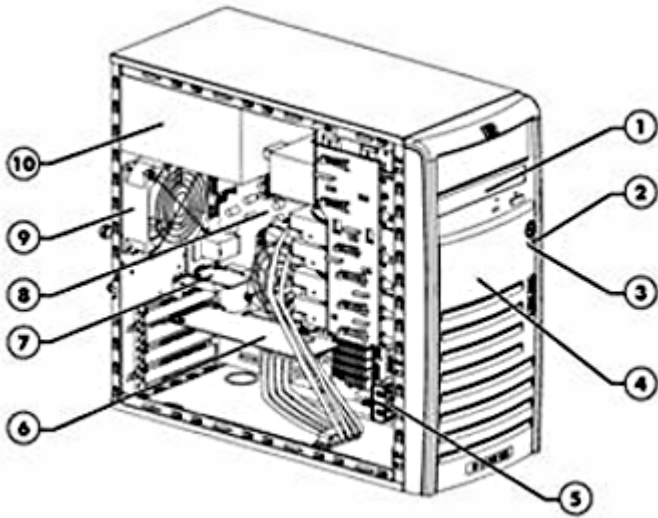
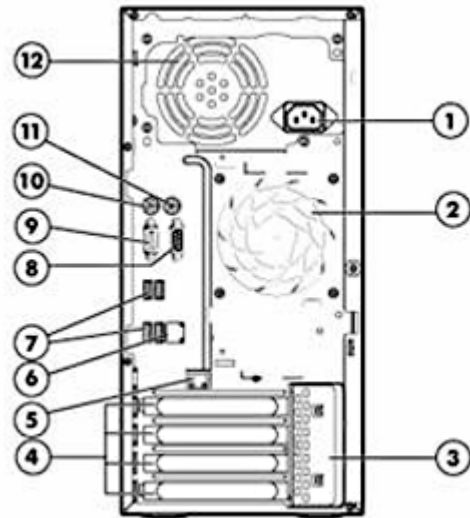


### Overview



#### Front View:

1. DVD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Front Bezel
5. Full Length Card Retainer
6. HDD Controller Card (Optional)
7. HP ProLiant100 G5 Lights-Out 100c Remote Management Card port (Optional)
8. System Board
9. Rear System Fan
10. 365W Power Supply



#### Rear View:

1. Power Supply Outlet
2. Rear System Fan
3. PCI Slot Cover Lock
4. PCI Slot Covers
5. HP ProLiant100 G5 Lights-Out 100c Remote Management Card port (Optional)
6. LAN Port (RJ-45)
7. Rear USB 2.0 Ports
8. Serial Port
9. VGA Port
10. PS/2 Keyboard Port
11. PS/2 Mouse Port
12. Power Supply Unit (PSU) Fan

### What's New

- Support for SATA Non-hot plug Midline Hard Drives

### Overview

### At A Glance

- **Processor:**
  - AMD Opteron™ processors Model 1300 series
  - AMD Athlon™ processor Model 4450B
  - AMD Athlon™ processor Model 1640B
  - nVidia NFP3400 chipset
- **Memory:**
  - Four (4) DIMM slots
  - 1GB (1x1GB) Standard/8GB Maximum, using PC2-6400 DDR2 Unbuffered ECC memory, operating at 800MHz
- **Storage Controller:**
  - 4 Port SATA controller with Embedded RAID on Motherboard (RAID 0, 1, 5)
- **Internal Drive Support:**
  - 4 HDD 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 (8 x 2TB 3.5" SATA drives)
- **Network Controller:**
  - Embedded NC105i PCI Express Gigabit Ethernet Server Adapter
- **Expansion Slots:**
  - Slot 1: PCI 32-bit/33MHz at 3.3V
  - Slot 2: PCI-Express x1 connector with x1 link
  - Slot 3: PCI-Express x8 connector with x8 link
  - Slot 4: PCI-Express x16 connector with x16 link
- **USB 2.0 Ports:**
  - Eight (8) USB 2.0 ports: 2 front , 4 rear, 2 internal (one for tape, one for standard USB device)
- **Power Supply:**
  - 365 Watts Non-Hot Plug, Non Redundant Power Supply
- **Management:**
  - Standard Lights Out 100 IPMI 2.0 reporting
  - Optional HP ProLiant 100 G5 Lights Out 100c Remote Management Card
  - Standard HP ProLiant ML115 G5 Easy Set-Up CD
- **Operating System:**
  - Supports Windows, 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 is 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. 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 at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>



