Overview

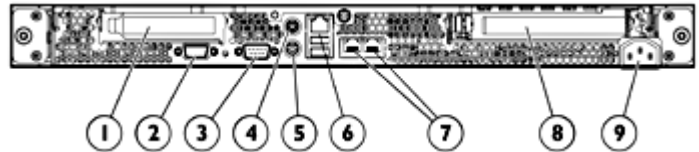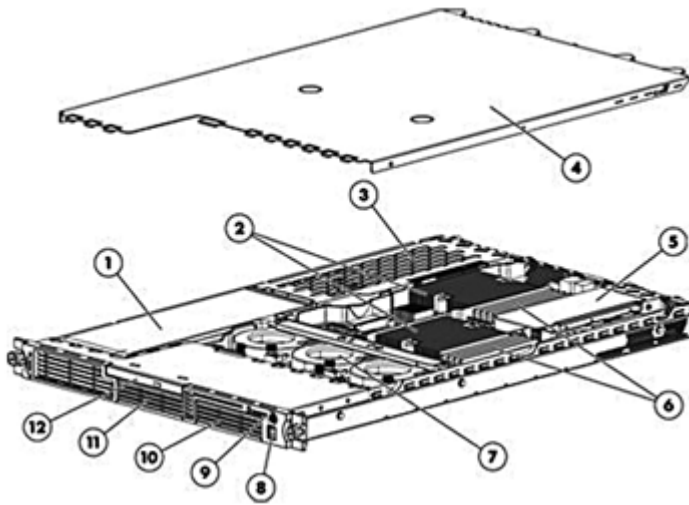**Non-Hot Plug SATA Models**

Front View:

1. Power Supply
2. 2 AMD Opteron 2000 series processors
3. Full-length PCI-Express or HTX slot
4. Access panel
5. Low-profile PCI-Express or PCI-X slot
6. Memory banks
7. System Fans
8. Front-panel USB ports
9. Power switch/system status LEDs
10. 3.5" Hot-plug SAS/SATA or 3.5" Non-hot plug SATA drive
11. 3.5" Hot-plug SAS/SATA or 3.5" Non-hot plug SATA drive
12. Optional CD- or DVD/CDRW drive

Rear View:

1. Low Profile Riser Board Assembly Slot Cover
2. Video Port
3. Serial Port
4. PS/2 Mouse Port
5. PS/2 Keyboard Port
6. Lights Out 100 10/100 Mbps LAN Port for IPMI Management (RJ45) (Two)
7. GbE LAN Port for NIC 1 and 2 (RJ45) (Two)
8. Full-Sized Riser Board Assembly Slot Cover
9. Power Supply

What's New

- **Processor:**
  - Support for AMD Opteron™ processor Model 2220 (2.8 GHz (95W)
- **Storage Controllers:**
  - HP Smart Array E500/256MB Controller

Overview

At A Glance

- **Processors:**
  - Supports up to two AMD Opteron 2000 series processors
  - Supports up to dual-core 2.8GHz, 1MB cache processors
  - Supports DirectConnect Architecture
- **Memory:**
  - 8 DIMM slots supporting up to 32GB REG PC2-5300 DDR2-667 MHz memory with Advanced ECC
- **Internal Drive Support:**
  - Supports up to two:
    - Hot Plug Serial Attached SCSI (SAS) 3.5"/Serial ATA (SATA) hard drives, or;
    - Non-Hot Plug Serial ATA (SATA) 3.5"hard drives
  - Internal storage capacity of up to 1.5TB (2 x 750GB hot plug 3.5" SATA hard drives), or 600GB (2 x 300GB hot plug 3.5" SAS hard drives)
- **Network Controller:**
  - NC326i PCIe Dual Port Gigabit Server Adapter
- **Storage Controllers:**
  - HP Embedded SATA Controller on Non-Hot Plug SATA Models
  - HP Smart Array E500/256MB Controller
  - HP Smart Array E200 Controller with 64 MB cache, optional
  - HP 8 Internal Port SAS HBA with RAID 0,1 on Hot Plug SATA/SAS Models
  - HP SC44Ge Host Bus Adapter
  - HP SC11Xe Host Bus Adapter
- **Expansion Slots:**
  - Standard - PCI-Express assembly includes:
    - Slot 1: full-length/full height PCI-Express x16
    - Slot 2: half-length/low-profile PCI-Express x4 (x8 connector)
  - Optional - PCI-X assembly includes:
    - Slot 2: half-length/low-profile PCI-X 133 (note: PCI-X slots are 64 bits; 133 MHz capable)
  - Optional - HTX assembly includes: Slot 1: full-length/full height HTX
- **Management:**
  - IPMI 2.0 support
  - HP ProLiant Lights Out 100i Remote Management support
  - ROM Setup Utility
- **USB Ports:**
  - Four USB ports (two front, two rear)
- **Optical Drive:**
  - Support for one (optional): CD-ROM, DVD-ROM, DVD RW, DVD/CD RW
- **Power Supply:**
  - 650W Power Supply (Non-Hot Plug, Autoswitching)
- **Form Factor:**
  - 1U rack models
- **Deployment/Serviceability:**
  - Tool-less access to all system components for easy in rack serviceability
- **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

