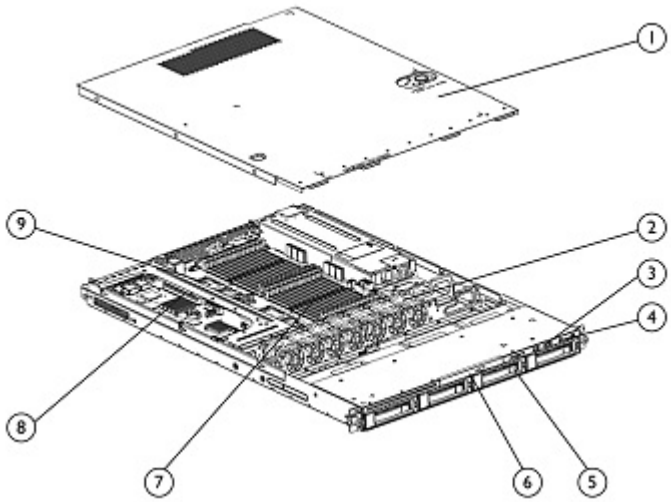
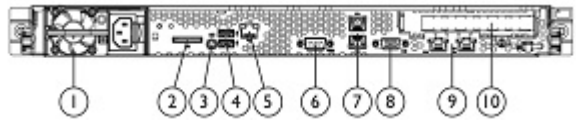
Overview

Introducing the HP ProLiant DL165G7, now available with the latest high performance Opteron Eight, Twelve and Sixteen core processors, 24 DDR3 memory DIMMs, 2 PCIe Gen2 slots, four NIC ports and an Easy Setup CD.

Hot Plug SAS/SATA or Non-Hot Plug SATA Models





Front View:

1. Access panel
2. System fans
3. Front-panel USB 2.0 ports
4. Power switch/system status LEDs
5. Standard 1st , 2nd , 3rd and 4th 3.5" hot-plug SAS/SATA or non-hot plug SATA hard drive bays
6. Optical drive bay
7. Twenty Four DIMM Slots
8. Slot 1:Full-length/Full height x16 PCI-Express Gen2 slot, or Slot 1: Half-length/Full height x16 PCI-Express Gen2 slot and Slot 2: Low Profile x4 PCI-Express Gen2 slot (accepts x8 cards, internal only)
9. Two (2) AMD Opteron 6100 or 6200 series processors

Rear View:

1. Power supply
2. Optional SD Card Reader
3. Unit Identification LED (UID)
4. Two USB ports
5. Optional Lights-Out 100 10/100Mbps port
6. Serial port
7. (2) RJ45 GbE LAN ports (3rd & 4th port)
8. VGA port
9. (2) RJ45 GbE LAN ports (1st & 2nd port)
10. Slot 1:Full-length/Full height x16 PCI-Express Gen2 slot, or Slot 1: Half-length/Full height x16 PCI-Express Gen2 slot and Slot 2: Low Profile x4 PCI-Express Gen2 slot (accepts x8 cards, internal only)

What's New

- Support for 6200 series processors
- Support for PC3-12800R (DDR3-1600) Registered CAS-11 Memory DIMMs

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	**Sixteen-Core Processors** AMD Opteron™ 6276 (2.30GHz/16-core/16MB/115W) Processor AMD Opteron™ 6274 (2.20GHz/16-core/16MB/115W) Processor AMD Opteron™ 6272 (2.10GHz/16-core/16MB/115W) Processor AMD Opteron™ 6262HE (1.60GHz/16-core/16MB/85W) Processor **Twelve-Core Processors** AMD Opteron™ 6238 (2.60GHz/12-core/16MB/115W) Processor AMD Opteron™ 6234 (2.40GHz/12-core/16MB/115W) Processor AMD Opteron™ 6176 (2.3GHz/12-core/12MB/115W) Processor AMD Opteron™ 6174 (2.2GHz/12-core/12MB/115W) Processor **NOTE:** Available through Configure To Order only. See Factory Integration Models section for more details. AMD Opteron™ 6172 (2.1GHz/12-core/12MB/115W) Processor AMD Opteron™ 6164HE (1.7GHz/12-core/12MB/85W) Processor **Eight-Core Processors** AMD Opteron™ 6220 (3.0GHz/8-core/16MB/115W) Processor AMD Opteron™ 6212 (2.60GHz/8-core/16MB/115W) Processor AMD Opteron™ 6140 (2.6GHz/8-core/12MB/115W) Processor AMD Opteron™ 6136 (2.4GHz/8-core/12MB/115W) Processor AMD Opteron™ 6134 (2.3GHz/8-core/12MB/115W) Processor **NOTE:** Available through Configure To Order only. See Factory Integration Models section for more details. AMD Opteron™ 6132HE (2.2GHz/8-core/12MB/85W) Processor AMD Opteron™ 6128 (2.0GHz/8-core/12MB/115W) Processor AMD Opteron™ 6128HE (2.0GHz/8-core/12MB/85W) Processor **Four-Core Processors** AMD Opteron™ 6204 (3.3GHz/4-core/16MB/115W) Processor **NOTE:** Up to two AMD Opteron™ 6000 series Eight, Twelve and Sixteen Core processors supported. **NOTE:** Processor wattage references reflect Thermal Design Power (TDP). For more information on TDP and Average CPU Power (ACP) visit: http://www.amd.com/acp **NOTE:** Up to 3.0GHz clock speed. **NOTE:** Supports DirectConnect Architecture. **NOTE:** Supports Power Now.
Cache Memory	16MB shared L3 (Model Series 6000)
Chipset	AMD Chipset SR5670/SP5100

Standard Features

Upgradeability	Upgradeable to two processors		
Memory Protection	Advanced ECC		
Memory One of the following depending on Model	Type	PC3-10600R DDR3 Registered (RDIMM) or Unbuffered (UDIMM)	
	DIMM Slots Available	24 DIMM slots	
	Standard	Entry Model	4 GB (2 x 2 GB) RDIMMs
		Base Model	8 GB (4 x 2 GB) RDIMMs
		Performance Model	16 GB (8 x 2 GB) RDIMMs
	Maximum (RDIMM)	384 GB	(24 x 16 GB)
	Maximum (UDIMM)	64 GB	(16 x 4 GB)
Network Controller	(2) HP NC362i Integrated Dual Port Gigabit Server Adapter		

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. DDR3-1600MHz memory speed is only supported by 6200 series Opteron™ Processors.

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Device No.**	Form Factor	Notes
1	PCI-Express 2.0	x16	x16	5	0	Full Height/Full Length	3.3 volts
2***	PCI-Express 2.0	x4	x8	2	0	Half Height/Low Profile, Internal Only	3.3 volts

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
***In order to access expansion slot #2, the low profile internal only slot, expansion slot #1 may only be populated with a half length, full height form factor card.

