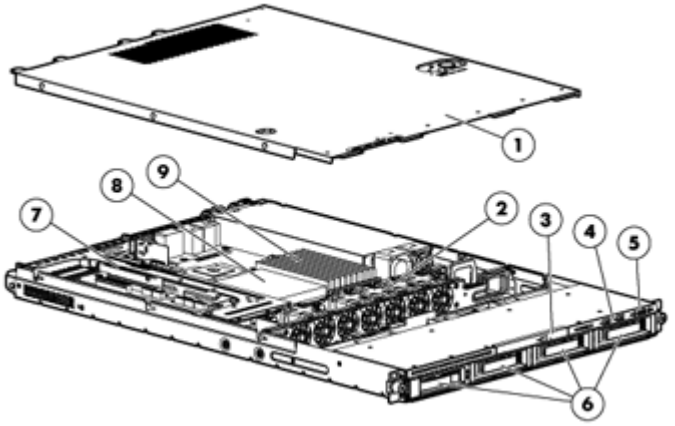
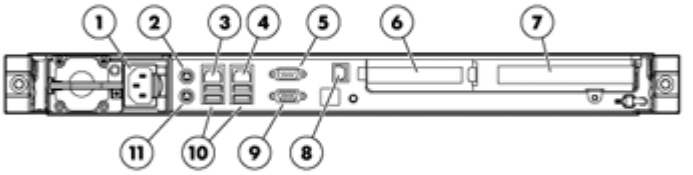
Overview

The HP ProLiant DL320 G6 Server is an enterprise rack-optimized server at an entry level price. The highly manageable 1 processor, 1U server is ideal for single-application IT infrastructure, web and edge-of-network applications.

The HP infrastructure management capabilities, combined with other Insight software, give the DL320 G6 enterprise-class management features. Support for 1 to 4 low-cost Serial ATA drives on an integrated RAID0/1/10 controller, with an optional upgrade to highly reliable hot plug SAS hard drives, gives the DL320 G6 flexibility to meet the needs of your datacenter. Plus, you get the cost-effective solution of a single-processor platform with options from the new Intel® Xeon® Processor 3500, 5500 and 5600 sequences with turbo mode.





Front View:

1. Cover
2. Non Hot Plug Dual Rotor Fans
3. Optional Slim 9.5mm DVD ROM
4. USB connectors (2)
5. Power Button, UID button, and Front LED Indicators
6. Support for up to four SATA or SAS Hard Drives or SSD's
7. Two PCI-Express Slots (2 PCI-Express 2.0 x16 connectors standard)
8. Processor Socket (Intel Xeon, Core 2, Quad Core, and Six Core)
9. Nine DDR3 Memory Slots

Rear View:

1. Power supply
2. Mouse connector
3. NIC 1 Port/Shared iLO 2 Management Port
4. NIC 2 Port
5. Serial connector
6. PCI Express expansion slot 5, low-profile, half-length
7. PCI Express expansion slot 4, (optional PCI-X, full-length)
8. Dedicated Integrated Lights-Out 2 (ProLiant Onboard Administrator powered by integrated Lights-Out 2) management port (optional)
9. Video connector
10. USB connectors (4)
11. Keyboard connector

Overview

What's New

- Adding support for the E5649, E5645, E5607, E5606 and E5603 processors
- Added 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit
- Added NC523SFP 10Gb 2-port Server Adapter
- Added CN1000E and CN1000Q Converged Network Adapter

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	Six-Core Processors Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) Intel® Xeon® Processor E5649 (2.53 GHz, 12MB L3 Cache, 80W) Intel® Xeon® Processor E5645 (2.4 GHz, 12MB L3 Cache, 80W) Quad-Core Processors Intel® Xeon® Processor E5607 (2.26 GHz, 12MB L3 Cache, 80W) Intel® Xeon® Processor E5606 (2.13 GHz, 12MB L3 Cache, 80W) Intel® Xeon® Processor E5603 (1.66 GHz, 12MB L3 Cache, 80W) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3 1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor L5609 (1.86 GHz, 12MB Cache, 40W, DDR3-1066) Intel® Xeon® Processor L5630 (2.13 GHz, 12MB L3 Cache, 40W, DDR3-1066, HT, Turbo 1/1/2/2/) Intel® Xeon® Processor W3520 (2.66GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2) Intel® Xeon® Processor W3540 (2.93GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2) Dual-Core Processors Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 6, 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 and 5600 Series, the letter preceding the model number indicates the performance/wattage of the processor. ; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Cache Memory One of the following depending on Model	4MB (1 x 4MB) Level 3 Cache 8MB (1 x 8MB) Level 3 Cache 12MB (1 x 12MB) Level 3 Cache

Standard Features

Chipset

Intel 5500 Chipset with up to 6.4GT/s QPI
NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.

Memory Protection

Advanced ECC
Mirroring mode
Lock-step mode
Online spare
NOTE: Xeon W3500 processor family does not support any of above advanced features.
NOTE: Online spare is only supported on Xeon 5600 processor series.

Memory
One of the following depending on Model

Type	DDR3 1067/1333 Registered (RDIMM) and Unbuffered (UDIMM)
Standard (Entry Models)	4 GB (2 x 2 GB) RDIMM
Standard (High Efficiency Models)	4 GB (2 x 2 GB) UDIMM
Standard (Performance Models)	6 GB (3 x 2 GB) RDIMM
Maximum Memory	Up to 192 GB, using DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 6 Slots. Up to 24 GB, using DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 6 slots.

Network Controller

Embedded NC326i Dual Port Gigabit Server Adapter

Expansion Slots

NOTE: Two total slots. (1) Full length PCI Express x16 slot (x16 connector). Can be replaced with a full-length 64-bit /133MHz PCI-X slot. (1) Half-length, low-profile PCI Express x4 slot (x16 connector).

