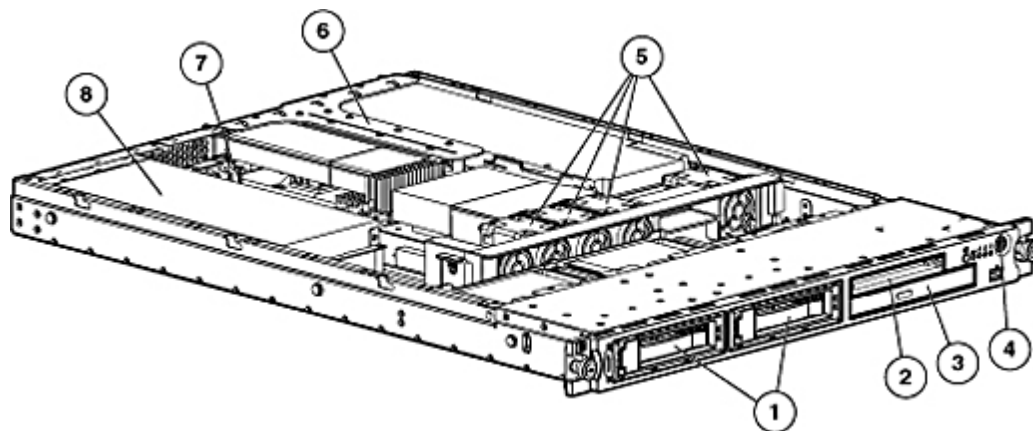


Overview



1. Support for up to two Hot Plug SATA or SAS hard drives
2. Optional 1.44MB Diskette Drive Assembly Option Kit
3. CD-ROM/DVD-ROM/DVD-RW Drive Assembly Option Kit (optional)
4. Front LED Indicators
5. Fan Assembly, 4 NHP Dual Rotor Fans with N+1 Redundancy
6. Two PCI Express x8 slots standard
7. 4 - PC2-4200 ECC DDR2 Memory Slots - 8 GB maximum
8. Power Supply (450 Watt)

At a Glance

- Intel's Dual Core Pentium D or Single Core Celeron Processor options
 - 3.2 GHz, 3.0 GHz, and 2.8 GHz Dual Core Pentium D Processors with 2MB of L2 Cache (2x1MB)
 - 2.93 GHz Celeron D Processor with 256KB of L2 Cache
- Up to 8 GB of PC2-4200 ECC DDR2 UB SDRAM Memory
- Embedded NC324i Dual Port 10/100/1000T Gigabit network adapter
- Integrated Lights Out 2 (iLO 2) Remote Management
- HP embedded 2 Port SATA Controller with RAID 0/1 support
- **NOTE:** In order to implement integrated SATA RAID with Smart Start 7.4 on Windows 2000/2003, the use of a floppy drive is necessary
- 1U (1.70") Form Factor
- Internal Storage capacity of 1 TB (2 x 500 GB SATA hard drives) or 292 GB (2 x 145.6 GB SAS hard drives)
- Optional CD,DVD, or DVD-RW drive and Floppy drive
- Four USB ports (1 front, 1 internal and 2 rear)
- Internal USB port for flexible storage, security, or USB drive key deployment
- Two available PCI slots, including one full-length PCI Express x8 slot (x4 speed) and one half-length, low-profile PCI Express x8 slot (x1 speed)
- Optional full-length PCI-X slot available via Factory Integration
- Intel E7230 Chipset with 800MHz Front Side Bus (533MHz for Celeron Processors)
- Standard spring-loaded Universal sliding rails for in rack servicing
- Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart
- Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, SAS, and SCSI hard drives. SATA hard drives have a one-year warranty.

Standard Features

Processor One of the following depending on Model	Intel Pentium D processor 840 with EM64T - 3.2 GHz
	Intel Pentium D processor 830 with EM64T - 3.0 GHz
	Intel Pentium D processor 820 with EM64T - 2.8 GHz
	Intel Celeron D processor 341 with EM64T - 2.93 GHz

Processor Cache One of the following depending on Model	Pentium D models	2MB Level 2 Cache (2 x 1MB)
	Celeron D models	256KB Level 2 Cache

Chipset One of the following depending on Model	Pentium D models	Intel E7230 chipset with 800MHz Front Side Bus
	Celeron D models	Intel E7230 chipset with 533MHz Front Side Bus

Memory Protection	Advanced ECC
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Memory One of the following depending on Model	Type	PC2-4200 UB DDR2 SDRAM
	Pentium D models	1 GB (1 x 1024 MB)
	Pentium D models	2 GB (2 x 1024 MB)
	Celeron D model	512 MB (1 x 512 MB)
	Maximum	8 GB

Network Controller	Embedded NC324i Dual Port 10/100/1000T Gigabit network adapter
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Expansion Slots	Slot Number	Bus Speed	Height	Hot Plug	PCI Voltage
PCI-Express Non Hot-Plug Riser	1	PCI Express x4 (x8 connector)	Full	no	
	2	PCI Express x1 (x8 connector)	Half	no	
PCI-X Non Hot-Plug Riser (Optional via factory integration)	1	64-bit/133 MHz PCI-X	Full	no	3.3 Volt
	2	PCI Express x1 (x8 connector)	Half	no	

Storage Controllers	HP embedded 2 Port SATA Controller with RAID 0/1 support. Hot Plug SAS and SATA controllers available via PCI card option.
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Standard Features

