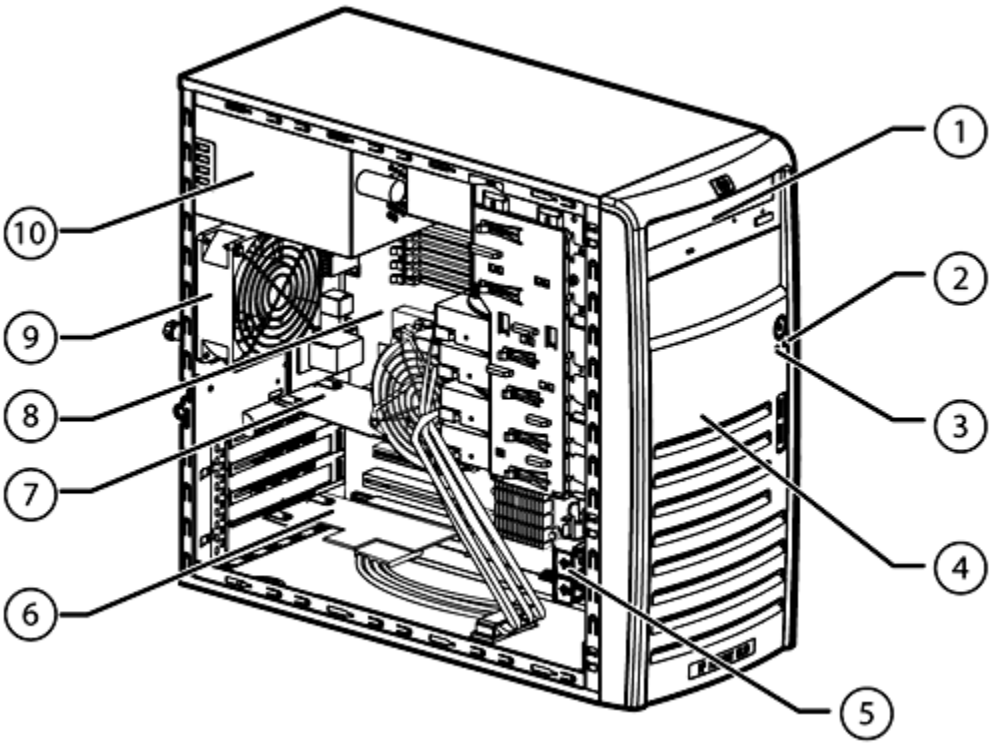
*Overview*




1. CD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Well ventilated chassis design
5. Full Length Card Retainer
6. HDD controller card (Optional)
7. HP LO 100c Management Card (Optional)
8. Main System Board
9. Rear System Fan
10. 370W Power Supply

## At A Glance

- **Processor:**
  - Dual-Core AMD Opteron 1000 Series processors
  - Single-Core Athlon 64 3500+ processors
- **Memory:**
  - 512 MB Standard / 8 GB Maximum of PC2-5300 DDR2 667 MHz ECC unbuffered Memory
- **Storage Controller:**
  - 4 Port SATA controller with Embedded RAID on Motherboard (RAID 0,1,5)
- **Internal Drive Support:**
  - 4 HDD Support:
    - 2TB SATA max storage (utilizing 500GB CTO HDD)
    - 1.2TB SAS max storage (4 x 300GB)
- **Network Controller:**
  - Embedded NC320i PCI Express Gigabit Server Adapter
- **Expansion Slots:**
  - Two 32-bit/33MHz PCI at 3.3V slot
  - Two PCI-Express slots (x8 and x16).
- **USB Ports:**
  - Eight total USB ports (2 internal, 2 front, 4 rear)
- **Form Factor:**
  - Micro ATX tower
- **Management:**
  - Standard IPMI reporting
  - Lights Out 100c Remote Management Card (Optional)

*Overview*

- **Warranty:**
  - Protected by HP Services, including a one-year, limited warranty, Next Business Day 1 year on-site limited Global warranty - Certain restrictions and exclusions apply. (3-1-1 warranty offered in AP only).