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
5 (Standard)	PCIe	x4	x16	10	Low profile (half length, half height) slot	
4 (Standard)	PCIe	x16	x16	21	Full length, full height slot	This PCIe slot can be replaced with optional PCI-X slot below
4 (Optional)	PCI-X (133MHz, 3.3Volt)	64-bit	Not applicable	24	Full length, full height slot	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

Standard Features

Storage Controllers One of the following depending on Model	Entry Models	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0) NOTE: Transfer rate: 3Gb/s SATA NOTE: SATA Hot Plug available via Hot Plug Advance Pack for B110i NOTE: Hot Plug SAS and SATA controllers available via PCI card option.
	High Efficiency Models	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0) NOTE: Transfer rate: 3Gb/s SATA NOTE: SATA Hot Plug available via Hot Plug Advance Pack for B110i NOTE: Hot Plug SAS and SATA controllers available via PCI card option.
	Performance Models	HP Smart Array P410/256MB Controller (RAID 0/1/1+0/5/5+0) NOTE: Available upgrades: Battery Kit upgrade (for BBWC), 512MB with BBWC, Flash Backed Write Cache (FBWC), and Smart Array Advanced Pack (SAAP)
Internal Storage Devices	Diskette Drive	None
	Optical Drive	None ship standard Optional: Optional DVD or DVD-RW drive
	Hard Drives	None ship standard
	Hard Drive Bays	Standard four 3.5" (Large Form Factor) hot-plug SATA or SAS hard drive bays
Maximum Internal Storage	SATA (4HDD models - requires optional 4HDD cage)	8TB 4 x 2TB
	SAS (4HDD models - requires optional PCI controller)	8TB 4 x 2TB
Interfaces	Serial	1
	Video	1
	Network RJ-45	2
	Keyboard	1
	Pointing Device (Mouse)	1
	SD Slot	1
	USB 2.0	7 (2 front, 1 internal (optional), 4 rear) NOTE: Please see the following URL for additional information regarding USB support. In order to connect a USB device internally, the internal USB Cable G6 Kit must be used (536769-B21). http://h18004.www1.hp.com/products/servers/platforms/usb-support.html NOTE: In order to connect a USB device internally, the internal USB Cable G6 Kit must be used (536769-B21)

Standard Features

Industry Standard Compliance	ACPI 2.0 Compliant PCI 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 2.0 Support IPMI 2.0
Server Power Cords	One 6' Highline (IEC-IEC) power cord ships standard NOTE: HP ProLiant DL320 G6 servers ship standard worldwide with a C13 to C14 2M Highline jumper cord. If customers require a power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix
Common Slot Power Supplies	Entry Models: 400Watts, non-redundant, 72% Efficiency High Efficiency Models: 500Watts, non-redundant, 92% Efficient Performance Models: 400Watts, redundant, 85% Efficient NOTE: This power supply is needed to support power capping and power monitoring. 460Watts, Common Slot, non-redundant, 92% Efficiency NOTE: This power supply is needed to support power capping and power monitoring HP's ProLiant Common Slot Power 460W supply meets multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative GOLD, ECOS Consulting 80PLUS GOLD and plans on offering models that meet the Energy Star for Server requirements when they are published.
System Fans	5 dual rotor fans ship standard
Required Cabling	For required cabling information, refer to the Web site at: www.hp.com/servers/proliantdl320-g6.
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Solaris NOTE: Support differences will exist between the SATA and SAS configurations. NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from HP, please visit our OS Support Site at: www.hp.com/go/ossupport and our driver download site www.hp.com/support/DL320G6.

Standard Features

Graphics	Integrated ATI ES1000, 64 MB video standard • 16 bit color: maximum resolution of 1600 x 1200 • 32 bit color: maximum resolution of 1280 x 1024 NOTE: Maximum resolution available via iLO 2 remote console is 1280 x 1024.	
Form Factor	Rack (1U), (1.70 in/4.32 cm), 26.85" deep	
HP Insight management software	HP Insight Foundation suite	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters. HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation. The foundation pack includes: • HP SmartStart • HP Management DVD • HP ProLiant Smart Update Firmware DVD SmartStart version supported (minimum): SmartStart 8.20 http://www.hp.com/servers/smartstart NOTE: In an effort to support reducing our environmental impact, the HP Insight Foundation Suite for ProLiant media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.
	HP Integrated Lights-Out (iLO) for ProLiant	HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

Standard Features

Intelligent Manageability	Automatic Server Recovery (ASR) iLO 2 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 hard drives, and memory) BIOS Serial Console Front and Rear Unit ID (UID) button/LED
Security	Power-on password USB Port control Removable optical drive assembly (optional) Removable DVD-ROM Drive Assembly (optional) Dedicated iLO2 port (optional) Serial interface control Administrator's password
Warranty	This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and parts repair is available for three years Next Business Day, with three year on-site support from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Expanded 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. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details. NOTE: Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Optional Features

HP Insight management software	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
	HP Insight Dynamics for ProLiant	HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location. NOTE: For more information, visit: http://www.hp.com/go/insightdynamics

Optional 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 MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HP Enterprise Configurator

The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator.

Service and Support

HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI

When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively

HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.

Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at http://www.hp.com/go/lookuptool

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service, 6- or 24-hour
Provides your IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 or 24 hours of the initial service request to the HP Global Solution Center.

HP is committed to repairing your hardware within a maximum of six or twenty four hours. The benefits include:

- Improved system uptime
- Predictable repair times
- More effective IT resource planning
- Consistent level of hardware support across your multi-technology systems

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN

3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7
Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE

HP ProLiant Server Hardware Installation
Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

- Expedited installation, with all service prerequisites met before the installation is performed
- Installation in accordance with manufacturer's specifications, enhancing the supportability of your HP-installed hardware and software
- Service delivery at a mutually scheduled time
- Allows your IT resources to stay focused on their core tasks and priorities
- Availability of an HP service specialist to answer questions during the onsite delivery of this service

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN

Optional HP Care Pack Services that will enhance your HP product experience

Optional Services

3-Year HP Support Plus 24

As an alternative to our recommended support level, for customers who need access to responsive 24x7 hardware and software support plus software updates on HP and selected third party products:

For a higher return on your server and storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EEE

3-Year HP Proactive 24

As an alternative to our recommended support level, for customers who want enhanced operational effectiveness and proactive problem identification:

Provides improved stability, availability and operational effectiveness with an integrated hardware and software support service that combines industry-leading reactive technical assistance with proactive account services, giving your IT manage support from a team of service specialists.