Standard Features

Storage Controller	Non-Hot Plug SATA	HP Smart Array B110i SATA RAID Controller **NOTE:** To enable RAID for embedded SATA controller, use EZ set-up CD to download driver, hpahcisr.sys, is part of the 8.20 PSP, Smart Start, EZSetup CD. For more information on Smart Array B110i, go to: www.hp.com/go/sataraid
	Cold Plug SATA Models	HP Smart Array B110i SATA RAID Controller **NOTE:** Supported on LFF models only.
	Hot Plug SATA/SAS	HP Smart Array P410 Controller (RAID 0/1/1+0) HP Smart Array P410 Controller 256 BBWC (RAID/0/1/1+0/5/5+0) **NOTE:** Transfer rate: up to 3 Gb/s SATA, up to 6 Gb/s SAS.
		HP Smart Array B110i SATA RAID Controller **NOTE:** Hot plug functionality requires the addition of a Smart Array Advanced Pack License Key upgrade (P/N TC421A) **NOTE:** To enable RAID for embedded SATA controller, use EZ set-up CD to download driver, hpahcisr.sys, is part of the 8.20 PSP, Smart Start, EZSetup CD. For more information on Smart Array, go to: www.hp.com/go/sataraid
	NOTE: A diskette drive or virtual FDD using LO100 Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD. **NOTE:** Addition of the battery backed cache upgrade enables BBWC, RAID 5, 5+0, array expansion, logical drive extension, RAID migration, and stripe size migration. **NOTE:** RAID 6 functionality requires the addition of Smart Array Advanced Pack (P/N: 516471-B21). **NOTE:** HP Smart Array B110i does not support greater than 2TB hard drive.	

Internal Storage Devices Drives	Diskette Drives	Via USB only
	Optical Drives	Optional SATA 9.5mm DVD-ROM Optical Drive
		Optional SATA 9.5mm DVD RW Optical Drive
	Hard Drives	Up to 4 Non-hot plug SATA 3.5" drives
		Up to 4 Hot plug SAS/SATA 3.5" drives
		Up to 8 Hot plug SAS 2.5" drives

Maximum Internal Storage	Non-Hot Plug LFF SATA	12.0TB	4 x 3TB
	Hot Plug LFF SATA	12.0TB	4 x 3TB
	Hot Plug SFF SATA	8.0TB	8x1TB
	Hot Plug SFF SATA SSD	3.2TB	8 x 400GB
	Hot Plug LFF SATA SSD	1.6TB	4 x 400GB
	Hot Plug LFF SAS	12.0TB	4 x 3TB
	Hot Plug SFF SAS	8.0TB	8 x 1TB

Standard Features

Interfaces	Parallel	None
	Network RJ-45(Ethernet)	4 10/100/1000 NIC ports (plus 1 optional dedicated port for the HP ProLiant Lights Out 100i Remote Management)
	Serial	1
	Pointing Device (Mouse)	0 (via USB only)
	Graphics	1
	Keyboard	0 (via USB only)
	USB	6 (two front, two internal, two rear) **NOTE:** One optional internal USB connector is reserved for connection to the rear SD Card Reader (592710-B21) **NOTE:** In order to connect a USB device internally, the internal USB Cable G6 Kit must be used (536769-B21)
Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.2 Compliant PXE Support WOL Support Microsoft® Logo certifications IPMI 2.0, SMASH CLP, DCMI 1.0 compliant	
Server Power Cords	One 6' Highline (IEC-IEC) power cord ships standard **NOTE:** HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord must be ordered separately. If customers require a local 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.	
Power Supply	500 Watts, auto-switching, high efficiency, PFC (Power Factor Correcting). **NOTE:** Factory upgradeable to high-efficiency 750W pluggable power supply. 750W Common Slot high efficiency, hot-pluggable power supply, FIO (Optional)	
System Fans	4 non-hot plug system fans ship standard with 1P models, optional upgrade to N+1 redundant. 7 non-hot plug system fans ship standard with 2P models, N+1 Redundant Standard	

Standard Features

Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) VMware Citrix Essentials for XenServer (Retail) **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: http://www.hp.com/go/ossupport and our driver download page http://www.hp.com/support/DL165G7.
Graphics	32MB shared supporting all display resolutions up to 1600x1200 16bpp@75Hz **NOTE:** 8MB is dedicated to video memory.
Form Factor	Rack (1U), (1.75 in/4.45 cm) **NOTE:** Fixed mounting rails included with all models.

Embedded Manageability	**HP LO100 Advanced**	HP Lights-Out 100 with Optional LO100 Advanced Licenses for Virtual KVM and Virtual Media. Standard Features: • Embedded IPMI standard reporting • System event log access • Remote Serial console (serial redirection) • Browser, Telnet access • SMASH-CLP compliant • IPMI 2.0 compliant • Secure Socket Layer (SSL) Encryption • Secure Shell (SSH) Encryption Licensed Features: • Virtual media (Floppy, CD, USB 2.0) • Virtual KVM **NOTE:** Flexible and volume quantity (AKA) license kits are available for the Lights-Out 100 Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to each software products. QuickSpecs at this link for more information: www.hp.com/go/lo100

Standard Features

Security	Power-on password Setup password Diskette boot control Secure Sockets Layer (SSL) Secure Shell (SSH)
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 repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. 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 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Warranty terms may vary by region. 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 Control management software	Insight Control server deployment	HP Insight Control server deployment is a deployment solution for HP ProLiant and Integrity servers hosted on a Windows CMS. It automates the process of deploying and provisioning server software, enabling companies to quickly and easily adapt to changing business demands. Insight Control server deployment includes software optimizations for HP servers, including the HP scripting toolkits, configuration jobs for leading industry-standard operating systems, sample unattended files, and HP server support packs that include software drivers, management agents, and important documentation. Deploying servers can be accomplished either through imaging or through scripting. Insight Control server deployment is hosted on a Windows server and is intended for heterogeneous environments deploying Windows, Linux, VMware ESX and Microsoft Hyper-V systems. Insight Control server deployment 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.
High Performance Clusters	HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters
	HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
	HP Insight Cluster Management Utility	HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu
	HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported option to HP Insight CMU, for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform LSF workload scheduler and Platform Application Center, as well as the HP-MPI parallelization library. HP HPC Linux Value Pack

Optional Features

HP Proactive Insight experience	Prevent problems with innovative, automated monitoring tools and proactive services. The HP Proactive Insight experience consist of using Insight Online, Insight Remote Support, and Proactive Care Support Service as one integrated solution. The Proactive Insight experience provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: www.hp.com/go/proactiveinsightexperience
Factory Express Portfolio for Servers and Storage	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 Simple Configurator	HP Simple Configurator SCE is a guided self service tool to help sales and non technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator

Service and Support

Service and Support

HP Technology Services for Industry Standard Servers and BladeSystem
Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

What HP ProLiant and BladeSystem Services can do for you
HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs.