*Standard Features*

**Processor**
One of the following depending on Model

Dual-Core AMD Opteron 1210 (1.8 GHz)
Dual-Core AMD Opteron 1214 (2.2 GHz)
Single-Core AMD Athlon 3500+ (2.2 GHz)*
Dual-Core AMD Opteron 1216 (2.4 GHz)*
Dual-Core AMD Opteron 1220 SE (2.8 GHz)*
* Offered through Configure-To-Order only. See Factory Integrated Models section for more details

**Cache Memory**
One of the following depending on Model

2MB (2x1MB) Level 2 cache (Opteron models)
512KB Level 2 cache (Athlon models)

**Chipset**

nVidia MCP55S Pro

**Memory Protection**

Advanced ECC

**Memory**

| | |
|---|---|
| Type | PC2-5300 unbuffered DDR2 SDRAM (667MHz) |
| Standard | 512 MB |
| Maximum | 8 GB |

**Network Controller**

Embedded NC320i PCIe Gigabit Server Adapter

**Expansion Slots**

| Slot Number | Bus Speed | Hot Plug Y/N | PCI Voltage | Notes |
|---|---|---|---|---|
| 4 | X16 PCI Express | No | n/a | Full Height |
| 3 | X8 PCI Express | No | n/a | In a x8 slot Full Height |
| 1/2 | 32bit/33MHz PCI | No | 3.3V | Full Height |

**NOTE:** Only one brace for full length cards provided.
**NOTE:** Slot 2 only supports standard PCI 32 bit add-on card.

**Storage Controller**
One of the following depending on Model

Integrated 4 port SATA controller with embedded RAID (0,1,5)
HP 8 Internal Port SAS HBA with RAID (0,1)

**Storage**

| | |
|---|---|
| CD-ROM | 48x IDE (ATAPI) CD-ROM Drive |
| Hard Drives | |
| SATA | 160GB SATA 7200 rpm Drive |

*Standard Features*

| | | | |
|---|---|---|---|
| **Maximum Internal Storage** | **Type** | | |
| | **SAS** (Not-hot plug) | 1.2TB | (4x300GB) |
| | **SATA** (Non-hot plug) | 2TB | (4 x 500GB*) |
| | ***NOTE**: Available CTO only. | | |
| **Interfaces** | Parallel | 0 | |
| | Serial | 1 | |
| | Pointing Device (Mouse, PS2) | 1 | |
| | Graphics | 1 | |
| | Keyboard (PS2) | 1 | |
| | USB | 8 total (4 rear, 2 front panel, 2 internal (one for USB Tape connectivity)) | |
| | | **NOTE:** Internal USB ports are optimal for the attachment of HP USB DAT Tape Drives<br>**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 | |
| | Management | Optional Lights-Out 100c Remote Management port | |
| **Graphics** | Integrated 2MB video controller | | |
| **Form Factor** | Micro ATX Tower (4U) | | |
| **Industry Standard Compliance** | ACPI V2.0 Compliant<br>PCI 2.3 Compliant<br>PXE Support<br>WOL Support<br>IPMI 2.0 compliance | | |
| **Manageability** | Embedded IPMI standard reporting<br>Optional HP ProLiant Lights-Out 100c Remote Management Card | | |
| **Security** | Power-on password<br>Setup password | | |
| **Server Power Cords** | 12' country specific, lowline NEMA power cord.<br>**NOTE:** Rack models ship standard with a 12' IEC cable. Most redundant power supply options ship with a 6' country specific power cord. Localized cables included with geographic specific models in other world regions. | | |

*Standard Features*

| | |
|---|---|
| **Power Supply** | 370 Watts |
| **System Fans** | 1 – non-redundant system fan shipped standard<br>1 – non-redundant CPU heatsink fan shipped standard |
| **OS Support** | Microsoft Windows Server 2003: Standard & Enterprise Edition (32 and 64 bit)<br>Microsoft Windows Small Business Server 2003<br>Microsoft Windows 2003 Server, Web Edition<br>Novell NetWare 6.5 SBS (only after SP6 release)<br>RedHat Enterprise Linux<br>SUSE Linux Enterprise Server<br>**NOTE:** For an up-to-date listing of the latest ML115 OS support matrix, please see: http://www.hp.com/go/supportos<br>**NOTE:** For an up-to-date listing of the latest drivers available for the HP server ML115, please see: http://h18023.www1.hp.com/support/files/server/us/family/model/5769.html?lang=en&cc=us<br>**NOTE:** Drivers may also found on the base media for some Linux OS's. When configuring your server, please consult your base media driver base, or visit HP.com at: http://h18023.www1.hp.com/support/files/server/us/index.html<br>**NOTE:** For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html |
| **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.<br><br>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 MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.<br>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 ProLiant Smart Buys**<br>(NA only) | The HP Smart Buy program offers mainstream business solutions at competitive prices with excellent availability and superior HP quality. It offers a wide range of industry-leading HP products at compelling prices, allowing you to receive richer configurations with additional options.<br>**NOTE:** ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf |
| **HP Enterprise Configurator** | The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. |
| **Service and Support** | This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or |

available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

**NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support (3-1-1 warranty offered in AP only). Additional information regarding worldwide limited warranty and technical support is available at:
http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

**NOTE:** For all server/switch warranty commitment and HP Care Pack part numbers need to be updated for each product type.

