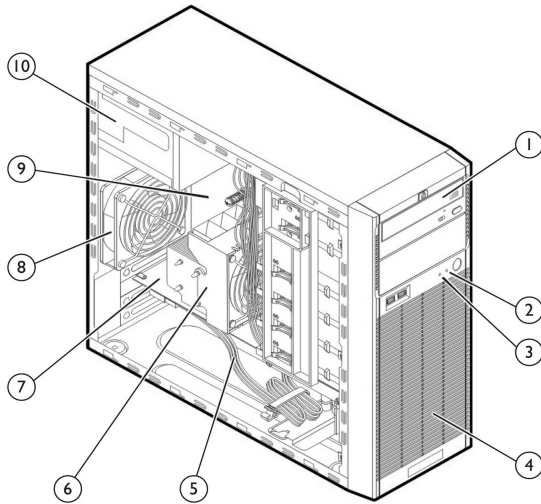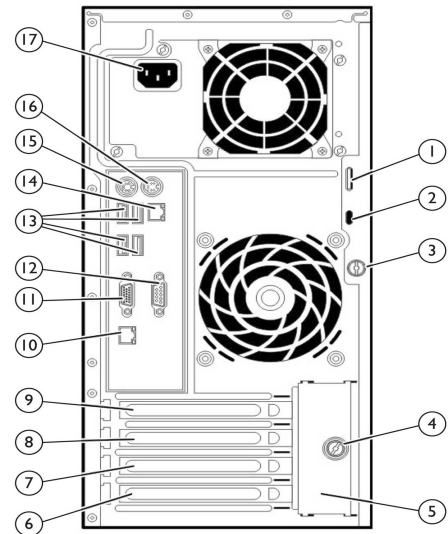# QuickSpecs

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 4GB UDIMM
- Support for embedded HP Smart Array B110i SATA RAID Controller (RAID 0/1/10)

At A Glance

- Processor:
  - Intel® Xeon® processor X3400 series
  - Intel® Core™ i3 processors

Overview

- o Intel® Pentium® processor
- o Intel® Celeron® processor
- o Intel® 3420 chipset
- **Memory**:
  - o Four (4) DIMM slots
  - o 2GB (1x2GB) or 4GB (2x2GB) Standard/16GB Maximum, using PC3-10600E DDR3 Unbuffered (UDIMM) ECC memory, operating up to 1333MHz
- **Storage Controller**:
  - o Embedded HP Smart Array B110i SATA RAID Controller (RAID 0/1/10)
    NOTE: Support for up to four (4) 3.0Gb/s SATA hard disk drives only
  - o Integrated 6 ports SATA controller (4 ports available for hard disks)
    NOTE: Transfer rate: 3 Gb/s SATA.
- **Internal Drive Support**:
  - o Internal SAS storage capacity of up to 1.8TB (4 x 450GB 3.5" SAS drives)
  - o Internal SATA storage capacity of up to 4.0TB (4 x 1TB 3.5" SATA drives)
- **Network Controller**:
  - o Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
- **Expansion Slots**:
  - o Slot 1: PCI-e Gen 1, x1 (x4 connector) Full-height & Half-length
  - o Slot 2: PCI 32-bit/33 MHz at 3.3V Full-height & Full-length
  - o Slot 3: PCI-e Gen 1, x4 (x8 connector) Full-height & Full-length
  - o Slot 4: PCI-e Gen 2, x16 (x16 connector) Full-height & Full-length
- **USB 2.0 Ports**:
  - o Eight (8) USB 2.0 ports: 2 front , 4 rear, 2 internal (one for tape, one for standard USB device)
- **Security - Trusted Platform Module**:
  - o One (1) internal TPM 1.2 module connector (Optional)
- **Power Supply**:
  - o 300 Watts Non-Hot Plug, Non Redundant Power Supply (80% efficiency)
- **Management**:
  - o Standard Lights Out 100 IPMI 2.0 reporting
  - o Standard HP ProLiant ML110 G6 Easy Set-up CD
  - o Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
- **Operating System**:
  - o Supports Windows including Hyper-V, RHEL and SLES
- **Form Factor**:
  - o 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**:
  - o 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	16GB

