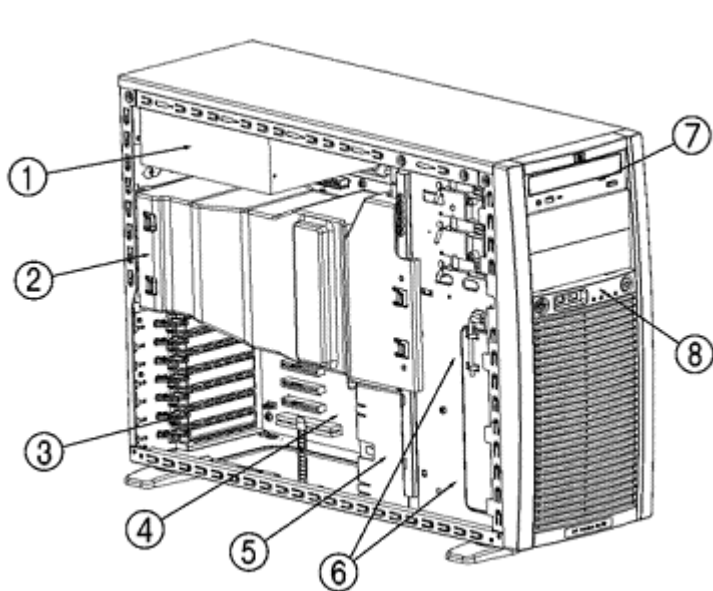
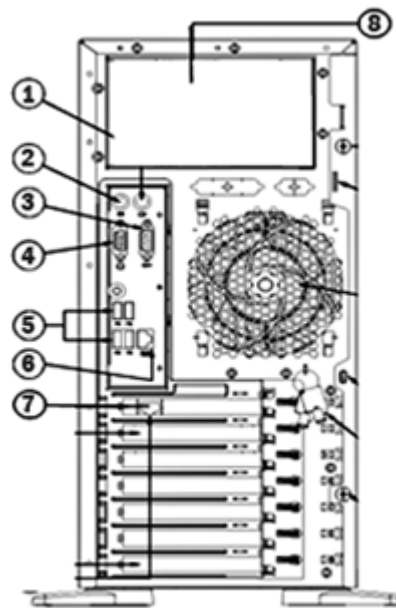


Overview



Front View:

1. Power Supply
2. Processor Air Duct
3. Six Expansion Slots
4. Main System Board
5. Front System Fan
6. Hard Drive Bays (up to 8)
7. DVD-ROM Drive
8. Lockable Bezel



Rear View:

1. Mouse Port
2. Keyboard Port
3. Serial Port
4. Monitor Port
5. USB Port
6. Network Port
7. Dedicated LO100 LAN Management Port
8. Power Supply

What's New

- Support for Non-Hot Plug SAS Hard Drives

Overview

At A Glance

- Processor:
 - Quad-Core Intel® Xeon® processor E5400 sequence
 - Dual-Core Intel® Xeon® processor E5200 sequence
 - Intel® 5100 chipset
 - 1066 MHz or 1333MHz Front Side Bus
- Memory:
 - PC2-5300 Registered Buffered DIMMs (DDR2-667) Memory
 - 1 or 2 GB standard
 - 16 GB maximum
- Storage Controller:
 - HP Embedded SATA RAID Controller (RAID 0,1,10)
 - HP SAS SC40Ge PCI Express to 4-Port SATA/SAS HBA Controller (SAS Model)
 - HP Smart Array E200/128 BBWC SATA/SAS Controller (Performance Model)
- Internal Drive Support:
 - Internal SAS storage capacity of up to 2.4TB (8 x 300GB SAS drives)
 - Internal SATA storage capacity of up to 6.0TB (8 x 750GB SATA drives)
 - Supports up to Eight (8) SAS/SATA hard drives via HBA or RAID Controller
- Network Controller:
 - Embedded HP NC105i PCI Express Gigabit Server Adapter
- Expansion Slots:
 - Six expansion slots: Two (2) PCI-Express x8, Three (3) PCI-Express x4(x8 connector) and One (1) PCI (32-bit/33MHz). One slot designated for optional HP ProLiant 100 G5 Lights-Out 100c Remote Management Card
- USB Ports:
 - Eight (8) USB 2.0 ports:– 4 rear, 2 front, 2 Internal(1 standard and 1HP 5-pin)
- Power Supply:
 - One 650W Single Non-Redundant Power Supply
 - 750W Redundant Power Supply(Optional)
- Form Factor:
 - 5U Tower Models. Rack models optional HP Tower to Rack Conversion Tray, Universal Kit
- Management:
 - Optional HP ProLiant 100 G5 Lights-Out 100c Remote Management Card
- Deployment/Serviceability:
 - Easy chassis entry and component access
- Warranty:
 - Protected by HP Services and a worldwide network of HP Authorized Channel Partners, including a one-year, limited warranty, Next Business Day 1, year on-site limited Global warranty. Certain restrictions and exclusions apply. SATA hard drives have a one year warranty.
 - **NOTE: Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. 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

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://ccesalewspr02.cce.hp.com/docfiles/concentra/604671239/4AA1-7091ENW.pdf>

| | |
|---|--|
| Processor | Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 1066FSB, 65W) |
| One of the following depending on configuration | Quad-Core Intel® Xeon® processor E5405 (2.0 GHz, 1333 FSB, 80W) |
| | Quad-Core Intel® Xeon® processor E5410 (2.33 GHz, 1333 FSB, 80W) |
| | Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 1333 FSB, 80W) |
| | Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 1333 FSB, 80W) |
| | Quad-Core Intel® Xeon® processor E5440 (2.83 GHz, 1333 FSB, 80W) |

| | |
|--------------|--|
| Cache Memory | Integrated 1x6MB level 2 cache (E5200 sequence) Integrated 2x6MB level 2 cache (E5400 sequence) |
|--------------|--|

| | |
|----------------|---|
| Upgradeability | Upgradeable to two processors (Dual or Quad-Core) NOTE: Please contact your regional sales support |
|----------------|---|

| | |
|---------|---------------------|
| Chipset | Intel® 5100 Chipset |
|---------|---------------------|

| | | |
|--------|--|---|
| Memory | Type | PC2-5300 Registered Buffered DIMMs (DDR2-667) |
| | Standard for NHP SATA Models | 1 GB |
| | Standard for HP SAS/SATA Model and Performance Model | 2 GB |
| | Maximum | 16 GB |

| | |
|--------------------|---|
| Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL (Wake on LAN) |
|--------------------|---|

