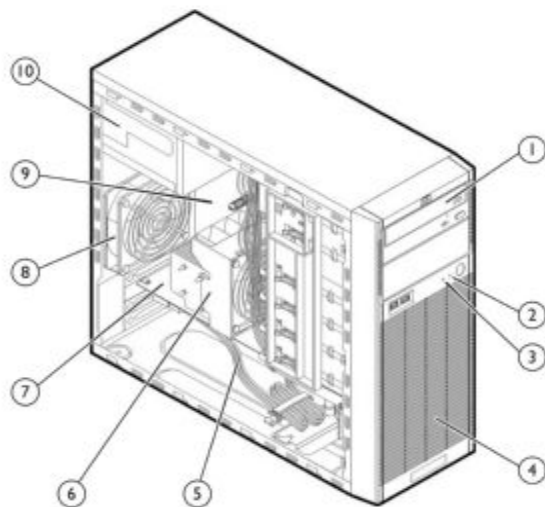
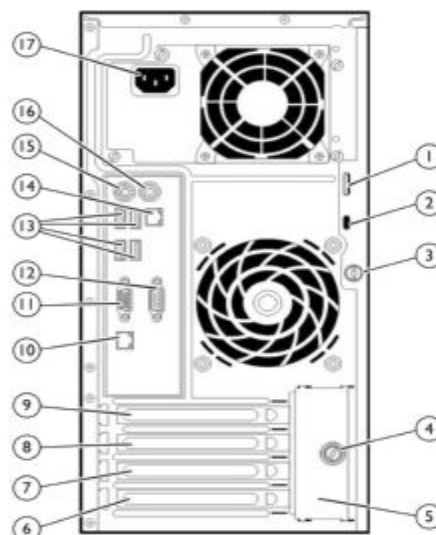


Overview



Front View:

1. DVD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Front Bezel
5. SAS Cable (SAS model only)
6. CPU Heatsink
7. Hard Drive Controller Card (Optional)
8. System Fan
9. System Board
10. 300W Power Supply



Rear View:

1. Kensington lock notch
2. Cable lock provision notch
3. Access panel thumbscrew
4. Expansion slot cover retainer thumb screw
5. Expansion slot cover
6. Expansion slot 1
7. Expansion slot 2
8. Expansion slot 3
9. Expansion slot 4
10. Management NIC port (RJ-45)
11. Video port
12. Serial port
13. USB ports
14. Embedded NIC port (RJ-45)
15. PS/2 keyboard port
16. PS/2 mouse port
17. Power supply cable socket

What's New

- Support for Intel® Core i3, Pentium and Celeron processors
- Support for 1TB SATA Non-Hot Plug Midline Hard Drive

Overview

At A Glance

- **Processor:**
 - Intel® Xeon® processor X3400 series
 - Intel® Core™ i3 processors
 - Intel® Pentium® processor
 - Intel® Celeron® processor
 - Intel® 3420 chipset
- **Memory:**
 - Four (4) DIMM slots
 - 2GB (1x2GB) or 4GB (2x2GB) Standard/8GB Maximum, using PC3-10600E DDR3 Unbuffered (UDIMM) ECC memory, operating up to 1333MHz
- **Storage Controller:**
 - Integrated 6 ports SATA controller
 - (4 ports available for hard disks)
NOTE: Transfer rate: 3 Gb/s SATA.
- **Internal Drive Support:**
 - Internal SAS storage capacity of up to 1.8TB (4 x 450GB 3.5" SAS drives)
 - Internal SATA storage capacity of up to 4.0TB (4 x 1TB 3.5" SATA drives)
- **Network Controller:**
 - Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
- **Expansion Slots:**
 - Slot 1: PCI-e Gen 1, x1 (x4 connector) Full-height & Half-length
 - Slot 2: PCI 32-bit/33 MHz at 3.3V Full-height & Full-length
 - Slot 3: PCI-e Gen 1, x4 (x8 connector) Full-height & Full-length
 - Slot 4: PCI-e Gen 2, x16 (x16 connector) Full-height & Full-length
- **USB 2.0 Ports:**
 - Eight (8) USB 2.0 ports: 2 front , 4 rear, 2 internal (one for tape, one for standard USB device)
- **Security - Trusted Platform Module:**
 - One (1) internal TPM 1.2 module connector (Optional)
- **Power Supply:**
 - 300 Watts Non-Hot Plug, Non Redundant Power Supply (80% efficiency)
- **Management:**
 - Standard Lights Out 100 IPMI 2.0 reporting
 - Standard HP ProLiant ML110 G6 Easy Set-up CD
 - Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
- **Operating System:**
 - Supports Windows including Hyper-V, RHEL and SLES
- **Form Factor:**
 - Micro ATX tower (4U)
NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs
- **Warranty:**
 - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair are available for one year 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. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
NOTE: Server Warranty includes 1 year parts, 1 year labor, 1-year on-site support with next business day response. (3-1-1 warranty offered in Brazil only). Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Standard Features

Processor

One of the following depending on Model

Quad-Core Processors

Intel® Xeon® processor X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor X3450 (2.66GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)

Intel® Xeon® processor X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)

Dual-Core Processors

Intel® Core™ processor i3-540 (3.06GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Core™ processor i3-530 (2.93GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066)

Intel® Celeron® processor G1101 (2.26GHz, 73W, 2MB, 1066)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology.

NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active.

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

Cache Memory

Integrated 8MB Intel® Smart Cache

Integrated 4MB Intel® Smart Cache

Integrated 3MB Intel® Smart Cache

Integrated 2MB Intel® Smart Cache

Chipset

Intel® 3420 chipset

NOTE: For more information regarding Intel chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

Memory Protection

ECC

Memory

Type	PC3-10600E unbuffered DDR3 ECC up to 1333MHz
Standard	2GB (1x2GB) or 4GB (2x2GB)
Maximum	8 GB

Network Controller

Embedded NC107i PCI Express Gigabit Ethernet Server Adapter

Standard Features

Expansion Slots #	Technology	Bus Width***	Connector Width	Bus Number*	Device Number**	Form Factor	Notes
1	PCIe	X1	X4	16	0	Full height, half length slot	Gen.1, NHP
2	PCI	32 bit	N/A	48	0	Full height & Full-length slot	33MHz/3.3V, NHP
3	PCIe	X4	X8	32	0	Full height & Full-length slot	Gen.1, NHP
4	PCIe	X16	X16	1	0	Full height & Full-length slot	Gen.2, NHP

*Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

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

*** Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controller Integrated 6 ports SATA controller (4 ports available for Hard Disks)
NOTE: Transfer rate: 3 Gb/s SATA.

Storage

Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive ships standard
Hard Drives	1x160 GB NHP SATA 7200 rpm Drive (Entry Model) 1x250 GB NHP SATA 7200 rpm Drive (Base Model) 2x250 GB NHP SATA 7200 rpm Drive (Performance Model)

Maximum Internal Storage

Non-Hot Plug SAS	1.8TB (4 x 450GB) 3.5" SAS
Non-Hot Plug SATA	4.0TB (4 x 1TB) 3.5" SATA

Interfaces

Parallel	0
Serial	1
Pointing Device (Mouse, PS2)	1
Graphics	1
Keyboard (PS2)	1
USB 2.0 Ports	8 total (4 rear, 2 front panel, 2 internal (one for USB Tape connectivity))
	NOTE: 1 Dedicated USB port available for internal 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(10/100/1000 bits/s)
Remote Management	HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 100i)

Graphics 64MB shared supporting all display resolutions up to 1600 x 1200 16bpp @ 75Hz
NOTE: 8MB is dedicated to video memory.

Standard Features

Form Factor Micro ATX Tower (4U)
NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs.

Embedded Manageability **HP ProLiant Onboard Administrator and LO100i Advanced** HP ProLiant Onboard Administrator Powered by LO100i Lights-Out 100 with Optional LO100i Advanced Licenses for Virtual KVM and Virtual Media.

Features:

- Embedded IPMI standard reporting
- System event log access
- Remote Serial console (serial redirection)
- Browser, Telnet access
- SMASH-CLP compliant
- DCMI 1.0 compliant
- IPMI 2.0 compliant
- Secure Socket Layer Encryption
- Secure Shell Encryption
- Virtual media (Floppy, CD, DVD, ISO image, USB 2.0) with Advanced License
- Virtual KVM with Advanced License

NOTE: For more information, please refer to the QuickSpecs for the LO100i found at: www.hp.com/go/lo100

Core Infrastructure Management **HP ProLiant ML110 G6 Easy Set-up CD** The HP ProLiant Easy Set-up CD optimizes single-server setup, providing a simple way to deploy reliable and consistent server configurations. The HP ProLiant 100 Series Easy Set-up CD ships standard with the ML110 G6.

It offers essential single-server deployment tools for HP ProLiant 100 series servers that simplify HP entry server setup, providing a repeatable way to deploy reliable and consistent single-server configurations. The HP ProLiant Easy Set-up CD assists with the OS installation process by preparing the system for installing "off-the-shelf" versions of Windows operating system software and automatically integrating optimized HP ProLiant server software drivers and utilities. Users enjoy the following benefits:

- An easy-to-use, intuitive graphical interface that prepares your system for the OS installation process.
- Integration of key server software drivers with assisted installation.
- Dependency and validity checks to ensure that all supported ProLiant software can be installed.