Standard Features

Network Controller	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter

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.
	Embedded HP Smart Array B110i SATA RAID Controller (RAID 0/1/10) NOTE: Support up to four (4) 3.0Gb/s SATA hard disk drives only NOTE: For set up instructions refer to the HP ProLiant ML100 series server user guide at: http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c01708878/c01708878.pdf NOTE: For general information about HP Smart Array B110i SATA RAID Controller, go to: http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb110i/index.html

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

Standard Features

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 Lights-Out 100i

Graphics

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

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 LO100i Advanced**

HP 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

Standard Features

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

Industry Standard Compliance

ACPI V3.0a Compliant

PCI 2.3 Compliant

PXE Support

WOL Support

IPMI 2.0 compliance

DCMI 1.0

Microsoft® Logo certifications

Red Hat Enterprise Linux Logo certifications

SUSE Linux Enterprise Server Logo certifications

USB 2.0

Manageability

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

QuickSpecs

Standard Features

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

Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES)

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

QuickSpecs

Standard Features

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 MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express

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HP Enterprise Configurator

The HP 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. http://www.hp.com/products/configurator.

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 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

Standard Features

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

QuickSpecs

Models

SATA Models

NOTE: HP NHP Internal SAS/SATA 4 port cable kit (487734-B21) is required when Smart Array Controller is ordered with a BTO configuration
NOTE: For general information about HP Smart Array B110i SATA RAID Controller, go to:
http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb110i/index.html

Entry Model	Processor	(1) Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066)
	Cache Memory	3MB Intel® Smart Cache
HP ML110 G6 G6950	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
NHP SATA Server	Storage Controller	HP Embedded 6 Port SATA Controller (4 ports for HDD)
506666-xx1		HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10)
	Hard Drive	1 x 160GB Non-hot-plug LFF SATA
	Internal Storage	4.0TB (4 x 1.0TB) Non-hot plug LFF SATA (Maximum)
	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	Cache Memory	8MB Intel® Smart Cache
NHP SATA Server	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
506667-xx1	Storage Controller	HP Embedded 6 Port SATA Controller (4 ports for HDD)
		HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10)
	Hard Drive	1 x 250GB Non-hot-plug LFF SATA
	Internal Storage	4.0TB (4 x 1.0TB) Non-hot plug LFF SATA (Maximum)
	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)

QuickSpecs

Models

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) HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10)
	Hard Drive	2 x 250GB Non-hot-plug LFF SATA
	Internal Storage	4.0TB (4 x 1.0TB) Non-hot plug LFF SATA (Maximum)
	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)

Country Code Key	xx=00	NA
	xx=01	Australia
	xx=03	UK
	xx=04	Germany
	xx=05	France
	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

HP 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

HP Embedded 6 Port SATA Controller (4 ports for HDD)

HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10)
NOTE: For set up instructions for HP Smart Array B110i SATA Controller refer to the HP ProLiant ML100 series server user guide at:
http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c01708878/c01708878.pdf
NOTE: For general information about HP Smart Array B110i SATA RAID Controller, go to:
http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb110i/index.html

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

Configuration Information-Factory Integrated Models

HP Memory	HP 4GB 2Rx8 PC3-10600E-9 Kit	500672-B21
	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	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
	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 requires 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 hardware RAID 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 Factory Integratable Options (only one of the following from each list unless otherwise noted)

HP USB and SD Options	HP ProLiant Server PS/2 Mouse, FIO	AC105A
	HP ProLiant Server PS/2 Keyboard, FIO	AC110A

Step 4: 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 4GB 2Rx8 PC3-10600E-9 Kit	500672-B21
	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
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

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 requires 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
HP 300GB 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

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

QuickSpecs

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	530521-B21
	NOTE: For additional License Kits please see the Lights-Out 100i QuickSpecs at: www.hp.com/go/lo100.	

HP Security (TPM)	HP Trusted Platform Module Option Kit www.hp.com/go/TPM	488069-B21

HP Storage Controllers	SAS Controllers	
	NOTE: Support for SAS hard drives/tape drive requires selection of a SAS controller.	
	NOTE: Support for any hardware RAID requires selection of a SAS controller.	
	Smart Array P212 Controller	
	HP Smart Array P212/Zero Memory Controller	462828-B21
	HP Smart Array P212/256MB Controller	462834-B21
	Optional Upgrades	
	256 MB Cache Module	462968-B21
	Battery Kit upgrade	462969-B21
	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
	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 Port Options	HP NHP Internal SAS/SATA 4 Port Cable Kit	487734-B21
	NOTE: This cable will only be required when Smart Array Controller is ordered with a BTO configuration.	