Standard Features

| Expansion Slots # | Technology | Bus Width | Connector Width | Bus Number* | Form Factor | Notes |
|-------------------|---------------------|-----------|-----------------|-------------|-------------------------------|--------------|
| 1 | 32-bit/33MHz PCI | N/A | N/A | 0x0A | Full length, full height slot | Non Hot-plug |
| 2 | PCI-Express (Gen 1) | x4 | X8 | 0x03 | Full length, full height slot | Non Hot-plug |
| 3 | PCI-Express (Gen 1) | X4 | X8 | 0x05 | Full length, full height slot | Non Hot-plug |
| 4 | PCI-Express (Gen 1) | X4 | X8 | 0x01 | Full length, full height slot | Non Hot-plug |
| 5 | PCI-Express (Gen 1) | X8 | X8 | 0x02 | Full length, full height slot | Non Hot-plug |
| 6 | PCI-Express (Gen 1) | X8 | X8 | 0x09 | Full length, full height slot | Non Hot-plug |

| | | |
|--------------------|-------------------|---|
| Storage Controller | SATA/SAS Model | HP Embedded SATA RAID Controller HP SAS SC40Ge PCI Express to 4-Port SATA/SAS HBA Controller |
| | Performance Model | HP Smart Array E200/128 BBWC SATA/SAS Controller |

| | | |
|---------|----------------|---|
| Storage | Diskette Drive | None ship standard 1.44 MB USB Diskette Drive Option available |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Hard Drives | None ship standard SAS and SATA hard drive options are available One 160GB Non-Hot Plug HDD for Non-Hot Plug BTO models |

| | | |
|--------------------------|---|---|
| Maximum Internal Storage | SATA | 6.0TB (8 x 750GB) SATA (With optional SAS controller) |
| | SAS | 2.4TB (8 x 300GB) SAS (With optional SAS controllers) |
| | NOTE: The Embedded SATA RAID controller support for a single logical drive is limited to 2TB. | |

Standard Features

| | | |
|------------|------------------------------|--|
| Interfaces | Parallel | 0 |
| | Serial | 1 |
| | Pointing Device (Mouse, PS2) | 1 |
| | Graphics | 1 |
| | Keyboard (PS2) | 1 |
| | USB 2.0 Ports | 8 (4 Rear, 2 Front, and 2 Internal) |
| | Dedicated USB | 1 (available for USB tape connectivity) |
| | | NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html . |
| | Network RJ-45 (Ethernet) | 1 (10/100/1000 Gbits/s) |
| | Remote Management | 1 (10/100 via optional HP ProLiant 100 G5 Lights-Out 100c Remote Management Card) |

| | |
|----------|---|
| Graphics | Integrated graphics controller with 8MB DDR2 video RAM Supports up to 1600x1200 x 16 million color |
|----------|---|

| | |
|-------------|--|
| Form Factor | Tower (5U) NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs. |
|-------------|--|

| | |
|------------------------------|--|
| Industry Standard Compliance | ACPI V2.0 compliant PCI 2.3 compliant PXE Support WOL Support Microsoft® Logo certifications |
|------------------------------|--|

| | |
|---------------|--|
| Manageability | Optional HP ProLiant 100 G5 Lights-Out 100c Remote Management Card Embedded IPMI standard reporting |
|---------------|--|

| | |
|----------|--|
| Security | Power-on password Setup password Diskette boot control |
|----------|--|

| | |
|--------------------|-----------------------------|
| Server Power Cords | One lowline NEMA power cord |
|--------------------|-----------------------------|

Standard Features

Power Supply One 650W Non-Redundant Power Supply, Non-hot plug

System Fans Two (2) – Non-hot plug, Non-redundant system fans

Remote Management Lights-Out 100c Lights Out LO100c is a Remote Management Card (RMC) for HP 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 HP 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.

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.

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.

NOTE: For more information, please refer to the QuickSpecs for the LO100c found at: <http://h18004.www1.hp.com/products/servers/management/remotemgmt/lightsout100/index.html>

Unified Foundation HP Systems Insight HP Systems Insight Manager (HP SIM) provides a unified, secure and Management Manager extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.

Subscriber's Choice Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at <http://www.hp.com/go/subscriberschoice> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.

ROMPaq, software and The latest software, drivers, and firmware fully optimized and tested for your latest drivers HP ProLiant server and options, available through software and drivers download pages website at: <http://www.hp.com/go/support>.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

Standard Features

OS Support

Windows 2003 R2 Web edition
Windows 2003 R2 Small Business edition
Windows 2003 R2 Standard Edition (x86 and x64)
Windows 2003 R2 Enterprise Edition (x86 and x64)
Windows 2008 Standard Edition (x86 and x64)
Windows 2008 Enterprise Edition (x86 and x64)
Red Hat EL 5/4 (x86 and x64)
SLES 10/9 (x86 and x64)
Netware 6.5
SCO OpenServer Legend 6.0.1
SCO Unixware 7.1.4

NOTE: For an up-to-date listing of the latest ML150 OS support matrix, please see:
<http://www.hp.com/go/supportos>

NOTE: For an up-to-date listing of the latest drivers available for this server, please see:
<http://www.hp.com/support>

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 HP Factory Express offers configuration, customization, integration and deployment services for HP servers for Servers and Storage and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging and custom packaging to meet customer needs. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant & HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HP Enterprise Configuration 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.