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1614ENUC

HP Proactive Select Service

Customer needs on demand access to consulting, technical proactive services and education courses

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN

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eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: http://www.hp.com/support

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24

	X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.
Customer Technical Training	In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.
HP Services Awards	HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.
Additional Services Information	To learn more on HP ProLiant servers, HP BladeSystem servers and HP StorageWorks storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/proliant or www.hp.com/services/bladesystem or http://www.hp.com/hps/storage

Pre-configured Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.
NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

Entry Models

HP DL320G6 E5603 638328-001	Processor(s)	Intel® Xeon® Processor E5603 (1.66 GHz, 12MB L3 Cache, 80 Watts)
	Cache Memory	12MB L3 Cache
	Memory	4 GB (2 x 2 GB) DDR3 RDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 2TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SATA Hot Plug requires Hot Plug Advance Pack for B110i NOTE: SAS requires optional PCI Controller
	Optical Drive	Optional
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
	Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

HP ProLiant DL320 G6 E5502 1.86 GHz Dual Core Hot Plug SATA Rack Server 505682-001	Processor(s)	Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)
	Cache Memory	4MB L3 Cache
	Memory	4 GB (2 x 2 GB) DDR3 RDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 2TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SATA Hot Plug requires Hot Plug Advance Pack for B110i NOTE: SAS requires optional PCI Controller
	Optical Drive	Optional
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
	Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

Pre-configured Models

HP ProLiant DL320 G6 E5503 2.0GHz 2-core 1P 4GB-R B110i Hot Plug SATA 4 LFF 400W PS Server 593493-001	Processor(s)	Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)
	Cache Memory	4MB L3 Cache
	Memory	4GB (2x2 GB) DDR3 RDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 2TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SATA Hot Plug requires via Hot Plug Advance Pack for B110i NOTE: SAS requires optional PCI Controller
	Optical Drive	Optional
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
	Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

High Efficiency Models

HP ProLiant DL320 G6 L5506 2.13 GHz Quad Core Hot Plug SATA Rack Server 505683-001	Processor(s)	Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800)
	Cache Memory	4MB L3 Cache
	Memory	4 GB (2 x 2 GB) DDR3 UDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 2TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SATA Hot Plug requires Hot Plug Advance Pack for B110i NOTE: SAS requires optional PCI Controller
	Optical Drive	Optional
	Power Supply	500-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
	Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

HP ProLiant DL320 G6 L5609 1.60GHz 4-core 1P 4GB-U B110i Hot	Processor(s)	Intel® Xeon® Processor L5609 (1.86 GHz, 12MB Cache, 40W, DDR3-1066)
	Cache Memory	12MB L3 Cache

Pre-configured Models

Plug SATA 4 LFF 500W PS Server 593498-001	Memory	4 GB (2 x 2 GB) DDR3 UDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 2TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SATA Hot Plug requires Hot Plug Advance Pack for B110i NOTE: SAS requires optional PCI Controller
	Optical Drive	Optional
	Power Supply	500-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
	Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

Performance Models

HP ProLiant DL320 G6 E5530 2.40GHz 4-Core 6GB-R P410/256 Hot Plug SAS 400W RPS Perf Server 505684-001	Processor(s)	Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3 1066, HT, Turbo 1/1/2/2)
	Cache Memory	8MB L3 Cache
	Memory	6 GB (3 x 2 GB) DDR3 RDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410/256MB Controller
	Hard Drives	None ship standard
	Internal Storage	4 x 2TB 3.5" Hot plug SATA/SAS, Maximum
	Optical Drive	Optional
	Power Supply	400W Redundant Power Supply
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
	Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

HP ProLiant DL320 G6 E5630 2.53GHz 4-core 1P 6GB-R P410/256 Hot Plug SAS 4 LFF 400W RPS Server 593499-001	Processor(s)	Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Cache Memory	12MB L3 Cache
	Memory	6 GB (3 x 2 GB) DDR3 RDIMM NOTE: 9 DIMM slots.
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410/256MB Controller
	Hard Drives	None Ship standard
	Internal Storage	4 x 2TB 3.5" Hot plug SATA/SAS, Maximum
	Optical Drive	Optional

Pre-configured Models

Power Supply	400W Redundant Power Supply
Fans	5 dual rotor fans ship standard
Form Factor	Rack (1U), (1.70 in/4.32 cm)
Warranty	Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response.

Smart Buys

HP ProLiant Smart Buy DL320G6 E5504 3GB LFF US Svr 470065-235	Processors	Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)
	Memory	3GB UDIMM (3x1GB HP 1Rx8 PC3-10600E-9)
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
	Hard Drives	None included up to 4 LFF
	Optical Drive	None included
	Power Supply	(1) 500-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
HP ProLiant Smart Buy DL320G6 E5520, 6G US Svr 470065-257	Processors	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Memory	6GB UDIMMS (3 x 2GB 2Rx8 PC3-10600E-9)
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410/256 MB BBWC
	Hard Drives	None included, up to 8 SFF
	Optical Drive	HP 9.5mm SATA DVD-ROM Optical Drive
	Power Supply	(2) 400W Redundant Hot Plug Power Supply
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)
S-Buy DL320G6 E5620, 6G US Svr 643412-S01	Processors	Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Memory	6GB UDIMMS (3 x 2GB 2Rx8 PC3-10600E-9)
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410/256 MB
	Hard Drives	None included, up to 4 LFF
	Optical Drive	HP 9.5mm SATA DVD-ROM Optical Drive
	Power Supply	(2) 400W Redundant Hot Plug Power Supply
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Configure-to-order (CTO) servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is only available as a factory installable option.