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

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

To fully 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.

Extended Care - options provide a base line service level to ensure optimum server availability, delivering extended access to expert assistance, remote and onsite diagnostic support, and remedial hardware support.

- *Next Business Day on site coverage, 3 Years*

Continuous Care options deliver a recommended support level with committed same day response or fix times, designed to provide speedy problem identification and resolution ensuring high level of server availability.

- *4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years*

Total Care service options designed to provide round the clock support and complex problem resolution through integrated hardware and software support delivering high level of application and data availability taking into account your entire IT environment.

- *4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years*

Deployment Services - HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of ProLiant servers - and free customers people to focus on what they do best, their business.

- *Installation of a ProLiant server as per Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays*

**NOTE:** For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

*Models*

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

## SATA Models

| | | |
|---|---|---|
| **ML115 Opteron 1210 NHP-SATA (1P)** 437288-xx1 | **Processor(s)** One of the following depending on Model | (1) Dual-Core AMD Opteron 1210 (1.8GHz, 2MB Cache)<br>(1) Dual-Core AMD Opteron 1214 (2.2GHz, 2MB Cache) |
| **ML115 Opteron 1214 NHP-SATA (1P)** 437289-xx1 | **Cache Memory** | 2MB (2x1MB) Level 2 cache (Opteron) |
| | **Memory** | 512 MB PC2-5300 ECC (DDR2-667Mhz) (1 x 512 MB) |
| | **Storage Controller** | HP Embedded 4 Port SATA Controller with embedded RAID (0,1,5) |
| | **Hard Drive** | 160GB SATA HDD |
| | **Internal Storage** | Maximum 2TB (4 x 500GB) SATA |
| | **Optical Drive** | 48x CD-ROM |
| | **Form Factor** | Micro ATX Tower |

## SAS Models

| | | |
|---|---|---|
| **ML115 Opteron 1214 NHP-SAS (1P)** 437290-xx1 | **Processor(s)** | (1) Dual-Core AMD Opteron 1214 (2.2GHz, 2MB Cache) |
| | **Cache Memory** | 2MB (2x1MB) Level 2 cache (Opteron) |
| | **Memory** | 512 MB PC2-5300 ECC (DDR2-667Mhz) (1 x 512 MB) |
| | **Storage Controller** | HP 8 Internal Port SAS HBA with RAID (0,1) |
| | **Hard Drive** | 72GB SAS HDD |
| | **Internal Storage** | Maximum 1.2TB (4 x 300GB) SAS |
| | **Optical Drive** | 48x CD-ROM |
| | **Form Factor** | Micro ATX Tower |

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

*Configuration Information-Factory Integrated Models (North America Only)*

**NOTE:** For Configure to Order requirements within EMEA region, please consult local Sales Contact.
**NOTE:** HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
**NOTE:** This product offering does not support HP Factory Express Server Configuration Level 1.
**NOTE:** FIO indicates that this option is a Factory Installable Option.
**NOTE:** This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

## Step 1: Base Configuration

| | | |
|---|---|---|
| **Models** | HP ProLiant ML115 NHP CTO Chassis (North America) | 439138-B21 |
| | **Factory Integrated Models ship with:** | |
| | Embedded NC320i PCI Express Gigabit Server Adapter | |
| | Keyboard and Mouse | |
| | 370 Watts, PFC (Power Factor Correcting) | |
| | Tower Form Factor (4U) | |
| | **NOTE:** HP SATA Drive Models are limited to <2TB support. | |

