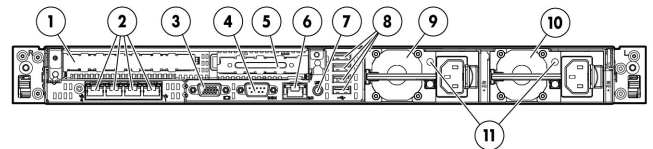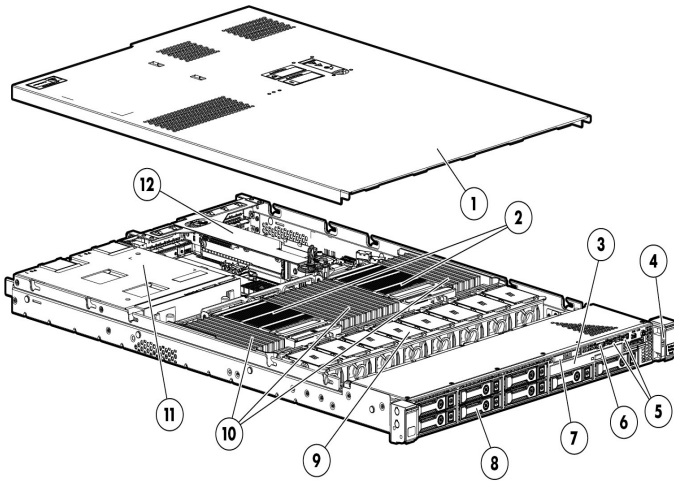# QuickSpecs

Overview

Performance driven compute with storage density - ideal for enterprise applications. Industry leading performance, efficiency, capacity and reliability. Enterprise enhanced design for all workloads with versatility for future requirements. A space conscious 2-processor server with industry leading feature sets. Built to protect your investment and extend the life with reliability, accessibility and serviceability features designed in.

Front View:

1. Hood Cover
2. Up to two Intel® E5-2600 Series processors

3. Optical Disk Drive Bay
4. Active Health and Network Status LEDs
5. 2 USB Connectors
6. Video connector (requires Front Video Adapter Kit)
7. Slide-out System Insight Display (SID)
8. Hard Drive Bays
9. Removable hot-plug fan modules for easy serviceability

10. 24 DIMM slots: DDR3 Registered (RDIMM), Load Reduced (LRDIMM) or Unbuffered (UDIMM) memory
11. Redundant Hot Plug Power Supplies (upgradeable option)
12. Removable Riser Cage assembly for 2 x PCIe 3.0 Slots

Rear View:

1. PCIe 3.0 Full-height/half length x16 expansion slot
2. FlexibleLOM ports (Shown: 4 ports 1Gb each /Optional: 2 ports 10Gb each)
3. Video connector
4. Serial connector
5. PCIe 3.0 Low Profile x8 expansion slot
6. iLO Management Engine NIC connector
7. Unit ID LED/button
8. 4 USB connectors
9. Power supply bay 2 (Shown populated: Optional Power Supply for Redundant Power)
10. Power supply bay 1 (Primary Power Supply)
11. Power Supplies Health/Activity Indicators

What's New

- 10 SFF Drive Cage in CTO

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

Entry Processors
NOTE: All support up to 1066MHz DDR3 memory speeds.

Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/6.4GT-s QPI/80W)

Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W)

Base Processors
NOTE: All support up to1333MHz DDR3 memory speeds.

Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/8.0GT-s QPI/60W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Performance Processors
NOTE: All support up to 1600MHz DDR3 memory speeds.

Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/8GT-s QPI/135W, DDR3-1600, HT, Turbo2- 4/4/4/5/5/7/7/9)

Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2- 4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2- 3/3/3/4/5/6)

Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2- 4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 5/5/6/6/7/7/8/8)

Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/8.0 GT-s QPI/70W, DDR3-1600, HT, Turbo2- 2/2/3/3/4/4/5/5)

Intel® Xeon® E5-2643 (3.33GHz/4-core/10MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2- 1/1/2/2)

Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/8.0GT-s QPI/80W, DDR3-1600, HT, Turbo2- 5/5)

NOTE: HT indicates that the processor model supports Intel® /Hyper-Threading Technology
NOTE: Turbo 2 indicates the maximum potential bin increments when using Intel® Turbo Boost Technology, with 8, 7, 6 ,5, 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 (options for 1600, 1333, 1066MHz).
NOTE: Up to 2 processors supported. Mixing different processor models is not supported.
NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

Standard Features

Cache Memory One of the following depending on Model	20MB (1x20MB) Level 3 **NOTE:** For Eight-core processors. 15MB (1x15MB) Level 3 **NOTE:** For Six-core processors. 10MB (1x10MB) Level 3 **NOTE:** For Quad-core processors. 5MB (1x5MB) Level 3 **NOTE:** For Dual-core processors. **NOTE:** All processor models above list the L3 Cache associated with that particular processor.
Chipset	Intel® C600 Series Chipset Intel® E5-2600 Processor Family **NOTE:** For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Upgradeability	Upgradeable to two processors (16 Cores) Up to 24 DIMM slots available for higher Memory capacity Up to 8 SFF Hard Drive Bays; Or 4 LFF or 10 SFF Drive Bay (optional through CTO below) FlexibleLOM slot for 1Gigabit or 10 Gigabit Ethernet or QDR/FDR InfiniBand networking options 2 PCIe 3.0 I/O slots for additional communications and storage expansion Redundant Power Supply Optical Drive Bay (8 SFF/4 LFF)
On System Management Chipset	HP iLO (Firmware: HP iLO 4) **NOTE:** For more information, visit: http://www.hp.com/go/ilo.
Memory Protection	Advanced ECC Online Spare Lock-step

QuickSpecs

Standard Features

Memory	Type	HP SmartMemory
One of the following depending on Model		DDR3 Registered (RDIMM), Load Reduced (LRDIMM) or Unbuffered (UDIMM) memory
	DIMM Slots Available	24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel)
	Standard (Entry Model)	4GB (1 x 4GB) Registered DIMMs PC3-10600R (1333MHz)
	Standard (Base Models)	16GB (4 x 4GB) Registered DIMMs PC3-10600R (1333MHz)
	Standard (High Performance Models)	32GB (4 x 8GB) Registered DIMMs PC3-12800R (1600MHz)
	Standard (Energy Star Models)	Energy Star models duplicate Entry and Base models but add a second processor and on the Entry model double the memory to evenly distribute memory across dual processors
	Maximum Capacity (LRDIMM)	768GB (24 x 32GB@1066MHz)
	Maximum Capacity (RDIMM)	384GB (24 x 16GB@1333MHz)
	Maximum Capacity (UDIMM)	128GB (16 x 8GB@1333MHz)
	Maximum Capacity (HDIMM)	384GB (24 x 16GB@1333MHz)

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html
NOTE: LRDIMM, RDIMM, UDIMM and HDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.
NOTE: If only one processor is installed, only 12 DIMM slots are available. When populating with two processors 24 DIMM slots are available. For maximum speed on some memory options on 16 DIMM slots may be populated.
NOTE: When using HDIMMs, 12 DIMMs per processor are required.
NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

Network Controller	HP ProLiant Gen8 servers offer a new networking technology - Flexible Network Technology. The HP ProLiant DL360p Gen8 server offers the customer the choice of 1 Gigabit and/or 10 Gigabit networking solutions. For additional details see the Networking Section of this document.
One of the following depending on Model	
Entry Models	HP Ethernet 1Gb 4-port 331FLR Adapter
Base Models	HP Ethernet 1Gb 4-port 331FLR Adapter
High Performance Models	HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter or HP Ethernet 1Gb 4-port 331FLR Adapter
Energy Star Certified Models	HP Ethernet 1Gb 4-port 331FLR Adapter

QuickSpecs

Standard Features

Expansion Slots	Expansion Slots #	Technology	Bus Width*	Connector Width	Form Factor	Notes
	1	PCIe 3.0	x8	x8	Low profile slot	Activated when installed with processor 1
	2	PCIe 3.0	x16	x16	Full-height, half-length slot	Activated when installed with processor 1

*Indicates the number of physical electrical lanes running to the connector.
NOTE: Two PCIe 3.0 expansion slots: (1) Half-length, full-height slot and (1) low-profile slot.