Standard Features

Service and Support

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. 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.

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 coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 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 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>

Models

SAS/SATA Hot Plug Models

| | | |
|--|--|---|
| Performance Model | Processor(s) | (1) Quad-Core Intel® Xeon® processor E5410 (2.33 GHz, 1333 FSB, 80W) |
| HP ML150G5 E5410 HP SATA/SAS, 2GB, (1P) 450164-001 | One of the following depending on Model | (1) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 1333 FSB, 80W) |
| Base Model | Cache Memory | Integrated 2x6MB L 2 cache (E5400 sequence) |
| | One of the following depending on Model | Integrated 1x6MB level 2 cache (E5200 sequence) |
| HP ML150G5 E5405 HP SATA/SAS, 2GB (1P) 450163-001 | Memory | 2 GB PC2-5300 Registered DIMMs (DDR2-667) |
| | Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL |
| | Storage Controller | SATA/SAS model: HP SC40Ge 4 Internal Port SATA/SAS Host Bus Adapter Performance model: HP E200 8 Internal Port Smart Array SAS/SATA Controller |
| | Hard Drive | None ship standard |
| | Internal Storage | 2.4TB (8 x 300GB) SAS 6.0TB (8 x 750GB) SATA (With optional SAS controllers and 2nd HDD Cage) |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Form Factor | Tower standard; 5U rack via optional rack mounting kit |

SATA Non-Hot Plug Models

| | | |
|--|--|--|
| HP ML150G5 E5205 NHP 160GB SATA, 1GB, (1P) 450161-001 | Processor(s) | (1) Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 1066FSB, 65W) |
| | One of the following depending on Model | (1) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 1333 FSB, 80W) |
| | Cache Memory | Integrated 1x6MB L 2 cache (E5200 sequence) |
| HP ML150G5 E5405 NHP 160GB SATA, 1GB, (1P) 450162-001 | Memory | 1 GB PC2-5300 Registered DIMMs (DDR2-667) |
| | Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL |
| | Storage Controller | HP Embedded SATA RAID Controller |
| | Hard Drive | One 160GB Non-Hot Plug HDD |
| | Internal Storage | 2.0TB (4 x 500GB) SATA NOTE: A Hot-plug hard drive cage can be installed into a Non-hot plug server by ordering a HBA (or Smart Array) plus one HP 2nd LFF Hot-plug hard drive cage kit. |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Form Factor | Tower standard; 5U rack via optional rack mounting kit |

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.

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.

| | | |
|----------------------|--------------------|---|
| S-BUY ML150T05 E5205 | Processor(s) | (1) Dual-Core Intel® Xeon® processor E5205 (1.86GHz, 1066FSB,65W) |
| NHP | Cache Memory | Integrated 1x6MB L2 cache |
| 463457-005 | Memory | 1GB (2 X 512MB) PC2-5300 Registered DIMMs (DDR2-667), single rank |
| | Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL |
| | Storage Controller | HP Embedded SATA RAID Controller |
| | Hard Drive | (1) 160GB SATA 7.2K 3.5" Non-Hot Plug HDD |
| | Internal Storage | Up to 2.0TB (4 x 500GB) SATA |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Form Factor | Tower standard; 5U rack via optional rack mounting kit |

| | | |
|----------------------|--------------------|---|
| S-BUY ML150T05 E5410 | Processor(s) | (1) Quad-Core Intel® Xeon® processor E5410 (2.33 GHz, 1333 FSB, 80W) |
| NHP | Cache Memory | Integrated 2x6MB L2 cache |
| 459655-005 | Memory | 2 GB (2 x 1GB) PC2-5300 Registered DIMMs (DDR2-667) |
| | Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL |
| | Storage Controller | HP Embedded SATA RAID Controller |
| | Hard Drive | (2) 160GB SATA 7.2K 3.5" Non-Hot Plug HDD |
| | Internal Storage | Up to 2.0TB (4 x 500GB) SATA |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Form Factor | Tower standard; 5U rack via optional rack mounting kit |

| | | |
|----------------------|--------------------|---|
| S-BUY ML150T05 E5430 | Processor(s) | (1) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 1333 FSB, 80W) |
| NHP | Cache Memory | Integrated 2x6MB L2 cache |
| 459654-005 | Memory | 2 GB (2 x 1GB) PC2-5300 Registered DIMMs (DDR2-667) |
| | Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL |
| | Storage Controller | HP Embedded SATA RAID Controller |
| | Hard Drive | (1) 160GB SATA 7.2K 3.5" Non-Hot Plug HDD |
| | Internal Storage | Up to 2.0TB (4 x 500GB) SATA |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Form Factor | Tower standard; 5U rack via optional rack mounting kit |

Smart Buys

| | | |
|---|--------------------|---|
| S-BUY ML150T05 E5430 NHP SBS 463458-005 | Processor(s) | (1) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 1333 FSB, 80W) |
| | Cache Memory | Integrated 2x6MB L2 cache |
| | Memory | 2 GB (2 x 1GB) PC2-5300 Registered DIMMs (DDR2-667) |
| | Network Controller | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL |
| | Storage Controller | HP Embedded SATA RAID Controller |
| | Hard Drive | (2) 160GB SATA 7.2K 3.5" Non-Hot Plug HDD |
| | Internal Storage | Up to 2.0TB (4 x 500GB) SATA |
| | Operating System | Microsoft Windows SBS 2003 R2 Standard w/5 CALs |
| | Optical Drive | HP Half-Height SATA DVD-ROM Optical Drive |
| | Form Factor | Tower standard; 5U rack via optional rack mounting kit |

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.

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

NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.