QuickSpecs

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	AMD Opteron™ processor Model 2220 (2.8 GHz (95W) AMD Opteron processor Model 2218 (2.6 GHz (95W) AMD Opteron processor Model 2216 (2.4 GHz (95W) AMD Opteron processor Model 2216HE (2.4 GHz (68W) AMD Opteron processor Model 2214 HE (2.2 GHz (68W) AMD Opteron processor Model 2210 HE (1.8 GHz (68W) AMD Opteron processor Model 2210 (1.8 GHz (95W)
Upgradeability	Upgradeable to two processors
Chipset	ServerWorks HT2100 and HT1000
Cache Memory	1MB Level 2 cache per core
Memory Protection	Memory mirroring with Advanced ECC capabilities

Memory
One of the following depending on Model

Type	REG PC2-5300 DIMMs (DDR2-667)	
Standard (Depending on model)	1 GB 2 GB 4 GB	(2 x 512 MB) (2 x 1 GB) (2 x 2 GB)
Maximum	32 GB	(8 x 4 GB)

Network Controller — NC326i PCIe Dual Port Gigabit Server Adapter

Expansion Slots

Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug (Y/N)	PCI Voltage	Notes
1	x16 PCI-Express	3	0	No	3.3 volts	Full length, full height
1	HTX	9	1	No	3.3 volts	Full length, full height
2	x4 PCI-Express	6	0	No	3.3 volts	Low Profile
2	4-bit, 133MHz PCI-X	2	1	No	3.3 volts	Low Profile

*NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

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

Standard Features

Storage Controller	**Non-Hot Plug SATA Models**	HP Embedded SATA Controller
	Hot Plug SATA/SAS Models	HP 8 Internal Port SAS HBA with RAID 0,1

NOTE: A diskette drive is needed to install storage controller drivers during a Windows operating system installation from CD.

Storage	**Optical Drives:**	
	DVD-ROM	8x IDE (ATAPI) DVD-ROM drive, slim (optional)
	DVD/CD RW	24x IDE (ATAPI) CD-ROM drive (optional)
	Diskette Drives	Via USB only
	Drive Bays:	
	Non-Hot Plug SATA	Up to 2 non-hot plug SATA 3.5" drives
	Hot-Plug SATA/SAS	Up to 2 hot plug SATA /SAS 3.5" drives

Maximum Internal Storage	Non-Hot Plug SATA	1TB	2 x 500GB
	Hot Plug SATA	1.5TB	2 x 750GB
	Hot Plug SAS	600GB	2 x 300GB
	Non-Hot Plug SAS	600GB	2 x 300GB

Interfaces	Parallel	None
	Network RJ-45(Ethernet)	NC326i PCIe Dual Port Gigabit Server Adapter
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	USB	4 (two front; two rear)

NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

Graphics	• Integrated Server Engines Graphics with 2.25MB embedded DRAM
	• Supported Resolutions:
	o 800 x 600 at 24bpp (bits per pixel)
	o 1024 x 768 at 16bpp (bits per pixel)

Form Factor	Rack Mount (1U), (1.75 in/4.45 cm)

Standard Features

ProLiant Essentials Foundation Pack Software	Optional ProLiant Essentials Value Packs	Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus.
- Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats.

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.