Storage	Diskette Drive	Optional 1.44 MB Diskette Drive option kit is available		
	Optical Drive	Optional CD-ROM, DVD-ROM, & DVD-RW option kits available		
	Hard Drives	One of the following: (depending on model): None 80 GB SATA HDD		
Maximum Internal Storage Type	SATA	1 TB	2 x 500 GB SATA	
	SAS	292 GB	2 x 146 GB SAS	
Interfaces	Serial	1		
	USB	4		
			NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html	
	Graphics	1		
	Keyboard	1		
	Mouse	1		
	Network RJ-45	2		
	iLO 2 remote management port	1		
Graphics	Integrated ATI ES1000 Video Controller with 32-MB SDRAM Video Memory			
Form Factor	Rack (1U), (1.70 in/4.45 cm)			
ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	HP's new HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM are both easy to set up work with the Insight Management Agents, integrated Lights-Out and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. With HP SIM customers will also be able to take advantage of role-based security; the ability to manage ProLiant, Integrity, and HP 9000 systems; and plug-ins for storage, client, printer, and power management as well as server rapid deployment, performance management, and workload management. For more details on HP SIM visit http://www.hp.com/go/hpsim .		
	SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/smartstart . SmartStart version supported (minimum): SmartStart 7.4.		

Standard Features

Management Agents	The Management Agents form the foundation for HP's Intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, and portables, and send alerts to HP Systems Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at http://www.hp.com/servers/manage .
Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of 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, support software, and configuration utilities	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages, linked from the SmartStart website at http://www.hp.com/servers/smartstart .
Survey Utility and diagnostics utilities	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: <ul style="list-style-type: none">• Rapid Deployment Pack - an automated solution for multi-server deployment and provisioning, enabling companies to quickly and easily adapt to changing business demands.• Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows® 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server.• Integrated Lights-Out Advanced Pack - upgrades the Integrated Lights-Out processor to full virtual presence and control with graphical console and virtual media.• Performance Management Pack - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources.• 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.• Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.

Standard Features

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 2.0
PCI 3.0 Compliant
PXE Support
WOL Support
Microsoft® Logo certifications
USB 2.0

Intelligent Manageability

Automatic Server Recovery (ASR)
iLO Advanced Pack (optional)
HP Systems Insight Manager
Integrated Management Log
Drive Parameter Tracking (with Smart Array Controllers)
Dynamic Sector Repairing (with Smart Array Controllers)
Pre-Failure Warranty (covers processors, SAS, SCSI hard drives, and memory)

Security

Power-on password
Keyboard password
Diskette drive control
Diskette boot control
USB Port control
Removable CD-ROM/Diskette Drive Assembly
Administrator's password

Server Power Cords

North America	One 6' Lowline and one 6' Highline (IEC-IEC) power cord ships standard
Japan	One 6' IEC (Highline) and one 6' Lowline power cord ships standard
ROW	One 6' Highline (IEC) power cord ships standard

Power Supply

Auto-sensing 450-Watt PFC Power Supply, CE Mark Compliant

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>.

System Fans

4 dual rotor fans ship standard. 4 dual rotor fans total supported internally. N+1 (1 rotor only) Redundancy.

Standard Features

Ultra Thin Rack Deployment Overview

For the Ultra Thin Rack Deployment Overview, including best practices for the HP ProLiant DL320 G4, please see the following URL: <http://www.hp.com/products/servers/ProLiantdl320/>.

Required Cabling

For required cabling information, refer to the Web site at: <http://www.hp.com/products/servers/ProLiantdl320/>.

OS Support

Microsoft Windows 2000 Server
Windows Server 2003 (web and standard editions; standard edition for 64-bit extensions)
NOTE: In order to implement integrated SATA RAID with Smart Start 7.4 on Windows 2000/2003, the use of a floppy drive is necessary
Linux (Red Hat, SuSE)
VMware Virtualization Software
NOTE: Support differences will exist between the SATA and SAS configurations.
NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: <http://www.hp.com/go/supportos>.
NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant DL320, please see: <http://h18023.www1.hp.com/support/files/server/us/index.html>.
NOTE: For a more complete and up-to-date information on Linux support, please visit HP Linux Web site at <http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.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: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: <http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.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://h18004.www1.hp.com/products/servers/proliantdl320/index.html>.

Standard Features

HP Factory Express Capabilities

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>.

Custom Builder

Please see the Enterprise Configurator for configuration assistance at: <http://www.hp.com/products/configurator>.

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 three years 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: Limited warranty includes 3 year parts, 1 year labor, 1 year on-site support.

NOTE: SATA drives have a 1 year warranty.

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMWare-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

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.

Standard Features

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Models

DL320R04 C2.93-256KB, 512MB 391655-xx1	Processor(s)	Intel Celeron D Processor 341 with EM64T- 2.93 GHz
	Cache Memory	256KB Level 2 cache
	Chipset	Intel E7230 chipset with 533MHz Front Side Bus
	Memory	512 MB (Standard) to 8 GB (Maximum) of Advanced ECC PC2-4200 UB DDR2 SDRAM DIMM Memory
	Network Controller	Embedded NC324i Dual Port 10/100/1000T Gigabit network adapter
	Storage Controller	Intel® 82801GR Integrated Serial ATA Host Controller
	Hard Drives	None ship standard
	Maximum Internal Storage	1 TB for SATA models, 292 GB for SAS models
	Optical Drive	Optional
	Diskette Drive	Optional
	Form Factor	Rack (1U), (1.70 in/4.45 cm)
<hr/>		
DL320R04 PD2.8-2MB, 1GB, 80GB SATA 391656-xx1	Processor(s)	Intel Pentium D Processor 820 with EM64T - 2.8 GHz
	Cache Memory	2MB Level 2 Cache
	Chipset	Intel E7230 chipset with 800MHz Front Side Bus
	Memory	1024 MB (Standard) to 8 GB (Maximum) of Advanced ECC PC2-4200 UB DDR2 SDRAM DIMM Memory
	Network Controller	Embedded NC324i Dual Port 10/100/1000T Gigabit network adapter
	Storage Controller	Intel® 82801GR Integrated Serial ATA Host Controller
	Hard Drives	80 GB SATA HDD
	Maximum Internal Storage	1 TB for SATA models, 292 GB for SAS models
	Optical Drive	Optional
	Diskette Drive	Optional
	Form Factor	Rack (1U), (1.70 in/4.45 cm)
<hr/>		
DL320R04 P3.0-2MB, 1GB 391657-xx1	Processor(s)	Intel Pentium D Processor 830 with EM64T - 3.0 GHz
	Cache Memory	2MB Level 2 Cache
	Chipset	Intel E7230 chipset with 800MHz Front Side Bus
	Memory	1024 MB (Standard) to 8 GB (Maximum) of Advanced ECC PC2-4200 UB DDR2 SDRAM DIMM Memory
	Network Controller	Embedded NC324i Dual Port 10/100/1000T Gigabit network adapter
	Storage Controller	Intel® 82801GR Integrated Serial ATA Host Controller
	Hard Drives	None ship standard
	Maximum Internal Storage	1 TB for SATA models, 292 GB for SAS models
	Optical Drive	Optional
	Diskette Drive	Optional
	Form Factor	Rack (1U), (1.70 in/4.45 cm)