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

| | | |
|--------|---|------------|
| Models | HP ProLiant ML150 G5 Non-hot Plug SATA CTO Chassis | 450290-B21 |
| | Factory Integrated Models ship with: | |
| | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL | |
| | Tower 5U Form Factor | |
| | HP ProLiant ML150 G5 Hot Plug SAS/SATA CTO Chassis | 450291-B21 |
| | Factory Integrated Models ship with: | |
| | Embedded HP NC105i PCI Express Gigabit Server Adapter 10/100/1000 WOL | |
| | Tower 5U Form Factor | |

Step 2: Choose Required Options (Select only one option from each category unless otherwise noted)

| | | |
|----------------|---|------------|
| Processors | Quad-Core Processor Option Kits | |
| | Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 1333 FSB, 80W), FIO | 455420-L21 |
| | Quad-Core Intel® Xeon® processor E5410 (2.33 GHz, 1333 FSB, 80W), FIO | 455421-L21 |
| | Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 1333 FSB, 80W), FIO | 455422-L21 |
| | Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 1333 FSB, 80W), FIO | 455423-L21 |
| | Quad-Core Intel® Xeon® processor E5440 (2.50 GHz, 1333 FSB, 80W), FIO | 455424-L21 |
| | Dual-Core Processor Option Kits | |
| | Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 1066FSB, 65W) | 455419-L21 |
| Memory | 1 GB PC2-5300 DDR2 (2 x 512 MB) Kit, single rank | 408850-B21 |
| | 2 GB PC2-5300 DDR2 (2 x 1 GB) Kit, single rank | 408851-B21 |
| | 4 GB PC2-5300 DDR2 (2 x 2 GB) Kit, single rank | 461840-B21 |
| | 8 GB PC2-5300 DDR2 (2 x 4GB) Kit, dual rank | 408854-B21 |
| Optical Drives | HP Half-Height SATA DVD-ROM Optical Drive | 447326-B21 |
| | HP Half-Height SATA DVD RW Optical Drive | 447328-B21 |
| Hard Drives | NOTE: Required only if P/N 450290-B21 is selected in Step 1 above. | |
| | Non Hot Plug SATA Drives | |
| | HP 160GB 1.5G SATA 7.2K 3.5" NHP HDD | 411275-B21 |
| | HP 250GB 1.5G SATA 7.2K 3.5" NHP HDD | 411276-B21 |
| | HP 500GB 1.5G SATA 7.2K 3.5" NHP HDD, FIO | 404469-B21 |
| | Non Hot Plug SAS Drives | |
| | HP 72GB 3G SAS 15K 3.5" SP HDD | 432095-B21 |
| | HP 146GB 3G SAS 15K 3.5" SP HD | 432093-B21 |

Configuration Information-Factory Integrated Models

| | | |
|---|---|------------|
| | HP 300GB 3G SAS 15K 3.5" SP HDD | 431950-B21 |
| | NOTE: If a Non-Hot Plug SAS hard drives is selected with the Non-Hot-Plug CTO Chassis; the HP Internal SAS/SATA 4-Port cable (P/N 457692-B21) and SAS HBA or Smart Array Controller is required. Please see the Storage Controller section of this QuickSpecs | |
| Storage Controllers | HP SC40Ge 4 Int. SAS RAID PCI-E HBA, FIO only | 449176-B21 |
| (NOTE: Only required if 450291-B21 is selected in Step 1) | HP SC44Ge SAS PCI-E Host Bus Adapter | 416096-B21 |
| | HP SC11Xe U320 PCI-E Host Bus Adapter | 412911-B21 |
| | HP Smart Array E200/128 BBWC Controller | 411508-B21 |
| | HP Internal SAS/SATA 4-Port cable | 457692-B21 |
| Power supply | ML150G5 650W Power Supply, FIO only | 465462-B21 |

Step 3: Choose Additional Factory Integratable Options

| | | |
|-------------------|--|------------|
| Operating Systems | Pre-install Microsoft Windows 2003 Standard (English) | 409167-B21 |
| | Pre-install Microsoft Windows 2003 Small Business Server, Premium Edition (English) | 379603-B21 |
| | NOTE: For additional language part numbers, please visit: http://www.hp.com/go/microsoft and select 'HP & Windows OS'. | |

Step 4: Choose Additional Options for factory integration

NOTE: For additional options, please refer to the "Options" section below. Some options may not be available for factory integration. Please contact an HP sales representative for additional information.

Options

| | | |
|----------------|--|------------|
| Unique Options | HP ML150G5 2nd LFF HP Drive Cage Kit | 458312-B21 |
| Processors | Quad-Core Processor Option Kits | |
| | Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 1333 FSB, 80W) | 455420-B21 |
| | Quad-Core Intel® Xeon® processor E5410 (2.33 GHz, 1333 FSB, 80W) | 455421-B21 |
| | Quad-Core Intel® Xeon® processor E5420 (2.50 GHz, 1333 FSB, 80W) | 455422-B21 |
| | Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 1333 FSB, 80W) | 455423-B21 |
| | Quad-Core Intel® Xeon® processor E5440 (2.83 GHz, 1333 FSB, 80W) | 455424-B21 |
| | Dual-Core Processor Option Kits | |
| | Dual-Core Intel® Xeon® processor E5205 (1.86 GHz, 1066FSB, 65W) | 455419-B21 |
| Memory | 1 GB PC2-5300 DDR2 (2 x 512 MB) Kit, single rank | 408850-B21 |
| | 2 GB PC2-5300 DDR2 (2 x 1 GB) Kit, single rank | 408851-B21 |
| | 4 GB PC2-5300 DDR2 (2 x 2 GB) Kit, single rank | 461840-B21 |
| | 8 GB PC2-5300 DDR2 (2 x 4GB) Kit, dual rank | 408854-B21 |
| Optical Drives | HP Half-Height SATA DVD-ROM Optical Drive | 447326-B21 |
| | HP Half-Height SATA DVD RW Optical Drive | 447328-B21 |
| Hard Drives | Hot Plug SATA Drives | |
| | HP 160GB 1.5G SATA 7.2K 3.5" HDD | 349238-B21 |
| | HP 250GB 1.5G SATA 7.2K 3.5" HDD | 349239-B21 |
| | HP 500GB 1.5G SATA 7.2K 3.5" HDD | 395473-B21 |
| | HP 750GB 1.5G SATA 7.2K 3.5" HDD | 432341-B21 |
| | Non Hot Plug SATA Drives | |
| | HP 160GB 1.5G SATA 7.2K 3.5" HDD | 411275-B21 |
| | HP 250GB 1.5G SATA 7.2K 3.5" HDD | 411276-B21 |
| | HP 500GB 1.5G SATA 7.2K 3.5" HDD | 404469-B21 |
| | Hot Plug SAS Drives | |
| | HP 72GB 3G SAS 15K 3.5" SP HDD | 375870-B21 |
| | HP 72GB 3G SAS 15K 3.5" DP HDD | 384852-B21 |
| | HP 146GB 3G SAS 15K 3.5" SP HDD | 375872-B21 |
| | HP 146GB 3G SAS 15K 3.5" DP HDD | 384854-B21 |
| | HP 300GB 3G SAS 15K 3.5" SP HDD | 431944-B21 |
| | HP 300GB 3G SAS 15K 3.5" DP HDD | 416127-B21 |
| | Non-Hot Plug SAS Drives | |
| | HP 72GB 3GB SAS 15K 3.5" SP HDD | 432095-B21 |