NOTE: For the latest information about other related software; please visit the HP Insight Control Management Software Portfolio at: <http://h18004.www1.hp.com/products/servers/management/> and the HP ProLiant Easy Set-up CD Web site at: www.hp.com/servers/easysetup

Standard Features

Industry Standard Compliance

ACPI V3.0a Compliant
PCI 2.3 Compliant
PXE Support
WOL Support
IPMI 2.0 compliance
Microsoft® Logo certifications
Red Hat Enterprise Linux Logo certifications
SUSE Linux Enterprise Server Logo certifications
USB 2.0

Manageability

HP ProLiant Onboard Administrator Powered by HP Integrated Lights-Out 100i with optional LO100i Advanced Licenses for Virtual KVM and Virtual Media.
Embedded Lights Out 100 IPMI 2.0 standard reporting
Standard HP ProLiant ML110 G6 Easy Set-Up CD
Array Configuration Utility (ACU)
Array Diagnostics Utility (ADU)
HP Insight Diagnostics
HP Insight Management Agents and Insight Management Providers for Systems Insight Manager (SIM) Integration

Security

Power-on password
Setup password
Secure Sockets Layer (SSL)
Secure Shell (SSH)

Security - TPM

The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline.

NOTE: For more information about TPM, including a white paper, go to: www.hp.com/go/TPM

NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.

NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

Server Power Cords

6' country specific, lowline NEMA power cord.

Power Supply

300 Watts Non-Hot Plug, Non redundant Power Supply (80% efficiency)

System Fans

One (1) - Non-redundant system fan shipped standard
One (1) - Non-redundant CPU heatsink fan shipped standard

Standard Features

Operating Systems and [Microsoft Windows Server](#)

Virtualization Software [Red Hat Enterprise Linux \(RHEL\)](#)

Support for ProLiant [SUSE Linux Enterprise Server \(SLES\)](#)

Servers

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/supportos> and our driver download page <http://www.hp.com/support/ML110G6>

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and/or 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 MSxxxx, 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 eConfigure 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 HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the enclosure, as well as 22" and smaller external monitors and rack mounted UPS options. HP Uninterruptible Power Systems will be covered at the same service level and 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 capitalize 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.

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

- **Support Service** - 3 Year, 9x5 Next Business Day coverage, excluding HP holidays only
- **Deployment Service** - Hardware Installation only

Enhanced Service - Optimize service level to increase IT performance and availability

- **Support Service** - 3 Year 13x5 Same Business Day, 4-Hour response coverage
- **Deployment Service** - Installation and Start-up only

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

Standard Features

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

For a complete listing of service offerings and information visit:

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

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

Models

SATA Models

Entry Model	Processor	(1) Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066)
HP ML110 G6 G6950 NHP SATA Server 506666-xx1	Cache Memory	3MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Storage Controller	HP Embedded 6 Port SATA Controller (4 ports for HDD)
	Hard Drive	1 x 160GB Non-hot-plug LFF SATA
	Internal Storage	Non-Hot Plug SATA: Maximum 4.0TB (4 x 1TB)
	Power Supply	300W Non-Hot Plug, Non-Redundant Power Supply (80% efficiency)
	Networking	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
	Management	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Mouse & Keyboard	None ships standard
	Form Factor	Micro ATX Tower (4U)

Base Model	Processor	(1) Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)
HP ML110 G6 X3430 NHP SATA Server 506667-xx1	Cache Memory	8MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Storage Controller	HP Embedded 6 Port SATA Controller (4 ports for HDD)
	Hard Drive	1 x 250GB Non-hot-plug LFF SATA
	Internal Storage	Non-Hot Plug SATA: Maximum 4.0TB (4 x 1TB)
	Power Supply	300W Non-Hot Plug, Non-Redundant Power Supply (80% efficiency)
	Networking	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
	Management	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Mouse & Keyboard	None ships standard
	Form Factor	Micro ATX Tower (4U)

Performance model	Processor	(1) Intel® Xeon® processor X3450 (2.66GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)
HP ML110 G6 X3450 NHP SATA Server 506668-xx1	Cache Memory	8MB Intel® Smart Cache
	Memory	4GB (2x2GB) PC3-10600E DDR3 UB ECC
	Storage Controller	HP Embedded 6 Port SATA Controller (4 ports for HDD)
	Hard Drive	2 x 250GB Non-hot-plug LFF SATA
	Internal Storage	Non-Hot Plug SATA: Maximum 4.0TB (4 x 1TB)
	Power Supply	300W Non-Hot Plug, Non-Redundant Power Supply (80% efficiency)
	Networking	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
	Management	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Mouse & Keyboard	None ships standard
	Form Factor	Micro ATX Tower (4U)

Models

Country Code Key		
	XX=00	NA
	XX=01	Australia
	XX=03	UK
	XX=04	Germany
	XX=05	France
	XX=29	Japan (P/N 506666-xx1)
	XX=37	AP
	XX=42	Euro
	XX=AA	PRC (Excludes P/N 506666-xx1)

Configuration Information-Factory Integrated Models

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.