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

HP Models	HP ProLiant DL320 G6 Configure-to-order Rack Server	505768-B21
	Includes:	
	Embedded NC326i Dual Port Gigabit Server Adapter	
	1 full length PCI Express x16 slot and 1 half length low profile PCI Express x4 slot	
	Integrated Lights-Out 2 (ProLiant Onboard Administrator powered by Integrated Lights-Out 2) embedded (shared NIC functionality standard)	
	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)	
	Rack (1U) form factor, (1.70 in/4.32 cm)	
	Fixed, mounting rails	

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

HP Processors	Six-Core Processors	
	HP DL320 G6 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) FIO Processor Kit	600743-L21
	HP DL320 G6 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	638648-L21
	HP DL320 G6 Intel® Xeon® E5645 (2.4GHz/6-core/12MB/80W) FIO Processor Kit	638647-L21
	Quad-Core Processors	
	HP DL320 G6 Intel® Xeon® E5607 (2.26GHz/4-core/12MB/80W) FIO Processor Kit	638646-L21
	HP DL320 G6 Intel® Xeon® E5606 (2.13GHz/4-core/12MB/80W) FIO Processor Kit	638645-L21
	HP DL320 G6 Intel® Xeon® E5603 (1.66GHz/4-core/12MB/80W) FIO Processor Kit	638644-L21
	HP DL320 G6 Intel® Xeon® E5504 (2.00GHz/4-core/4MB/80W) FIO Processor Kit	512058-L21
	HP DL320 G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) FIO Processor Kit	512059-L21
	HP DL320 G6 Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) FIO Processor Kit	512060-L21
	HP DL320 G6 Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) FIO Processor Kit	512061-L21
	HP DL320 G6 Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) FIO Processor Kit	512062-L21
	HP DL320 G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) FIO Processor Kit	600739-L21
	HP DL320 G6 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) FIO Processor Kit	600740-L21
	HP DL320 G6 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) FIO Processor Kit	602252-L21

	HP DL320 G6 Intel® Xeon® L5506 (2.13GHz/4-core/4MB/60W) FIO Processor Kit	512063-L21
	HP DL320 G6 Intel® Xeon® L5520 (2.26GHz/4-core/8MB/60W) FIO Processor Kit	512064-L21
	HP DL320 G6 Intel® Xeon® L5609 (1.86GHz/4-core/12MB/40W)FIO Processor Kit	600741-L21
	HP DL320 G6 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) FIO Processor Kit	600742-L21
	HP DL320 G6 Intel® Xeon® W3520 (2.66GHz/4-core/8MB/130W) FIO Processor Kit	519748-L21
	HP DL320 G6 Intel® Xeon® W3540 (2.93GHz/4-core/8MB/130W) FIO Processor Kit	519749-L21
	Dual-Core Processors	
	HP DL320 G6 Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) FIO Processor Kit	512057-L21
	HP DL320 G6 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) FIO Processor Kit	600737-L21
	NOTE: Xeon E5500 DP family supports both Registered DIMMs and Unbuffered DIMMs. Xeon W3500 UP family supports only Unbuffered DIMMs.	
HP Drive Cage Options	HP 8SFF HDD Cage & Bkpln G6 FIO NOTE: This cage requires the P410 SAS array controller as a Primary Controller (See Step 3 below if P/N 515938-B21 is selected).	515938-B21
	HP 4LFF HDD Hot Plug Bkpln G6 Kit FIO NOTE: SATA Hot Plug requires Hot Plug Advance Pack for B110i. NOTE: SAS requires optional PCI Controller.	512181-B21
HP Power Supplies	HP DL320 G6 400W Power Supply Factory Integrated Kit	515739-B21
	DL320G6 460W PL PSU Enablement FIO Kit	515740-B21
	HP DL320 G6 500W Non-hot Plug Power Supply Factory Integrated Kit	537150-B21
	HP 400 Watts 1U G6 Redundant Power Supply Option Kit	532092-B21
	HP 460W HE Hot Plug AC Power Supply Kit	503296-B21
HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21

	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21
	NOTE: Depending on the memory configuration and processor model the memory speed may run at 1066MHz or 800MHz. See the Online Memory Configuration Tool for details: http://www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient. NOTE: PC3L is a low voltage memory	

Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

HP Storage Controllers	NOTE: For additional Storage Controllers and Options see Additional Options in Step 4 below. Only FIO options are displayed in Step 3.	
	HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller	491191-B21
	HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller NOTE: May be selected if P/N 515938-B21 selected in Step 2 above.	462860-B21
	HP Smart Array P410/256 2-ports Int PCIe x8 FIO SAS Controller NOTE: May be selected if P/N 515938-B21 selected in Step 2 above.	491195-B21
	HP Smart Array P411/256 2-ports Ext PCIe x8 FIO SAS Controller	491193-B21
	NOTE: Any factory integrated Smart Array Controller purchase automatically includes the HP MS HP CA MiniSAS to MiniSAS 33" Cable Kit (P/N 496014-B21).	
HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	582765-B21
	HP Insight Control for Linux including 1yr 24x7 Support ML/DL Bundle 1 Server FIO License	TC203A

Step 4: Choose Additional Options for Factory Integration

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

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP S-Buy 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-S21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP S-Buy 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-S21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP S-Buy 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-S21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP S-Buy 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-S21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP S-Buy 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-S21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP S-Buy 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-S21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP S-Buy 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-S21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21

	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit NOTE: Depending on the memory configuration and processor model the memory speed may run at 1066MHz or 800MHz. See the Online Memory Configuration Tool for details: http://www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient. NOTE: PC3L is a low voltage memory	619488-B21
HP Optical Drives	HP 9.5mm SATA DVD-ROM Optical Drive	481045-B21
	HP 9.5mm SATA DVD RW Optical Drive	481047-B21
HP Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components. NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
	HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
	HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
	HP S-Buy 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-S21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
	HP S-Buy 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-S21
	HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
	HP S-Buy 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-S21
	HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
	SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
	HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21
	SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives	

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21
SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21
NOTE: SAS Hard Drives are only supported with optional SAS HBA or RAID cards. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html	
SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives	
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP S-Buy 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-S21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21
SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
HP S-Buy 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-S21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	460355-B21
HP 120GB 1.5G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	458924-B21
SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21
NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html	
SATA Hot Plug Midline (MDL) Solid State Drives	
HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572071-B21
HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572073-B21
SATA Hot Plug 3.5" Midline (MDL) Solid State Drives	
HP 60GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570761-B21
HP 120GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570763-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13415_na/13415_na.html	