Options

| | |
|--|------------|
| HP 146GB 3G SAS 15K 3.5" SP HD | 432093-B21 |
| HP 300GB 3G SAS 15K 3.5" SP HDD | 431950-B21 |
| NOTE: SAS hard drives require a SAS HBA or Smart Array Controller. | |
| NOTE: SAS non-hot plug drives will also require the HP Internal SAS/SATA 4-Port cable (P/N 457692-B21) | |

| | | |
|---------------------|---|------------|
| Storage Controllers | HP SC44Ge SAS PCI-E Host Bus Adapter | 416096-B21 |
| | HP SC11Xe U320 PCI-E Host Bus Adapter | 412911-B21 |
| | HP Smart Array E200/128 BBWC Controller | 411508-B21 |
| | HP Internal SAS/SATA 4 in 1 to 4 in 1 Cable | 438160-B21 |
| | NOTE: This cable is required when adding either the HP SC44Ge or the HP Smart Array E200 on a hot-plug model | |
| | HP Internal SAS/SATA 4-Port Cable | 457692-B21 |
| | NOTE: This cable is required when adding either the HP SC44Ge or the HP Smart Array E200 on a non hot-plug SATA model | |

| | | |
|----------------|--|------------|
| Communications | HP NC110T PCI Express Gigabit Server Adapter | 434905-B21 |
| | HP NC360T PCI Express Dual Port Gigabit Server Adapter | 412648-B21 |
| | HP NC364T PCI Express Quad Port Gigabit Server Adapter | 435508-B21 |
| | HP NC373F PCI Express Multifunction Gigabit Server Adapter | 394793-B21 |
| | v90 56K PCI Modem US (with specific modem cable) RoHS | EK694AA |

| | | |
|-------------------|---|------------|
| Remote Management | HP ProLiant 100 G5 Lights-Out 100c Remote Management Card | 445513-B21 |
|-------------------|---|------------|

| | | |
|-------------|--|--------|
| Tape Drives | NOTE: Installation of SCSI internal tape drives in a ML150 model requires SCSI controller kit (PN 412911-B21). | |
| | NOTE: For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html | |
| | DAT USB Tape Drives | |
| | HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite) | DW022A |
| | HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite) | DW026A |
| | HP StorageWorks DAT 160 USB Internal Tape Drive | Q1580A |
| | DAT SCSI Tape Drives | |
| | HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon) | C5686C |
| | HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon) | Q1522B |
| | HP StorageWorks DAT 160 SCSI Internal Tape Drive | Q1573A |
| | LTO Ultrium Tape Drives | |
| | HP StorageWorks LTO-1 Ultrium 232 Internal Tape Drive (Carbonite) | DW064A |
| | HP StorageWorks LTO-2 Ultrium 448 SCSI Internal Tape Drive (Carbonite) | DW016A |

Options

| | | |
|--|--|------------|
| HP D2D Backup System | HP StorageWorks D2D110 Backup System | EH880A |
| | NOTE: 1TB of Disk Storage | |
| | HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit | EH923A |
| | NOTE: 1TB of Disk Storage | |
| | HP StorageWorks D2D120 Backup System | EH884A |
| | NOTE: 2TB of Disk Storage | |
| | HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit | EH924A |
| | NOTE: 2TB of Disk Storage | |
| | HP StorageWorks D2D130 Backup System | EH950A |
| | NOTE: 3TB of Disk Storage. | |
| | HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit | EH951A |
| | NOTE: 3TB of Disk Storage. | |
| | HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive | EH952A |
| | NOTE: 3TB of Disk Storage. | |
| | NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_na/12651_na.html | |
| Uninterruptible Power Systems - Tower Supply | HP T750 UPS, Low Voltage | 378439-D71 |
| | HP T500 UPS, Low Voltage | 361475-001 |
| | HP T1000 UPS | AF403A |
| Installation of Server into Racks | HP Tower to Rack Conversion Tray, Universal Kit | 417705-B21 |
| HP KVM Switch Options | P Console Switch with Virtual Media (KVM/IP), 4x1x16 | AF602A |
| | IP Console Switch with Virtual Media (KVM/IP), 2x1x16 | AF601A |
| | Server Console Switch with Virtual Media (KVM), 0x2x16 | AF600A |
| | PS2 Virtual Media Interface Adapter, 1 Pack | AF604A |
| | NOTE: The AF604A is only compatible with the Console Switches with Virtual Media | |
| | PS/2 Interface Adapter, 1 pack | 262588-B21 |
| | PS/2 Interface Adapter, 8 pack | 262587-B21 |
| | USB Interface Adapter, 1 pack | 336047-B21 |
| | Serial Interface adapter - 1 Pack with power supply | 373035-B21 |
| | NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm . | |
| | HP 1x4 Console Switch | AF611A |
| | HP PS2 Server Console Cable, 6 foot, 2-Pack | AF612A |

Options

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>.