Industry Standard Compliance	ACPI V2.0 Compliant
	PCI 2.2 Compliant
	PXE Support
	WOL Support
	Microsoft® Logo certifications
	IPMI 2.0 Compliant

Manageability	HP ProLiant Lights Out 100i Remote Management standard

Security	Power-on password
	Setup password

UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf.

Power Supply	650 Watts, auto-switching, PFC (Power Factor Correcting)

System Fans	3 system fans ship standard; Non-hot plug, Non-redundant

Standard Features

OS Support	Microsoft Windows 2003 and Microsoft Windows 2003/R2 Standard Edition (32-bit)

Microsoft Windows 2003 and Microsoft Windows 2003/R2 Standard Edition (32-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 Enterprise Edition (32-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 Web Edition (32-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 for Extended Systems Standard Edition (64-bit)
Microsoft Windows 2003 and Microsoft Windows 2003/R2 for Extended Systems Enterprise Edition (64-bit)
Red Hat Enterprise Linux
SUSE Linux Enterprise Server

NOTE: For an up-to-date listing of the latest OS support matrix, please see:
http://www.hp.com/go/supportos
NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant DL145 G3, please see: http://h18023.www1.hp.com/support/files/server/us/index.html.
NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at:
http://h18004.www1.hp.com/products/servers/software/OEM.html
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
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

Rack Airflow Requirements

Rack 10000 series Cabinets
The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches)

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: http://h18000.www1.hp.com/products/servers/proliantDL145/index.html

Standard Features

Telco Rack Support
Telco Rack Kit:
Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions.
http://www.racksolutions.com/hp

HP Factory Express Capability
HP Factory Express offers configuration, customization, integration and deployment services for HP servers 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. 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 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 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. Additional information regarding worldwide limited warranty and technical support is available at:
http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

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 capitalizing 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

Standard Features

has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Enhanced Care - Minimum recommended service support offer designed to ensure customers have access to expert assistance, whenever they need it.

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

Continuance Care - Recommended service, delivering cost-effective support options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem identification and resolution.

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

Total Care - Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, integrated hardware and software services

- *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 IT support staff 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*

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

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL145 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects:
http://www.hp.com/techservers/clusters/ucp/index.html

HPC Interconnects	**InfiniBand**	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports
	Myrinet XP	PCI-X Rev D, Rev E and Rev F adapters

Models

Non Hot Plug Serial ATA (SATA) Models

HP DL145G3 2218 2.6 GHz 2GB (1P) 411596-xx1	**Processor(s)** One of the following depending on model	(1) AMD Opteron processor Model 2218 (2.6 GHz (95W) (1) AMD Opteron processor Model 2214 HE (2.2 GHz (68W) (1) AMD Opteron processor Model 2210 HE (1.8 GHz (68W)
	Cache Memory	1MB Level 2 cache per core
HP DL145G3 2214 HE 2.2 GHz 2GB (1P) 411593-xx1	**Memory** One of the following depending on model	1 GB (2 x 512 MB) Registered PC2-5300 DDR2 DIMMs (667MHz) with Advanced ECC capabilities 2GB (2 x 1GB) Registered PC2-5300 DDR2 DIMMs (667MHz) with Advanced ECC capabilities
HP DL145G3 2210 HE 1.8 GHz 1GB (1P) 411592-xx1	**Network Controller**	NC326i PCIe Dual Port Gigabit Server Adapter
	Storage Controller	HP Embedded SATA Controller
	Hard Drive	80GB NHP SATA HDD
	Internal Storage	1TB maximum (2 x 500GB Non-Hot plug 3.5" SATA hard drives)
	Optical Drive	Optional CD/DVD-ROM, DVD/CD RW
	Form Factor	Rack Mount (1U)