NOTE: Configure-to-order servers must start with a CTO Chassis.

NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Configuration

Models	HP ProLiant ML110G6 CTO Chassis	510078-B21
	Factory Integrated Models ship with:	
	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter	
	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management	
	Embedded SATA controller	
	Non hot-plug SAS/SATA 4 port cable	
	Easy set up CD	
	PCA	
	Power cord	
	Micro ATX Tower (4U)	

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

HP Processors	Quad-Core Processor	
	Intel® Xeon® processor X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO	578348-L21
	Intel® Xeon® processor X3450 (2.66GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4), FIO	578347-L21
	Intel® Xeon® processor X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3), FIO	578346-L21
	Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3), FIO	578345-L21
	Dual-Core Processor	
	Intel® Core™ processor i3-540 (3.06GHz, 73W, 4MB, 1333, HT), FIO	578352-L21
	Intel® Core™ processor i3-530 (2.93GHz, 73W, 4MB, 1333, HT), FIO	578351-L21
	Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066), FIO	578350-L21
	Intel® Celeron® processor G1101 (2.26GHz, 73W, 2MB, 1066), FIO	578349-L21

HP Memory	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator .	

HP Optical Drives	HP Half-Height SATA DVD ROM Kit	447326-B21
	HP Half-Height SATA DVD-RW Optical Kit	447328-B21

Configuration Information-Factory Integrated Models

HP Hard Drives	SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1y Wty Hard Drive	
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1y Wty Hard Drive	507772-B21
	HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1y Wty Hard Drive	458941-B21
	SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
	HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1y Wty Hard Drive	571232-B21
	HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1y Wty Hard Drive	458947-B21
	SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	NOTE: Support for SAS non-hot plug drives require HP SAS/Smart Array Controller.	
	HP 450GB 6G SAS 15K LFF (3.5-inch) Non-hot Plug Dual Port ENT 3y Wty Hard Drive	454234-B21
	HP 450GB 3G SAS 15K LFF (3.5-inch) Non-hot Plug Dual Port ENT 3y Wty Hard Drive	417950-B21
	HP 146GB 3G SAS 15K LFF (3.5-inch) Non-hot Plug Dual Port ENT 3y Wty Hard Drive	417855-B21

HP Storage Controllers	SAS Controller	
	NOTE: Support for SAS hard drives/tape drive requires selection of a SAS controller.	
	NOTE: Support for RAID levels requires selection of a SAS controller.	
	Smart Array P212 Controller	
	HP P212/256 MB Smart Array Controller FIO Kit	491191-B21

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional "Core Options" and "Additional Options", please refer to the "Options" sections below.

Core Options

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

HP Memory	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

HP Optical Drives	HP Half-Height SATA DVD ROM Kit	447326-B21
	HP Half-Height SATA DVD-RW Optical Kit	447328-B21

HP Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1y Wty Hard Drive	507772-B21
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HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1y Wty Hard Drive	458941-B21
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SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1y Wty Hard Drive	571232-B21
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HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1y Wty Hard Drive	458947-B21
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

NOTE: Support for SAS non-hot plug drives require HP SAS/Smart Array Controller.

HP 450GB 3G SAS 15K LFF (3.5-inch) Non-hot Plug Dual Port ENT 3y Wty Hard Drive	454234-B21
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HP 300GB 3G SAS 15K LFF (3.5-inch) Non-hot Plug Dual Port ENT 3y Wty Hard Drive	417950-B21
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HP 146GB 3G SAS 15K LFF (3.5-inch) Non-hot Plug Dual Port ENT 3y Wty Hard Drive	417855-B21
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

Core Options

HP Networking

HP NC112T PCI Express Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC373T PCI Express Multi-function Gigabit Server Adapter	394791-B21
HP NC382T PCI Express Dual Port Multi-function Gigabit Server Adapter	458492-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs

Additional Options

HP Entry-Level Server Management	HP LO100i Advanced Pack, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates For additional License Kits please see the Lights-Out 100i QuickSpecs at: www.hp.com/go/lo100 .	530521-B21
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HP Security (TPM)	HP Trusted Platform Module Option Kit www.hp.com/go/TPM	488069-B21
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HP Storage Controllers **SAS Controllers**

NOTE: Support for SAS hard drives/tape drive requires selection of a SAS controller.