HP Server ROM

HP ROM (Read Only Memory) is now digitally signed using HP's Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM.

HP ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HP ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

HP's ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (Integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration (using the HP ROM-Based Setup Utility (RBSU).

NOTE: For further information, please refer to HP's RBSU (ROM based setup utility) user guide: www.hp.com/support/rbsu.

Storage Controller
One of the following
depending on Model

Entry Models	HP Smart Array P420i/ZM (RAID 0/1/1+0)
Base Models	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)
High Performance Models	HP Smart Array P420i/2GB with FBWC (RAID 0/1/1+0/5/5+0)
Energy Star - Base and Entry Models	HP Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0)
	HP Smart Array P420i/ZM (RAID 0/1/1+0)

Standard Features

Internal Storage Devices	Diskette Drive	None	
	Optical Drive	Optional	
		DVD-ROM, DVD-RW **NOTE:** This option available with all 8SFF or 4LFF drive models.	
	Hard Drives	None ship standard	
	Hard Drive Bays	8 SFF drive bays total with Optical drive bay	
		Optional: 4 LFF bays with Optical drive bay Optional: 10 SFF bays without optical **NOTE:** HP ProLiant DL360p Series servers offer both SFF, and LFF versions in CTO. The Optical Drive bay is available with the 4 LFF and 8 SFF models only. **NOTE:** LFF versions are not an upgradeable option from SFF models, or vice versa. **NOTE:** All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit. These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server.	

Maximum Internal Storage	Hot Plug SFF SAS	12.0TB	10 x 1.2TB
	Hot Plug SFF SATA	10.0TB	10 x 1TB
	Hot Plug LFF SAS	12.0TB	4 x 3TB (with optional LFF drive cage)
	Hot Plug LFF SATA	16.0TB	4 x 4TB (with optional LFF drive cage)
	Hot Plug SFF SAS SSD	8.0TB	10 x 800GB
	Hot Plug SFF SATA SSD	4.0TB	10 x 400GB
	Hot Plug LFF SATA SSD	1.6TB	4 x 400GB (with optional LFF drive cage)

Interfaces	Serial	1
	Video	1 Front Mini-Video connector/ 1- Rear standard video (not active simultaneously) **NOTE:** Mini-video connector requires Front Video Adapter Kit (PN 655915-B21).
	FlexibleLOM Network Ports	Some models come standard with 4 x 1GB ports while others come with 2 x 10GB ports (See HP Networking section below for more details and options).
	HP iLO Remote Management Network Port	1Gb Dedicated
	SD slot	1 Internal secure **NOTE:** The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.
	USB 2.0 Ports	7 total: 4 rear, 2 front, 1 internal (secure)