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

| | | |
|---|---|---|
| **Processors** | AMD Athlon Processor Model 3500+ (2.2 GHz) Option Kit, FIO | 440962-L21 |
| | AMD Opteron™ Processor Model 1220SE (2.8 GHz) Option Kit, FIO | 437376-L21 |
| | AMD Opteron Processor Model 1216 (2.4 GHz) Option Kit, FIO | 437375-L21 |
| | AMD Opteron Processor Model 1214 (2.2 GHz) Option Kit, FIO | 437374-L21 |
| | AMD Opteron Processor Model 1210 (1.8 GHz) Option Kit, FIO | 437373-L21 |
| **Memory** | 2048 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 2048 MB), Dual Rank | 432806-B21 |
| | 1024 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 1024 MB), Dual Rank | 432804-B21 |
| | 512 MB Unbuffered Advanced ECC PC2-5300 DDR2 DIMM (1 x 512 MB), Single Rank | 432803-B21 |
| **Hard Drives** | **Serial ATA (SATA) - Non-hot Plug HDD** | |
| | HP 500GB 1.5G SATA 7.2K NHP 3.5" HDD, FIO* | 404469-B21 |
| | HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD | 411276-B21 |
| | HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD | 411275-B21 |
| | HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD | 383410-B21 |
| | ***NOTE:** Factory Integrated Only | |
| | HP Non-Hot Plug SATA Cable<br>**NOTE:** The purchase of a SATA Hard Disk Drive requires the purchase of HP SATA Cable option kit (P/N 442901-B21). | 442901-B21 |
| | **Serial Attached SCSI (SAS) Non-Hot Plug** | |
| | HP 300GB SAS 3.5" 15K NHP | 431950-B21 |
| | HP 146GB SAS 3.5" 15K NHP | 432093-B21 |
| | HP 72GB SAS 3.5" 15K NHP | 432095-B21 |

| | | |
|---|---|---|
| **Optical Drives** | CD-RW/DVD-ROM Combo Drive Option Kit | 331346-B21 |
| | HP DVD+R/RW 8X HH | 383974-B21 |
| | HP ProLiant 48X CD | 398972-B21 |
| | DVD ROM Drive 16x | 217053-B21 |

**NOTE:** For the installation of Windows and other OS's, a floppy drive (DC361B) may be required to complete driver installation. A USB drive key may not work to complete driver installation.

## Step 3: Choose Additional Options for Factory Integration

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

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

| | | |
|---|---|---|
| **Operating Systems** | **Pre-install Microsoft Windows 2003 SBS Standard Edition** | |
| | MS W2003 SBS R2 Std 1XX FIO Eng SW | 432564-XX1 |
| | MS W2003 SBS R2 Prm 1XX FIO Eng SW | 432566-XX1 |

| | | |
|---|---|---|
| **Country Code Key** | XX=00 | NA |
| | XX=01 | Australia |
| | XX=03 | UK |
| | XX=04 | Germany |
| | XX=05 | France |
| | XX=06 | Italy |
| | XX=07 | Spanish |
| | XX=20 | Brazil |
| | XX=21 | Hungarian |
| | XX=22 | Czech |
| | XX=24 | Polish |
| | XX=33 | Dutch |
| | XX=37 | AP |
| | XX=42 | Euro |
| | XX=AA | PRC |
| | XX=29 | Japan |
| | XX=AB | Taiwan |
| | XX=AD | Korea |

*Options*

| | | |
|---|---|---|
| **Memory** | 2048 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1x2048 MB), Dual Rank | 432806-B21 |
| | 1024 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1x1024 MB), Dual Rank | 432804-B21 |
| | 512 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1x512 MB), Single Rank | 432803-B21 |
| **Graphic Cards** | ATI FireGL V3300 128MB PCIe Card | ES353AA |
| **Optical Drives** | CD-RW/DVD-ROM Combo Drive Option Kit | 331346-B21 |
| | 48X CD-ROM Option, Carbon | 398972-B21 |
| | DVD-RW Drive Option Kit | 383974-B21 |
| | 1.44 MB USB Diskette Drive | DC361B |
| | **NOTE:** For the installation of Windows and other OS's, a floppy drive may be required to complete driver installation. A USB drive key may not work to complete driver installation. | |
| **Hard Drives** | **Serial – ATA** (SATA) **– Non-Hot Plug** (SATA Models Only) | |
| | HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD | 411276-B21 |
| | HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD | 411275-B21 |
| | HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD | 383410-B21 |
| | **NOTE:** When purchasing systems with the 500GB Non-Hot Plug SATA drives, please reference the Configuration Information Section of this QuickSpecs to order via Configuration to Order. | |
| | HP Non-Hot Plug SATA Cable<br>**NOTE:** The purchase of a SATA Hard Disk Drive requires the purchase of HP SATA Cable option kit (P/N 442901-B21). | 442901-B21 |
| | **Serial Attached SCSI** (SAS) **Non-Hot Plug** (SAS Models Only) | |
| | HP 300GB SAS 3.5" 15K NHP | 431950-B21 |
| | HP 146GB SAS 3.5" 15K NHP | 432093-B21 |
| | HP 72GB SAS 3.5" 15K NHP | 432095-B21 |
| | **NOTE:** The purchase of SAS hard drives requires the purchase of part number 430479-B21, the HP Internal SAS/SATA 4-Port Cable. This cable is standard in the SAS BTO model. | |