### Standard Features

#### Processor

One of the following depending on Model

#### Quad-Core Processors

AMD Opteron™ Processor Model 1356 (2.3 GHz, 75W, 2MB)

**NOTE:** Offered through Configure-To-Order only. See Factory Integrated Models section for more details.

AMD Opteron™ Processor Model 1354 (2.2 GHz, 75W, 2MB)

AMD Opteron™ Processor Model 1352 (2.1 GHz, 75W, 2MB)

**NOTE:** Offered through Configure-To-Order only. See Factory Integrated Models section for more details.

#### Dual-Core Processors

AMD Athlon™ Processor Model 4450B (2.3 GHz, 45W, 1MB)

**NOTE:** Offered through Configure-To-Order only. See Factory Integrated Models section for more details.

#### Single-Core Processors

AMD Athlon™ Processor Model 1640B (2.7 GHz, 45W, 512KB)

**NOTE:** Offered through Configure-To-Order only. See Factory Integrated Models section for more details.

**NOTE:** Processor wattage references reflect Average CPU Power (ACP). For more information on ACP visit: <http://www.amd.com/powernow>.

#### Cache Memory

One of the following depending on Model

2MB Level 2 cache (AMD Opteron™ 1300 Series)

1MB Level 2 cache (AMD Athlon™ 4450B models)

512KB Level 2 cache (AMD Athlon™ 1640B models)

#### Chipset

nVidia NFP3400

**NOTE:** For more information regarding AMD chipsets, please see the following URL: <http://www.amd.com/products/chipsets/>

#### Memory Protection

ECC

#### Memory

Type	PC2-6400 unbuffered DDR2 ECC 800MHz
Standard	1 GB (1x1GB)
Maximum	8 GB

#### Network Controller

Embedded NC105i PCI Express Gigabit Ethernet Server Adapter



### Standard Features

Expansion Slots #	Technology	Bus Width***	Connector Width	Bus Number*	Device Number**	Form Factor	Notes
1	PCI	32-bit	N/A	1	8	Full height slot	33MHz/3.3V
2	PCI-e	X1	X1	4	0	Full height slot	
3	PCI-e	X8	X8	2	0	Full length, full height slot	
4	PCI-e	X16	X16	12	0	Full length, full height slot	

\* 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.

**NOTE:** PCI-X Interface (PCI 32bit/33MHz compatible)

### Storage Controller

Integrated 4 port SATA controller with embedded RAID (0, 1, 5)

**NOTE:** Embedded RAID setup instructions are located in the User Guide. CTO RAID set-up is not available.

HP ProLiant ML100 Series Server User Guide:

<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf>

### Storage

Optical Drive HP Half-Height SATA DVD-ROM Optical Drive ships standard  
Hard Drives 1x160 GB NHP SATA 7200 rpm Drive

### Maximum Internal Storage

Non-Hot Plug SAS 1.8TB (4 x 450GB) 3.5" SAS  
Non-Hot Plug SATA 8.0TB (4 x 2TB) 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 G5 Lights-Out 100c Remote Management port (Optional)