NOTE: Support for any RAID level requires selection of a SAS controller.

Smart Array P212 Controller

HP Smart Array P212/Zero Memory Controller	462828-B21
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HP Smart Array P212/256MB Controller	462834-B21
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Optional Upgrades

256 MB Cache Module	462968-B21
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Battery Kit upgrade	462969-B21
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NOTE: Required to enable BBWC on the 256MB cache.

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

http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html
 (Smart Array P212 Controller)

SCSI HBA

HP SC11Xe U320 Host Bus Adapter	412911-B21
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NOTE: Supports SCSI Tapes only, no RAID support.

NOTE: HBA is recommended for SCSI tape drive support.

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

http://h18004.www1.hp.com/products/quickspecs/12566_div/12566_div.html
 (SC11Xe HBA)

HP Backup & Recovery **Data Protector Express Software**

HP Data Protector Express 4.0 SP1 Backup Server	BB117BA
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HP Data Protector Express 4.0 SP1 for Microsoft Small Business Server	BB118BA
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HP Data Protector Express Backup Server 4.0 SP1 Upgrade from Data Protector Express Single Server Edition	BB117BT
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NOTE: Only of these Data Protector Express base products is required. For more information on Data Protector Express and to see available options please visit: <http://www.hp.com/go/dataprotectorexpress>

Additional Options

HP Tape Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>.

Rack-Mount Tape Drive Solutions

HP StorageWorks DAT 320 USB Internal Tape Drive AJ825A

HP StorageWorks DAT 320 SAS Internal Tape Drive AJ830A

NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive DW085A

NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive EH847A

NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Tape Autoloader AH558A

NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks MSL2024 Tape Library with one LTO-3 Ultrium 920 SAS Drive AH559A

NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP Disk Backup

NOTE: For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>.

HP StorageWorks Disk To Disk Backup Appliances with Backup Data Deduplication

NOTE: These are network connected appliances with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

HP StorageWorks D2D2502i Backup System EJ001A

NOTE: 1.5TB of usable network disk backup capacity.

HP StorageWorks D2D2504i Backup System EJ002A

NOTE: 3TB of usable network disk backup capacity.

HP StorageWorks RDX Removable Media Disk Backup Solutions

HP StorageWorks RDX320 Internal Removable Disk Backup System AJ767A

NOTE: 320GB of Disk Storage.

HP StorageWorks RDX500 Internal Removable Disk Backup System AJ934A

NOTE: 500GB of Disk Storage.

Additional Options

HP Uninterruptible Power Systems

HP Tower UPS

HP T750 G2 UPS Models

HP T750 G2 UPS, INTL AF447A

HP T750 G2 UPS, NA AF446A

HP T750J UPS, Japan AF456A

HP T1000 G3 UPS Models

HP T1000 G3 UPS, INTL AF449A

HP T1000 G3 UPS, NA AF448A

HP T1000J UPS, Japan AF457A

HP T1500 G3 UPS Models

HP T1500 G3 UPS, INTL AF451A

HP T1500 G3 UPS, NA AF450A

HP T1500J UPS, Japan AF458A

NOTE: For additional information regarding HP Uninterruptible Power Systems, please see the following URL: www.hp.com/go/rackandpower (Worldwide)

NOTE: For additional information on sizing your server, please reference: <http://www.upssizer.com>

HP Rack Series

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)

10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet AF034A

10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet AF038A

10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet AF044A

10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet AF045A

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> (Worldwide)

HP Rack Options

HP KVM Switch Options

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

NOTE: required for supporting USB peripherals.

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 Rack Options

HP Tower to Rack Conversion Tray, Universal Kit 417705-B21

Additional Options

HP USB and SD Options	HP ProLiant Server Mouse	AC105A
	HP ProLiant Server Keyboard	AC110A
	HP USB 2-Button Optical Mouse ALL	DC172B
	HP USB 04 Standard Keyboard	DT528A#xxx
	USB Floppy Drive, External	DC361B

NOTE: For the installation of Windows and other OS's, a floppy drive or the HP USB Floppy Drive Key may be required to complete driver installation. A standard USB drive key may not work to complete driver installation.

HP Care Pack Services Hardware Services Next Business Day On-Site Service

9-Hour x 5-Day Coverage, 3 Years, Electronic U4433E

Hardware Services - 4-Hour On-site Service

13-Hour x 5-Day Coverage, 3 Years, Electronic U4434E

24-Hour x 7-Day Coverage, 3 Years, Electronic U4435E

Hardware Services 6-Hour Call to Repair On-Site Service

6-Hour Call to Repair, On-Site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4436E

Hardware Installation

Hardware Installation, Electronic U4444E

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

Memory

HP ProLiant ML110 G6 Models

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

Standard Memory

SATA Models:

2GB or 4 GB of PC3-10600E DDR3 UDIMM running up to 1333MHz with memory kits installed.