HP Technology Services meets business challenges with services offered in three packages:
Optimized Care Package, Standard Care Package, and Basic Care Package
Available for each product group. Such packaged solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support packages for servers, storage, networking and software.

Optimized Care Package

Supports maintaining servers at optimum performance availability

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

3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service
Provides an 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 hours of the initial service request to the HP Global Solution Center.
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) Installation and Start Up and Software Support) plus Microsoft or Linux education courses +30 Proactive Select Credits, Factory Express.

Service and Support

Standard Care Package

Package that maintains high level of server availability

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

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service
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.
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) Installation and Start Up and Software Support); +10 Proactive Select Credits, Factory Express.

Basic Care Package

Delivers minimum recommended support service level

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

3-Year HP 13x5 4 hour Response, Hardware Support Onsite Service
Delivers increased equipment availability and productivity with rapid remote support and onsite response for your HP server and storage hardware
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) Installation and Start Up and Software Support), Factory Express.

Insight Remote Support

The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.

For more information

To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant

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.
NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

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

Performance Model **HP ProLiant DL165 G7 6274 2P 16GB-R P410/256 Hot Plug 8 SFF 750W PS Server** 663809-xx1	**Processor(s)**	(2) AMD Opteron™ 6274 (2.2GHz/16-core/16MB/115W) Processors
	Cache Memory	16 MB shared L3 cache
	Memory	16GB (8 x 2GB) PC3-10600R (RDIMM)
	Network Controller	2x HP NC362i Integrated Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410/256MB BBWC
	Hard Drive	None ship standard
	Internal Storage	8.0TB (8 x 1TB Hot Plug 2.5" SATA Hard Drives), Maximum 8.0TB (8 x 1TB Hot Plug 2.5" SAS Hard Drives), Maximum
	Optical Drive	None ship standard
	Power Supply	750W Common Slot Gold Power Supply
	Form Factor	1U
	Warranty	Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Warranty terms may vary by region.

Base Model **HP ProLiant DL165 G7 6272 1P 8GB-R P410 Hot Plug SAS/SATA 4 LFF 500W PS Server** 663808-xx1	**Processor(s)**	(1) AMD Opteron™ 6272 (2.1GHz/16-core/16MB/115W) Processors
	Cache Memory	16 MB shared L3 cache
	Memory	8GB (4 x 2GB) PC3-10600R (RDIMM)
	Network Controller	2x HP NC362i Integrated Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410 SAS/SATA RAID
	Hard Drive	None ship standard
	Internal Storage	12.0TB (4 x 3TB Hot Plug 3.5" SATA Hard Drives), Maximum 12.0TB (4 x 3TB Hot Plug 3.5" SAS Hard Drives), Maximum
	Optical Drive	None ship standard
	Power Supply	500W Power Supply
	Form Factor	1U
	Warranty	Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Warranty terms may vary by region.

Entry Model [illegible]	**Processor(s)**	(1) AMD Opteron™ 6234 (2.4GHz/12-core/16MB/115W) Processors
	Cache Memory	16 MB shared L3 cache

Pre-configured Models

HP ProLiant DL165 G7 6234 1P 4GB-R Hot Plug SATA 4 LFF 500W PS Server 663807-xx1	**Memory**	4GB (2 x 2GB) PC3-10600R (RDIMM) **NOTE:** Total 24 DIMM slots.
	Network Controller	2x HP NC362i Integrated Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i
	Hard Drive	None ship standard
	Internal Storage	12.0TB (4 x 3TB Hot Plug 3.5" SATA Hard Drives), Maximum 12.0TB (4 x 3TB Hot Plug 3.5" SAS Hard Drives), Maximum
	Optical Drive	None ship standard
	Power Supply	500W Power Supply
	Form Factor	1U
	Warranty	Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Warranty terms may vary by region.

Country Code Key	xx=00	U.S.
	xx=29	Japan
	xx=37	APJ
	xx=42	Euro
	xx=AA	PRC

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: Factory Integrated Models must start with a CTO Server.
NOTE: FIO indicates that this option is only available as a Factory Installable Option.

Step 1: Base Configuration

Non-Hot Plug SATA Model (choose one of the following configurable models)

HP ProLiant DL165 G7 Non-hot Plug Configure-to-order Server 591660-B21

Factory Integrated Model ships with:

Two HP NC362i Integrated Dual Port Gigabit Server Adapters

Slot 1: FL /FH PCI-Express x16 Gen 2 slot or
Slot 1 : HL/FH x16 PCI-Express Gen2 slot and
Slot 2 : HL/LP x8 PCI-Express Gen2 slot (internal only)

HP Smart Array B110i SATA RAID Controller

One Highline IEC Power Cord

4 Fixed, Non-Redundant Fans (standard); 6 Fixed, N+1 Redundant Fans (standard with addition of second processor)

Rack (1U), (1.75 in / 4.45 cm)
Tool-less Fixed Rails

Hot Plug/Cold Plug Models

HP ProLiant DL165 G7 LFF Configure-to-order Server 592226-B21

Factory Integrated Model ships with:

Two HP NC362i Integrated Dual Port Gigabit Server Adapters

Slot 1: FL /FH PCI-Express x16 Gen 2 slot or
Slot 1 : HL/FH x16 PCI-Express Gen2 slot and
Slot 2 : HL/LP x8 PCI-Express Gen2 slot (internal only)

One Highline IEC Power Cord

4 Fixed, Non-Redundant Fans (standard); 6 Fixed, N+1 Redundant Fans (standard with addition of second processor)

Rack (1U), (1.75 in / 4.45 cm)
Tool-less Fixed Rails

HP ProLiant DL165 G7 SFF Configure-to-order Server 592227-B21

Factory Integrated Model ships with:

Two HP NC362i Integrated Dual Port Gigabit Server Adapters

Slot 1: FL /FH PCI-Express x16 Gen 2 slot or
Slot 1 : HL/FH x16 PCI-Express Gen2 slot and
Slot 2 : HL/LP x8 PCI-Express Gen2 slot (internal only)

One Highline IEC Power Cord

4 Fixed, Non-Redundant Fans (standard); 6 Fixed, N+1 Redundant Fans (standard with addition of second processor)

Rack (1U), (1.75 in / 4.45 cm)
Tool-less Fixed Rails

NOTE: SFF CTO Chassis (P/N: 592227-B21) requires the use of the HP 750W CS HE Power Supply (P/N: 535683-B21)