Standard Features

Industry Standard Compliance	ACPI 2.0b Compliant PCIe 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 2.0 Compliant
Server Power Cords	All Pre-configured Models servers ship with a high voltage server to PDU power cord. **NOTE:** HP ProLiant DL servers no longer ship standard with a 12-foot NEMA 5-15P to C13 power cord that connects to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to power distribution units (PDUs) in data center racks and now ship standard with a PDU 6-foot C-14 to C13 power cord (A0K02A). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 6-foot NEMA 5-15 to C13 power cord must be ordered separately (AF556A). See Power Cords section for Power Cord options.
Power Specifications	To review typical system power ratings use the HP 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. **NOTE:** Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html
Common Slot Power Supply	**NOTE:** Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported. HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HP Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HP CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. HP CS power supply options provide efficiency ratings of up to 94% (80 Plus Platinum) and are available in three power output options - 460W, 750W, and 1200W - allowing the customer to "right-size" a power supply for their specific server configuration. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations. **NOTE:** Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted you will get errors and operation will fail. HP CS Platinum Plus power supplies are required when enabling HP's Intelligent Power Discovery (IPD) solution. IPD is the first technology to create an automated, energy-aware network between IT systems and facilities. This allows your company to reclaim millions of dollars in wasted power capacity and downtime costs across data centers. For more information on HP's IPD solution, go to www.hp.com/go/ipd. It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP Power Advisor can be accessed at: www.hp.com/go/hppoweradvisor. **NOTE:** The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and

Standard Features

consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 80Plus.org.

Redundant Power: Optional (1+ 1 or n+n redundant) power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html

System Fans One of the following depending on Model	6 fan modules ship standard in 1 processor models 8 fan modules ship standard in 2 processor models The DL360p Gen8 will support up to 8 fans with fan redundancy built in. One fan rotor failure will place server in degraded mode but fully functional. Two fan rotor failures could provide warning and imminent server shutdown. **NOTE:** The processor option kit contains 2 additional fan modules, when upgrading from a 1 processor to two processor models.
Required Cabling	For required cabling information, refer to the Web site at: www.hp.com/servers/dl360p-gen8
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Solaris VMware Citrix XenServer **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/DL360pGen8
Graphics	Integrated Matrox G200 video standard - 1280 x 1024 (32 bpp) - 1920 x 1200 (16 bpp) HP iLO 4 On System Management Memory - 16 MB Flash - 256 MB DDR 3 with ECC (112 MB after ECC and video)

Standard Features

Form Factor One of the following depending on Model	1U Rack form factor
	8 SFF and 10 SFF Drive Bay Versions: 1.7" (4.32cm) Height x 17.11" (43.47cm) Width x 27.5" (69.85cm) Length
	4 LFF Drive Bay Version: 1.7" (4.32cm) Height x 17.11" (43.47cm) Width x 29.5" (74.67cm) Length

On System Management	HP iLO Management Engine	HP iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HP iLO Management Engine comes standard on all HP ProLiant Gen8 servers. The HP iLO Management Engine portfolio includes:

- **HP iLO:** The HP iLO (Integrated Lights-Out) management processor is the core foundation for the HP iLO Management Engine
- **HP Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
- **HP Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
- **HP Intelligent Provisioning:** Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.
  - To start Intelligent Provisioning:
    - Press the F10 key during the ProLiant Gen8 server boot process (also known as power on self test or POST).
    - Please go to the Intelligent Provisioning website at www.hp.com/go/intelligentprovisioning for additional information and to view usage videos.
    - Use the Service Pack for ProLiant (SPP) at www.hp.com/go/spp to get firmware and software updates.
- **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: www.hp.com/go/ilo/mobileapp

NOTE: For more information, visit: http://www.hp.com/go/ilo or HP iLO Management Engine technologies whitepaper

Standard Features

HP Insight management	HP Service Pack for ProLiant	HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) version 5 provide a new, comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server hardware launches. By enabling all firmware to be updated online and integrating firmware and system software updates in one operation HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that HP provides 12 months of support on each Service Pack for ProLiant.

The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM version 5 and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application has been re-written to provide a more straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP will recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdepencies, when determining the correct updates and order of update deployment.