Core Options

HP Networking	Gigabit Ethernet Adapters	
	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet Adapters NOTE: No more than two 10GbE I/O devices are supported in a single ProLiant server. NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter. NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.	
HP I/O Expansion Options	HP 1U PCI-X Riser Option Kit	516230-B21
	HP DL320G6 iLO2 PORT OPT KIT	514206-B21

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Insight Software	**HP Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	HP Smart Buy Insight Control suite, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates	T9074ASE
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Electronic License	TC278AAE
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-B22
	HP S-Buy Insight Control, Single-Server License including 1 year of 24x7 Technical Support and Updates	452148-S22
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Tracking License	TC275A
	HP Insight Software Media Kit NOTE: Insight Software DVD media without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Insight Dynamics, HP Insight Control for Microsoft System Center, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates. NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html	436222-B21
	HP Insight Control for Linux	
	HP Insight Control for Linux including 1yr 24x7 Support Electronic License	TC213AAE
	HP Smart Buy Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	TC213ASE
	HP Insight Control for Linux including 1yr 24x7 Support Single Server License	TC209A
	HP Insight Control for Linux Media Kit NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately. NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button). NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys. NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at:	TC208A

	http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html	
	HP Integrated Lights-Out (iLO) Advanced	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html	
	HP Insight Control server deployment	
	HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License	T9082AAE
	HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License	452151-B21
	NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional license kits please see the Insight Control QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12631_na/12631_na.html	
HP Security - TPM	HP Trusted Platform Module Option Kit	488069-B21
	NOTE: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM. NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	
HP Storage Controllers	SAS Controllers NOTE: When using the following Smart Array Controllers the HP MS HP CA MiniSAS to MiniSAS 33" Cable Kit (P/N 496014-B21) is required.	
	Smart Array P212 Controller	

HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462834-B21
Smart Array P410 Controller	
HP Smart Array P410/256 2-ports Int PCIe x8 SAS Controller	462862-B21
HP Smart Array P410/512 BBWC 2-ports Int PCIe x8 SAS Controller	462864-B21
HP Smart Array P410/512 FBWC 2-ports Int PCIe x8 SAS Controller	578230-B21
HP Smart Array P410/1G FBWC 2-ports Int PCIe x8 SAS Controller	572532-B21
Smart Array P411 Controller	
HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller	462830-B21
HP Smart Array P411/512 BBWC 2-ports Ext PCIe x8 SAS Controller	462832-B21
HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller	578229-B21
HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller	572531-B21
Smart Array P812 Controller	
HP Smart Array P812/1G FBWC 2-ports Int/4-ports Ext PCIe x8 SAS Controller	487204-B21
Optional Upgrades	
HP 256MB P-series Cache Upgrade NOTE: Supported on HP Smart Array P212 Controller only.	462968-B21
HP 512MB P-Series Battery Backed Write Cache Upgrade NOTE: Supported on HP Smart Array P410 Controller and HP Smart Array P411 Controller only.	462967-B21
HP 650 mAh P-Series Battery NOTE: To enable BBWC on the 256MB cache. NOTE: Supported on HP Smart Array P212 Controller, HP Smart Array P410 Controller, and HP Smart Array P411 Controller only.	462969-B21
HP 512MB Flash Backed Write Cache	534916-B21
HP 1GB Flash Backed Cache	534562-B21
HP Smart Array Hot Plug Advance Pack for B110i w/1y 24x7 Supp Physical 1 Svr LTU	TC421A
NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13203_na/13203_na.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_na/13201_na.html (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_na/13202_na.html (Smart Array P411 Controller)	
SAS HBA	
HP Modular Smart Array SC08e 2-ports Ext PCIe x8 SAS Host Bus Adapter NOTE: This is a 2 x4 External Port HBA NOTE: This is only approved for the HP StorageWorks P2000 G3 SAS Modular Smart Array.	614988-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13651_na/13651_na.html (SC08e 6Gb HBA)	
SCSI HBA	

Additional Options

	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
	NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html (SC11Xe HBA)	
Backup & Recovery Software	**HP Data Protector Express**	
	HP Basic Upgrade to Data Protector Express V5 for 1 Server E-LTU	TC333AAE
	HP Data Protector Express V5.0 for 10 Servers E-LTU	TC332AAE
	HP Data Protector Express V5.0 for 1 Server E-LTU	TC330AAE
	HP Data Protector Express V5.0 for 3 Servers E-LTU	TC331AAE
	NOTE: One of these Data Protector Express base products is required. To see available options: http://www.hp.com/go/dataprotectorexpress	
Tape Backup	NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP StorageWorks tape backup products see: http://www.hp.com/go/connect.	
	HP StorageWorks DAT 320 USB in 1U Rack-mount Kit	AP835B
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP SC44Ge SAS Host Bus Adapter (416096-B21) recommended.	AK377A
	HP StorageWorks LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit NOTE: Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	EH946B
	HP StorageWorks LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rackmount NOTE: Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	EJ014A
	HP StorageWorks 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL536A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
	HP StorageWorks MSL2024 1 LTO-5 Ultrium 3000 SAS Tape Library NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL537A
	HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
	HP StorageWorks MSL4048 2 LTO-5 Ultrium 3000 SAS Tape Library NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL538A

Additional Options

Disk Backup

NOTE: For the complete range of StorageWorks D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of StorageWorks RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP StorageWorks disk backup products see: http://www.hp.com/go/connect.