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

HP Processors	**NOTE:** If 2 processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.	
	Sixteen-Core Processors	
	HP DL165 G7 AMD Opteron™ 6276 (2.30GHz/16-core/16MB/115W) FIO Processor Kit	663371-L21
	HP DL165 G7 AMD Opteron™ 6274 (2.20GHz/16-core/16MB/115W) FIO Processor Kit	663373-L21
	HP DL165 G7 AMD Opteron™ 6272 (2.10GHz/16-core/16MB/115W) FIO Processor Kit	663375-L21
	HP DL165 G7 AMD Opteron™ 6262HE (1.60GHz/16-core/16MB/85W) FIO Processor Kit	663385-L21
	Twelve-Core Processors	
	HP DL165 G7 AMD Opteron™ 6238 (2.60GHz/12-core/16MB/115W) FIO Processor Kit	663377-L21
	HP DL165 G7 AMD Opteron™ 6234 (2.40GHz/12-core/16MB/115W) FIO Processor Kit	663379-L21
	Eight-Core Processors	
	HP DL165 G7 AMD Opteron™ 6220 (3.0GHz/8-core/16MB/115W) FIO Processor Kit	663381-L21
	HP DL165 G7 AMD Opteron™ 6212 (2.60GHz/8-core/16MB/115W) FIO Processor Kit	663383-L21
	Four-Core Processors	
	HP DL165 G7 AMD Opteron™ 6204 (3.30GHz/4-core/16MB/115W) FIO Processor Kit	672323-L21
HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593907-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	676331-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593911-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604500-B21
	HP 8GB (1x8GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	676333-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593913-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604502-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	593915-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627808-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	684066-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	593921-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	593923-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. DDR3-1600MHz memory speed is only supported by 6200 series Opteron™ Processors.
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://www.hp.com/go/proliant-energy-efficient
NOTE: There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)
NOTE: PC3L is a low voltage memory.

HP Hard Drives

NOTE: A minimum of one SATA Non-Hot Plug hard drive is required ONLY when purchasing Non-Hot Plug CTO Chassis Model (P/N 591660-B21) in Step 1.
NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, 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.
NOTE: HP Smart Array B110i does not support greater than 2TB hard drive.

Serial-ATA (SATA) Non-Hot Plug Hard Drives (Non-Hot Plug Models Only)

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

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21

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

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21

HP Storage Controllers

NOTE: A minimum of one primary HP Storage Controller is required ONLY when purchasing SFF CTO Chassis Model (P/N 592227-B21) in Step 1.
NOTE: With the HP Smart Array P410 Controller, the addition of the battery backed cache upgrade enables BBWC, RAID 5, 5+0, array expansion, logical drive extension, RAID migration, and stripe size migration. In order to upgrade to RAID 6, at least 256MB Cache and a Battery is required in addition to the Smart Array Advanced Pack license (P/N 516471-B21).
NOTE: To use the internal only PCI-e slot when purchasing the Hot Plug CTO Chassis, a HP Smart Array P410 controller must be selected. When selecting the HP Smart Array P212/256 BBWC 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller (P/N 491191-B21), the controller will be installed in the x16 slot since it has both an internal and external port. This prevents the use of the internal slot and no PCI-E slots will be available.

HP Smart Array P812/1G FBWC 2-ports Int/4-ports Ext PCIe x8 SAS Controller	487204-B21
HP Smart Array P410/1G FBWC 2-ports Int PCIe x8 SAS Controller	572532-B21
HP Smart Array P410/512 FBWC 2-ports Int PCIe x8 SAS Controller	578230-B21
HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller	462860-B21
HP Smart Array P410/256 2-ports Int PCIe x8 SAS Controller	462862-B21
HP Smart Array P411/256 BBWC 2-ports Ext PCIe x8 FIO SAS Controller	491193-B21
HP Smart Array P410/256 BBWC 2-ports Int PCIe x8 FIO SAS Controller	491195-B21

	HP Smart Array P410/512 BBWC 2-ports Int PCIe x8 SAS Controller	462864-B21

HP Power Supplies	**NOTE:** Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: http://www.hp.com/go/hppoweradvisor **NOTE:** HP ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For a full list of optional HP power cords please go to www.hp.com/products/powercords	
	HP 500W Factory Integrated Power Supply Kit	515915-B21
	HP 750W Common Slot Gold Hot Plug Factory Integrated Power Supply Kit with Backplane	535683-B21

Step 3: Choose Additional Factory Integratable Options

HP Storage Controllers	**NOTE:** With the HP Smart Array P410 Controller, the addition of the battery backed cache upgrade enables BBWC, RAID 5, 5+0, array expansion, logical drive extension, RAID migration, and stripe size migration. In order to upgrade to RAID 6, at least 256MB Cache and a Battery is required in addition to the Smart Array Advanced Pack license (P/N 516471-B21). **NOTE:** To use the internal only PCI-e slot when purchasing the Hot Plug CTO Chassis, a HP Smart Array P410 controller must be selected. When selecting the HP Smart Array P212/256 BBWC 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller (P/N 491191-B21), the controller will be installed in the x16 slot since it has both an internal and external port. This prevents the use of the internal slot and no PCI-E slots will be available.	
	HP Smart Array P212/256 BBWC 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller **NOTE:** P212 may be used as external controller only in SFF models.	491191-B21
	HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller	462860-B21
	HP Smart Array P410/256 BBWC 2-ports Int PCIe x8 FIO SAS Controller	491195-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional "Core Options" and "Additional Options", please refer to the "Options" sections below.

Core Options

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 Unique Options	HP Dedicated Management Port Kit	516006-B21
HP Processors	**Sixteen-Core Processors**	
	HP DL165 G7 AMD Opteron™ 6276 (2.30GHz/16-core/16MB/115W) Processor Kit	663371-B21
	HP DL165 G7 AMD Opteron™ 6274 (2.20GHz/16-core/16MB/115W) Processor Kit	663373-B21
	HP DL165 G7 AMD Opteron™ 6272 (2.10GHz/16-core/16MB/115W) Processor Kit	663375-B21
	HP DL165 G7 AMD Opteron™ 6262HE (1.60GHz/16-core/16MB/85W) Processor Kit	663385-B21
	Twelve-Core Processors	
	HP DL165 G7 AMD Opteron™ 6238 (2.60GHz/12-core/16MB/115W) Processor Kit	663377-B21
	HP DL165 G7 AMD Opteron™ 6234 (2.40GHz/12-core/16MB/115W) Processor Kit	663379-B21
	HP DL165 G7 AMD Opteron™ 6176 (2.3GHz/12-core/12MB/115W) Processor Kit	635812-B21
	HP DL165 G7 AMD Opteron™ 6174 (2.2GHz/12-core/12MB/115W) Processor Kit	601118-B21
	HP DL165 G7 AMD Opteron™ 6172 (2.1GHz/12-core/12MB/115W) Processor Kit	601113-B21
	HP DL165 G7 AMD Opteron™ 6164HE (1.7GHz/12-core/12MB/85W) Processor Kit	601116-B21
	Eight-Core Processors	
	HP DL165 G7 AMD Opteron™ 6220 (3.0GHz/8-core/16MB/115W) Processor Kit	663381-B21
	HP DL165 G7 AMD Opteron™ 6212 (2.60GHz/8-core/16MB/115W) Processor Kit	663383-B21
	HP DL165 G7 AMD Opteron™ 6140 (2.6GHz/8-core/12MB/115W) Processor Kit	635818-B21
	HP DL165 G7 AMD Opteron™ 6136 (2.4GHz/8-core/12MB/115W) Processor Kit	601112-B21
	HP DL165 G7 AMD Opteron™ 6134 (2.3GHz/8-core/12MB/115W) Processor Kit	601115-B21
	HP DL165 G7 AMD Opteron™ 6132HE (2.2GHz/8-core/12MB/85W) Processor Kit	635891-B21
	HP DL165 G7 AMD Opteron™ 6128 (2.0GHz/8-core/12MB/115W) Processor Kit	601111-B21
	HP DL165 G7 AMD Opteron™ 6128HE (2.0GHz/8-core/12MB/85W) Processor Kit	601110-B21
	Four-Core Processors	
	HP DL165 G7 AMD Opteron™ 6204 (3.30GHz/4-core/16MB/115W) Processor Kit	672323-B21
	NOTE: Supports up to two AMD Opteron™ 6000 series Eight Twelve and Sixteen Core processors. **NOTE:** Processor wattage references reflect Thermal Design Power (TDP). For more information on TDP and Average CPU Power (ACP) visit: http://www.amd.com/acp **NOTE:** Supports DirectConnect Architecture. **NOTE:** Supports Power Now.	