Hot Plug Serial ATA (SATA)/Serial Attached SCSI (SAS) Models

HP DL145G3 2220 2.8 GHz 4GB (1P) 440719-xx1	**Processor(s)** One of the following depending on model	(1) AMD Opteron™ processor Model 2220 (2.8 GHz (95W) (1) AMD Opteron processor Model 2218 (2.6 GHz (95W) (1) AMD Opteron processor Model 2214 HE (2.2 GHz (68W) 1MB Level 2 cache per core
HP DL145G3 2218 2.6 GHz 4GB (1P) 411599-xx1	**Cache Memory**	1MB Level 2 cache per core
	Memory One of the following depending on model	2 GB (2 x 1GB) PC2-5300 DDR2 DIMMs (667MHz) with Advanced ECC capabilities 4 GB (2 x 2GB) PC2-5300 DDR2 DIMMs (667MHz) with Advanced ECC capabilities
HP DL145G3 2214 HE 2.2 GHz 2GB (1P) 411597-xx1	**Network Controller**	NC326i PCIe Dual Port Gigabit Server Adapter
	Storage Controller	HP 8 Internal Port SAS HBA with RAID
	Hard Drive	None ship standard (up to 2 Hot Plug SATA or SAS drives supported)
	Internal Storage	1.5TB max. (2 x 750GB Hot Plug 3.5" SATA hard drives) or 600GB (2 x 300GB Hot Plug 3.5" SAS hard drives)
	Optical Drive	Optional CD/DVD-ROM, DVD/CD RW
	Form Factor	Rack Mount (1U)
	Availability	Hot Plug Hard Drives

Country Code Key	xx = 00	U.S.
	xx = 20	Brazil
	xx = 29	Japan
	xx = 37	APD
	xx = 42	Euro
	xx = AA	CN

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

Non-Hot Plug Model

HP ProLiant DL145 G3 Non- Hot Plug SATA Rack Chassis (North America)   411588-B21

Factory Integrated Model ships with:

NC326i PCIe Dual Port Gigabit Server Adapter

Two available PCI-Express slots, including one full-length/full height and one low-profile/half height slot

HP Embedded SATA Controller

650 Watt Power Supply

3 Non-Hot Plug Blowers

Rack (1U), (1.75 in / 4.45 cm)

Hot Plug Model

HP ProLiant DL145 G3 Hot Plug SATA/SAS Rack Chassis (North America)   411590-B21

Factory Integrated Model ships with:

NC326i PCIe Dual Port Gigabit Server Adapter

One available PCI-Express slot, (full-length/full height), the low-profile/half height slot houses the SATA/SAS storage controller

One HP 8 Internal Port SAS Host Bus Adapter with RAID

One HP SATA/SAS Host Cable Kit

One Hot Plug Backplane Option Kit

650 Watt Power Supply

3 Non-Hot Plug Blowers

Rack (1U), (1.75 in / 4.45 cm)

Configuration Information - Factory Integrated Models (North America only)

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

Base Processors	AMD Opteron™ processor Model 2220 (2.8 GHz (96W) **NOTE:** If 2 processors are desired, select one 440721-L21 and one 440721-B21.	440721-L21
	AMD Opteron processor Model 2218 - 2.6 GHz (95W) **NOTE:** If 2 processors are desired, select one 411606-L21 and one 411606-B21.	411606-L21
	AMD Opteron processor Model 2216 - 2.4 GHz (95W) **NOTE:** If 2 processors are desired, select one 435014-L21 and one 435014-B21.	435014-L21
	AMD Opteron processor Model 2216 HE - 2.4 GHz (68W) **NOTE:** If 2 processors are desired, select one 411616-L21 and one 411616-B21.	411616-L21
	AMD Opteron processor Model 2214 HE - 2.2 GHz (68W) **NOTE:** If 2 processors are desired, select one 411605-L21 and one 411605-B21.	411605-L21
	AMD Opteron processor Model 2212 - 1.8 GHz (95W) **NOTE:** If 2 processors are desired, select one 411615-L21 and one 411615-B21.	411615-L21
	AMD Opteron processor Model 2210 HE - 1.8 GHz (68W) **NOTE:** If 2 processors are desired, select one 411604-L21 and one 4116045-B21.	411604-L21
Base Memory	1 GB REG PC2-5300 2X512 Kit	408850-B21
	2 GB REG PC2-5300 2X1GB Kit	408851-B21
	4 GB REG PC2-5300 2X2GB Kit	408853-B21
	8 GB REG PC2-5300 2X4GB Kit	408854-B21
Hard Drives	**Serial-ATA (SATA) Non-Hot Plug Hard Drives** (Non-Hot Plug Models Only)	
	HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 500GB 1.5G SATA 7.2K NHP 3.5" HDD, FIO*	404469-B21
	*Factory Integrated Only	
	Serial-ATA (SATA) Hot Plug Hard Drives (SATA/SAS Hot Plug Models Only)	
	HP 80GB SATA 7.2K Hot Plug 3.5" HDD	349237-B21
	HP 160GB SATA 7.2K Hot Plug 3.5" HDD	349238-B21
	HP 250GB SATA 7.2K Hot Plug 3.5" HDD	349239-B21
	HP 500GB SATA 7.2K Hot Plug 3.5" HDD	395473-B21
	HP 750GB SATA 7.2K Hot Plug 3.5" HDD	432341-B21
	Serial-Attached SCSI (SAS) Hot Plug Hard Drives (SATA/SAS Hot Plug Models Only)	
	HP 36GB SAS 15K Hot Plug 3.5" HDD	375868-B21