USB Options

| | |
|---|------------|
| HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) | DC172B |
| HP USB 04 Standard Keyboard | DT528A#ABA |
| USB 2.0 4-port HUB | DG954A |
| HP 1GB USB 2.0 Floppy Drive Key | 442085-B21 |
| HP 256MB USB 2.0 Floppy Drive Key | 442084-B21 |
| 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

Service and Support Offerings (HP Care Pack Services)

| | |
|--|--------|
| Support Service | |
| Next Business Day On-Site Service, 9-Hour x 5-Day Coverage, 3 Years, Electronic | U8184E |
| Same Business Date On-Site Service 13-Hour x 5-Day Coverage, 3 Years, Electronic | U8192E |
| Deployment Services | |
| Hardware Installation, Electronic (install services) | U8195E |

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

Memory

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

HP ProLiant ML150 Generation 5 Server

DIMM Installation Guidelines:

NOTE: Charts do not represent all possible memory configurations. Memory must be populated in one of the following ways:

1. Slot 1 only; slots 1 and 2 only (pairs must be of the same size)
2. Slots 1, 2, 3, 4, 5, and 6 (pairs must be of the same size and in the example below with slots 1 and 2 the same and slots 2 and 3 the same, and slots 5 and 6 the same)
3. Dual rank DIMMs can only be supported in slots 1 and 2.

Standard Memory

All HP ML150 G5 models ship with PC2-5300 Registered DIMMs (DDR2-667)

Hot Plug SAS/SATA (performance and/or base) models include 2 x 1 GB DIMMs (2 GB total)

Non-Hot Plug SATA models include two 512 MB DIMMs (1 GB total)

Factory Integrated Models include the memory capacity of your choice.

Standard Memory Replaced with Optional Memory

Up to 16 GB of memory is available with the removal of the standard 1 GB of memory and the optional installation of PC2-5300 Registered DIMMs (DDR2-667) Memory kits.

| SAS/SATA -Hot Plug Memory | | Slot | | | | | |
|---------------------------|-------|-------------|-------------|---------------|---------------|---------------|---------------|
| Memory | | 1 | 2 | 3 | 4 | 5 | 6 |
| | | (Dual Rank) | (Dual Rank) | (Single Rank) | (Single Rank) | (Single Rank) | (Single Rank) |
| Standard | 2 GB | 1 GB | 1 GB | Empty | Empty | Empty | Empty |
| Optional | 10 GB | 1 GB | 1 GB | 2 GB | 2 GB | 2 GB | 2 GB |
| Maximum | 16 GB | 4 GB | 4 GB | 2 GB | 2 GB | 2 GB | 2 GB |

| SATA - Non-Hot Plug Memory | | Slot | | | | | |
|----------------------------|-------|--------------------|--------------------|---------------|---------------|---------------|---------------|
| Memory | | 1 | 2 | 3 | 4 | 5 | 6 |
| | | (Dual/Single Rank) | (Dual/Single Rank) | (Single Rank) | (Single Rank) | (Single Rank) | (Single Rank) |
| Standard | 1 GB | 512 MB | 512 MB | Empty | Empty | Empty | Empty |
| Optional | 9 GB | 512 MB | 512 MB | 2 GB | 2 GB | 2 GB | 2 GB |
| Maximum | 16 GB | 4 GB | 4 GB | 2 GB | 2 GB | 2 GB | 2 GB |

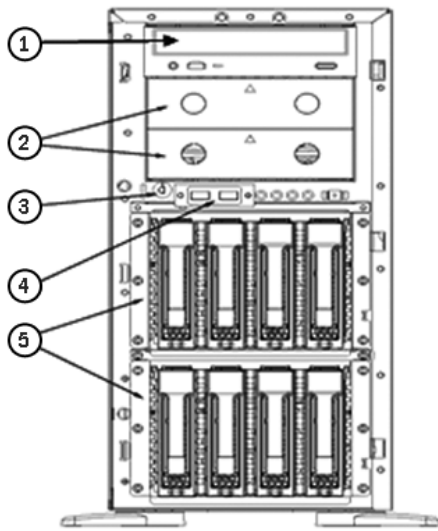
NOTE: Please ensure socket 1 is populated, otherwise the system will not boot. Install memory in balanced pairs (see memory options) for best performance.

Following are memory options available from HP:

| | |
|--|------------|
| 1 GB PC2-5300 DDR2 (2 x 512 MB) Kit, single rank | 408850-B21 |
| 2 GB PC2-5300 DDR2 (2 x 1 GB) Kit, single rank | 408851-B21 |
| 4 GB PC2-5300 DDR2 (2 x 2 GB) Kit, single rank | 461840-B21 |
| 8 GB PC2-5300 DDR2 (2 x 4GB) Kit, dual rank | 408854-B21 |

Storage

Non-Hot Plug SATA or Hot Plug SAS/SATA



- 1 16x SATA DVD-ROM
- 2 Removable Media Bay with EMI Shield
- 3 Thermal Sensor
- 4 USB Port
- 5 Four/Eight Hot Plug SAS/SATA or Four Non-Hot Plug SATA Drive Bays

Drive Support

| | Quantity Supported | Position Supported | Controller |
|--------------------|--------------------|--------------------|------------|
| Removable Media | | | |
| SATA DVD-ROM Drive | Up to 1 | 1 | SATA |

