G3 5110 HP-SATA,512MB** 416768-001 **HP ML150G3 5120 HP-SATA,512MB** 416770-001 **HP ML150G3 5130 HP-SATA,512MB** 416772-001	**Processor(s)** One of the following depending on Mode	(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)
	Cache Memory	Integrated 2x2MB L2 cache (5000 sequence) Integrated 4MB L2 cache (5100 sequence) Integrated 2x4MB L2 cache (5300 sequence)
	Memory	512 MB PC2-5300 Fully Buffered DIMMs (DDR2-667)
	Network Controller	Embedded HP NC7781 Gigabit Server Adapter 10/100/1000 WOL
	Storage Controller	HP Embedded SATA RAID Controller
	Hard Drive	None ship standard
	Internal Storage	4.5TB (6 x 750GB) SATA (With standard SATA controller and 6 optional HDD)
	Optical Drive	48x CD-ROM
	Form Factor	Tower standard; 5U Rack via optional rack mounting kit

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: 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.

Step 1: Base Configuration (Select only one model from the following selections)

Models	HP ProLiant ML150 G3 Non-hot Plug SATA Model CTO Chassis	403111-B21
	Factory Integrated Models ship with:	
	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 Model CTO Chassis	403112-B21
	Factory Integrated Models ship with:	
	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)

Processors	**Quad-Core Processor Option Kits**	
	Quad-Core Intel® Xeon® processor E5310 (1.6 GHz, 1066 FSB, 80W) **NOTE:** If 2 processors are desired, select one 437903-L21and one 437903-B21	437903-L21
	Quad-Core Intel® Xeon® processor E5320 (1.86 GHz, 1066 FSB, 80W) **NOTE:** If 2 processors are desired, select one 436460-L21 and one 436460-B21	436460-L21
	Dual-Core Processor Option Kits	
	Dual-Core Intel® Xeon® processor 5050 (3.00 GHz, 667 FSB, 130W), FIO **NOTE:** If 2 processors are desired, select one 411776-L21and one 411776-B21	411776-L21
	Dual-Core Intel® Xeon® processor 5060 (3.2 GHz, 1066 FSB, 130W), FIO **NOTE:** If 2 processors are desired, select one 411777-L21and one 411777-B21	411777-L21
	Dual-Core Intel® Xeon® processor 5110 (1.6 GHz, 1066 FSB, 65W), FIO **NOTE:** If 2 processors are desired, select one 417555-L21and one 417555-B21	417555-L21
	Dual-Core Intel® Xeon® processor 5120 (1.86 GHz, 1066 FSB, 65W), FIO **NOTE:** If 2 processors are desired, select one 417556-L21and one 417556-B21	417556-L21
	Dual-Core Intel® Xeon® processor 5130 (2.0 GHz, 1333 FSB, 65W), FIO **NOTE:** If 2 processors are desired, select one 417557-L21and one 417557-B21	417557-L21
	Dual-Core Intel® Xeon® processor 5140 (2.33 GHz, 1333 FSB, 65W), FIO **NOTE:** If 2 processors are desired, select one 417558-L21and one 417558-B21	417558-L21
	Dual-Core Intel® Xeon® processor 5150 (2.66 GHz, 1333 FSB, 65W), FIO **NOTE:** If 2 processors are desired, select one 418226-L21and one 418226-B21	418226-L21
Base Memory	512MB FBD PC2-5300 1x512MB Kit	413507-B21
	1GB FBD PC2-5300 2X512MBKit	397409-B21
	2GB FBD PC2-5300 2X1GB Kit	397411-B21
	4GB FBD PC2-5300 2X2GB Kit	397413-B21
Optical Drives	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

NOTE: 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.

Base Hard Drives	**SATA Hot Plug Drives**	
	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
	SAS Hot Plug Drives	
	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

NOTE: When hot plug drives are installed on non-hot plug models, these drives will not have hot plug functionality.

Step 3: Choose Additional Factory Integratable Options

Storage Controllers (*A PCI-based SAS Controller MUST be selected if SAS HDDs are selected in Step 2.)	HP SC11Xe Host Bus Adapter	412911-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	HP 8 Internal Port SAS HBA with RAID*	347786-B21
	HP Smart Array E200/64MB Controller*	409180-B21
	HP Smart Array E200/128 BBWC Controller*	411508-B21
	128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21

NOTE: Supports the Smart Array E200 Controller.