### Graphics

32MB shared supporting 1600x1200x16M resolution



### Standard Features

<b>Form Factor</b>	Micro ATX Tower (4U) <b>NOTE:</b> Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs.
<b>Remote Management</b>	Lights-Out 100c <p>Lights Out LO100c is a family of Remote Management Card (RMC) for ProLiant 100 series servers that do not have embedded LO100i. The LO100c has all the features of the LO100i Advanced license and allows customers, or their service providers, to remotely manage ProLiant servers over a LAN or the Internet from anywhere, anytime regardless whether the server is located in the same building, across town, or around the globe.</p> <p>With LO100c, users can acquire complete remote control with Virtual KVM (graphical hardware-based, remote console). Users can also access the server's serial console, control system power, update system firmware and software, as well as monitor system environmental conditions. The LO100c remote management card can be accessed from a web browser or command line interface. This virtual "at-the-server" functionality means administrators stay in control of remote HP ProLiant 100 series servers.</p> <p>The HP Lights-Out100c consists of a management processor and firmware that provides cost-effective, entry-level lights-out functionality, basic system board management functions, and diagnostics.</p> <p><b>NOTE:</b> For more information, please refer to the QuickSpecs for the LO100c found at: <a href="http://h18004.www1.hp.com/products/servers/management/remotemgmt/lightsout100/index.html">http://h18004.www1.hp.com/products/servers/management/remotemgmt/lightsout100/index.html</a></p>
<b>Core Infrastructure Management</b>	HP ProLiant ML115 G5 Easy Set-up CD <p>The HP ProLiant Easy Set-up CDs optimize single-server setup, providing a simple way to deploy reliable and consistent server configurations. The HP ProLiant 100 Series Easy Set-up CD ship standard with the ML115 G5.</p> <p>This CD 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 CDs assist 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:</p> <ul style="list-style-type: none"><li>• An easy-to-use, intuitive graphical interface that prepares your system for the OS installation process.</li><li>• Integration of key server software drivers with assisted installation.</li><li>• Dependency and validity checks to ensure that all supported ProLiant software can be installed.</li></ul> <p>For the latest information about other related software; please visit the HP Insight Control Management Software Portfolio at: <a href="http://h18004.www1.hp.com/products/servers/management/">http://h18004.www1.hp.com/products/servers/management/</a> and the HP ProLiant Easy Set-up CD Web site at <a href="http://www.hp.com/servers/easyssetup">www.hp.com/servers/easyssetup</a></p>



### Standard Features

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#### Industry Standard Compliance

ACPI V2.0 Compliant  
PCI 2.3 Compliant  
PXE Support  
WOL Support  
IPMI 2.0 compliance

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#### Manageability

Standard Lights Out 100 IPMI 2.0 reporting  
Optional HP ProLiant G5 Lights-Out 100c Remote Management Card  
Standard HP ProLiant ML115 G5 Easy Set-Up CD

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#### Security

Power-on password  
Setup password  
USB lock

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#### Server Power Cords

6' lowline NEMA power cord.

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#### Power Supply

365 Watts Non-Hot Plug, Non redundant Power Supply

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#### System Fans

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

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#### Operating Systems and Virtualization Software

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/ML115G5>

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### 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 MSAxxx, 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. <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 tower UPS options up to 3kVA. 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>

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



### Smart Buys

The ProLiant Smart Buy program offers a collection of promotional server and option products that are configured with SMB in mind, offered at discounted prices, and positioned for quick delivery. Smart Buy server offers are available for a limited time only.

### SATA Models

<b>HP S-Buy ML115G5 4450B NHP SATA 480567-005</b>	<b>Processor(s)</b>	(1) Dual-Core AMD Athlon™ Processor Model 4450B (2.3 GHz)
	<b>Cache Memory</b>	1MB Level 2 cache
	<b>Memory</b>	1GB (1 x 1 GB) PC2-6400
	<b>Network Controller</b>	Embedded NC105i PCIe Gigabit
	<b>Storage Controller</b>	Embedded SATA RAID (RAID 0/1/5)
	<b>Hard Drive</b>	(1) 160GB SATA 7.2K 3.5"
	<b>Internal Storage</b>	Maximum 3TB (4 x 750GB) SATA
	<b>Optical Drive</b>	DVD-ROM Drive
	<b>Form Factor</b>	Micro ATX Tower (4U)

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<b>HP S-Buy ML115G5 o1214 NHP SATA 480568-005</b>	<b>Processor(s)</b>	(1) Dual-Core AMD Opteron™ Processor Model 1214 (2.2 GHz)
	<b>Cache Memory</b>	2MB Level 2 cache
	<b>Memory</b>	1GB (1 x 1 GB) PC2-6400
	<b>Network Controller</b>	Embedded NC105i PCIe Gigabit
	<b>Storage Controller</b>	Embedded SATA RAID (RAID 0/1/5)
	<b>Hard Drive</b>	(1) 160GB SATA 7.2K 3.5"
	<b>Internal Storage</b>	Maximum 3TB (4 x 750GB) SATA
	<b>Optical Drive</b>	DVD-ROM Drive
	<b>Form Factor</b>	Micro ATX Tower (4U)