Core Options

HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593907-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	676331-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593911-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604500-B21
	HP 8GB (1x8GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	676333-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593913-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604502-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	593915-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627808-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	684066-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	593921-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	593923-B21
	NOTE: PC3L is a low voltage memory.	
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, 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. **NOTE:** HP Smart Array B110i does not support greater than 2TB hard drive.	
	SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives	
	HP 1TB 3G SATA 7.2K rpm SFF (2.5-inch) Hot Plug Midline 1yr Warranty Hard Drive	625609-B21
	HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
	SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	628059-B21
	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 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
	SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628063-B21
	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21

HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-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
SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
SATA Hot Plug 2.5" Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636597-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636595-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636593-B21
SATA Hot Plug 3.5" Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636611-B21
HP 200GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636609-B21
HP 100GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636607-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html (Worldwide)	
SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives	
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	619291-B21
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 15K rpm SFF (2.5-inch) Hot Plug Enterprise 3 yr Warranty Hard Drive	627117-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-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 1TB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	605835-B21
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	

Core Options

	HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	625031-B21
	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: The purchase of SAS HBA or array controller is required.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
	6G SAS Hot Plug Enterprise Performance Solid State Drives	
	HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21
	HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html (Worldwide)	
HP Networking	**Gigabit Ethernet Adapters**	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI-E Multifunction 1000SX Gigabit Svr Adapter	394793-B21
	HP NC373T PCI-E Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet Adapters **NOTE:** No more than two10GbE 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 NC522SFP Dual Port 10GbE Gigabit Server Adapter	468332-B21
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	

Core Options

HP Cooling Options	HP DL165 G7 Redundant Fan Option Kit **NOTE:** Redundant Fan Option Kit ONLY required for fan redundancy in single processor configurations. Two processor configurations offer N+1 fan redundancy as standard.	593114-B21

Additional Options

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 Entry-Level Server Management	HP Lights-Out 100i (LO100i) Advanced including 1yr 24x7 Support Single Server License **NOTE:** For additional License Kits please see the Lights-Out 100i QuickSpecs at: www.hp.com/go/lo100.	530521-B21
HP Insight Software	**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:** 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_div/12631_div.html (Worldwide)	
	HP Insight Management Media Kit	436222-B21
	NOTE: HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, 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 Management 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_div/12631_div.html	

Additional Options

High Performance Clusters	**HP Insight Cluster Management Utility**	
	HP Insight Cluster Management Utility Flexible License	QL803B
	NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. **NOTE:** For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html (Worldwide)	
	HP Insight Cluster Management Utility Flexible License with 3 years of 24x7 updates and technical support	BD476A
	NOTE: These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.	
	HP Insight Cluster Management Utility Media	BD477A
	NOTE: Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses Insight Cluster Management Utility Management. No license key is delivered or required. **NOTE:** For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html (Worldwide)	
	HP HPC Linux Value Pack	
	HP High Performance Computing Linux Value Pack 1 Processor Flexible License	TC293B
	NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. **NOTE:** For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html (Worldwide)	
	HP High Performance Computing Linux Value Pack Media Kit	TC294A
	NOTE: This part number can be used to purchase media including software and documentation, which will be delivered to the customer. **NOTE:** For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html (Worldwide)	

Additional Options

HP Security	HP Trusted Platform Module Option	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.	
	NOTE: For more information about TPM, including a white paper, go to: http://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: To utilize the internal only slot, the HP Smart Array P410 Controller must be selected. The selection of the HP Smart Array P212 Controller for internal and external connectivity, will require the use of the Full Length Full Height PCI-E x16 slot.	
	NOTE: With the HP Smart Array P410 Controller, the addition of the battery backed cache upgrade enables BBWC, RAID 5, 5+0, array expansion, logical drive extension, RAID migration, and stripe size migration. In order to upgrade to RAID 6, at least 256MB Cache and a Battery is required in addition to the HP Smart Array Advanced Pack license (P/N 516471-B21).	
	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	
	NOTE: Controllers for use with external storage only.	
	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 1GB Flash Backed Cache	534562-B21
	HP 512MB Flash Backed Write Cache	534916-B21

Additional Options

	HP 256MB P-series Cache Upgrade	462968-B21
	NOTE: Supported on HP Smart Array P212 Controller only.	
	HP 512MB P-Series Battery Backed Write Cache Upgrade	462967-B21
	NOTE: Supported on HP Smart Array P411 Controller only.	
	HP 650 mAh P-Series Battery	462969-B21
	HP Smart Array Hot Plug Advance Pack for B110i w/1y 24x7 Supp Physical 1 Svr LTU	TC421A
	SAS HBA	
	HP Modular Smart Array SC08e 2-ports Ext PCIe x8 SAS Host Bus Adapter	614988-B21
	NOTE: This is a 2 x4 External Port HBA.	
	NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller) http://h18000.www1.hp.com/products/quickspecs/13558_div/13558_div.html (Smart Array P812 Controller) http://h18000.www1.hp.com/products/quickspecs/13495_div/13495_div.html (Smart Array Advanced Pack) http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC08Ge HBA)	
HP InfiniBand Options	HP 10 GbE PCI-e G2 Dual Port Network Interface Card	516937-B21
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html (Worldwide)	
HP Backup & Recovery Software	**Data Protector Express**	
	HP Data Protector Express V5.0 for 1 Server E-LTU	TC330AAE
	HP Data Protector Express V5.0 for 3 Servers E-LTU	TC331AAE
	HP Data Protector Express V5.0 for 10 Servers E-LTU	TC332AAE
	HP Basic Upgrade to Data Protector Express V5 for 1 Server E-LTU	TC333AAE
	NOTE: Only one of these Data Protector Express base products is required. To see available options: http://www.hp.com/go/dataprotectorexpress	

Additional Options

HP Tape Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP tape backup products see: http://www.hp.com/storage/SPOCK.
NOTE: Connection using the HP P212 SAS Smart Array Controller (462828-B21) recommended.