*Options*

| | | |
|---|---|---|
| **Storage Controllers** | HP SC44Ge Host Bus Adapter | 416096-B21 |
| | HP SC11Xe Host Bus Adapter | 412911-B21 |
| | HP 8 Internal Port SAS HBA with RAID<br>**NOTE:** PCI-X Interface (PCI 32bit/33MHz compatible)<br>**NOTE:** Cannot be installed in Slot 2 due to proximity to heat sync | 347786-B21 |
| | HP Smart Array E200/128 BBWC Controller | 411508-B21 |
| | 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2<br>**NOTE:** PCI-X Interface (PCI 32bit/33MHz compatible)<br>**NOTE:** Cannot be installed in Slot 2 due to proximity to heat sync | 374654-B21 |
| | 128MB Battery-Backed Write Cache Enabler<br>**NOTE:** Supports the Smart Array E200 Controller, Smart Array 641 Controller and Smart Array 642 Controller. | 351580-B21 |
| | HP SAS/SATA 4-Port Cable<br>**NOTE:** The purchase of a SAS Storage Controller requires the purchase of HP SAS/SATA 4-Port Cable (P/N 430479-B21) | 430479-B21 |
| **Communications** | HP NC110T PCI Express Gigabit Server Adapter | 434905-B21 |
| | HP NC150T PCI 4-port Gigabit Combo Switch Adapter | 367132-B21 |
| | HP NC360T PCI Express Dual Port Gigabit Server Adapter | 412648-B21 |
| | Agere 2006 PCI Hi-Speed 56K Modem | 440519-B21 |
| **Tape Backup Drives** | **NOTE:** Installation of SCSI internal tape drives in a ML115 model requires SCSI controller kit (PN: 374654-B21).<br>**NOTE:** The SCSI Controller Kit (P/N 374654-B21 cannot be installed in Slot 2 due to proximity to heat sync<br>**NOTE:** For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html | |
| | **USB Tape Drives** | |
| | HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite) | DW022A |
| | HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite) | DW026A |
| | **DAT Tape Drives** | |
| | HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon) | C5686C |
| | HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon) | Q1522B |
| | Ultrium Tape Drives | |
| | HP StorageWorks Ultrium 232 SCSI Internal Tape Drive (Carbonite) | DW064A |
| | HP StorageWorks Ultrium 448 External Tape Drive (Carbonite) | DW017B |
| | HP StorageWorks Ultrium 448 Internal Tape Drive (Carbonite) | DW016A |

*Options*

| | | |
|---|---|---|
| **HP Data Protector Express Software** | HP DP Express Backup Server Upgrade for ProLiant Software | BB117AP |
| | HP DP Express Package for Microsoft Small Business Server | BB118AA |
| | **NOTE:** Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software: http://h18000.www1.hp.com/products/quickspecs/12337_div/12337_div.html (Worldwide) | |
| | **NOTE:** To obtain a free licensed copy of HP Data Protector Express for ProLiant edition software, please visit the "Protect Your Data" link accessible from your ProLiant server's System Management Homepage (SMH) software (SmartStart 7.5 or later). | |
| **Installation of Server into Racks** | Monitor/Utility Shelf | 253449-B21 |
| **Lights Out Management Card** | HP ML115 Lights-Out 100c Remote Management Card | 437372-B21 |
| **UPS** | HP T1000 UPS, JPN/TWN | AF404A |
| | HP T1000 UPS, NA | AF403A |
| | HP T1000 UPS, INTL | AF405A |
| | HP T750 UPS, Low Voltage (NA/JPN) | 378439-D71 |
| | HP T750 UPS, High Voltage (INTL) | 378439-B31 |
| **USB Options** | HP 1GB Drive Key II- USB 2.0 Flash Drive | AG382AA |
| | HP 512MB DriveKey II- USB Flash Drive | ED516AA |
| | HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) | DC172B |
| | HP USB 04 Standard Keyboard | DT528A#xxx |
| | USB 2.0 4-port HUB | DG954A |
| **HP 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 | |