Configuration Information - Factory Integrated Models (North America only)

	HP 72GB SAS 15K Hot Plug 3.5" SP HDD	375870-B21
	HP 146GB SAS 15K Hot Plug 3.5" SP HDD	375872-B21
	HP 300GB SAS 15K Hot Plug 3.5 SP HDD	431944-B21
	NOTE: The purchase of SAS HBA or array controller is required.	
Storage Controller	HP SC44Ge Host Bus Adapter	416096-B21
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	NOTE: For use with Hot Plug SATA/SAS models only	
	NOTE: The selection of the HP 8 Internal Port SAS HBA with RAID requires the purchase of the PCI-X Riser Option kit (P/N 411625-B21)	
	HP SATA/SAS Host Cable Kit	389650-B21
	NOTE: For use with Hot Plug SATA/SAS models only	
	HP Smart Array E500/256MB Controller	435129-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
	HP HTX Riser Board Kit	411627-B21
	HP PCI-X Riser Board Kit	411625-B21
	Hot Plug Backplane Option Kit	411623-B21
	HP Single Channel U320 SCSI Controller	374654-B21
	NOTE: The selection of the 64-Bit/133-MHz Single Channel Ultra 320 SCSI HBA G2 requires the purchase of the PCI-X Riser Option kit (P/N 411625-B21)	

Step 3: 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

ProLiant Essentials Licensing and Packaging	**ProLiant Essentials Intelligent Networking Pack Windows Edition and Linux Edition**	
	ProLiant Essentials Intelligent Networking Pack Windows Edition, Single Server License	436225-B21
	NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	
	ProLiant Essentials Intelligent Networking Pack Linux Edition, Single Server License	436229-B21
	NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	
	NOTE: For additional ProLiant Intelligent Networking Pack Windows Edition License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML	
	NOTE: For additional ProLiant Intelligent Networking Pack Linux Edition License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML	
	ProLiant Essentials Vulnerability and Patch Management Pack	
	ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License	371645-B21
	NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	
	NOTE: For additional ProLiant Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12111_div/12111_div.HTML	
	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.	

Remote Management	**Integrated Lights-Out Select Pack and Advanced Pack**	
	HP Lights Out 100i Select Pack 1-Server License	413111-B21
	HP Lights Out 100i Advanced Pack 1-Server License	413115-B21
	NOTE: For additional ProLiant Integrated Light-Out Select Pack and Advanced Pack License Kits please see the QuickSpecs at: http://www.hp.com/servers/lights-out	

QuickSpecs

Options

Processor	AMD Opteron™ processor Model 2220 (2.8 GHz (95W)	440721-B21
	AMD Opteron processor Model 2218 - 2.6 GHz (95W)	411606-B21
	AMD Opteron processor Model 2216 - 2.4 GHz (95W)	435014-B21
	AMD Opteron processor Model 2216 HE - 2.4 GHz (68W)	411616-B21
	AMD Opteron processor Model 2214 HE - 2.2 GHz (68W)	411605-B21
	AMD Opteron processor Model 2210 - 1.8 GHz (95W)	411615-B21
	AMD Opteron processor Model 2210 HE - 1.8 GHz (68W)	411604-B21

Memory (DIMMs)	1 GB REG PC2-5300 2X512 Kit	408850-B21
	2 GB REG PC2-5300 2X1GB Kit	408851-B21
	4 GB REG PC2-5300 2X2GB Kit	408853-B21
	8 GB REG PC2-5300 2X4GB Kit	408854-B21