HP DAT160 SAS Internal Tape Drive **NOTE:** For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server.	Q1587B
HP Ultrium 448 SAS Internal Tape Drive **NOTE:** For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server.	DW085B
HP Ultrium 920 SAS Internal Tape Drive **NOTE:** For installation into 1U SAS Rack-Mount Kit (AE459B) or 3U SAS Rack-Mount Kit (AG576B). No peripheral bay available for installation into the server.	EH847B
HP 1/8 G2 Ultrium 920 SAS Autoloader **NOTE:** Requires HP 1U Tape Autoloader Rack-Mount Kit (AH166A) for rack installation.	AH558A
HP MSL2024 Ultrium 920 SAS Tape Library	AH559A

HP Disk Backup

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

HP D2D Backup Systems with Backup Data Deduplication

HP D2D2502i Backup System **NOTE:** 1.5TB of usable 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.	EJ001C
HP D2D2504i Backup System **NOTE:** 3.0TB of usable 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.	EJ002C

USB Removable Media RDX Disk Backup Systems

HP RDX1000 Internal Removable Disk Backup System	BV847A
HP 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 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

Additional Options

HP Storage Options

Fibre Channel HBA

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html

Brocade Fibre Channel HBAs

HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AP769B
HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AP770A
HP 41B 4Gb 1-port PCIe Fibre Channel Host Bus Adapter	AP767B
HP 42B 4Gb 2-port PCIe Fibre Channel Host Bus Adapter	AP768B

Emulex Fibre Channel HBAs

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AJ762B
HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ763B
HP FC2142SR 4Gb 1-port PCIe Fibre Channel Host Bus Adapter	A8002B
HP FC2242SR 4Gb 2-port PCIe Fibre Channel Host Bus Adapter	A8003B
HP SN1000E 16Gb 2-port PCIe Fibre Channel Host Bus Adapter	QR559A
HP SN1000E 16Gb 1-port PCIe Fibre Channel Host Bus Adapter	QR558A

QLogic Fibre Channel HBAs

HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AK344A
HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ764A
HP FC1142SR 4Gb 1-port PCIe Fibre Channel Host Bus Adapter	AE311A
HP FC1242SR 4Gb 2-port PCIe Fibre Channel Host Bus Adapter	AE312A

SCSI HBA

HP U320e SCSI Dual Channel Host Bus Adapter **NOTE:** Recommended for MSL SCSI Tape Library connect.	AH627A

NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.

Converged Network Adapters

HP CN1100E Dual Port Converged Network Adapter	BK835A
HP CN1000Q Dual Port Converged Network Adapter	BS668A
HP CN1000E Dual Port Converged Network Adapter	AW520B

NOTE: The iSCSI protocol and iSCSI BFS are not supported on this server.

NOTE: No more than two 10GbE I/O or CNA Stand-up cards are supported in a single HP ProLiant server.

Additional Options

HP Uninterruptible Power Systems	**HP Rack-mountable UPS**	
	HP R/T3000 G2 Uninterruptible Power System (UPS)	
	HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
	HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
	HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html (Worldwide)	
	HP R1500 G3 Uninterruptible Power Supply (UPS)	
	HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
	HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
	HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html (Worldwide)	
	HP T1000 G3 UPS	
	HP T1000 G3 1000VA NA Tower Uninterruptible Power System	AF448A
	HP T1000 G3 1000VA INTL Tower Uninterruptible Power System	AF449A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13160_div/13160_div.html (Worldwide)	
	HP T1500 G3 UPS	
	HP T1500 G3 1400VA NA Tower Uninterruptible Power System	AF450A
	HP T1500 G3 1400VA INTL Tower Uninterruptible Power System	AF451A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13160_div/13160_div.html (Worldwide)	
	NOTE: For additional information on all HP Uninterruptible Power Systems and accessories please go to: www.hp.com/products/ups (Worldwide)	
	NOTE: For additional information on sizing your server, 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 Intelligent Power Distribution Units (iPDU)	**iPDU Core Units**	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
	HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
	HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
	HP 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
	HP 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit	AF902A
	HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
	HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
	HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html (Worldwide)	

HP Rack Series	**HP Rack 10000 G2 Series** (Carbon/Graphite Metallic)	
	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:** xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide) **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).	

Additional Options

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: HP ProLiant DL rack models have fixed rails which provide support for racks with round mounting holes and tool-free support for racks with square mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 26" - 36".

NOTE: Support for all 2 and 4 post Telco racks and threaded hole racks requires an additional option kit from Rack Solutions. The Rack Solutions brackets can be purchased at: www.hp.com/go/rackandpower.

HP Rack Options

Keyboards and Monitors

HP USB BFR with PVC Free INDIA Keyboard/Mouse Kit	672097-D63
HP USB BFR with PVC Free AP-INTL Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free INTL Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PORT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TURK Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FIN Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SWE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free SWIS Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KOR Keyboard/Mouse Kit	672097-KD3
HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html (Worldwide)

HP KVM Switch Options

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A

HP 1x4 Console Switch

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A

Additional Options

	HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
	HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
	HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
HP USB and SD Options	HP USB-P/S2 Mouse	DC369A
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP DL165 G7 Secure Card Reader Module Option Kit	592710-B21
	HP Internal USB Cable G6 Kit	536769-B21
HP Care Pack Services	HP 3y 4h 24x7 DL16x ProCare Service	U3A18E
	HP 3y 4h 24x7 DL16x Collab Support	U1J98E
	HP 3y 4h 24x7 ProLiant DL14x/16x HW Supp	U9510E
	HP 3y Nbd DL16x ProCare Service	U3A12E
	HP 3y Nbd DL16x Collab Support	U1J92E
	HP 3y Nbd ProLiant DL14x/16x HW Supp	U9508E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack.	

Memory

HP ProLiant DL165 G7 (all models)

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

NOTE: DDR3-1600MHz memory speed is only supported by 6200 series Opteron™ Processors.

Standard Memory

4 GB (2 x 2 GB) PC3-8500R DDR3 RDIMM memory, with Advanced ECC Capabilities memory installed.

Maximum Memory

Up to 384GB memory is available with the optional installation of PC3-12800-11 Registered DIMM memory kits.
Memory should be installed in pairs and matched for optimum performance.

Up to 256GB, using 2x8GB Dual-Rank and 1x16GB Quad-Rank PC3-8500R-7 DDR3 Registered (RDIMM) memory per memory channel, operating at 800MHz in 24 slots. (See memory section for population rules).