Hard Drives

SAS (Hot Plug Drives)

| | Quantity Supported | Position Supported | Controller |
|---------------------------|--------------------|---------------------|--|
| 300 GB SAS 15K | Up to 8 | 5 (Drive slots 1-8) | LSI SATA/SAS SC40Ge PCI Express to 4-Port Controller Smart Array E200 SATA/SAS Controller Optional HP SC44Ge SATA/SAS PCI-E Host Bus Adapter |
| 146 GB SAS 15K | | | |
| 72 GB SAS 10K | | | |
| SAS (Non-Hot Plug Drives) | Up to 8 | 5 (Drive slots 1-8) | LSI SATA/SAS SC40Ge PCI Express to 4-Port Controller Smart Array E200 SATA/SAS Controller Optional HP SC44Ge SATA/SAS PCI-E Host Bus Adapter |
| 300 GB SAS 15K | | | |
| 146 GB SAS 15K | | | |
| 72 GB SAS 15K | | | |

Storage

Hard Drives

| | Quantity Supported | Position Supported | Controller |
|-------|--------------------|---------------------|--|
| 750GB | Up to 8 | 5 (Drive slots 1-4) | Embedded 4 port SATA Controller (for HP SATA models) |
| 500GB | | | LSI SATA/SAS SC40Ge PCI Express to 4-Port Controller |
| 250GB | | | Smart Array E200 SATA/SAS Controller |
| 160GB | | | Optional HP SC44Ge SATA/SAS PCI-E Host Bus Adapter |

NOTE: To support 8 drives, the purchase of the optional HP HDD cage and possibly purchase a second SATA/SAS controller for 8 port support are required.

Maximum Storage Capacity – SAS Models

| | |
|----------|-----------------------------------|
| Internal | 2.4TB (8 x 300GB SAS hard drives) |
| Total | 2.4TB (8 x 300GB SAS hard drives) |

Maximum Storage Capacity – SATA Models

| | |
|----------|-------------------------------|
| Internal | 6.0TB (8 x 750GB SATA drives) |
| Total | 6.0TB (8 x 750GB SATA drives) |

Tape Drives

NOTE: Installation of SCSI tape drives in a ML110 G5 model requires SCSI controller kit (PN: 412911-B21).

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/north_america/10233.html

| | Position Supported | Controller | Controller/HBA Option Kit Part Number |
|--|--------------------|----------------------------|---------------------------------------|
| Internal USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB | 2 | USB 2.0 port | N/A |
| External USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB | External | USB 2.0 port | N/A |
| Internal SCSI Tape Drives DAT 40 DAT 72 DAT 160 LTO-1 Ultrium 232 LTO-2 Ultrium 448 | 2 | HP SC11Xe Host Bus Adapter | 412911-B21 |

Storage

| | | | |
|------------------------------------|----------|-----------------------------|------------|
| External SCSI Tape Drives | External | HP SC11Xe Host Bus Adapter | 412911-B21 |
| DAT 40 | | | |
| DAT 72 | | | |
| DAT 160 | | | |
| LTO-1 Ultrium 232 | | | |
| LTO-1 Ultrium 448 | | | |
| HP StorageWorks D2D Backup Systems | External | Embedded Network Controller | N/A |
| D2D110 | | | |
| D2D120 | | | |
| D2D130 | | | |

Power Specifications

| | |
|--|--|
| Part Number | 459558-001 |
| Spare Kit | 461512-001 |
| Operational Input Voltage Range (Vrms) | 90 to 135 and 180 to 264 V ac full ranging |
| Frequency Range (Nominal) (Hz) | 47 to 66 Hz |

| | | | | | | |
|--|--------|--------|--------|--------|--------|--------|
| Nominal Input Voltage (Vrms) | 100 | 115 | 208 | 220 | 230 | 240 |
| Max Rated Output Wattage Rating | 600 | 600 | 600 | 600 | 600 | 600 |
| Nominal Input Current (A rms) | 10 | 10 | 5 | 5 | 5 | 5 |
| Max Rated Input Wattage Rating (Watts) | 800 | 780 | 760 | 750 | 750 | 750 |
| Max. Rated VA (Volt-Amp) | 842.10 | 821.05 | 844.44 | 833.33 | 833.33 | 833.33 |
| Efficiency (%) | 75 | 77 | 79 | 80 | 80 | 80 |
| Power Factor | 0.95 | 0.95 | 0.9 | 0.9 | 0.9 | 0.9 |
| Leakage Current (mA) | 3.5mA | 3.5mA | 3.5mA | 3.5mA | 3.5mA | 3.5mA |
| Maximum Inrush Current (A peak) | 50 | 50 | 50 | 50 | 50 | 50 |
| Maximum Inrush Current duration (mS) | 3 | 3 | 3 | 3 | 3 | 3 |

System Specifications

| | |
|--|--|
| | Power** |
| HP ProLiant ML150 G5 Fully Configured | (see**) |
| Fully Loaded System Input Wattage (W) | 630W |
| Fully Loaded System Input Current (A rms) | 6A @ 115V, 3A @ 230V |
| Fully Loaded System Thermal (BTU- Hr/r) | 1794 BTU (526W) |
| Fully Loaded System VA (Volt-Amp) | 630 |
| System Leakage with all power supplies loaded (mA) | 3.5mA |
| System Inrush Current with all power supplies loaded (A) | 50A |
| Power cord requirements | Nema 5-15P to IEC320-C13 IEC320-C13 to IEC320-C14 |
| **Power shown is for a fully configured system consisting of | |
| (2) CPU (4) double-sided DIMMs (6) HDDs SAS/SATA (1) DVD-ROM (3) x4 PCI-E (2) x8 PCI-E (1) PCI 32 3.3V (1) Lights-Out Remote Management (1) 650 watts power supply | |
| Power Cords (13 Cord Sets) | |
| Country | Power Cord Part Number |
| | 121565-001 |