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<b>HP S-Buy ML115G5 o1214 SBS SATA SBS 480417-005</b>	<b>Processor(s)</b>	(1) Dual-Core AMD Opteron™ Processor Model 1214 (2.2 GHz)
	<b>Cache Memory</b>	2MB Level 2 cache
	<b>Memory</b>	2GB (2 x 1 GB) PC2-6400
	<b>Network Controller</b>	Embedded NC105i PCIe Gigabit
	<b>Storage Controller</b>	Embedded SATA RAID (RAID 0/1/5)
	<b>Hard Drive</b>	(2) 160GB SATA 7.2K 3.5"
	<b>Internal Storage</b>	Maximum 3TB (4 x 750GB) SATA
	<b>Operating System</b>	Microsoft Windows Small Business Server 2003 R2 Standard Edition with 5 CALs
	<b>Optical Drive</b>	DVD-ROM Drive
<b>Form Factor</b>	Micro ATX Tower (4U)	

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### Smart Buys

**HP S-Buy ML115G5**  
**o1352 SBS**  
480418-005

<b>Processor(s)</b>	(1) Quad-Core AMD Opteron™ Processor Model 1352 (2.1 GHz)
<b>Cache Memory</b>	2MB Level 2 cache
<b>Memory</b>	2GB (2 x 1 GB) PC2-6400
<b>Network Controller</b>	Embedded NC105i PCIe Gigabit
<b>Storage Controller</b>	Embedded SATA RAID (RAID 0/1/5)
<b>Hard Drive</b>	(2) 250GB SATA 7.2K 3.5"
<b>Internal Storage</b>	Maximum 3TB (4 x 750GB) SATA
<b>Optical Drive</b>	DVD-RW Drive
<b>Form Factor</b>	Micro ATX Tower (4U)

**HP S-Buy ML115G5**  
**o1352 NHP SATA**  
480419-005

<b>Processor(s)</b>	(1) Quad-Core AMD Opteron™ Processor Model 1352 (2.1 GHz)
<b>Cache Memory</b>	2MB Level 2 cache
<b>Memory</b>	2GB (2 x 1 GB) PC2-6400
<b>Network Controller</b>	Embedded NC105i PCIe Gigabit
<b>Storage Controller</b>	Embedded SATA RAID (RAID 0/1/5)
<b>Hard Drive</b>	(1) 250GB SATA 7.2K 3.5"
<b>Internal Storage</b>	Maximum 3TB (4 x 750GB) SATA
<b>Optical Drive</b>	DVD-RW Drive
<b>Form Factor</b>	Micro ATX Tower (4U)



### 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:** 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 ML115 G5 NHP CTO Chassis	457767-B21
	<b>Factory Integrated Models ship with:</b>	
	Embedded NC105i PCI Express Gigabit Ethernet Server Adapter	
	HP Embedded 4 Port SATA Controller	
	HP ProLiant ML115 G5 Easy Set-Up CD	
	PCA	
	Power cord	
	Keyboard and Mouse	
	Micro ATX Tower (4U)	
	<b>NOTE:</b> HP SATA Drive Models are limited to 4.0TB support.	
	<b>NOTE:</b> On SATA models with embedded RAID, setup instructions are located in the User Guide. CTO RAID set-up is not available. HP ProLiant ML100 Series Server User Guide:	
	<a href="http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf">http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf</a>	

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

HP Processors	<b>Quad-Core Processor</b>	
	AMD Opteron™ Processor Model 1356 (2.3 GHz, 75W, 2MB) Option Kit, FIO	480295-L21
	AMD Opteron™ Processor Model 1354 (2.2 GHz, 75W, 2MB) Option Kit, FIO	490606-L21
	AMD Opteron™ Processor Model 1352 (2.1 GHz, 75W, 2MB) Option Kit, FIO	480294-L21
	<b>Dual-Core Processor</b>	
	AMD Athlon™ Processor Model 4450B (2.3 GHz, , 45W,1MB) Option Kit, FIO	480298-L21
	<b>Single-Core Processors</b>	
	AMD Athlon™ Processor Model 1640B (2.7 GHz, 45W, 512KB) Option Kit, FIO	480297-L21
HP Memory	HP 2GB (1x2GB) Dual Rank PC2-6400 (DDR2-800) Unbuffered Memory Kit	450260-B21
	HP 1GB (1x1GB) Dual Rank PC2-6400 (DDR2-800) Unbuffered Memory Kit	450259-B21



### Configuration Information-Factory Integrated Models

#### HP Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) 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.

**NOTE:** Supports up to 4 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 1yr Warranty Hard Drive 507774-B21

HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive 507772-B21

HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty 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 1yr Warranty Hard Drive 571232-B21

HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive 458947-B21

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

[http://h18000.www1.hp.com/products/quickspecs/13021\\_na/13021\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html)

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

HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive 454234-B21

HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive 417950-B21

HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive 417855-B21

**NOTE:** Please see the for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12244\\_na/12244\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html)

#### HP Optical Drives

HP Half-Height SATA DVD ROM Kit 447326-B21

HP Half-Height SATA DVD-RW Optical Kit 447328-B21

### Step 3: Choose Additional Factory Integratable Options

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

#### HP Storage Controller

HP SC40Ge Host Bus Adapter, FIO 449176-B21

**NOTE:** When using the SC40Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required.

**NOTE:** Factory Integrated Only.

### Step 4: Choose Additional Options for Factory Integration

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



### Core Options

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

HP Memory	HP 2GB (1x2GB) Dual Rank PC2-6400 (DDR2-800) Unbuffered Memory Kit	450260-B21
	HP 1GB (1x1GB) Dual Rank PC2-6400 (DDR2-800) Unbuffered Memory Kit	450259-B21

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

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### HP Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) 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 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
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HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
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HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty 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 1yr Warranty Hard Drive	571232-B21
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HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21
---	------------

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

[http://h18000.www1.hp.com/products/quickspecs/13021\\_na/13021\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html)

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

HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	454234-B21
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HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417950-B21
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HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417855-B21
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**NOTE:** Please see QuickSpecs for Technical and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12244\\_na/12244\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html)

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### Core Options

#### HP Networking

#### Gigabit Ethernet Adapters

HP NC110T PCI Express Gigabit Server Adapter 434905-B21

HP NC360T PCI Express Dual Port Gigabit Server Adapter 412648-B21

HP NC373T PCI Express Multifunction Gigabit Server Adapter 394791-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: [www.hp.com/go/ProLiantNICs](http://www.hp.com/go/ProLiantNICs)





### Additional Options

#### 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 SP1 Upgrade from Data Protector Express Single Server Edition BB117BT

**NOTE:** Only one of these Data Protector Express base products is required. To see available options: <http://www.hp.com/go/dataprotectorexpress>

#### 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 320 USB Internal Tape Drive AJ825A

HP StorageWorks DAT 320 SAS Internal Tape Drive AJ830A

**NOTE:** Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

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

**NOTE:** Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

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

**NOTE:** Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

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

**NOTE:** Requires HP 1U Tape Autoloader Rack-Mount Kit (AH166A) for rack installation. Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

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

**NOTE:** Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.

HP StorageWorks MSL2024 Tape Library with one LTO-5 Ultrium 3000 SAS Drive BL537A

**NOTE:** Connection using the HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.



### Additional Options

#### 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 D2D Backup Systems 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:** 3.0TB 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:** 320GB of disk capacity per data cartridge.

HP StorageWorks RDX500 Internal Removable Disk Backup System AJ934A

**NOTE:** 500GB of disk capacity per data cartridge.

HP StorageWorks RDX750 Internal Removable Disk Backup System AW577A

**NOTE:** 750GB of disk capacity per data cartridge.

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#### HP Uninterruptible Power Systems

HP Tower - UPS

##### HP T1000 G3 UPS Models

HP T1000 G3 UPS AF448A

**NOTE:** Please see QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12506\\_na/12506\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12506_na/12506_na.html)

##### HP T750 G2 UPS Models

HP T750 G2 UPS AF446A

**NOTE:** For additional information please go to:

<http://www.hp.com/go/rackandpower>

**NOTE:** Please see QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12192\\_na/12192\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12192_na/12192_na.html)

**NOTE:** For additional information on sizing your server, please reference:

<http://www.upssizer.com>

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### Additional Options

#### 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>.

#### Rack Kits

Monitor/Utility Shelf 253449-B21

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

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#### HP USB and SD Options

HP ProLiant Server Mouse AC105A

HP ProLiant Server Keyboard AC110A

**NOTE:** When installing a Windows OS Environment and configuring the embedded SATA RAID, AHCI, or SAS controllers, installation of a driver from a diskette device is required.



### Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Services	<b>Hardware Services Next Business Day On-Site Service</b>	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U4433E
	<b>Hardware Services - 4-Hour On-site Service</b>	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U4434E
	24-Hour x 7-Day Coverage, 3 Years, Electronic	U4435E
	<b>Hardware Installation</b>	
	<b>Hardware Services 6-Hour Call to Repair On-Site Service</b>	
	6-Hour Call to Repair, On-Site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4436E
	Hardware Installation, Electronic	U4444E
	<b>NOTE:</b> For more information, customer/resellers can contact <a href="http://www.hp.com/services/carepack">http://www.hp.com/services/carepack</a> .	



## Memory

### HP ProLiant ML115 G5 Models

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

#### Standard Memory

1 GB (1x1GB) of PC2-6400 DDR2 UDIMM running at 800MHz with memory kits installed

#### Standard Memory Plus Optional Memory

Up to 6 GB memory is available with the optional installation of PC2-6400 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

#### Standard Memory Replaced with Optional Memory

Up to 8 GB of memory is available with the removal of the standard 1GB of memory and the optional installation of 4 x 2 GB PC2-6400 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

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

**NOTE:** For best performance, it is recommended that customers install memory in identical pairs. Slots 1A and 2A are interleaving pair. Slots 3B and 4B are interleaving pair.

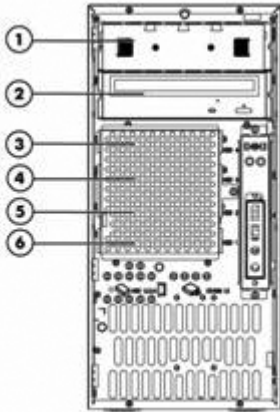
Memory		Slot			
		1A	2A	3B	4B
Standard	1 GB	1 GB	Empty	Empty	Empty
Optional	6 GB	1 GB	1 GB	2 GB	2 GB
Maximum	8 GB	2 GB	2 GB	2 GB	2 GB

Following are memory options available from HP:

HP Memory	HP 2GB (1x2GB) Dual Rank PC2-6400 (DDR2-800) Unbuffered Memory Kit	450260-B21
	HP 1GB (1x1GB) Dual Rank PC2-6400 (DDR2-800) Unbuffered Memory Kit	450259-B21



## Storage



- 1 Removable Media Bays (1.6" each)
- 2 DVD-ROM
- 3, 4, 5, 6 Four (4) Non-Hot Plug Drive Bays

## Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
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 the server backplane) 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	Quantity Supported	Controller
2TB 3G SATA 7.2K	Up to 4	3-6	4 Port SATA controller with Embedded RAID on Motherboard (0,1,5)
1TB 3G SATA 7.2K			
500GB 3G SATA 7.2K			

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

	Quantity Supported	Quantity Supported	Controller
250GB 3G SATA 7.2K	Up to 4	3-6	4 Port SATA controller with Embedded RAID on Motherboard (0,1,5)
160GB 3G SATA 7.2K			

### Hard Drives (SAS Models only)

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



## Storage

	Quantity Supported	Position Supported	Controller
450GB 3G SAS 15K 300GB 3G SAS 15K 146GB 3G SAS 15K	Up to 4	3-6	HP 8 Internal Port SAS HBA with RAID (0,1)

### Maximum Storage Capacity

Internal	SATA	8.0TB (4 x 2TB)
	SAS	1.8TB (4x 450GB)

### Tape Drives 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
<b>HP StorageWorks SCSI Tape Drives</b> LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160	Internal or External	HP SC11Xe Host Bus Adapter  Please check the full compatibility information at: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a>	412911-B21
<b>HP StorageWorks SCSI Rack Mount Kits</b> 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter  Please check the full compatibility information at: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a>	412911-B21
<b>HP StorageWorks USB Tape Drives</b> DAT 40 DAT 72 DAT 160 DAT 320	Internal or External	USB 2.0 Port	N/A
<b>HP StorageWorks USB Rack Mount Kits</b> 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
<b>HP StorageWorks SAS Tape Drives</b> DAT 160	Internal or External	HP SC44Ge SAS Host Bus Adapter  Please check the full compatibility information at:	416096-B21



### Storage

DAT 320

LTO-2 Ultrium 448

LTO-3 Ultrium 920

LTO-4 Ultrium 1760

LTO-4 Ultrium 1840

LTO-5 Ultrium 3000

LTO-5 Ultrium 3280

<http://www.hp.com/go/connect>

#### HP StorageWorks SAS Rack Mount Kits

1U Rack-Mount Kit

3U Rack-Mount Kit

External

HP SC44Ge SAS Host Bus Adapter

416096-B21

Please check the full compatibility information at:

<http://www.hp.com/go/connect>

#### HP StorageWorks SCSI Tape Autoloaders

DAT 72x10 Autoloader

1/8 G2 Autoloader

External

HP SC11Xe Host Bus Adapter

412911-B21

Please check the full compatibility information at:

<http://www.hp.com/go/connect>

#### HP StorageWorks SCSI Tape Libraries

MSL2024

MSL4048

MSL8096

MSL6000

External

HP U320e SCSI Dual Channel Controller

AH627A

Please check the full compatibility information at:

<http://www.hp.com/go/connect>

#### HP StorageWorks SAS Tape Autoloaders and Libraries

1/8 G2 Autoloader

MSL2024

MSL4048

MSL8096

External

HP SC44Ge SAS Host Bus Adapter

416096-B21

Please check the full compatibility information at:

<http://www.hp.com/go/connect>

#### HP StorageWorks Fibre Channel Tape Libraries

MSL2024

MSL4048

MSL8096

MSL6000

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 QuickSpec.

#### HP StorageWorks USB RDX Removable Disk Backup System

RDX160

RDX320

RDX500

RDX750

External

USB 2.0 port

N/A



### Storage

HP StorageWorks D2D  
Backup Systems, iSCSI  
D2D2500i  
D2D4000i

External

Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

HP StorageWorks D2D  
Backup Systems, Fibre  
Channel  
D2D4000fc

External

Direct server attach is not supported, requires connection via SAN fabric. See: <http://www.hp.com/go/connect>



### Power Specifications

Part Number	457694-001
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	115	208	220	230	240
Max Rated Output Wattage Rating	N/A	365	N/A	N/A	365	N/A
Nominal Input Current (A rms)	N/A	6	N/A	N/A	3	N/A
Max Rated Input Wattage Rating (Watts)	N/A	553	N/A	N/A	517	N/A
Max. Rated VA (Volt-Amp)	N/A	N/A	N/A	N/A	N/A	N/A
Efficiency (%)	N/A	>65%	N/A	N/A	>65%	N/A
Power Factor	N/A	N/A	N/A	N/A	N/A	N/A
Leakage Current (mA)	0.5mA (at 60HZ)	N/A	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	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	N/A

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: ML115 G5
- Click on: "Power Calculator" link. (You may need to scroll down to see it)



### System Specifications

	Power**
HP ProLiant ML115 G5 Fully Configured	(see**)
Fully Loaded System output Wattage (W)	365W
Fully Loaded System Input Current (Arms)	6A @ 115V, 3A @ 230V
Fully Loaded System Thermal (BTU- Hr)	1885 BTU
Fully Loaded System VA (Volt-Amp)	N/A
System Leakage with all power supplies loaded (mA)	N/A
System Inrush Current with all power supplies loaded (A)	N/A
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.



### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (HxWxD) (with feet)	14.5 x 6.9 x 16.2 in (36.7x 17.5 x 41.2 cm)	
	<b>Weight</b> (approximate)	Maximum (all hard drives, power supplies, and processors installed)	31.35 lb (14.22 kg)
		Minimum (one hard drive, power supply, and processor installed)	25.75 lb (11.68 kg)
<b>Input Requirements</b> (per power supply)	<b>Rated Line Voltage</b>	90 – 132 VAC, 180 – 264 VAC	
	<b>Rated Input Current</b>	6 A (at 110 VAC), 3 A (at 200 VAC)	
	<b>Rated Input Frequency</b>	47 to 63 Hz	
	<b>Rated Input Power</b>	365 W (at 100 VAC), 365 W (at 200 VAC)	
<b>BTU Rating</b>	Maximum	1885 BTU/hr (at 100 VAC), U/hr (at 200 VAC)	
<b>Power Specifications</b>	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a>		
<b>Power Supply Output</b> (per power supply)	<b>Rated Steady-State Power</b>	365 W (at 100 VAC), 365 W (at 200 VAC)	
	<b>Maximum Peak Power</b>	385 W (at 100 VAC), 385 W (at 200 VAC)	
<b>System Inlet Temperature</b>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).	
	Non-operating	10 to 90% relative humidity (Rh), 28°C 5 to 95% relative humidity (Rh), 38.7°C	
<b>Altitude</b>	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
<b>Acoustic Noise</b> (Fully Loaded)	Idle		
	L WAd	4.74 BELS	