NOTE: 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.

Step 4: Choose Additional Options for Factory Integration

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

Options

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

Processors	**Quad-Core Processor Option Kits**	
	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
	Dual-Core Processor Option Kits	
	Dual-Core Intel® Xeon® processor 5050 (3.00 GHz, 667 FSB)	411776-B21
	Dual-Core Intel® Xeon® processor 5056 (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
Memory	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
Optical Drives	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
	NOTE: 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.	
Hard Drives	**SATA Hot Plug Drives**	
	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
	SAS Hot Plug Drives	
	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
	NOTE: When hot plug drives are installed on Non-hot plug models, these drives will not have hot plug functionality.	

Options

Storage Controllers	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 E200/64MB Controller	409180-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
	128-MB BBWC (Battery-Backed Write Cache) Enabler **NOTE:** Supports the Smart Array E200 Controller.	351580-B21
	HP ML150G3 1-PORT SATA RAID Cable **NOTE:** This cable is required for each additional SATA hard drive	413748-B21
	HP SAS/SATA 4 in 1 to 4 in Cable **NOTE:** 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	438160-B21
	HP Internal SAS/SATA 4-Port Cable **NOTE:** 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	430479-B21
	NOTE: 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	
Communications	HP NC150T PCI 4-port Gigabit Combo Switch Adapter	367132-B21
	HP NC320T PCI Express Gigabit Server Adapter	367047-B21
	HP NC340T PCI-X Quad Port Gigabit Server Adapter	391661-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC1020 PCI Single Port Gigabit Server Adapter	353377-B21
	Agere2006 PCI Hi-Speed 56K Modem	440519-B21
Remote Management	HP ProLiant ML150 G3 Lights-Out 100 Remote Management Card	403582-B21
Tape Drives	**NOTE:** A separate SCSI Controller is required for connecting SCSI tape drives to this server.	
	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	For recommended tape drive offerings for this ProLiant server see the following:	
	USB Tape Drives	
	HP StorageWorks DAT 24 USB Internal Tape Drive (Carbonite)	DW069A
	HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
	HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
	DAT Tape Drives	
	HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
	HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
	Ultrium Tape Drive	
	HP StorageWorks Ultrium 232 SCSI Internal Tape Drive	DW064A
	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	

Options

HP Data Protector Express Software	HP DP Express Backup Server Upgrade for ProLiant Software	BB117AP
	HP DP Express Package for Microsoft Small Business Server	BB118AA
	NOTE: To obtain a free licensed copy of HP Data Protector Express for ProLiant edition software, please visit the "Protect Your Data" link accessible from your ProLiant server's System Management Homepage (SMH) software (SmartStart 7.5 or later).	
	NOTE: Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software: http://h18000.www1.hp.com/products/quickspecs/12337_na/12337_na.html	
Uninterruptible Power Systems - Tower Supply	HP T750 UPS, Low Voltage	378439-D71
	HP T1000 UPS	AF403A
Installation of Server into Racks	ProLiant ML150 G3 Tower to Rack Conversion Kit	408697-B21
HP KVM Switch Options	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
	NOTE: 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
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	HP 1x 4 USB/PS2 KVM Switch, TT	371301-D71
	HP 1x 4 USB/PS2 KVM Switch, RM	371302-B21
	HP PS2 KVM Cable with audio, 6', 2-pack	371730-B21
	HP USB KVM Cable with audio, 6', 2-pack	371729-B21
	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.	
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	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

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

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".
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 2 only (pairs must be of the same size); or slots 1, 2, 3, and 4 (pairs must be of the same siz and in the example below with slots 1 and 2 the same and slots 3 and 4 the same)