HP StorageWorks D2D Backup Systems with Backup Data Deduplication

HP StorageWorks D2D2502i Backup System NOTE: 1.5TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ001B
HP StorageWorks D2D2504i Backup System NOTE: 3.0TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ002B
HP StorageWorks D2D4112 Backup System NOTE: 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric. See http://www.hp.com/go/connect for supported Fibre Channel Host Bus Adapters.	EH993B

HP StorageWorks RDX Removable Disk Backup Systems USB

HP StorageWorks RDX320 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 320GB of disk capacity per data cartridge.	AJ767A
HP StorageWorks RDX500 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	AJ934A

HP StorageWorks Options

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

Brocade Fibre Channel HBAs

HP StorageWorks 81B PCIe 8Gb Fibre Channel Single Port Host Bus Adapter	AP769A
HP StorageWorks 82B PCIe 8Gb Fibre Channel Dual Port Host Bus Adapter	AP770A
HP StorageWorks 41B PCIe 4Gb Fibre Channel Single Port Host Bus Adapter	AP767A
HP StorageWorks 42B PCIe 4Gb Fibre Channel Dual Port Host Bus Adapter	AP768A

Emulex Fibre Channel HBAs

HP StorageWorks 81E 8Gb Single Port PCI-e Fibre Channel Host Bus Adapter	AJ762A
HP StorageWorks 82E 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter	AJ763A
HP StorageWorks FC2142SR 4Gb PCIe Host Bus Adapter	A8002A
HP StorageWorks FC2242SR 4Gb PCIe DC Host Bus Adapter	A8003A

QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e Fibre Channel Host Bus Adapter	AK344A
HP StorageWorks 82Q 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter	AJ764A
HP StorageWorks FC1142SR 4Gb PCIe Host Bus Adapter	AE311A

Additional Options

	HP StorageWorks FC1242SR 4Gb PCIe DC Host Bus Adapter	AE312A
	StorageWorks Converged Network Adapter	
	HP StorageWorks CN1000E Dual Port Converged Network Adapter	AW520A
	HP CN1000Q Dual Port Converged Network Adapter	BS668A
HP Disk Storage Systems	Disk Enclosures	
	HP StorageWorks D2600 Disk Enclosure	AJ940A
	HP StorageWorks D2700 Disk Enclosure	AJ941A
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html	
HP Uninterruptible Power Systems	HP Rack-mountable UPS	
	HP Rack-Mountable R5500 UPS	
	HP R5500 5000kVA 3U Rackmount Uninterruptible Power System	AF426A
	HP R/T3000 Uninterruptible Power System (UPS)	
	HP R/T3000 3300VA High Voltage 2U Rackmount Uninterruptible Power System	AF453A
	HP Smart Buy R/T3000 UPS, High voltage	AF453S
	HP Smart Buy R/T3000 UPS, Low voltage	AF452S
	NOTE: Additional HP Uninterruptible Power Systems (UPS) are available for this equipment. For information on all HP UPSs and accessories please go to www.hp.com/products/ups	
	NOTE: For additional information on sizing your HP UPS, please reference: http://www.upssizer.com	
	NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.	

Additional Options

HP Power Distribution Units	**HP Monitored Power Distribution Unit: Half Rack Version**	
	HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A	AF914A
	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A	AF504A
	HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A	AF506A
	NOTE: Please see the following QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html	
	Modular Power Distribution Units 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC)	252663-D72
	8.3kVA Model - mPDU, 40A, High (power cord attached)	252663-D73
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC)	252663-B24
	NOTE: This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.	
	NOTE: Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.html NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu.	
	NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.	
HP Rack Series	**HP Rack 10000 G2 Series** (Carbon/Graphite Metallic)	
	HP 10642 G2 Pallet Universal Rack	AF001A
	HP 10642 G2 Shock Universal Rack	AF002A
	HP 10642 G2 1200mm deep Shock Rack	AF092A
	HP 10647 G2 1200mm deep Shock Rack	AF094A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
	NOTE: The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 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 830 square inches (5,350 sq cm) 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 2.75 inches (7 cm).
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: www.hp.com/servers/proliantdl320-g6.

NOTE: Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

NOTE: For the Ultra Thin Rack Deployment Overview, including best practices for the HP ProLiant DL320 G6, please see the following URL: www.hp.com/servers/proliantdl320-g6.

HP Rack Options	**HP Server Console Switches**	
	HP Server console switch 0x2x8	AF616A
	HP Server console switch 0x2x16	AF617A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11834_na/11834_na.html	
	HP Server Console Switch G2 with Virtual Media & CAC	
	0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
	0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13475_na/13475_na.html	
	HP IP Console Switch G2 with Virtual Media & CAC	
	1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A
	2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A
	4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13474_na/13474_na.html	

Additional Options

HP USB and SD Options	HP 4GB SD Flash Media Kit NOTE: Blank USB and SD media device is supported for use with VMware and Citrix. USB/SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization.	580387-B21
	HP 2GB USB Flash Media Drive Key NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.	608447-B21
	HP Internal USB Cable G6 Kit	536769-B21
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 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
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/hps/	
Smart Buy Care Pack Services	S-Buy 4-Hour Onsite Response, 13-Hour x 5-Day Coverage, 3 years	UE889E
	S-Buy 4-Hour Onsite Response, 24-Hour x 7-Day Coverage, 3 years	UE890E
	S-Buy 6-Hour Call to Repair, 24-Hour x 7-Day Coverage, 3 years	UM359E
	NOTE: Smart Buy Care Packs can only be attached to Smart Buy SKUs	

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

DDR3 memory population guidelines

NOTE: Charts do not represent all possible memory configurations.

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For servers with nine (9) memory slots;
- There are three (3) channels per processor, per server.
- There are three (3) DIMM slots for each memory channel; nine (9) total slots.
- Memory channel 1 consists of the three (3) DIMMs that are closest to the processor.
- Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor.
- DIMM slots that are white should be populated first.
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs).
- To maximize performance, balance the total memory capacity between all installed processors.
- It is not required, but it is recommended to load the channels similarly if possible.
- You can only have up to eight (8) ranks installed per channel.
- You can only install two quad-rank DIMMs per channel.
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty.
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel.
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset.
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically.
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system.
- No mixing DIMM voltage; all DIMMs must be the same voltage.