Additional Options

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

HP Data Protector Express 4.0 SP1 Backup Server	BB117BA
HP Data Protector Express 4.0 SP1 for Microsoft Small Business Server	BB118BA
HP Data Protector Express Backup Server 4.0 SP1Upgrade from Data Protector Express Single Server Edition	BB117BT

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

HP Tape Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP StorageWorks tape backup products see: http://www.hp.com/go/connect.

HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A

NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

HP StorageWorks DAT 320 SAS Internal Tape Drive	AJ830A

NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

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

NOTE: For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-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. For hardware and software compatibility of HP StorageWorks disk backup products see: http://www.hp.com/go/connect.

HP StorageWorks Disk To Disk Backup Appliances with Backup Data Deduplication

HP StorageWorks D2D2502i Backup System	EJ001A

NOTE: 1.5TB of usable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

HP StorageWorks D2D2504i Backup System	EJ002A

NOTE: 3TB of usable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

USB Removable Media RDX Disk Backup Systems

HP StorageWorks RDX320 Internal Removable Disk Backup System	AJ767A

NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 320GB of disk capacity per data cartridge.

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

NOTE: For additional information regarding HP Uninterruptable 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** (Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A

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**	
	Server console switch 0x2x8	AF616A
	Server console switch 0x2x16	AF617A
	0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
	0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
	1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A
	2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A
	4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A

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 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).
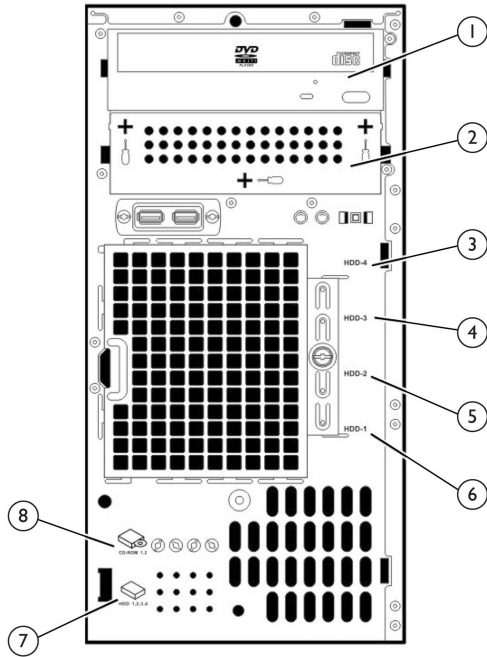
Memory		Slot			
		DIMM1C	DIMM2A	DIMM3D	DIMM4B
Standard (Entry Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Base Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Performance Model)	4 GB	Empty	2 GB	Empty	2 GB
Maximum	16 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

HP Memory	HP 4GB 2Rx8 PC3-10600E-9 Kit	500672-B21
	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

Storage

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. Smart Array B110i SATA RAID Controller (RAID 0/1/10) **NOTE:** Hardware RAID support requires purchase of 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. Smart Array B110i SATA RAID Controller (RAID 0/1/10) **NOTE:** Hardware RAID requires purchase of 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.

	Quantity Supported	Position Supported	Controller
450GB 3G 15K DP 400GB 3G 10K DP 300GB 3G 15K DP 146GB 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.

Maximum Storage Capacity - SATA/SAS Models

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

Tape and Disk-Based Backup
NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: http://www.hp.com/go/tape. 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. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: http://www.hp.com/go/connect.