| | | |
|---|---|---|
| **Service and Support Offerings** (HP Care Pack Services) | **Hardware Services 4-Hour On-site Service** | |
| | 13-Hour x 5-Day Coverage, 3 Years | U4434E |
| | 24-Hour x 7-Day Coverage, 3 Years | U4435E |
| | **Hardware Services Next Business Day On-Site Service** | |
| | 9-Hour x 5-Day Coverage, 3 Years | U4433E |
| | **Hardware Services 6 Hour Call-to-Repair** | |
| | 24-Hour x 7-Day Coverage, 3 Years, 6 Hour Call-to-Repair | U4436E |
| | **Hardware Installation Service** | |
| | HP Install ProLiant ML115 Service | U4444E |
| | **NOTE:** For more information, customer/resellers can contact http://www.hp.com/services/carepack. | |

**HP ProLiant ML115 Models**

***Standard Memory***

512 MB of PC2-5300 DDR2 SDRAM running at 512 MB with Advanced ECC capabilities Memory installed (1 x 512 MB SDRAM DIMM).

***Standard Memory Plus Optional Memory***

Up to 5120 MB memory is available with the optional installation of PC2-5300 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

***Standard Memory Replaced with Optional Memory***

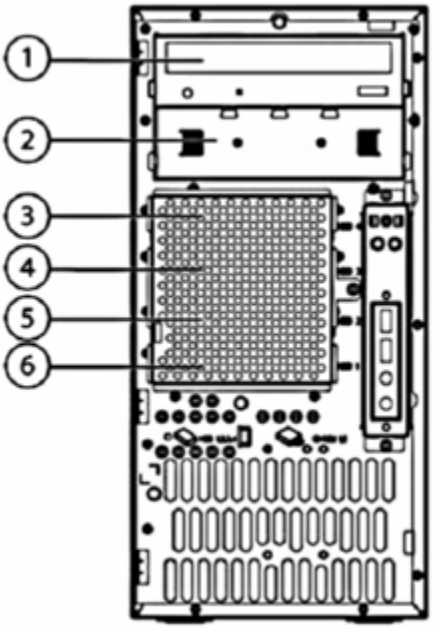
Up to 8192 MB of memory is available with the removal of the standard 512 MB of memory and the optional installation of PC2-5300 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

**NOTE:** The below chart does not represent all possible memory configurations.
**NOTE:** In memory configurations requiring 2 DIMM and 4 DIMM configurations, the memory must be paired for optimal performance. This means that DIMMs in slot 1 and 3 have to be identical, in slot 2 and 4 have to be identical. (For example, the Optional memory configuration shown below)

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

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

| | |
|---|---|
| 2048 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 2048 MB), Dual Rank | 432806-B21 |
| 1024 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 1024 MB), Dual Rank | 432804-B21 |
| 512 MB Unbuffered Advanced ECC PC2-5300 DDR2 DIMM (1 x 512 MB), Single Rank | 432803-B21 |




| | |
|---|---|
| 1 | 48x IDE (ATAPI) CD-ROM |
| 2 | Removable Media Bays (1.6" each) |
| 3, 4, 5, 6 | Four (4) Non-Hot Plug Drive Bays |

## Drive Support

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| **Removable Media** | | | |
| DVD + CDRW Drive | 2 | 1 or 2 | Integrated IDE (ATAPI) |
| DVD-RW Drive | 2 | 1 or 2 | Integrated IDE (ATAPI) |

**Hard Drives (SATA Models only)**

**SATA 1.5Gb – Non-Hot Plug**

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| **3.5-inch**<br>500GB 7.2K SATA<br>250GB 7.2K SATA<br>160GB 7.2K, SATA<br>80GB 7.2K, SATA | Up to 4 | 3,4,5,6 | 4 Port SATA controller with Embedded RAID on Motherboard (0,1,5) |

**Hard Drives (SAS Models only)**

**SAS – Non-Hot Plug**

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| **3.5-inch**<br>300GB 15K SAS<br>145GB 15K SAS<br>72GB 15K, SAS | Up to 4 | 3,4,5,6 | HP 8 Internal Port SAS HBA with RAID (0,1) |

*Storage*

**Maximum Storage Capacity** – SATA/SAS Models

| | | |
|---|---|---|
| Internal | **SATA** | 1TB (4x250GB (BTO)<br>2TB (4 x 500GB (CTO) |
| | **SAS** | 1.2TB (4x300GB) |
| Total | **SATA** | 1TB (4x250GB (BTO)<br>2TB (4 x 500GB (CTO) |
| | **SAS** | 1.2TB (4x300GB) |