Models

DL320R04 P3.0-2MB,
2GB, 80GB SATA
391658-xx1

Processor(s)	Intel Pentium D Processor 830 with EM64T - 3.0 GHz
Cache Memory	2MB Level 2 Cache
Chipset	Intel E7230 chipset with 800MHz Front Side Bus
Memory	2 GB (2 x 1 GB) Standard to 8 GB (Maximum) of Advanced ECC PC2-4200 UB DDR2 SDRAM DIMM Memory
Network Controller	Embedded NC324i Dual Port 10/100/1000T Gigabit network adapter
Storage Controller	Intel® 82801GR Integrated Serial ATA Host Controller
Hard Drives	80GB SATA HDD
Maximum Internal Storage	1 TB for SATA models, 292 GB for SAS models
Optical Drive	Optional
Diskette Drive	Optional
Form Factor	Rack (1U), (1.70 in/4.45 cm)

Country Code Key	XX=00	NA
	XX=29	Japan
	XX=37	APD
	XX=42	EURO
	XX=AA	PRC

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.

Step 1: Base Configuration (choose one of the following configurable models)

Models	DL320G4 MOD-FX ALL (WW)	391654-B21
	Factory Integrated Model ships with:	
	Embedded NC324i Dual Port PCI-X 10/100/1000T Gigabit network adapter	
	1 full PCI Express x8 slot and 1 half length low profile PCI Express x8 slot	
	Integrated Lights-Out 2 (iLO 2) embedded	
	Intel® 82801GR Integrated Serial ATA Host Controller	
	Rack (1U) form factor, (1.70 in/4.45 cm)	

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

Processors	C2.93-256k/CEL DL320G4 FIO ALL	391701-L21
	P2.8-(2x1M)/PD/1G DL320G4 FIO ALL	391702-L21
	P3.0-(2x1M)/PD/1G DL320G4 FIO ALL	391703-L21
	P3.2-(2x1M)/PD/1G DL320G4 FIO ALL	391704-L21
Base Memory	2 GB UB PC2-4200 1 x 2GB 2RANK ALL	393354-B21
	1 GB UB PC2-4200 1 x 1GB 2RANK ALL	390824-B21
	512 MB UB PC2-4200 1 x 512 MB 1RANK ALL	390825-B21
Optical Drive	HP DL320G4 DVD-RW DRIVE OPT ALL	395498-B21
	CD ROM Drive Option Assembly Option Kit	372703-B21
	DVD-ROM Drive Assembly Option Kit	374303-B21
	Floppy Drive Assembly Option kit	372702-B21

Step 3: Choose Additional Factory Integratable Options

Controllers	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
	NOTE: For External Drive use only	
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	NOTE: The HP 8 Internal Port SAS/SATA HBA with RAID (0,1) requires the purchase of the DL320 SAS/SATA Hot Plug Cable option kit (398307-B21)	
	DL320 Hot Plug SAS/SATA Cable Option Kit	398307-B21
	Smart Array 6402/128 Controller	273915-B21
	NOTE: For External Drive use only	
	Smart Array 642 Controller	291967-B21
	NOTE: For External Drive use only	

Configuration Information - Factory Integrated Models (North America only)

Hard Drives

Serial Attached SCSI - SAS

HP 36 GB SAS 15,000 rpm Hard Drive (3.5")	375868-B21
HP 72 GB SAS 15,000 rpm Hard Drive (3.5")	375870-B21
HP 146 GB SAS 15,000 rpm Hard Drive (3.5")	375872-B21

Serial ATA (SATA)

80-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	349237-B21
160-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	349238-B21
250-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	349239-B21
500-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	395473-B21

NOTE: Please note that SATA hot-plug capability and drive LEDs are not supported by the DL320 embedded SATA storage controller.

Step 4: Choose Additional Options for Factory Integration

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

Options

ProLiant DL320 G4 Unique Options	HP DL320G4 DVD-RW DRIVE OPT ALL	395498-B21
	Floppy Drive Assembly Option kit	372702-B21
	DVD-ROM Drive Assembly Option Kit	374303-B21
	CD ROM Drive Option Assembly Option Kit	372703-B21
	DL320 Hot Plug SAS/SATA Cable Option Kit	398307-B21

NOTE: This option is required for the HP 8 Internal Port SAS HBA with RAID.