DDR3 DIMM slot/capacity/populated speed table

DIMM Type ->	Registered (RDIMMs)								Unbuffered with ECC (UDIMMs)	
DIMM Rank ->	Single Rank (1R)	Dual Rank (2R)					Quad Rank (4R)		Single Rank	Dual Rank (2R)
DIMM Capacity ->	4GB	2GB	4GB	8GB	8GB	16GB	4GB	16 GB	1GB	2GB
DIMM Native Speed (MHz) ->	1333	1333	1333	1066	1333	1333	1066	1066	1333	1333
SLOTS THAT CAN BE POPULATED										
9 slot servers	9	9	9	9	9	9	6	6	6	6
MAXIMUM CAPACITY (GB)										
9 slot servers	36	18	36	72	72	144	24	96	6	12
POPULATED DIMM SPEED (MHz)										
1 DIMM Per Channel	1333	1333	1333	1066	1333	1333	1066	1066	1333	1333
2 DIMM Per Channel	1333	1333	1333	1066	1333	1066/ 1333**	800	800	1066	1066
3 DIMM Per Channel	800	800	800	800	800	800***	n/a*	n/a*	n/a*	n/a*

* - not supported by HP at this time.
**2DPC: LV runs at 1066, Std voltage runs at 1333
***3DPC: LV/Std voltage runs at 800

NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 1066MHz
- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities.
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor.
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, the maximum speed will be 1066MHz.
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, at the maximum speed will be 1066MHz.
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz.
- Maximum memory speed will also depend on the processor installed
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

9 DIMM SLOTS		
	CPU1	
	slot #	population order
Chnl 1	1	G
	2	D
	3	A
Chnl 2	4	H
	5	E
	6	B
Chnl 3	7	I
	8	F
	9	C

Standard memory configuration

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs

Memory

	CPU1	
	slot #	population order
Chnl 1	1	G; empty
	2	D; empty
	3	A; 2GB DIMM
Chnl 2	4	H; empty
	5	E; empty
	6	B; 2GB DIMM
Chnl 3	7	I; empty
	8	F; empty
	9	C; 2GB DIMM

Standard memory plus optional memory

- 54GB, consisting of three (3) 2GB RDIMMs plus six (6) 8GB RDIMMs
- 3x 2GB dual-rank PC3-10600 RDIMMs
- 6x 8GB dual-rank PC3-10600 RDIMMs

	CPU1	
	slot #	population order
Chnl 1	1	G; 8GB DIMM
	2	D; 8GB DIMM
	3	A; 2GB DIMM
Chnl 2	4	H; 8GB DIMM
	5	E; 8GB DIMM
	6	B; 2GB DIMM
Chnl 3	7	I; 8GB DIMM
	8	F; 8GB DIMM
	9	C; 2GB DIMM

Standard memory replaced with optional memory
RDIMM maximum configuration

- 16GB, consisting of six (6) 8GB dual-rank PC3-10600 RDIMMs

Memory

	CPU1	
	slot #	population order
Chnl 1	1	G; empty
	2	D; 16GB DIMM
	3	A; 16GB DIMM
Chnl 2	4	H; empty
	5	E; 16GB DIMM
	6	B; 16GB DIMM
Chnl 3	7	I; empty
	8	F; 16GB DIMM
	9	C; 16GB DIMM

UDIMM maximum configuration (2 UDIMMs per Channel limit)

- 24GB, consisting of six (6) 4GB dual-rank PC3-10600 UDIMMs

	CPU1	
	slot #	
Chnl 1	1	G; empty
	2	D; 2GB DIMM
	3	A; 2GB DIMM
Chnl 2	4	H; empty
	5	E; 2GB DIMM
	6	B; 2GB DIMM
Chnl 3	7	I; empty
	8	F; 2GB DIMM
	9	C; 2GB DIMM

NOTES;
Memory configurations above do not apply to "Factory Integrated Models".
Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB

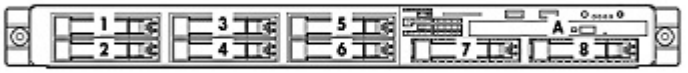
For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:
www.hp.com/go/ddr3memory-configurator

Following are memory options available from HP:

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21
	NOTE: Depending on the memory configuration and processor model the memory speed may run at 1066MHz or 800MHz. See the Online Memory Configuration Tool for details: http://www.hp.com/go/ddr3memory-configurator.	
	NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.	
	NOTE: PC3L is a low voltage memory	

1-4 Four SATA or SAS drive bays

A Optical Drive Bay: Optional 9.5mm DVD-ROM, or DVD-RW drive

1-8 Eight Hot-plug SATA/SAS hard drive bays

A Optional 9.5mm DVD-ROM, or DVD-RW drive

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
HP 9.5mm SATA DVD-ROM Optical Drive	Up to 1	A	HP embedded SATA Controller
HP 9.5mm SATA DVD RW Optical Drive	Up to 1	A	HP embedded SATA Controller

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 10K DP 450GB 6G SAS 10K DP 300GB 6G SAS 10K DP 146GB 6G SAS 15K DP 146GB 6G SAS 10K DP 72GB 6G SAS 15K DP	Up to 8	1-8	HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

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

Storage

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K DP 450GB 6G SAS 15K DP 300GB 6G SAS 15K DP	Up to 4	1-4	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 7.2K SFF DP	Up to 8	1-8	HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 6G SAS 7.2K DP 1TB 6G SAS 7.2K DP 1TB 3G SAS 7.2K DP 750GB 3G SAS 7.2K DP	Up to 4	1-4	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 500GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller with RAID 0/1/1+0 support HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K 120GB 1.5G SATA 5.4K	Up to 8	1-8	HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

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

Storage

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array B110i SATA RAID Controller with RAID 0/1/1+0 support HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SATA Hot Plug Midline (MDL) Solid State Drives

NOTE: SSD drives requires SFF drive cage.

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	8	1-8	HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	4	1-4	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB with BBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P212/256 MB Controller
	Up to 8		HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/256 MB Controller
	Up to 4		HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

Maximum Storage Capacity – (SAS drives)

Internal	16TB (8 x 2TB SAS)
External	48TB (1 x (16x8 x 2TB SAS))
Total	64TB

NOTE: In order to implement integrated SATA RAID with Smart Start 8.20 on Windows 2003, the use of a floppy drive is necessary.

Storage

Maximum Storage Capacity – (SATA Drives)

Internal	16TB (8 x 2TB SATA)
External	24TB (16x8 x 2TB SATA))
Total	64TB

Tape and Disk Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: http://www.hp.com/go/tape. For the complete range of StorageWorks D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of StorageWorks RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: http://www.hp.com/go/connect.