**Tape Drives**

**NOTE:** A SCSI controller needs to be purchased to operate internal SCSI devices in the SATA Models.
**NOTE:** For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/Division/10233.html (Worldwide)

| | Position Supported | Controller | Controller/HBA Option Kit Part Number |
|---|---|---|---|
| **Internal USB Tape Drives**<br>DAT 40 USB<br>DAT 72 USB | 2 | USB 2.0 port | N/A |
| **External USB Tape Drives**<br>DAT 40 USB<br>DAT 72 USB | External | USB 2.0 port | N/A |
| **Internal SCSI Tape Drives**<br>DAT 40<br>DAT 72<br>Ultrium 232<br>Ultrium 448 | 2 | 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2<br>**NOTE:** Cannot be installed in Slot 2 due to proximity to heat sync | 374654-B21 |
| **External SCSI Tape Drives**<br>DAT 40<br>DAT 72<br>Ultrium 232<br>Ultirum 448 | External | 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2<br>**NOTE:** Cannot be installed in Slot 2 due to proximity to heat sync | 374654-B21 |

*Power Specifications*

| | |
|---|---|
| **Part Number** | 416121-001 |
| **Spare Kit** | 419029-001 |
| **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 | 370 | N/A | N/A | 370 | N/A |
| Nominal Input Current (A rms) | N/A | 8 | N/A | N/A | 4 | N/A |
| Max Rated Input Wattage Rating (Watts) | N/A | N/A | N/A | N/A | N/A | 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) | 0.25mA (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 |

*System Specifications*

| | **Power** ** |
|---|---|
| **HP ProLiant ML115 Fully Configured** | (see **) |
| Fully Loaded System output Wattage (W) | 370W |
| Fully Loaded System Input Current (A rms) | 8A @ 115V, 4A @ 230V |
| Fully Loaded System Thermal (BTU-Hr) | 1907BTU |
| Fully Loaded System VA (Volt-Amp) | 920 |
| System Leakage with all power supplies loaded (mA) | 0.75mA@240V<br>0.45mA@120V |
| System Inrush Current with all power supplies loaded (A) | 80A |
| 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) CD-ROM, (1) DVD-ROM, (4) PCI cards, and (1) power supply. |

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

| | | | |
|---|---|---|---|
| **System Unit** | **Dimensions** (HxWxD) (with feet) | 14.46 x 6.88 x 16.76 in (36.7 x 17.5 x 42.6 cm) | |
| | **Weight** (approximate) | 23.15 lb (10.5 kg) | |
| | **Input Requirements** (per power supply) | Range Input Voltage | 100 to 127 VAC/200 to 240 VAC |
| | | Normal Line Voltage | 115 or 230 VAC |
| | **Line Frequency** | 50 to 60 Hz | |
| | **Rated Input Current** | load 8A at 115VAC, 4A at 230VAC | |
| | **BTU Rating** | 1907 BTU | |
| | **SCSI Connectors** (SCSI Models only) | One internal LVD/SE connector for U160 devices, plus two internal SE connectors for legacy devices. | |
| | **Power Supply Output Power** (per power supply) | Rated Steady-State Power | 370W |
| | | Maximum Peak Power | 370W |
| | **Temperature Range** | Operating | 50° to 95° F (10° to 35° C) |
| | | Shipping | -31° to 140° F (-35° to 60° C) |
| | **Relative Humidity** (non-condensing) | Operating | 10% to 90% |
| | | Non-operating | 10% to 95% |
| | **Acoustic Noise** | Idle (Fixed Disk Drives Spinning) | |
| | | **L** WAd (BELS) | 5.4 |
| | | **L** pAm (dBA) | 36 |
| | | Operating (Random Seeks to Fixed Disks) | |
| | | **L** WAd (BELS) | 5.9 |
| | | L pAm (dBA) | 38 |

| | | | | |
|---|---|---|---|---|
| **HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD** 411275-B21 | **160GB 7,200 rpm** | **Capacity** | 160,041 MB | |
| | | **Height** | 1.0 in. (26.1 mm) | |
| | | **Width** | 4.0 in. (101.6 mm) | |
| | | **Interface** | Serial ATA | |
| | | **Transfer rate synchronous** (maximum) | 1.5 Gb/s | |
| | | **Seek time** (typical reads, including settling) | Single track | 0.9 ms |
| | | | Average | 9.0 ms |
| | | | Full-stroke | 17.8 ms |
| | | | Rotational speed | 7,200 rpm |
| | | **Physical Configuration** | Bytes/Sector | 512 |
| | | | Logical Blocks | 312,581,808 |
| | | **Operating Temperature** | 41° to 131° F (5° to 55° C) | |