Hard Drives	**Serial-ATA (SATA) Non-Hot Plug Hard Drives** (Non-Hot Plug Models Only)	
	HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-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.	
	Serial-ATA (SATA) Hot Plug Hard Drives (SATA/SAS Hot Plug Models Only)	
	HP 80GB SATA 7.2K Hot Plug 3.5" HDD	349237-B21
	HP 160GB SATA 7.2K Hot Plug 3.5" HDD	349238-B21
	HP 250GB SATA 7.2K Hot Plug 3.5" HDD	349239-B21
	HP 500GB SATA 7.2K Hot Plug 3.5" HDD	395473-B21
	HP 750GB SATA 7.2K Hot Plug 3.5" HDD	432341-B21
	Serial-Attached SCSI (SAS) Hot Plug Hard Drives (SATA/SAS Hot Plug Models Only)	
	HP 36GB SAS 15K Hot Plug 3.5" HDD	375868-B21
	HP 72GB SAS 15K Hot Plug 3.5" SP HDD	375870-B21
	HP 146GB SAS 15K Hot Plug 3.5" SP HDD	375872-B21
	HP 300GB SAS 15K Hot Plug 3.5 SP HDD	431944-B21
	NOTE: The purchase of SAS HBA or array controller is required.	

Graphic Cards	NVIDIA Quadro FX3500 256MB PCIe	435681-B21
	NVIDIA Quadro FX1500 256MB PCIe	435703-B21
	NOTE: At this time, these graphic cards are supported on Linux and Windows.	

Options

Optical Drives	DVD-ROM Drive (optional)	432878-B21
	DVD/CD RW Drive (optional)	432880-B21
	Multibay II DVD/CD-RW Combo Drive	PA850A
	NOTE: When purchasing the Multibay II DVD/CD-RW Combo Drive, (P/N PA850A), the USB 2.0 Multibay II Cradle (P/N PA509A) is required.	
	USB 2.0 MultiBay II Cradle, External	PA509A
	NOTE: When purchasing the Multibay II DVD/CD-RW Combo Drive, (P/N 850A), the USB 2.0 Multibay II Cradle, (P/N PA509A) is required.	

Storage Controllers	HP SC44Ge Host Bus Adapter	416096-B21
	HP SC11Xe Host Bus Adapter	412911-B21
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	NOTE: For use with Hot Plug SATA/SAS models only	
	NOTE: The selection of the HP 8 Internal Port SAS HBA with RAID requires the purchase of the PCI-X Riser Option kit (P/N 411625-B21)	
	HP SATA/SAS Host Cable Kit	389650-B21
	NOTE: For use with Hot Plug SATA/SAS models only	
	HP Smart Array E500/256MB Controller	435129-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
	HP HTX Riser Board Kit	411627-B21
	HP PCI-X Riser Board Kit	411625-B21
	Hot Plug Backplane Option Kit	411623-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	NOTE: The selection of the 64-Bit/133-MHz Single Channel Ultra 320 SCSI HBA G2 requires the purchase of the PCI-X Riser Option kit (P/N 411625-B21)	

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
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	
	InfiniBand 4X PCI-E Dual Port Host Adapter	380298-B21
	HP IB 4X DDR PCI-e Dual Port HCA	409376-B21
	Myrinet PCI 2XP Rev-E 4MB Network Interface Card	373983-B21
	Myrinet 2XP PCI-X, Fiber F-Series, 2MB NIC	390456-B21
	Myrinet-Fiber/PCI-X Interface (Dual channel Rev. D card)	360040-B21

Options

> **NOTE:** For HPC interconnect adapters please see the HPC Interconnect section of this QuickSpecs.

Rack Kits	1U Cable Management Arm	365403-B21
	NOTE: Package contains two cable management arms.	

Tape Drives

USB Tape Drives

HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
NOTE: HP recommends combining this tape drive with the 1U USB Rack-Mount kit (A8007A) for a complete rack-mount solution.	
HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
NOTE: HP recommends combining this tape drive with the 1U USB Rack-Mount kit (A8007A) for a complete rack-mount solution.	

DAT External Tape Drives

HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.	
HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.	

Ultrium External Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive, (Carbonite)	DW064A
NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.	

Rack-Mount Tape Drive

HP StorageWorks 1U SCSI Rack-Mount kit	A7445B
NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232, Ultrium 448 and Ultrium 920 tape drives.	
HP StorageWorks 1U USB Rack-Mount Kit	A8007A
NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 24 USB, DAT 40 USB and DAT 72 USB tape drives.	