Standard Memory with Optional Memory

Up to 8GB of memory is available with the installation of standard and optional memory, 4x 2 GB PC3-10600E un-buffered ECC DDR3 SDRAM DIMM Memory kits.

NOTE: The below chart does not represent all possible memory configurations.

NOTE: For best performance, it is recommended that customer installs memory in identical pairs (Slots 1C and 3D are interleaving pair. Slots 2A and 4B are interleaving pair).

Memory		Slot			
		DIMM1C	DIMM2A	DIMM3D	DIMM4B
Standard (Entry Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Base Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Performance Model)	4 GB	Empty	2 GB	Empty	2 GB
Maximum	8 GB	2 GB	2 GB	2 GB	2 GB

Following are memory options available from HP:

HP 2GB 2Rx8 PC3-10600E-9 Kit

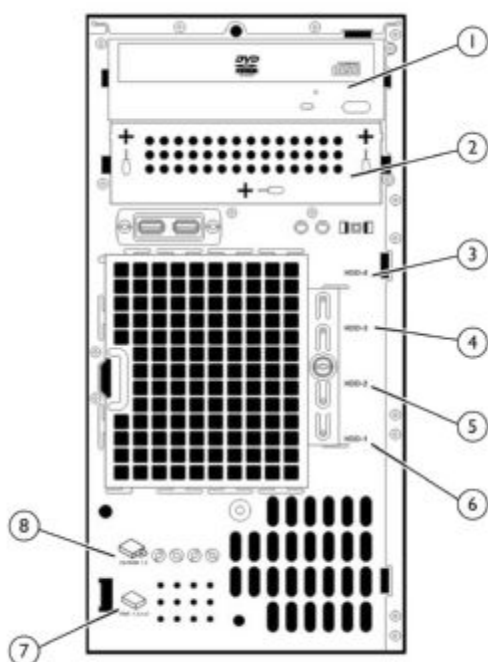
500670-B21

HP 1GB 1Rx8 PC3-10600E-9 Kit

500668-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

Storage



1. 1st removable media drive
2. 2nd removable media drive
3. 4th SAS/SATA hard drive
4. 3rd SAS/SATA hard drive
5. 2nd SAS/SATA hard drive
6. 1st SAS/SATA hard drive
7. HDD spare screws
8. Removable media drive spare screws

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
DVD Drive	2	1 or 2	Integrated SATA
DVD-RW Drive	2	1 or 2	Integrated SATA

Hard Drives (SATA Models only)

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G 7.2K 500GB 3G 7.2K	Up to 4	3,4,5,6	6 Port SATA controller NOTE: Transfer rate: 3 Gb/s SATA. NOTE: RAID support requires HP Smart Array P212 Controller.

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G 7.2K 160GB 3G 7.2K	Up to 4	3,4,5,6	6 Port SATA controller with NOTE: Transfer rate: 3 Gb/s SATA. NOTE: RAID support requires HP Smart Array P212 Controller.

Hard Drives (SAS Models only)

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

NOTE: SAS non-hot plug drives require HP SAS/Smart Array Controller.

Storage

	Quantity Supported	Position Supported	Controller
450GB 3G 15K DP	Up to 4	3,4,5,6	Smart Array P212 Controller NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the Controller. Refer to the Controller technical specifications for details.
400GB 3G 10K DP			
300GB 3G 15K DP			
146GB 3G 15K DP			

Maximum Storage Capacity - SATA/SAS Models

Internal	SATA	SAS
	4.0TB (4 x 1TB)	1.8TB (4 x 450GB)

Tape and Disk-Based Backup

NOTE: Installation of SCSI tape drives requires SCSI HBA controller (PN: 412911-B21).

NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: www.hp.com/go/connect.