ProLiant Essentials Value Pack Software	ProLiant Essentials Integrated Lights-Out Advanced Pack	
	ProLiant Essentials Integrated Lights-Out Advanced Pack, 1 server	263825-B21
	Featuring: sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites.	
	NOTE: For additional ProLiant Integrated Light-Out Advanced Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11052_div/11052_div.HTML	
	ProLiant Essentials Intelligent Networking Pack	
	ProLiant Essentials Intelligent Networking Pack, Single Server License	372906-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 License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML	
	ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License	397004-B21
	NOTE: For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML	
ProLiant Essentials Performance Management Pack		
ProLiant Essentials Performance Management Pack, Single-Server License	306696-B21	
NOTE: For use with a single server. Contains one license with a unique license activation key, HP Management CD and documentation.		
NOTE: The most recent version of the software can always be downloaded at http://www.hp.com/products/pmp .		
NOTE: For additional ProLiant Performance Management Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11925_div/11925_div.HTML		
ProLiant Essentials Rapid Deployment Pack Windows Edition and Linux Edition Release		
Rapid Deployment Pack, Single-Server License	267196-B21	
NOTE: This license allows 1 server to be deployed and managed via RDP.		
Rapid Deployment Pack, Single-Server License (Japan)	267196-291	
NOTE: This license allows 1 server to be deployed and managed via RDP.		
NOTE: For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.HTML http://h18000.www1.hp.com/products/quickspecs/11713_div/11713_div.HTML		
ProLiant Essentials Workload Management Pack		
ProLiant Essentials Workload Management Pack, Single Server License	303284-B21	

Options

NOTE: For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11452_div/11452_div.HTML

ProLiant Essentials Virtualization Management Software

ProLiant Essentials Virtual Machine Management Pack, Single-Server License 372214-B21

NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

ProLiant Essentials Server Migration Pack, Single-Migration License 375345-B21

NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation.

NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.

NOTE: For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_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>.

Memory (DIMMs)	2 GB UB PC2-4200 1 x 2 GB 2RANK ALL	393354-B21
	1 GB UB PC2-4200 1 x 1 GB 2RANK ALL	390824-B21
	512 MB UB PC2-4200 1 x 512 MB 1RANK ALL	390825-B21

Internal Storage	HP DL320G4 DVD-RW DRIVE OPT ALL	395498-B21
	CD-ROM Drive Assembly Option Kit	372703-B21
	Floppy Drive Assembly Option kit	372702-B21
	DVD-ROM Drive Assembly Option Kit	374303-B21

Options

Hard Drives

Serial Attached SCSI - SAS

HP 36 GB SAS 15,000 rpm Hard Drive (3.5")	375868-B21
HP 72 GB SAS 15,000 rpm Hard Drive (3.5")	375870-B21
HP 146 GB SAS 15,000 rpm Hard Drive (3.5")	375872-B21

NOTE: Serial Attached SCSI - SAS Hard Drives are only supported via Factory Integration with the HP 8 Internal Port SAS/SATA HBA with RAID option card. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance.

NOTE: Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.HTML
(North America)

Serial ATA (SATA)

80-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	349237-B21
160-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	349238-B21
250-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	349239-B21
500-GB SATA 1.5 Gb 7,200 rpm Hard Drive (3.5")	395473-B21

NOTE: Please note that Serial ATA hot-plug capability and drive LEDs are not supported by the DL320 G4 embedded SATA storage controller. The purchase of the HP 8 Internal Port SAS HBA with RAID and the DL320 Hot Plug SAS/SATA Cable Option Kit is required for Hot Plug and LED SAS/SATA support.

NOTE: Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/11940_na/11940_na.HTML
(North America)

Storage Controllers

HP 8 Internal Port SAS HBA with RAID	347786-B21
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NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance.

NOTE: The HP 8 Internal Port SAS HBA with RAID requires the purchase of the FIO model and the DL320 SAS/SATA Hot Plug Cable option kit (398307-B21).

Smart Array 6402/128 Controller	273915-B21
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NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance.

NOTE: For External drive support only

Smart Array 642 Controller	291967-B21
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NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance.

NOTE: For External drive support only

Options

<p>128MB BBWC for SA641/642 NOTE: This 128 MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.</p>	351580-B21
<p>64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance. NOTE: For External drive support only</p>	374654-B21
<p>64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance. NOTE: Supports Wide Ultra3, Ultra320 SCSI drives only. NOTE: For External drive support only</p>	268351-B21
<p>64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance. NOTE: Supports Wide Ultra3, Ultra320 SCSI drives only. NOTE: Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.HTML (HP Single Channel Ultra320 SCSI HBA) http://h18000.www1.hp.com/products/quickspecs/12332_div/12332_div.HTML (HP 8 Internal Port SAS HBA) http://h18000.www1.hp.com/products/quickspecs/12067_div/12067_div.HTML (Smart Array 641) http://h18000.www1.hp.com/products/quickspecs/10429_div/10429_div.HTML (SCSI Adapter) http://h18000.www1.hp.com/products/quickspecs/11555_div/11555_div.HTML (U320 Adapter)</p>	284688-B21

Communications

<p>HP NC310F PCI-X 1000SX Gigabit Server Adapter NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance.</p>	368169-B21
<p>HP NC320T PCI Express 1000T Gigabit Server Adapter</p>	367047-B21
<p>HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter NOTE: This controller is only supported via Factory Integration. Please review the 'Configuration Information - Factory Integrated Models' section for configuration assistance. NOTE: Any NC61XX, NC71XX or NC77XX network adapter can be used for redundancy with the embedded NC7782 network adapter.</p>	313881-B21
<p>HP NC571C PCI Express Dual-port 4x Fabric Adapter</p>	376160-B21
<p>HP 4x Fabric 1m Copper Cable</p>	376232-B21
<p>HP 4x Fabric 3m Copper Cable</p>	376232-B22
<p>HP 4x Fabric 5m Copper Cable</p>	376232-B23

Options

Tape Drives

NOTE: For the complete listing of Tape Drive offerings for this server, please visit: <http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

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

USB Tape Drives

HP StorageWorks DAT 40 USB External Tape Drive (Carbonite) DW023A

HP StorageWorks DAT 72 USB External Tape Drive (Carbonite) DW027A

External and Rack-Mount Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite) DW064A

NOTE: No internal tape drives fit inside this HP ProLiant server. The internal drive shown here is for the 1U and 3U Rack-mount Kit.