> **NOTE:** When attaching to an external tape drive, autoloader or library, you must also purchase a HBA
> **NOTE:** For a complete listing of HP tape drive offerings supported with the DL145 G3, visit
> http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

---

Options

StorageWorks Options	**StorageWorks Fibre Channel HBA**	
	NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	HP StorageWorks FC2214DC 2 Gb, Dual Port, 64-Bit/133 MHz PCI-X HBA	321835-B21
	HP StorageWorks 2 Gb, Single Channel, 133 MHz PCI-X HBA	A7388A
	HP StorageWorks 2 Gb, Dual Channel, 133 MHz PCI-X HBA	A7387A
	HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 - to Fibre Channel HBA	AD167A
	HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
	StorageWorks SCSI HBA	
	HP U320e SCSI Host Bus Adapter	AH627A
	NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers	

USB Options	512MB USB Drive Key	ED516AA
	HP 1GB Drive Key II- USB 2.0 Flash Drive	AG382AA
	HP USB-P/S2 Mouse	DC369A
	HP Keyboard (USB) standard 2004	DT528A#
	USB 1.44-MB External Diskette Drive	DC361B

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 peripheral	
	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	

Options

HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-D89 DCE Female, 1-pack	AF103A
	Serial Adapter, RJ45-D89 DCE Female, 8-pack	AF110A
	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	
	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	
	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	NOTE: Requires PS/2 and one USB port on server.	

Service and Support Offerings (HP Care Pack Services)	**Hardware Services 4-Hour On-site Service**	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U9509E
	24-Hour x 7-Day Coverage, 3 Years, Electronic	U9510E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U9508E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U9511E
	Hardware Installation, Electronic	U9520E
	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 DL145 G3 (all models)

Standard Memory

1 GB (2 x 512 MB) PC2-5300 DIMM memory, with Advanced ECC Capabilities memory installed.
2 GB (2 x 1 GB) PC2-5300 DIMM memory, with Advanced ECC Capabilities memory installed.
4 GB (2 x 2GB) PC2-5300 DIMM memory, with Advanced ECC Capabilities memory installed.

Maximum Memory

Up to 32GB memory is available with the optional installation of PC2-5300 Registered DIMM memory kits.
Memory should be installed in pairs and matched for optimum performance.

NOTE: Chart does not represent all possible memory configurations.

Memory	Slot							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Standard (1 GB)	512 MB	512 MB	Empty	Empty	Empty	Empty	Empty	Empty
Standard (2 GB)	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Standard (4GB)	2 GB	2 GB	Empty	Empty	Empty	Empty	Empty	Empty
Maximum (32 GB)	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

1 GB REG PC2-5300 2X512 Kit	408850-B21
2 GB REG PC2-5300 2X1GB Kit	408851-B21
4 GB REG PC2-5300 2X2GB Kit	408853-B21
8 GB REG PC2-5300 2X4GB Kit	408854-B21

Storage

1,2	Two Non-hot plug SATA or Two 3.5" Hot Plug SATA/SAS Hard Drive Bays
A	Optional CD-ROM, DVD-ROM, DVD/CD RW

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 1	3	Integrated IDE (ATAPI) (optional)
DVD/CD RW	Up to 1	3	Integrated IDE (ATAPI) (optional)

Hard Drives

SATA - Non-Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch			
80GB 7,200 rpm	Up to 2	1;2	HP Embedded SATA Controller
160GB 7,200 rpm	Up to 2	1;2	HP Embedded SATA Controller
250GB 7,200 rpm	Up to 2	1;2	HP Embedded SATA Controller
500GB 7,200 rpm	Up to 2	1;2	HP Embedded SATA Controller

SATA/SAS Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch 80GB SATA 7,200 rpm 160GB SATA 7,200 rpm 250GB SATA 7,200 rpm 500GB SATA 7,200 rpm 750GB SATA 7,200 rpm	Up to 2	1;2	HP 8 Internal Port SAS HBA with RAID
SAS Hot Plug 36GB SAS 15,000 rpm 72GB SAS 15,000 rpm 146GB SAS 15,000 rpm 300GB SAS 15,000 rpm	Up to 2	1;2	HP 8 Internal Port SAS HBA with RAID

Storage

Tape Drives

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)