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks USB Tape Drives, External DAT 40 DAT 72 DAT 160 DAT 320	Desktop	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840	Desktop	HP Smart Array P212 SAS controller	462828-B21
HP StorageWorks USB Tape Drives, Internal DAT 40 DAT 72 DAT 160 DAT 320 HP 1U USB Rack-Mount Kit (A8007A)	Internal or HP Rack-Mount Kit	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, Internal DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 HP 1U SAS Rack-Mount Kit (AE459A) HP 3U SAS Rack-Mount	Internal or HP Rack-Mount Kit	HP Smart Array P212 SAS controller	462828-B21



Storage

Kit (AG576A)

<p>HP StorageWorks SAS Tape Automation 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096</p>	<p>Rack-Mount or External</p>	<p>HP Smart Array P212 SAS controller</p>	<p>462828-B21</p>
<p>HP StorageWorks Fibre Channel Tape Automation MSL2024 MSL4048 MSL8096 MSL6000</p>	<p>Rack-Mount or External</p>	<p>For connectivity information see the connectivity matrix at: http://www.hp.com/go/ebs</p>	
<p>HP StorageWorks USB RDX Removable Disk Backup System, External RDX160 RDX320 RDX500</p>	<p>Desktop</p>	<p>USB 2.0 Port</p>	<p>N/A</p>
<p>HP StorageWorks USB RDX Removable Disk Backup System, Internal RDX160 RDX320 RDX500 HP 1U USB Rack-Mount Kit (A8007A)</p>	<p>Internal or HP Rack-Mount Kit</p>	<p>USB 2.0 Port</p>	<p>N/A</p>
<p>HP StorageWorks D2D Backup Systems, iSCSI D2D2500i series D2D4000i series</p>	<p>Rack-Mount</p>	<p>Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.</p>	
<p>HP StorageWorks D2D Backup Systems, Fibre Channel D2D4000 series</p>	<p>Rack-Mount</p>	<p>For connectivity information see the connectivity matrix at: http://www.hp.com/go/ebs</p>	

Power Specifications

Part Number 445067-001
Operational Input Voltage Range 100 to 127 and 200 to 240 V auto ranging (Vrms)
Frequency Range (Nominal) (Hz) 50 to 60 Hz

Nominal Input Voltage (Vrms)	100	120	200	230	240
Max Rated Output Wattage Rating	300	300	300	300	300
Nominal Input Current (A rms)	5	5	2.5	2.5	2.5
Max Rated Input Wattage Rating (Watts)	400	N/A	N/A	400	N/A
Max. Rated VA (Volt-Amp)	400	N/A	N/A	400	N/A
Efficiency (%)	80%	80%	80%	80%	80%
Power Factor	0.9	N/A	N/A	0.9	N/A
Leakage Current (mA)	3.5mA	N/A	N/A	N/A	N/A
Maximum Inrush Current (A peak)	N/A	No component was damaged and input fuse shall not blow	N/A	No component was damaged and input fuse shall not blow	N/A
Maximum Inrush Current duration (mS)	N/A	N/A	N/A	N/A	N/A

System Specifications

	Power **
HP ProLiant ML110 G6 Fully Configured	(see **)
Fully Loaded System output Wattage (W)	300W
Fully Loaded System Input Current (A rms)	5A @ 100V, 2.5A @ 200V
Fully Loaded System Thermal (BTU-Hr)	1277BTU
Fully Loaded System VA (Volt-Amp)	400 VA
System Leakage with all power supplies loaded (mA)	3.5mA@110V 3.5mA@220V
System Inrush Current with all power supplies loaded (A)	<150A@240Vac
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
	**Power shown is for a fully configured system consisting of (1) CPU, (4) double-sided DIMMs, (4) HDDs, (1) DVD-ROM, (4) PCI cards, and (1) power supply.
Power Cords (13 Cord Sets)	Power Cord Part Number
Country	
Taiwan	393312-001
Japan	139867-005
India	397138-002
Brazil	285052-001
Australia	100661-001
Euro	100614-009
PRC	286496-001
UK	100613-008
US	121565-001
ITL	109197-008

NOTE: To review typical system power ratings use the Active Answers HP Power Advisor which is available via the online tool located at URL: <http://www.hp.com/go/hppoweradvisor>

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: ML110 G6
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