### Technical Specifications

Emissions Classification (EMC)	L pAm	30.0 dBA
	Operating	
	L WAd	4.99 BELS
	L pAm	32.5 dBA
	FCC Rating	Class B
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; 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 1yr  
Warranty Hard Drive

458947-B21

<b>Capacity</b>	160,041 MB						
<b>Height</b>	1.0 in. (26.1 mm)						
<b>Maximum drive dimension</b>							
<b>Width</b>	4.0 in. (101.6 mm)						
<b>Depth</b>	5.787 in (147.0 mm)						
<b>Maximum drive dimension</b>							
<b>Interface</b>	Serial ATA						
<b>Transfer rate synchronous (maximum)</b>	3Gb/s						
<b>Native Command Queuing</b>	N/A						
<b>Seek time (typical reads, including settling)</b>	<table> <tr> <td>Single track</td> <td>2.0 ms</td> </tr> <tr> <td>Average</td> <td>&lt;11 ms</td> </tr> <tr> <td>Full-stroke</td> <td>23.0 ms</td> </tr> </table>	Single track	2.0 ms	Average	<11 ms	Full-stroke	23.0 ms
Single track	2.0 ms						
Average	<11 ms						
Full-stroke	23.0 ms						
<b>Rotational speed</b>	7,200 rpm						
<b>Physical Configuration</b>	<table> <tr> <td>Bytes/Sector</td> <td>512</td> </tr> <tr> <td>Logical Blocks</td> <td>312,581,808</td> </tr> </table>	Bytes/Sector	512	Logical Blocks	312,581,808		
Bytes/Sector	512						
Logical Blocks	312,581,808						
<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)						

16X Max SATA  
DVD-ROM Drive

447326-B21

<b>Disk</b>	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) CD-R, CD-RW Mixed Mode (Audio and Data combined)
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### Technical Specifications

		DVD-ROM DVD-R/RW, DVD+R/RW CD-R
	Capacity	540MB (Mode 1, 12 cm) 650MB (Mode 2, 12 cm) 4.7 GB, 8.5 GB DVD
<b>Block Size</b>	Mode 1	2,048 bytes (CD & DVD) 1024 bytes
	Mode 2	2,340 bytes, 2,336 bytes, 1024 bytes
<b>Interface</b>	CD-DA	2,352 bytes
	CD-XA	2,328 bytes
<b>Access Times (typical)</b>	SATA	
	Random	<100 ms
	Full-Stroke	<150 ms
<b>Data Transfer Rate</b>	Sustained	3000 to 7200 KB/s (20X to 48X)
	Burst	150 KBps to 7,200 KBps
<b>Cache Buffer</b>	Bus Rate	1.5Gbps
		128 KB
<b>Start-up Time (typical)</b>		< 7 seconds
<b>Stop Time</b>		< 4 seconds
<b>Laser Parameters</b>	Type	Semiconductor Laser GaAlAs
	Wave Length	780 ± 25 nm
<b>Operating Conditions</b>	Temperature	41° to 122° F (5° to 50° C)
	Humidity	10% to 90%
<b>Dimensions</b>	(HxWxD, maximum)	1.63 x 5.75 x 7.87 in (41.3 x 146 x 195 mm)
	Weight	2.64 lb (1.2 kg)



### Technical Specifications

4 port Embedded SATA controller	SATA Protocol	SATA 2, 3Gb/s
	SATA Ports	4 internal
	Port transfer rate	1.5 Gb/s total
	Maximum Capacity	up to 4.0TB (4 x 1TB non-hot plug SATA HDD)
	RAID Levels Supported	RAID 1+0 (Striping & Mirroring) RAID 1 (Mirroring) RAID 0 (Striping) RAID 5 (Striping with parity)
	Logical RAID Volumes Supported	<b>NOTE:</b> On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up is not available. HP ProLiant 100 Series Server User Guide: <a href="http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf">http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00260539/c00260539.pdf</a>

Embedded NC105i PCIe Gigabit Server Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	Single lane (x1), 100MHz PCI Express Reference Clock	
	Controller	BCM5722	
	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	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)	
	10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)	

Environment-friendly Products and Approach	End-of-life Management and Recycling	<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 <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> 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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. 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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## *Technical Specifications*

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The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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