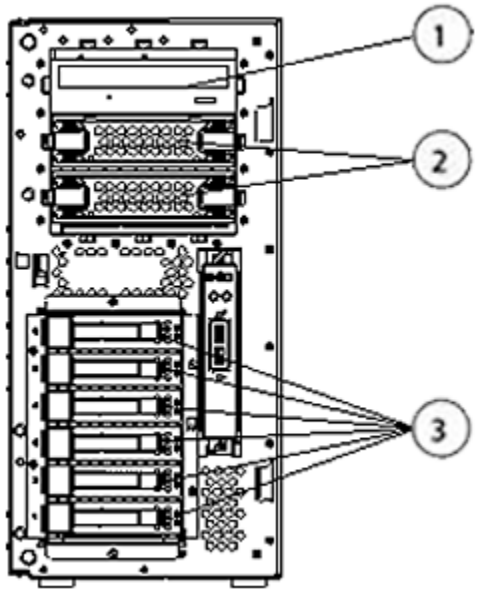
Memory		Slot			
		1	2	3	4
Standard	512 MB	512 MB	Empty	Empty	512 MB
Optional	5120 MB	512 MB	512 MB	2048 MB	2048 MB
Maximum	8192 MB	2048 MB	2048 MB	2048 MB	2048 MB

NOTE: Please make sure we have to plug the socket 1, otherwise the system can't boot, also please make sure the DIMM socket 1,2 and 3,4 should be the same size, otherwise the capacity will not 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

Non-Hot Plug SATA, Hot Plug SATA, and Hot Plug SAS/SATA



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

Drive Support

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

Hard Drives

SATA

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

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/North_America/10233.html

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/North_America/10809.html

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

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

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks USB Tape Drives, Internal DAT 24 USB DAT 40 USB DAT 72 USB	2	USB 2.0 port	N/A
HP StorageWorks USB Tape Drives, External DAT 24 USB DAT 40 USB DAT 72 USB	External	USB 2.0 port	N/A
HP StorageWorks SCSI Tape Drives, Internal DAT 40 DAT 72 Ultrium 232	2	64-Bit/133MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks SCSI Tape Drives, External DAT 40 DAT 72 Ultrium 232	External	64-Bit/133MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

Power Specifications

Part Number	402075-001
Spare Kit	407730-001
Operational Input Voltage Range (Vrms)	90 to 135 and 180 to 264 V ac full ranging
Frequency Range (Nominal) (Hz)	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
**Power shown is for a fully configured system consisting of	
(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 Cords (13 Cord Sets)	**Power Cord Part Number**
	121565-001

Technical Specifications

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

48X Max IDE (ATAPI) CD-ROM Drive	**Disk**	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)
	Block Size	Mode 1	2,048 bytes
		Mode 2	2,340 bytes, 2,336 bytes
		CD-DA	2,352 bytes
		CD-XA	2,328 bytes
	Interface	IDE (ATAPI)	
	Access Times (typical)	Random	<100 ms
		Full-Stroke	<150 ms

Technical Specifications

	Data Transfer Rate	Sustained	3000 to 7200 KB/s (20X to 48X)
		Burst	150 KBps to 7,200 KBps
		Bus Rate	16.7 MBp
	Cache Buffer	128 KB	
	Start-up Time (typical)	< 7 seconds	
	Stop Time	< 4 seconds	
	Laser Parameters	Type	Semiconductor Laser GaA1As
		Wave Length	780 ± 25 nm
	Operating Conditions	Temperature	41° to 113° F (5° to 45° C)
		Humidity	10% to 80%
	Dimensions	(HxWxD, maximum)	1.7 x 5.85 x 8.11 in (42.9 x 150 x 208 cm)
		Weight	2.09 lb (0.95 kg)
HP 8 Internal Port SAS Host Bus Adapter with RAID (SAS Model only)	**Dimensions** (excluding bracket)		6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)
	Disk Drive and Enclosure Protocol Support		3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)
	Architecture		64-bit
	SAS Connectors		2 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)
	Data Transfer Method		64-bit wide, PCI-X 133 MHz (1 GB/s maximum bandwidth)
	PCI Bus Speed		PCI-X-133 and 3.3 volt PCI compatibility only
	PCI		PCI-X and 3.3 volt PCI compatibility only
	Simultaneous Drive Transfer Ports		2 x4 Wide SAS Connectors
	Port Transfer Rate		12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
	Software upgradeable Firmware		Yes
	Maximum Capacity		576GB (8 x 72GB)
	Memory Addressing		64-bit, supporting servers memory greater than 4 GB
	Logical Drives Supported		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
	RAID Support		RAID 1 (Mirroring) RAID 0 (Striping)
	Upgradeable Firmware		4-MB flashable ROM
	Disk Drive and Enclosure Protocol Support		3 Gbps SAS and 1.5 Gbps SATA

Technical Specifications

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

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

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