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite) DW065B

HP StorageWorks Ultrium 232 External Tape Drive (Carbonite) DW017B

HP StorageWorks 1U Rack-mount kit with one Ultrium 448 (Carbonite) DW028A

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:

http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html

(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html

(North America)

For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: <http://www.hp.com/go/connect>.

External, Rack-Mount, and Array Module DAT Drives

HP StorageWorks DAT 72 SCSI External Tape Drive (Carbon) Q1523B

HP StorageWorks 1U Rack-mount kit with one DAT 72 (Carbon) A7443A

NOTE: Please see the DAT Tape Drive QuickSpecs for controllers, media, and other options:

http://h18000.www1.hp.com/products/quickspecs/11883_div/11883_div.HTML

(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/11883_na/11883_na.HTML

(North America)

http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html

(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/12128_na/12128_na.html

(North America)

For an up-to-date listing of the latest O/S and software support details for HP DAT drives, please visit: <http://www.hp.com/go/connect>.

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U Rack-Mount Kit A7445B

NOTE: The 1U Rack-mount Kit (PN A7445A) can support up to (2) half-height tape drives and 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 and Ultrium 448 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit A8007A

1U USB Cable Option Kit 396114-B21

NOTE: Converts a 1U SCSI rack-mount kit to a USB interface to support the USB tape drives.

Options

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:

http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML
(North America)

Tape Autoloaders

DAT Autoloaders

HP StorageWorks DAT 72x6 Autoloader (External)

Q1567A

NOTE: Please see the DAT 72x6 Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:

http://h18006.www1.hp.com/products/quickspecs/11905_div/11905_div.html
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/11905_na/11905_na.html
(North America)

HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 Ultrium 960 Tape Autoloader

AF204A

HP StorageWorks 1/8 Ultrium 448 Tape Autoloader

AF203A

HP StorageWorks 1/8 SDLT 320 Tape Autoloader

AA926A

HP StorageWorks 1/8 Ultrium 232 Tape Autoloader

AF202A

1/8 Tape Autoloader Rackmount Kit

C9268R

NOTE: Required to install the unit in a standard 19-inch rack; includes rails and rackmount instructions

NOTE: Please reference the 1/8 Tape Autoloader QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at

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

HP StorageWorks SSL1016 Tape Autoloader

HP StorageWorks SSL1016 Ultrium 460 Tape Autoloader

330821-B21

NOTE: Please reference the SSL1016 Tape Autoloader QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at

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

Options

Tape Libraries

HP StorageWorks MSL2024 Tape Library		
HP StorageWorks MSL2024 1 Ultrium 960 Drive Library		AG115A
HP StorageWorks MSL2024 1 Ultrium 448 Drive Library		AG116A
HP StorageWorks MSL2024 2 Ultrium 448 Drive Library		AG117A
HP StorageWorks MSL6000 Tape Library		
Ultrium 960 technology		
HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library		AD606A
HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library		AD608A
HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library		AD607A
HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library		AD609A
Ultrium 460 technology		
HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library		AD598A
HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library		AD600A
HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library		AD599A
HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library		AD601A

NOTE: Please reference the [MSL2024](http://www.hp.com/go/automation) and [MSL6000](http://www.hp.com/go/automation) Tape Library QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>

Magento-Optical Jukeboxes

HP StorageWorks 9.1 GB Entry-level Optical Storage		
600mx, 4 drive, 64 slot jukebox		C1160M
1200mx, 4 drive, up to 128 slots		C1104M
2200mx, 6 drive, up to 238 slots		C1107M

NOTE: Please see the [HP StorageWorks Magento-Optical Products data sheet](http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf) for a complete listing of available jukeboxes at:

http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf

NOTE: Please reference the [Magenta-Optical Jukebox data sheets](http://www.hp.com/go/optical) at <http://www.hp.com/go/optical> for additional information needed to create a complete solution.

HP StorageWorks Modular Smart Array 20

HP StorageWorks Modular Smart Array 20		335921-B21
NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.		
HP StorageWorks Modular Smart Array 20 Starter Kit		366172-B21
NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller.		
NOTE: The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 2.5" Hot Plug Hard Drives.		

Options

HP StorageWorks Modular Smart Array 30	<p>HP StorageWorks Modular Smart Array 30 SB NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies</p> <p>HP StorageWorks Modular Smart Array 30 DB NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies NOTE: The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 1" Hot Plug Hard Drives.</p>	302969-B21 302970-B21
HP StorageWorks Modular Smart Array 500	<p>HP StorageWorks Modular Smart Array 500 Generation 2 NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML (Worldwide) http://h18000.www1.hp.com/products/quickspecs/11956_na/11956_na.HTML (North America)</p>	335880-B21
HP StorageWorks Modular Smart Array 1000	<p>HP StorageWorks Modular Smart Array 1000 NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML (North America) http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)</p>	201723-B22
HP StorageWorks Modular Smart Array 1500 cs	<p>Modular Smart Array 1500 Controller Shelf NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs</p>	AA986A
StorageWorks Options	<p>HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-E HBA A8003A</p> <p>HP StorageWorks FC2142SR 4Gb PCI-E HBA A8002A</p> <p>HP StorageWorks 2 Gb, single channel, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for Windows 2000 and 2003 A7388A</p> <p>HP StorageWorks 2 Gb dual channel, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for Windows 2000 and 2003 A7387A</p> <p>StorageWorks 2 Gb, Dual Port, 64-Bit/133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for W2K, Windows Server 2003 and Linux 321835-B21 NOTE: FCA2214DC StorageWorks 2 Gb Dual Port, Fibre Channel Host Bus Adapter is a 64-bit/133 MHz, PCI-X-to Fibre Channel Host Bus Adapter (HBA) with an embedded multi-mode optical interface.</p>	