*Technical Specifications*

| | | | |
|---|---|---|---|
| **NHP 72GB 3G SAS 15K 3.5" HDD** 431950-B21 | **72GB 15K** | | |
| | **Capacity** | 73,407,856,856 | |
| | **Height** | 1.0 in (25.4mm) | |
| | **Width** | 4.0 in. (101.6 mm) | |
| | **Interface** | SAS | |
| | **Transfer rate synchronous** (maximum) | 3 Gb/sec | |
| | **Seek time** (typical reads, including settling) | Single track | 0.27 ms |
| | | Average | 3.5 ms |
| | | Full-stroke | 3.5 ms |
| | | Rotational speed | 15,000 rpm |
| | **Physical Configuration** | Bytes/Sector | 512 |
| | | Logical Blocks | 143,374,737 |
| | **Operating Temperature** | 50° to 95° F (10° to 35° C) | |

| | | | |
|---|---|---|---|
| **48X Max IDE (ATAPI) CD-ROM Drive** 398972-B21 | **Disk** | Applicable Disk | CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) |
| | | | Photo CD (Single and Multi-session) |
| | | | Mixed Mode (Audio and Data combined) |
| | | | CD-R |
| | | Capacity | 540MB (Mode 1, 12 cm) |
| | | | 650MB (Mode 2, 12 cm) |
| | **Block Size** | Mode 1 | 2,048 bytes, 1024 bytes |
| | | Mode 2 | 2,340 bytes, 2,336 bytes, 1024 bytes |
| | | CD-DA | 2,352 bytes |
| | | CD-XA | 2,328 bytes |
| | **Interface** | IDE (ATAPI) | |
| | **Access Times** (typical) | Random | <100 ms |
| | | Full-Stroke | <150 ms |
| | **Data Transfer Rate** | Sustained | 3000 to 7200 KB/s (20X to 48X) |
| | | Burst | 150 KBps to 7,200 KBps |
| | | Bus Rate | 16.7 MBps |
| | **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) | 1.63 x 5.75 x 7.87 in (41.3 x 146 x 200 cm) |
| | | 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 2 TB (4 x 500GB non hot plug SATA HDD) |
| | **RAID Levels Supported** | RAID 1+0 (Striping & Mirroring)<br>RAID 1 (Mirroring)<br>RAID 0 (Striping)<br>RAID 5 (Striping with parity) |
| | **Logical RAID Volumes Supported** | |

| | | |
|---|---|---|
| **HP 8 Internal Port SAS Host Bus Adapter with RAID**<br>(SAS Model only) | **Dimensions** (excluding bracket) | 6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm) |
| | **Disk Drive and Enclosure Protocol Support** | 3 Gbps SAS (Serial Attached SCSI)<br>1.5 Gbps SATA (Serial Advanced Technology Attachment) |
| | **Architecture** | 64-bit |
| | **SAS Connectors** | 2 internal SFF8484 x4 Wide SAS Connectors<br>12 Gbps per x4 Wide SAS Port (4 x 3 Gbps) |
| | **Data Transfer Method** | 64-bit wide, PCI-X 133 MHz (1 GB/s maximum bandwidth) |
| | **PCI Bus Speed** | PCI-X-133 and 3.3 volt PCI compatibility only |
| | **PCI** | PCI-X and 3.3 volt PCI compatibility only |
| | **Simultaneous Drive Transfer Ports** | 2 x4 Wide SAS Connectors |
| | **Port Transfer Rate** | 12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s) |
| | **Software upgradeable Firmware** | Yes |
| | **Maximum Capacity** | 576GB (8 x 72GB) |
| | **Memory Addressing** | 64-bit, supporting servers memory greater than 4 GB |
| | **Logical Drives Supported** | Up to 2 Logical Volumes<br>Up to 10 drives total in all RAID volumes<br>Up to 2 Drives per RAID 1<br>Up to 8 Drives per RAID 0 |
| | **RAID Support** | RAID 1 (Mirroring)<br>RAID 0 (Striping) |
| | **Upgradeable Firmware** | 4-MB flashable ROM |
| | **Disk Drive and Enclosure Protocol Support** | 3 Gbps SAS and 1.5 Gbps SATA |

*Technical Specifications*

| | | | |
|---|---|---|---|
| **Embedded NC320i 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 | |
| | **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) |

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