NOTE: For complete listing of tape drive offerings see
http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html
For recommended tape drive offerings for this ProLiant server see the following:

For supported tape drive offerings for this ProLiant server see the following:

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks Tape Drives, External DAT 24 USB DAT 40 USB DAT 72 USB	External	USB 2.0 Port	N/A
HP StorageWorks Tape Drives, External Ultrium 232 DAT 40 DAT 72	External	**NOTE:** PCI-X Riser Option Kit (P/N 411625-B21) required to connect to the following SCSI HBA 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
HP StorageWorks SCSI Rack-mount Tape Drive Enclosures 1U Rack-Mount Kit	External	**NOTE:** PCI-X Riser Option Kit (P/N 411625-B21) required to connect to the following SCSI HBA 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
		HP U320e SCSI Host Bus Adapter **NOTE:** Only valid for MSL tape libraries	AH627A

Power Specifications

Spare Kit	434418-001
Operational Input Voltage Range (Vrms)	90Vac to 264Vac full range at 25oC ambient
Frequency Range (Nominal) (Hz)	47 Hz to 63 Hz
Power Output	650W Nominal
Power Cords	(Nema 5-15P to IEC320-C13)
Standard Power Cord Part Number (US)	307348-B21
Optional Power Cord Part Number (US)	307372-001

Technical Specifications

System Unit	**Dimensions** (HxWxD)	1.70 x 16.78 x 26.53 in (4.32 x 42.62 x 67.39 cm)	
	Weight (approximate; fully configured)	40 lb (18.14 kg)	
	Input Requirements (per power supply)	**Range Input Voltage**	90 to 140 VAC/180 to 264 VAC
		Normal Line Voltage	115 or 230 VAC
	Line Frequency	47 to 63 Hz	
	Rated Input Current load	7.1A at 115VAC, 3.6A at 230VAC	
	BTU Rating	BTU-Hr (max configuration)	2371
	Power Supply Output Power (per power supply)	**Rated Steady-State Power**	650W
	Temperature Range	**Operating**	50° to 93° F (10° to 35° C)
		Shipping	-40° to 158° F (-40° to 70° C)
	Relative Humidity (non-condensing)	**Operating**	10% to 90%
		Non-operating	5% to 95%
	Acoustic Noise	**Idle** (Fixed Disk Drives Spinning)	
		L WAd (BELS)	
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	<6.4

Non-Hot Plug SATA Hard Drives	**80-GB 7.2K** 383410-B21	**Capacity**	80027 MB
		Height	1.028 in (2.61 cm)
		Width	4.0 in (10.16 cm)
		Interface	SATA 100
		Transfer Rate Synchronous (Maximum)	100 MB/s
		Seek Time (typical reads, including settling)	Single Track
			Average
			Full-Stroke
			Rotational Speed
		Physical Configuration	Bytes/Sector
			Logical Blocks
		Operating Temperature	41° to 131° F (5° to 55° C)

Technical Specifications

Embedded SATA Controller	Drives Supported	Up to 2 SATA devices	
	Channels	2 (SATA Drives)	
	Storage Capacity	1.5 TB internal storage	
	Data Transfer Method	32-bit/33-MHz PCI bus-master	
	Maximum SATA Channel Transfer Rate	100 MB/s per channel	
	Maximum Transfer Rate per PCI Bus (peak)	266 MB/s per channel	
	Protocols	SATA	
		PIO Mode[0-4]	
	Cable	SATA	
	Internal ATA Connectors	Two SATA Connectors (primary and secondary)	

HP 8 Internal Port SAS HBA with RAID (347786-B21)	Drives Supported	Up to 2 SATA/SAS drives	
	Channels	8	
	Storage Capacity	600GB	
	Data Transfer Method	64-bit/133MHz PCI-X	
	Maximum Host Bus Transfer Rate	1.06Gb/sec	
	Maximum SAS transfer rate	300MB/sec per port	
	Protocols Supported	SSP, STP, SMP	
	Internal Connectors	2 SAS	

NC326i PCIe Dual Port Gigabit Server Adapter	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX	
		IEEE 802.3 10Base-T	
		IEEE 802.3 1000Base-T	
		IEEE 802.3 100Base-TX	
	Data Transfer Method	64-bit, 133MHz PCI(X)1.0	
	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)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP (2 Pair); up to 328 ft (100 m)

Technical Specifications