Options

Uninterruptible Power Systems – Rack UPS	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage (NA/Jpn)	326529-D71
	HP UPS R5500 XR, (6000VA, 5400 Watt), High Voltage (Int'l)	326529-B31
	HP UPS R1500 XR (1440VA, 1340 Watt), Low Voltage (NA)	204404-001
	HP UPS R1500 XR (1500VA, 1340 Watt), High Voltage (Int'l)	204404-B31
	HP UPS R1500 XR (1500VA, 1340 Watt), Low Voltage (Japan)	204404-291
	HP UPS R3000 XR (2880VA, 2700 Watt), Low Voltage (NA)	192186-001
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (NA)	192186-002
	HP UPS R3000 XR (2400VA, 2250 Watt), Low Voltage (Japan)	192186-291
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Japan)	192186-292
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Int'l - detachable cord)	192186-B31
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A IEC309 Plug)	192186-B32
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A CEE 7/7 SCHUKO Plug)	192186-B33
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A BS-546 Plug)	192186-AR1
	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage (NA/Jpn)	326529-D71
	HP UPS R5500 XR, (6000VA, 5400 Watt), High Voltage (Int'l)	326529-B31
	HP UPS R12000 XR, N+ x (12KVA, 12KW) High Voltage (WW)	207552-B22

NOTE: The UPS R12000 XR has a hardwired input and output connection.

USB Options	USB Optical Scroll Mouse (Carbonite)	DD441B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	256MB HP Drive Key II (USB 2.0)	PH657A
	512MB HP Drive Key II (USB 2.0)	ED516AA

ProLiant DL320 Deployment Options	Rack Adapter Kit	332815-B21
	<p>NOTE: This kit allows HP rack servers to fit in racks that are 24" wide.</p> <p>NOTE: Telco Rack Support - 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</p>	

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
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Rack Options for Rack 5000 Series	Stabilizer Kit for 5642 Rack (Graphite Carbon)	374493-B21
	<p>NOTE: The stabilizing kit is used to prevent rack from tipping over.</p>	
	Baying Kit for 5642 Rack (Graphite Carbon)	374499-B21
	<p>NOTE: The baying kit is used to join two or more HP 5642 racks.</p>	

Options

HP Rack 10000 Series (Graphite Metallic)	10642 (42U) Infrastructure Rack (Low Voltage)	379006-001
	10642 (42U) Infrastructure Rack (High Voltage)	379005-001
	HP S10614 (14U) Rack Cabinet – Shock Pallet	292302-B22
	HP 10842 (42U, 800mm wide) Rack Cabinet – Pallet	257415-B21
	HP 10842 (42U, 800mm wide) Rack Cabinet – Shock Pallet	257415-B22
	HP 10647 (47U) Rack Cabinet – Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet – Shock Pallet	245160-B23
	HP 10642 (42U) Rack Cabinet – Pallet	245161-B21
	HP 10642 (42U) Rack Cabinet – Shock Pallet	245161-B22
	HP 10642 (42U) Rack Cabinet – Crated	245161-B23
	HP 10636 (36U) Rack Cabinet – Pallet	245162-B21
	HP 10636 (36U) Rack Cabinet – Shock Pallet	245162-B22
	HP 10636 (36U) Rack Cabinet – Crated	245162-B23
	HP 10622 (22U) Rack Cabinet – Pallet	245163-B21
	HP 10622 (22U) Rack Cabinet – Shock Pallet	245163-B22
	HP 10622 (22U) Rack Cabinet – Crated	245163-B23

NOTE: -B21 (pallet) used to ship empty racks shipped on a truck

-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)

-B23 (crated) used for air shipments of empty racks

NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed.

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML
(North America)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

Options

Rack Options for HP Rack 10000 Series	HP Rack Light Kit (Neon)	361589-B21		
	HP Rack Plinth Kit (Carbon)	251960-B21		
	42U Side Panel - Graphite Metallic	246099-B21		
	36U Side Panel – Graphite Metallic	246102-B21		
	47U Side Panel – Graphite Metallic	255486-B21		
	TFT7210R Rack Mounted 17" Monitor	348373-B21		
	NOTE: For a complete list of Monitors please view the following URL: http://h18004.www1.hp.com/products/monitors/ .			
	TFT5600 Rack Keyboard Monitor	221546-xx1		
	NOTE: For a complete list of Monitors please view the following URL: http://h18004.www1.hp.com/products/monitors/ .			
	1U Rack Keyboard & Drawer (Carbon)	257054-xx1		
	Country Code Key (for TFT5600 Rack Keyboard Monitor (PN 221546-xx1 and for 1U Rack Keyboard & Drawer (PN 257054-xx1)			
	XX = 001	US	XX = 091	Norway
	XX = 031	UK	XX = 101	Sweden/Finland
XX = 041	Germany	XX = 111	Switzerland	
XX = 051	France	XX = 131	Portugal	
XX = 061	Italy	XX = 181	Belgium	
XX = 071	Spain	XX = 291	Japan	
XX = 081	Denmark	XX = B31	International	
NOTE: For additional information regarding Rack Options, please see the following URL: http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html .				