Up to 192GB, using 8GB PC3-10600R or PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when populated at 3 DIMMs per Channel in 24 slots.

Up to 64GB, using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when populated at 2 DIMMs per Channel in 16 slots

DDR3 memory population guidelines

Some DIMM installation guidelines are summarized below:

- For servers with twenty-four (24) memory slots:
  - There are four (4) channels per processor; eight (8) channels per server
  - There are three (3) DIMM slots for each memory channel; twenty-four (24) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are furthest from the processor
  - Memory channel 4 consists of the three (3) DIMMs that are closest to the processor
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- 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
- 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, you still run at 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, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc
- You can only install one quad-rank DIMMs per channel and it must be in the center socket
- You can only install two UDIMMs per channel; if available, the second (or middle) 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

Memory

DIMM Type	Registered DIMMS (RDIMMs)								Unbuffered with ECC DIMMs (UDIMMs)	
DIMM Rank	Single Rank			Dual Rank (2R)				Quad Rank (4R)	Dual Rank (2R)	
DIMM Capacity	4GB	4GB	8GB	2GB	8GB	16GB	16GB	16GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1600	1600	1333	1333	1333	1600	1066	1333	1333
Voltage	LV/Std	Std	Std	Std	LV/Std	LV/Std	Std	Std	Std	Std
SLOTS THAT CAN BE POPULATED										
24 slot servers	24	24	24	24	24	24	24	8	16	16
MAXIMUM CAPACITY (GB)										
24 slot servers	96	96	192	48	192	384	384	256*	32	64
POPULATED DIMM SPEED (MHz)										
1 DIMM Per Channel	1066/ 1333**	1600	1600	1333	1066/ 1333**	1333	1600	1066	1333	1333
2 DIMM Per Channel	1066/ 1333**	1333	1333	1333	1066/ 1333**	1333	1333	n/a	1333	1333
3 DIMM Per Channel	1066/ 1333**	1066	1066	1066	1066	800/ 1066**	1066	n/a	n/a	n/a

* This capacity is achieved by loading 1 16GB in center socket and remaining sockets with 8GB DIMMs.
** 3DPC: LV runs at 800/Std voltage runs at 1066

DIMM slot and configuration diagrams
Basic memory slot & population diagram

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

24 DIMM SLOTS (12 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A	1	A	Chnl 1
	2	I	2	I	
	3	E	3	E	
Chnl 2	4	C	4	C	Chnl 2
	5	K	5	K	
	6	G	6	G	
Chnl 3	7	B	7	B	Chnl 3
	8	J	8	J	
	9	F	9	F	

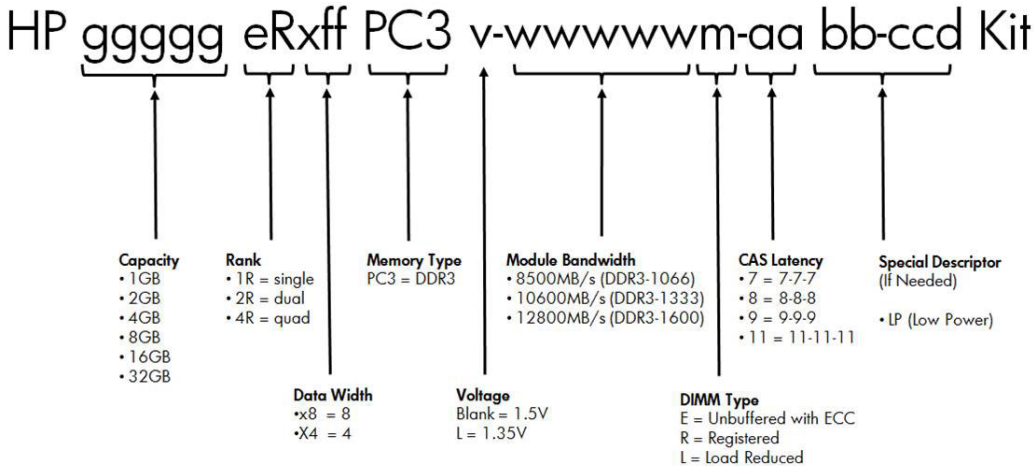
Memory

Chnl 4	10	D	10	D	Chnl 4
	11	L	11	L	
	12	H	12	H	

NOTE: Capacity references are rounded to the common Gigabyte values.

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

DDR3 memory options part number decoder



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	593907-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	676331-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593911-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604500-B21
	HP 8GB (1x8GB) Single Rank x4 PC3-12800 (DDR3-1600) Registered CAS-11 Memory Kit	676333-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593913-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604502-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	593915-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627808-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	684066-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	593921-B21

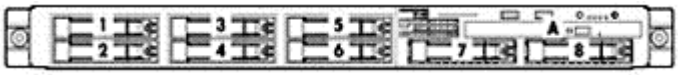
Memory

HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	593923-B21

NOTE: PC3L is a low voltage memory.

Storage

1-4 Hot plug 3.5" SATA or Hot-plug SAS/SATA hard drive bays
A Optional DVD-ROM, or DVD/CD RW



1-8 Eight Hot-plug SAS hard drive bays
A Optional DVD-ROM, or DVD RW

Drive Support

Removable Media

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

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, 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.

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

	Quantity Supported	Position Supported	Controller
1TB 3G SATA 7.2K 500GB SATA 7.2K	Up to 4	1-4	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
3TB 3G SATA 7.2K 2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 500GB 3GSATA 7.2K	Up to 4	1-4	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
3TB 3G SATA 7.2K 2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 500GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

SATA Hot Plug 2.5" Enterprise Mainstream Solid State Drives

	Quantity Supported	Position Supported	Controller
400GB 3G SATA MLC SFF SSD 200GB 3G SATA MLC SFF SSD 100GB 3G SATA MLC SFF SSD	Up to 8	1-8	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
400GB 3G SATA MLC LFF SSD 200GB 3G SATA MLC LFF SSD 100GB 3G SATA MLC LFF SSD	Up to 4	1-4	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
1.0TB 6G SAS 7.2K 500GB 6G SAS 7.2K	Up to 8	1-8	HP Smart Array P212 Controller HP Smart Array P410 Controller HP Smart Array P812 Controller

Storage

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

	Quantity Supported	Position Supported	Controller
3TB 6G SAS 7.2K	Up to 4	1-4	HP Smart Array P212 Controller
2TB 6G SAS 7.2K			HP Smart Array P410 Controller
1TB 6G SAS 7.2K			HP Smart Array P812 Controller

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

	Quantity Supported	Position Supported	Controller
900GB 6G SAS 10K	Up to 8	1-8	HP Smart Array P212 Controller
600GB 6G SAS 10K			HP Smart Array P410 Controller
450GB 6G SAS 10K			HP Smart Array P812 Controller
300GB 6G SAS 15K			
300GB 6G SAS 10K			
146GB 6G SAS 15K			