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 LTO-5 Ultrium 3000 LTO-5 Ultrium 3280 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21

Storage

HP StorageWorks SCSI Tape Autoloaders DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks SCSI Tape Libraries, External MSL2024 MSL4048 MSL8096 MSL6000	External	HP StorageWorks U320e SCSI Dual Channel Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	AH627A
HP StorageWorks SAS Tape Autoloaders and Libraries 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP StorageWorks Fibre Channel Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for connectivity information and the supported Fibre Channel HBAs shown in this QuickSpecs.	N/A
HP StorageWorks USB RDX Removable Disk Backup System RDX160 RDX320 RDX500 RDX750 RDX1TB	External	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems, iSCSI D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	N/A
HP StorageWorks D2D Backup Systems, Fibre Channel D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: http://www.hp.com/go/connect	N/A

Power Specifications

HP DL320 G6 500W Non-hot Plug Power Supply Factory Integrated Kit	537150-B21					
Input Voltage Range (Vrms)	100 to 240					
Frequency Range (Nominal) (Hz)	47/63					
Nominal Input Voltage (Vrms)	100	120	200	220	230	240
Maximum Rated Output Wattage	500	500	500	500	500	500
Nominal Input Current (A rms)	5.74	4.99	2.86	2.58	2.46	2.36
Max Rated Input Wattage Rating (Watts)	568	568	562	556	556	556
Max. Rated VA (Volt-Amp)	574	574	573	567	567	567
Efficiency (%) at Max. Rated Output Wattage	88	88	89	90	90	90
Power Factor	0.99	0.99	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.42	0.50	0.81	0.91	0.95	1.00
Max. Inrush Current (A peak)	30					
Max. Inrush Current duration (mS)	20					
Maximum British Thermal Unit Rating (BTU-Hr)						

DL320G6 460W PL PSU Enablement FIO Kit	515740-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Max Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Max. Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30						
Max. Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

Power Specifications

HP 460W HE 12V Hot Plug AC Power Supply Kit							
Part Number	503296-B21						
Input Voltage Range (V rms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage Rating	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Maximum Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Maximum Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%)	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

HP DL320 G6 400W Power Supply Factory Integrated Kit	515739-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	400	400	400	400	400	400	400
Nominal Input Current (A rms)	5.5	5.0	2.5	2.4	2.3	2.2	2.1
Max Rated Input Wattage Rating (Watts)	510	500	480	480	480	480	480
Max. Rated VA (Volt-Amp)	520	520	500	500	500	500	500
Efficiency (%) at Max. Rated Output Wattage	83.0	84.0	86.0	86.0	87.0	87.0	87.0
Power Factor	0.97						
Leakage Current (mA)	0.75	0.75	0.85	0.90	0.95	0.95	1.00
Max. Inrush Current (A peak)	35						
Max. Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	1739	1705	1636	1636	1636	1636	1636

Power Specifications

HP 400 Watts 1U G6 Redundant Power Supply Option Kit	532092-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	320	320	360	360	360	360	360
Nominal Input Current (A rms)	4.15	3.41	2.23	2.16	2.03	1.94	1.86
Max Rated Input Wattage Rating (Watts)	412	406	445	445	444	443	443
Max. Rated VA (Volt-Amp)	413	407	447	447	446	446	445
Efficiency (%) at Max. Rated Output Wattage	77.4	78.5	80.5	80.6	80.7	80.8	81
Power Factor	0.99						
Leakage Current (mA)	0.75	0.75	0.85	0.90	0.95	0.95	1.00
Max. Inrush Current (A peak)	35						
Max. Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	1354	1334	1462	1462	1459	1456	1456

NOTE: To review typical system power ratings use the Active Answers Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor.

System Unit	**Dimensions** (H x W x D) (with bezel)	1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.19 cm)	
	Weight (approximate)	Maximum (four hard drives, power supply, and processor installed)	29.95 lb (13.6kg)
		Minimum (one hard drive, power supply, and processor installed)	25.52lb (11.6kg)
	Input Requirements (per power supply)	Range Line Voltage	90 - 132 VAC, 180 - 264 VAC
		Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	486 W (at 100 VAC), 479 W (at 200 VAC)
	BTU Rating	Maximum	1836 BTU/hr (at 100 VAC), 1706 BTU/hr (at 200 VAC)
	Power Specifications	NOTE: To review typical system power ratings use the HP Power Advisor which is available online located at url: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL320 G6 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	400 W (at 100 VAC), 400 W (at 200 VAC)
		Maximum Peak Power	400 W (at 100 VAC), 400 W (at 200 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		LWAd	6.25 B
		LpAm	51.4dBA
		Operating	
		LWAd	6.25 B
		LpAm	51.4 dBA
	Emissions Classification (EMC)	**FCC Rating**	Class A
		Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
		NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	
Power Supply	**Input voltage specifications**	Rated input voltage	100 VAC to 240 VAC
	Input Specifications	Rated input line	90 VAC to 264VAC
		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	420W (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%
	Dielectric voltage withstand	Input to output	1800 VAC/minute
		Input to ground	1800 VAC/minute

	Maximum Wet Bulb Temperature	106.3° F (41.3° C)
Integrated Serial ATA Controller	Simultaneous drive transfer channels	4 channels
	Transfer rate synchronous (maximum theoretical)	150 MB/s per channel
	Data transfer method	HP Smart Array B110i SATA RAID Controller (non-RAID mode) HP Smart Array B110i SATA RAID 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)
	RAID levels supported	0, 1, 1+0
	RAID Features	Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support NOTE: This controller does not support Hot Plug functions or LED functions.
	RAID OS Support	Microsoft Windows Server 2003/2008 NOTE: In order to implement integrated SATA RAID with Smart Start 8.20 on Windows 2003/2008, the use of a floppy drive is necessary. Linux (Red Hat, SuSE, UnitedLinux)
Embedded NC326i Dual Port Gigabit Server Adapter	Network Interface	10Base-T/ 100Base-TX/ 1000Base-TX
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX
	Data Transfer Method	Four lane (x4), 100MHz PCI Express Reference Clock
	Controller	BCM5715
	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; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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