HP KVM Switch Options	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
	IP Console Switch Box (KVM/IP), 3 x 1 x 16	262586-B21
	HP 1x4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
	HP 1x4 USB/PS2 KVM Switch, TT, (EURO)	371301-A21
	HP 1x4 USB/PS2 KVM Switch, TT (UK)	371301-031
	HP 1x4 USB/PS2 KVM Switch, TT, (AUST/NZ)	371301-011
	HP 1x4 USB/PS2 KVM Switch, TT, (NA/JPN)	371301-D71
	PS/2 Interface Adapter, 8 pack	262587-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	CAT5 KVM Expansion Module	262589-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	CAT5e Cable 3', 4 pack	263474-B21
	CAT5e Cable 6', 8 pack	263474-B22
	CAT5e Cable 12', 8 pack	263474-B23
	CAT5e Cable 20', 4 pack	263474-B24
	CAT5e Cable 40', 1 pack	263474-B25
	HP 16-Port Serial Console Server (WW)	AF101A

Options

HP 48-Port Serial Console Server (WW)	AF102A
Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A

NOTE: For additional information regarding Serial Adapters and KVM information, please refer to:
<http://www.hp.com/go/kvm>

Service and Support Offerings (HP Care Pack Services)

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	U4479E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4480E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4481E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4482E

Installation & Start-up Services

Hardware Installation, Electronic	U4490E
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, Electronic	U4491E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4492E
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Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4493E
Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic.	U6309E
Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic.	U8331E

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

Memory

HP ProLiant DL320 G4 All Models

Standard Memory

512 MB PC2-4200 ECC UB DDR2 SDRAM installed (1 x 512 MB SDRAM DIMM) on Celeron D model.

1 GB (1 x 1024 MB SDRAM DIMMs) on all Pentium D models.

Standard Memory Plus Optional Memory

Up to 8 GB memory is available with the optional installation of PC2-4200 ECC DDR2 SDRAM Memory kits.

NOTE: The chart below represents the Pentium D models with 1 GB standard memory, and does not represent all possible configurations. Memory can be populated in any order with any of the supported DIMMs listed. For optimal performance, the total amount of memory in slots 1A and 2A should equal to the total amount of memory in slots 3B and 4B.

Memory		Slot			
		1A	2A	3B	4B
Standard	1024 MB	1024 MB	Empty	Empty	Empty
Optional	4096 MB	2 GB	Empty	2 GB	Empty
Maximum	8192 MB	2 GB	2 GB	2 GB	2 GB

Following are memory options available from HP:

- 2 GB UB PC2-4200 1 x 2 GB 2RANK ALL 393354-B21
- 1 GB UB PC2-4200 1 x 1 GB 2RANK ALL 390824-B21
- 512 MB UB PC2-4200 1 x 512 MB 1RANK ALL 390825-B21

Storage



- 1- 2 Two 3.5" x 1" SATA or SAS drive bays
- A Removable 1.44 MB Diskette Drive Assembly Kit
- B Optional CD-ROM/DVD Drive Assembly Kit

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
1.44-MB Diskette Drive	Up to 1	A	Integrated
Low-profile IDE (ATAPI) CD-ROM Drive	Up to 1	B	Integrated IDE (ATAPI)
Low-profile IDE DVD-ROM or DVD-RW Drive	Up to 1	B	Integrated IDE

SAS Hard Drives

3.5"	Quantity Supported	Position Supported	Controller
36 GB 15,000 rpm 72 GB 15,000 rpm 146 GB 15,000 rpm	Up to 2	1-2	HP 8 Internal Port SAS HBA with RAID

Serial ATA Hard Drives

3.5"	Quantity Supported	Position Supported	Controller
500-GB 7,200 rpm 250-GB 7,200 rpm 160-GB 7,200 rpm 80-GB 7,200 rpm	Up to 2	1-2	HP embedded 2 Port SATA Controller with RAID 0/1 support HP 8 Internal Port SAS HBA with RAID

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20	Please see the Modular Smart Array 20 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 20 QuickSpecs below see the list of supported controllers
Modular Smart Array 30 Family	Up to 14	External	Smart Array 6402/128 Controller Smart Array 642 Controller 64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
Modular Smart Array 500 G2	1	External	Please see the Modular Smart Array 500 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs

Modular Smart Array 1000: http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)

Maximum Storage Capacity - (SAS drives)

Internal	292 GB (2 x 146 GB 3.5" SAS)
External	4.20 TB (1 x (14 x 300 GB 1" Ultra320 Drives))
Total	4.35 TB

NOTE: In order to implement integrated SATA RAID with Smart Start 7.4 on Windows 2000/2003, the use of a floppy drive is necessary

Maximum Storage Capacity - (SATA Drives)

Internal	1 TB (2 x 500 GB 1" SATA)
External	6.00 TB (1 x (12 x 500 GB 1" SATA Drives))
Total	7.00 TB

NOTE: In order to implement integrated SATA RAID with Smart Start 7.4 on Windows 2000/2003, the use of a floppy drive is necessary

NOTE: The External capacity section relates to the HP StorageWorks Modular Smart Array 20.

Tape Drives, Tape Autoloaders & Tape Libraries

Storage

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 (North America)
<http://h18000.www1.hp.com/products/quickspecs/Division/10233.html> (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders & Tape Libraries listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/North_America/10809.html (North America)
<http://h18000.www1.hp.com/products/quickspecs/Division/10809.html> (Worldwide)

NOTE: For complete listing of tape drive offerings see
<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

For details on connecting tape drives to this server, see the following:

	Quantity Supported	Position Supported	Controller
HP StorageWorks Tape Drives, USB External DAT 24 USB DAT 40 USB DAT 72 USB	1 per USB port	External	USB port
HP StorageWorks Tape Drives, External Ultrium 232 Ultrium 448 Ultrium 460 DAT 40 DAT 72 DLT VS80 DLT VS160 SDLT 320	Up to 2	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Tape Drives, External Ultrium 960 SDLT 600	1 per SCSI Channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Autoloaders, External DAT 72x6 Tape Autoloader 1/8 Tape Autoloader SSL1016 Tape Autoloader	1 autoloader per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
HP StorageWorks Rack-mount Tape Drive Enclosures 1U Rack-Mount Kit 3U Rack-Mount Kit 5U Rack-Mount Kit	1 per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 64-Bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS

Storage

HP StorageWorks Tape Libraries, External

MSL2024 (Ultrium 960-based)
MSL2024 (Ultrium 448-based)
MSL6000 (Ultrium 960-based)
MSL6000 (SDLT 600-based)
MSL6000 (Ultrium 460-based)
MSL5026S2 (SDLT 320-based)
MSL5052S2 (SDLT 320-based)

Please reference the MSL Tape Library QuickSpecs to determine configuration requirements

External

Please consult the EBS connectivity matrix at <http://www.hp.com/go/ebs> for detailed connectivity information.

Technical Specifications

System Unit	Dimensions (HxWxD)	1.70 x 16.78 x 24.0 in (4.32 x 42.62 x 60.96 cm)	
	Weight (no drives installed)	24.0 lb (10.91 kg)	
	Weight (fully configured with two hard drives, four DIMM modules, and a PCI expansion board)	27.0 lb (12.27 kg)	
Input Requirements	Range Line Voltage	90 to 264 VAC	
	Nominal Line Voltage	100 to 120 VAC/220 to 240 VAC	
	Rated Input Current	6 A (100 to 120 VAC) to 3 A (200 to 240 VAC)	
	Rated Input Frequency	47 to 63 Hz	
	Rated Input Power	@ 115V input, Rated input power = 486W (assume output wattage=450W) @ 230V input, Rated input power = 479W (assume output wattage=450W)	
	Power Supply Output	Steady State Power	450 W (rated) NOTE: 1. +3.3V and +5V total O/P power 130W Maximum. 2. +3.3V, +5V and +12V total O/P power 324W Maximum.
Environmental Operating	Operating	Ambient Temperature	50° to 95° F (10° to 35° C)
		Temperature Derating	1.8° F per 1000 ft to 10,000 ft (1° C per 300 m to 3000 m)
		Relative Humidity	10% to 90% (non-condensing)
		Maximum wet bulb temperature	82° F (28° C)
Non-operating Storage		Temperature	-22° to 140° F (-30 to 60° C)
		Relative Humidity	5% to 95% (non-condensing)
		Maximum wet bulb temperature	102° F (38.7° C)
Non-operating Shipping		Temperature	-22° to 140° F (-30 to 60° C)
		Relative Humidity	5% to 95% (non-condensing)
		Maximum wet bulb temperature	102° F (38.7° C)

Technical Specifications

Acoustic Noise	Idle at 23 degree C ambient (Fixed Disk Drives Spinning)	
	L WAd (BELS)	=6.4
	Bystander L pAm (dBA)	=47
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	=6.4
	Bystander L pAm (dBA)	=47

Serial ATA Hard Drives	80 GB 7.2K 349237-B21	Capacity	80,000 MB	
		Height	1.028 in/2.611cm	
		Width	4.0 in (10.16 cm)	
		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	17.0 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
	Logical Blocks		156,301,488	
	Operating Temperature	41° to 131° F (5° to 55° C)		

Power Supply	Input voltage specifications	Rated input voltage	100 VAC to 240 VAC
		Input Specifications	Rated input line
		Frequency range	47 to 63 Hz
		Rated input power	@ 115V input, Rated input power = 486W (assume output wattage=450W) @ 230V input, Rated input power = 479W (assume output wattage=450W)
		Rated input current	6 A, 3 A (110 V, 220 V)
		Steady state power	450W (rated)
		BTU Rating	1710 BTU/hr
	Ambient temperature range	Operating	50° to 118° F (10° to 48° C)
		Non-operating	-40° to 158° F (-40° to 70° C)
	Relative humidity (non-condensing)	Operating	55% to 85%
		Non-operating	5% to 95%

Technical Specifications

Dielectric voltage withstand	Input to output	1800 VAC/minute
	Input to ground	1800 VAC/minute
Maximum Wet Bulb Temperature	41.3C	

Embedded NC324i Dual Port NIC	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	Four lane (x4), 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		
	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)		

Integrated Dual Channel Serial ATA Controller	Simultaneous drive transfer channels	2 channels	
	Transfer rate synchronous (maximum theoretical)	150 MB/s per channel; 300MB/s in RAID 0 pair	
	Data transfer method	Intel® 82801FR Integrated Serial ATA Host Controller (non-RAID mode) Intel® 82801FR Integrated Serial ATA Host Controller (RAID Mode)	
	Drive support	Serial ATA	
	Data transfer modes	Legacy Mode	
		Combined Mode	
	Protocol	Serial ATA	
Feature	NCQ (Native Command Queuing);AHCI (Advanced Host Controller Interface)		

Technical Specifications

Integrated Serial ATA Controller	Transfer rate synchronous (maximum)	150 MB/s per channel; 300MB/s in RAID 0 pair
	Protocol	Serial ATA
	Drive support	HP Universal Serial ATA
	Data transfer modes	ATA data-transfer modes supported SATA 1.0, SATA II PIO modes 0-4 Multiword DMA modes 0-2 Ultra DMA modes 0-6
	RAID levels	0, 1
	Feature	Supports Warranty of SATA Hard Drives Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support
	OS Support	Microsoft Windows 2000 Server Microsoft Windows Server 2003
		NOTE: In order to implement integrated SATA RAID with Smart Start 7.4 on Windows 2000/2003, the use of a floppy drive is necessary
		Linux (Red Hat, SuSE, UnitedLinux)
		NOTE: This controller does not support LED functions This controller does not support Hot Plug functions

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