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

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K	Up to 4	1-4	HP Smart Array P212 Controller
450GB 6G SAS 15K			HP Smart Array P410 Controller
300GB 6G SAS 15K			HP Smart Array P812 Controller

6G SAS Hot Plug Enterprise Performance Solid State Drives

	Quantity Supported	Position Supported	Controller
400GB 6G SAS SLC	Up to 4	1-4	HP Smart Array P212 Controller
200GB 6G SAS SLC			HP Smart Array P410 Controller
			HP Smart Array P812 Controller

Tape and Disk Backup

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

	Position	Recommended Controller	Part Number
HP SCSI Tape Drives	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
LTO-1 Ultrium 232			
LTO-2 Ultrium 448			
LTO-3 Ultrium 920			
LTO-3 Ultrium 960			
LTO4 Ultrium 1760			

Storage

LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit			
HP USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP 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	462828-B21
HP SCSI Tape Autoloaders DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
HP SCSI Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Host Bus Adapter	AH627A
HP 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	462828-B21
HP Fibre Channel Tape Libraries MSL2024 MSL4048 MSL8096	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.	

Storage

MSL6000

HP USB RDX Removable Disk Backup System RDX160 RDX320 RDX500 RDX750	External	USB 2.0 port	N/A
HP 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.	
HP D2D Backup Systems, Fibre Channel D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: http://www.hp.com/storage/SPOCK	

Power Specifications

HP 500W Factory Integrated Power Supply Kit						
Part Number	515915-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	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)						

HP 750W Common Slot Gold Hot Plug Factory Integrated Power Supply Kit with Backplane							
Part Number	535683-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 Rating	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Maximum Rated Input Wattage Rating (Watts)	857	847	824	825	820	820	820
Maximum Rated VA (Volt-Amp)	894	884	859	854	854	854	854
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)	2925	2892	2812	2812	2797	2797	2797

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 Specifications

Power		
ProLiant DL165 G7 Fully Configured	115V/60Hz	220V/50Hz
Fully Loaded System Input Wattage (W)	568	556
Fully Loaded System Input Current (A rms)	4.99	2.58
Fully Loaded System Thermal (BTU- Hr)	1939.15	1898.18
Fully Loaded System VA (Volt-Amp)	574	567
System Inrush Current with all power supplies loaded (A)	30	30
Power cord requirements	Nema 5-15P to IEC320-C13	IEC320-C13 to IEC320-C14

NOTE: Power shown is for a fully configured system consisting of (2) CPU, (8) double-sided DIMMs, (2) HDDs, (1) CD-ROM, and (2) PCI cards.

Power Cord	AF556A
Server Power Cords	One 6' Highline (IEC-IEC) power cord ships standard **NOTE:** HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord must be ordered separately. If customers require a local 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.

Technical Specifications

System Unit	**Dimensions** (H x W x D) (with bezel)	1.70 x 17.64 x 27.59 in (4.32 x 44.80 x 69.95 cm)		
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	32.08 lb (14.55 kg)	
		Minimum (one hard drive, power supply, and processor installed)	27.4 lb (12.43 kg)	
	Input Requirements (per 500W power supply)	Rated Line Voltage	100 to 127 VAC 200 to 240 VAC	
		Rated Input Current	4.99A (at 115 VAC), 2.46A (at 230 VAC)	
		Rated Input Frequency	47 to 63 Hz	
		Rated Input Power	574W (at 100 VAC) 573W (at 200 VAC)	
	BTU Rating	Maximum	500W	1700 BTU / hr (at 100 VAC) 1700 BTU/hr (at 200 VAC)
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL165 G7 - Follow the instructions of the next screens.		
	Power Supply Output (per power supply)	Rated Steady-State Power	500 Watts (at 100 VAC), 500 Watts (at 200 VAC)	
		Maximum Peak Power	500 Watts (at 100 VAC), 500 Watts (at 200 VAC)	
	Optional High Efficiency Power Supply Specifications			
	Input Requirements (per power supply)	Rated Line Voltage	90-110 VAC, 108-132 VAC 180-264VAC	
		Rated Input Current	7.4 A (at 115 VAC), 3.6 A (at 230 VAC)	
		Rated Input Frequency	47 to 63 Hz	
		Rated Input Power	846 W (at 115 VAC), 822W (at 230 VAC)	
	BTU Rating	Maximum	750 W	2550 BTU/hr (at 100 VAC), 2550 BTU/hr (at 200 VAC)

Technical Specifications

Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient - Click on the system of interest. Example: DL165 G7 - Follow the instructions of the next screens.	
Power Supply Output (per power supply)	Rated Steady-State Power	750 W (at 100 VAC), 750W (at 200 VAC)
	Maximum Peak Power	750 W (at 100 VAC), 750 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 609 m/min (2000 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 609 m/min (2000 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	6.03 B
	LpAm	46.1 dBA
	Operating	
	LWAd	6.08 B
	LpAm	46.4 dBA
Emissions Classification	**FCC Rating**	Class A

	(EMC)	**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.
HP B110i Smart Array Controller	**Drives Supported**	Up to 4 SATA devices
	Channels	4 1.5Gb SATA
	Storage Capacity	3.0TB internal storage
	Data Transfer Method	32-bit/33-MHz PCI bus-master
	Maximum SATA Channel Transfer Rate	1.5Gb/s per channel
	Maximum Transfer Rate per PCI Bus (peak)	266 MB/s per channel
	Protocols	SATA PIO Mode[0-4]
	Cable	SATA
	Internal ATA Connectors	Four SATA connectors **NOTE:** Raid support requires optional slot based raid controller.
Smart Array P410/410i Controller	**Disk Drive and Enclosure Interface**	6Gb/s SAS (Serial Attached SCSI) 3Gb/s SATA (Serial ATA)
	SAS Connectors	2 internal (Mini-SAS) x8 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe 2.0 provides 2GB/s maximum bandwidth
	SAS Speed	x8 6Gb/s SAS provides 4.8GB/s maximum bandwidth
	Cache Memory	40-bit 256MB ECC protected cache (72-bit 512MB BBWC module upgrades available); transportable with battery-backed upgrade
	Logical Drives Supported	Up to 64 logical drives
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) **NOTE:** The minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0 RAID 5, 5+0 (Distributed Data Guarding) **NOTE:** The 256 MB is required to enable RAID 5, 5+0 support of the Smart Array P410i RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Technical Specifications

(2x) NC362i Integrated Dual Port Gigabit Server Adapter	**Network Interface**	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.
	Data Transfer Method	Compliant to x1 PCIe Specification
	Controller	Intel® 82576
	Network Transfer Rate	10Base-T (Half-Duplex) 10Base-T (Full-Duplex) 100Base-TX (Half-Duplex) 100Base-TX (Full-Duplex) 1000Base-TX (Half and Full-Duplex)
	Connector	RJ-45 connector
	Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethemet on standard Category 5 UTP

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.