Technical Specifications

System Unit	Dimensions (HxWxD) (with feet)	14.38 x 6.9 x 16.8 in (36.52 x 17.5 x 42.6 cm)							
	Weight (approximate)	<table border="0"> <tr> <td>Maximum</td> <td>30.53 lb (13.85 kg)</td> </tr> <tr> <td colspan="2">(all hard drives, power supplies, and processors installed)</td> </tr> <tr> <td>Minimum</td> <td>25.13 lb (11.4 kg)</td> </tr> <tr> <td colspan="2">(one hard drive, power supply, and processor installed)</td> </tr> </table>	Maximum	30.53 lb (13.85 kg)	(all hard drives, power supplies, and processors installed)		Minimum	25.13 lb (11.4 kg)	(one hard drive, power supply, and processor installed)
Maximum	30.53 lb (13.85 kg)								
(all hard drives, power supplies, and processors installed)									
Minimum	25.13 lb (11.4 kg)								
(one hard drive, power supply, and processor installed)									
Input Requirements (per power supply)	Rated Line Voltage	90 to 132 VAC, 180 to 264 VAC							
	Rated Input Current	5 A (at 100 VAC), 2.5 A (at 200 VAC)							
	Rated Input Frequency	47 to 63 Hz							
	Rated Input Power	400 W (at 100 VAC), 400 W (at 200 VAC)							
Power Specifications	To review typical power ratings use the Power Advisor which is available via the online tool located at URL: http://www.hp.com/go/hppoweradvisor								
Power Supply Output (per power supply)	Rated Steady-State Power	300 W (at 100 VAC), 300 W (at 200 VAC)							
	Maximum Peak Power	300 W (at 100 VAC), 300 W (at 200 VAC)							
	System Inlet Temperature	<table border="0"> <tr> <td>Operating</td> <td>10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 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 may shut down if operating with a fan fault or above 42°C (107.6°F).</td> </tr> <tr> <td>Non-operating</td> <td>-35° to 65°C (-31° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).</td> </tr> </table>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 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 may shut down if operating with a fan fault or above 42°C (107.6°F).	Non-operating	-35° to 65°C (-31° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).			
Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 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 may shut down if operating with a fan fault or above 42°C (107.6°F).								
Non-operating	-35° to 65°C (-31° to 149°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	10% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.							
Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 609 m/min (2000 ft/min).							
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 609 m/min (2000 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								

Technical Specifications

74) and declared in accordance with ISO 9296 (ECMA 109).

Idle

L_{WA} 4.32 Bels

L_{pAm} 24.9 dBA

Operating

L_{WA} 4.41 Bels

L_{pAm} 25 dBA

NOTE: The listed sound levels above apply to standard SATA configurations. Additional options may result in increased sound levels.

Emissions Classification (EMC)

FCC Rating Class B

Normative Standards CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

**HP 160GB 3G SATA 160GB 7,200 rpm
7.2K NHP 3.5" ETY HDD
458947-B21**

Capacity 160,041MB

Height 1.028 in. (26.1 mm)

Maximum drive
dimension

Width 4.00 in (101.6 mm)

Depth 5.787 in (147.0 mm)

Maximum drive
dimension

Interface Serial ATA

Transfer Rate 3Gb/s
(Maximum)

Native Command Supported

Queuing

Seek Time Single Track 2.0 ms

(typical reads, including
Average <11 ms
settling)

Full-Stroke 22.0 ms

Rotational Speed 7,200 rpm

Physical Configuration Bytes/Sector 512

Logical Blocks 312,581,808

Operating Temperature 50° to 95° F (10° to 35° C)

(system inlet air
temperature)

Technical Specifications

HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD 458939-B21	250GB 7,200 rpm	Capacity 250 GB Height 1.028 in. (26.1 mm) Maximum drive dimension Width 4.00 in (101.6 mm) Depth 5.787 in (147.0 mm) Maximum drive dimension Interface Serial ATA Transfer Rate (Maximum) 3Gb/s Native Command Queuing Supported Seek Time (typical reads, including settling) Single Track 2.0 ms Average <8.5 ms Full-Stroke 21.0 ms Rotational Speed 7,200 rpm Physical Configuration Bytes/Sector 512 Logical Blocks 488,397,168 Operating Temperature 50° to 95° F (10° to 35° C) (system inlet air temperature)
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HP Half-Height 16X MaxDisk SATA DVD-ROM Optical Drive	Applicable Disk Capacity Block Size Interface Access Times (typical) Random Full-Stroke Data Transfer Rate Cache Buffer Start-up Time (typical) Stop Time Laser Parameters Type Wave Length Operating Conditions Temperature Humidity Dimensions (HxWxD, maximum) Weight	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, CD-RW, DVD-ROM, DVD+R, DVD+RW 4.7 GB (DVD-5) 8.54 GB (DVD-9) 2,048 bytes 3Gb/s <140 ms <250 ms 8100 to 21600 KB/s (6X to 16X) 128 KB < 7 seconds < 4 seconds Semiconductor Laser GaAlAs 780 ± 25 nm 41° to 122° F (5° to 50° C) 10% to 90% 1.7 x 5.85 x 8.11 in (42.9 x 150 x 195 mm) 2.64 lb (1.2 kg)
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Technical Specifications

Embedded NC107i PCIe Network Interface Gigabit Server Adapter (Embedded)	Integrated 10/100/1000BASE-T Transceiver	
	Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	Data Transfer Method	Compliant to x1 PCIe Specification
	Controller	BCM5723
	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 connector
	Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UTP

Environment-friendly Products and Approach	End-of-life Management and Recycling	<p>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.</p> <p>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.</p>
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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.