	Position	Recommended Controller	Part Number
HP StorageWorks SCSI Tape Drives	External	HP SC11Xe Host Bus Adapter	412911-B21
LTO-1 Ultrium 232 LTO-2 Ultrium 448 DAT 40 DAT 72		Please check the full compatibility information at: http://www.hp.com/go/connect	

Storage

DAT 160			
1U Rack-Mount Kit			
3U Rack-Mount Kit			

HP StorageWorks USB Tape Drives	External	USB 2.0 Port	N/A
DAT 40			
DAT 72			
DAT 160			
DAT 320			
1U USB Rack-Mount Kit			

HP StorageWorks SAS Tape Drives	External	HP Smart Array P212 SAS controller	462828-B21
DAT 160		Please check the full compatibility information at:	
DAT 320		http://www.hp.com/go/connect	
LTO-2 Ultrium 448			
1U Rack-Mount Kit			
3U Rack-Mount Kit			

HP StorageWorks SCSI Tape Autoloaders	External	HP SC11Xe Host Bus Adapter	412911-B21
DAT 72x10 Autoloader		Please check the full compatibility information at:	
1/8 G2 Autoloader		http://www.hp.com/go/connect	

HP StorageWorks SCSI Tape Libraries	External	HP U320e SCSI Dual Channel Controller	AH627A
MSL2024		Please check the full compatibility information at:	
MSL4048		http://www.hp.com/go/connect	
MSL8096			
MSL6000			

HP StorageWorks SAS Tape Autoloaders and Libraries	External	HP Smart Array P212 SAS controller	462828-B21
1/8 G2 Autoloader		Please check the full compatibility information at:	
MSL2024		http://www.hp.com/go/connect	
MSL4048			
MSL8096			

HP StorageWorks Fibre Channel Tape Libraries	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for connectivity information and the supported Fibre Channel HBAs shown in this QuickSpecs.	
MSL2024			
MSL4048			
MSL8096			
MSL6000			

Storage

HP StorageWorks USB RDX Removable Disk Backup System RDX160 RDX320	External	USB 2.0 port	N/A
HP StorageWorks D2D Backup Systems, iSCSI D2D2500i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	

QuickSpecs

Power Specifications

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

QuickSpecs

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)

QuickSpecs

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)	Maximum (all hard drives, power supplies, and processors installed)	30.53 lb (13.85 kg)
		Minimum (one hard drive, power supply, and processor installed)	25.13 lb (11.4 kg)
	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	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).

QuickSpecs

Technical Specifications

Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).		
	Idle		
	L_{WAd}	4.32 Bels	
	L_{pAm}	24.9 dBA	
	Operating		
	L_{WAd}	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 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1y Wty Hard Drive 458947-B21	**160GB 7,200 rpm**	**Capacity**	160,041MB	
		Height Maximum drive dimension	1.028 in. (26.1 mm)	
		Width	4.00 in (101.6 mm)	
		Depth Maximum drive dimension	5.787 in (147.0 mm)	
		Interface	Serial ATA	
		Transfer Rate (Maximum)	3Gb/s	
		Native Command Queuing	Supported	
		Seek Time (typical reads, including settling)	Single Track	2.0 ms
			Average	<11 ms
			Full-Stroke	22.0 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	312,581,808
		Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	

QuickSpecs

Technical Specifications

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1y Wty Hard Drive 571232-B21	250GB 7,200 rpm	Capacity	250,059MB	
		Height Maximum drive dimension	1.028 in. (26.1 mm)	
		Width	4.00 in (101.6 mm)	
		Depth Maximum drive dimension	5.787 in (147.0 mm)	
		Interface	Serial ATA	
		Transfer Rate (Maximum)	3Gb/s	
		Native Command Queuing	Supported	
		Seek Time (typical reads, including settling)	Single Track	1.0 ms
			Average	11 ms
			Full-Stroke	18.0 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	488,397,168
		Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	

HP Half-Height 16X Max SATA DVD-ROM Optical 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, CD-RW, DVD-ROM, DVD+R, DVD+RW
		Capacity	4.7 GB (DVD-5)
			8.54 GB (DVD-9)
	Block Size	DVD Media	2,048 bytes
	Interface	SATA	3Gb/s
	Access Times (typical)	Random	<140 ms
		Full-Stroke	<250 ms
	Data Transfer Rate	Sustained	8100 to 21600 KB/s (6X to 16X)
	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 122° F (5° to 50° C)
		Humidity	10% to 90%
	Dimensions	(HxWxD, maximum)	1.7 x 5.85 x 8.11 in (42.9 x 150 x 195 mm)
		Weight	2.64 lb (1.2 kg)

hp invent

Technical Specifications

Embedded NC107i PCIe Gigabit Server Adapter (Embedded)	Network Interface	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 | Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |
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