Technical Specifications

| | | | |
|--|--|---|---|
| System Unit | Dimensions (HxWxD) | 7.87 x 16.7 x 24.28 in (20 x 42.4 x 61.68 cm) | |
| | Weight (approximate) | Maximum: | 60.96 lb (27.65 kg) (All hard drives, power supplies and processors installed) |
| | | Minimum: | 40.9 lb (18.55 kg) (One hard drive, power supply and processor installed) |
| Input Requirements (per power supply) | Range Input Voltage | | 90 to 135 VAC |
| | | | 180 to 265 VAC |
| | Normal Line Voltage | | 100 to 127 VAC |
| | | | 200 to 240 VAC |
| | Rated Input Current | | load 11.6A at 100 to 127 VAC |
| | | | 5.5A at 200 to 240 VAC |
| Rated Input Frequency | | 47 to 66 Hz | |
| Rated Input Power | | 930 W (Max) | |
| BTU Rating | Maximum | 2218 BTU | |
| Power Specifications | To review typical power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/cal/Power%20Calculator%20Catalog.xls | | |
| Power Supply Output Power (per power supply) | Rated Steady-State Power | 526 W (at 100 VAC) for system 526 W (at 200 VAC) | |
| | Maximum Peak Power | 526 W (at 100 VAC) 526 W (at 200 VAC) | |
| System Inlet Temperature | Operating | 50° to 93° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per 1,000 ft (1.0° C per every 305 m) above seal level to a maximum of 10,000 ft (3050 m) no direct sustained sunlight . Maximum rate of change is 18°F/hr (10°C/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 86°F (30°C). | |
| Relative Humidity (non-condensing) | Non-Operating | -40° to 140° F (-30° to 60° C) | |
| | Operating | 10% to 90% relative humidity (Rh), 101.7°F (38.7°C) maximum we bulb temperature, non-condensing | |
| | Non-operating** | 10% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing. | |

Technical Specifications

| | | |
|----------------|--|---|
| Altitude | Operating | 10,000 ft (3000m). Maximum allowable altitude change rate is 1°C per 300m |
| | Non-Operating | 30,000 ft (9144m). Maximum allowable altitude change rate is 1°C per 300m |
| 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 (Fixed Disk Drives Spinning) | 36 dBA |
| | L WAd (BELS) | 5.15 B |
| | L-pAm | 36 dBA |
| | Operating (Random Seeks to Fixed Disks) | 36 dBA |
| | L WAd (BELS) | 5.16 B |
| | L WAd (BELS) | 36 dBA |

| | | |
|---|------------------|--|
| HP Half-Height SATA DVD-ROM Optical Drive | 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 | 1.56Gb/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 GaAlAs |
| | Wave Length | 780 ± 25 nm |
| Operating Conditions | Temperature | 41° to 113° F (5° to 45° C) |
| | Humidity | 10% to 90% |
| Dimensions | (HxWxD, maximum) | 1.7 x 5.85 x 8.11 in (4.49 x 15.0 x 20.3 cm) |
| | Weight | 2.64 lb (1.2 kg) |

Technical Specifications

| | |
|---|--|
| <p>HP 4 Internal Port SAS Host Bus Adapter (SAS/SATA HP Model) (SC40Ge SATA/SAS controller)</p> | <p>Dimensions (excluding bracket) 6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)</p> <p>Disk Drive and Enclosure Protocol Support 3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)</p> <p>Architecture 64-bit</p> <p>SAS Connectors 1 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)</p> <p>Data Transfer Method PCI-Express x8 - 2 GB/s maximum bandwidth</p> <p>PCI Bus Speed PCI-Express x8</p> <p>Simultaneous Drive Transfer Ports 1 x4 Wide SAS Connectors</p> <p>Port Transfer Rate 12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)</p> <p>Software upgradeable Firmware Yes</p> <p>Maximum Capacity 1.2TB (4 x 300GB)</p> <p>Memory Addressing 64-bit, supporting servers memory greater than 4 GB</p> <p>Logical Drives Supported Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 4 Drives per RAID 0</p> <p>RAID Support RAID 1 (Mirroring) RAID 0 (Striping)</p> <p>Upgradeable Firmware 4-MB flashable ROM</p> <p>Disk Drive and Enclosure Protocol Support 3 Gbps SAS and 1.5 Gbps SATA</p> |
|---|--|

| | |
|--|--|
| <p>HP E200/128 BBWC Smart Array Controller (Performance Model)</p> | <p>Dimensions (excluding bracket) 6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)</p> <p>Disk Drive and Enclosure Protocol Support 3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)</p> <p>Architecture 64-bit</p> <p>SAS Connectors 2 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)</p> <p>Data Transfer Method PCI-Express x8 - 2 GB/s maximum bandwidth</p> <p>PCI Bus Speed PCI-Express x8</p> <p>Simultaneous Drive Transfer Ports 2 x4 Wide SAS Connectors</p> <p>Port Transfer Rate 12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)</p> |
|--|--|

Technical Specifications

| | |
|---|---|
| Software upgradeable | Yes |
| Firmware | |
| Maximum Capacity | 2.4TB (8 x 300GB) |
| Memory Addressing | 64-bit, supporting servers memory greater than 4 GB |
| Logical Drives Supported | 4 |
| RAID Support | RAID 1 (Mirroring) RAID 0 (Striping) RAID 5 |
| Upgradeable Firmware | 4-MB flashable ROM |
| Disk Drive and Enclosure Protocol Support | 3 Gbps SAS and 1.5 Gbps SATA |

Embedded NC105i PCI Network Interface Gigabit Server Adapter (Embedded)

Integrated 10/100/1000BASE-T Transceiver
Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.

| | | |
|-----------------------|---|----------|
| Data Transfer Method | Compliant to x1 PCIe Specification | |
| 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 | |

HP Embedded SATA RAID Controller

Dimensions N/A (embedded)
Disk Drive and Enclosure Protocol Support 1.5 Gbps SATA
Architecture 64-bit
SAS Connectors 4 internal x1 SATA connectors
Software Upgradeable Yes
Firmware
Maximum Capacity 2TB
Memory Addressing 6GB (maximum)
Logical Drives Supported 2 (maximum)
RAID Support RAID 1 (Mirroring)
RAID 0 (Striping)
RAID 10

Technical Specifications

Environment-friendly End-of-life Management 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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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.