NOTE: The Service Pack for ProLiant (which includes HP SUM 5) can be downloaded from www.hp.com/go/spp/download. More information can be found: www.hp.com/go/spp and http://www.hp.com/go/hpsum

Security	Power-on password
	Serial interface control
	Administrator's password

Standard Features

Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. 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 Parts, 3-Year Labor, 3-Year Onsite 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	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. HP Insight Control also supports Location and Power Discovery Services to automate many configuration, asset tracking, and power management tasks to speed implementation and prevent downtime. For more information, see http://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, see: http://www.hp.com/services/insight.
	HP iLO Advanced	HP Integrated Lights-Out Advanced License a product option, providing smart remote server management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HP ProLiant servers by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: http://www.hp.com/go/iloadvance
	HP Matrix Operating Environment	The HP Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business. The HP Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HP CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).
		NOTE: For more information, visit: http://www.hp.com/go/matrixoe

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

Optional Features

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

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Storage Software

Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.

Storage software that gets the job done:

- **Data Protection and Recovery Software**
  Whether you're a large enterprise or a smaller business, HP data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.
- **Data Archive and Migration Software**
  HP's storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.
- **Storage Resource Management Software (SRM)**
  HP's storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.
- **Data Replication Software**
  HP offers array-based and host-based replication software for use in disaster recovery, testing, application development and reporting.
- **Storage Device Management Software**
  Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.
- **HP StoreVirtual VSA**
  With HP StoreVirtual VSA you can use the power of virtualization to turn a set of heterogeneous and disconnected physical disk drives in your servers and storage devices into a single pool of logical storage capacity.

NOTE: For more information available Storage Software including QuickSpecs, please see: www.hp.com/go/storage/software.

HP Insight Online

HP Insight Online is a new addition to the HP Support Center for one stop, secure access to product and HP support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HP Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at anytime. www.hp.com/go/insightonline

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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	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. Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for their business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help deliver high levels of application availability through proactive service management and advanced technical response

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 support recommendations - **Optimized Care, Standard Care, and Basic Care** - available for each product group. Such support solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support recommendations for servers, storage, networking and software designed to meet your specific needs.

All three service recommendations include support services from the broader portfolio of Foundation Care and Proactive Care services.

Optimized Care

Optimized Care: 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

HP Installation and Startup for Insight Control Software / HP SIM
Provides for the deployment and basic configuration of HP Insight Control or HP SIM (Systems Insight Manager) on HP ProLiant ML and DL series servers or HP BladeSystem servers
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

3-Year HP 24x7 4 hour Response, Proactive Care
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your call and end to end until resolved, delivering a single point of contact for you. Helping you to resolve your hardware and software issues and minimizing downtime in your business critical environment.

Additional Services: Factory Express, Education Services, Proactive Select - 30 Credit Package

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Service and Support

Standard Care	**Standard Care: Service recommendation 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
	HP Installation and Startup for Insight Control Software / HP SIM
	Provides for the deployment and basic configuration of HP Insight Control or HP SIM (Systems Insight Manager) on HP ProLiant ML and DL series servers or HP BladeSystem servers
	http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf
	3-Year HP 24x7 4 hour Response, Collaborative Support
	Provides problem resolution support across the stack of HW, firmware, and HP and 3rd party SW. In case the issue is with 3rd party SW, HP does known issue resolution. If HP cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf.
	http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf
	Additional Services: Software support service with 24X7 availability with a 2 hour response, Training courses on Microsoft, Linux (Red Hat and SUSE), VMware, and HP Insight Software, 10 Proactive Select Credit package, Factory Express
	http://www8.hp.com/us/en/business-services/it-services.html?compURI=1078865
Basic Care	**Basic Care: 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 24x7 4 hour Response, Hardware Support Onsite Service
	Provides you with rapid remote support and if required an HP authorized technical engineer will be on site 24X7 begin hardware maintenance service within 4 hours of the service request being logged
	http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf
	3-Year , HP 24x7 Software Support for Insight Control
	Provides remote 3-year software support service that delivers comprehensive software services, including access to HP technical resources and software updates
	http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf
	Additional Services: Factory Express, Education Services, Proactive Select - 10 Credits
Insight Remote Support	Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more
	http://www.hp.com/go/insightremotesupport

Service and Support

HP Support Center Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc

HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.
HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

*HP' Support Center Mobile App is subject to local availability

Warranty / Service Coverage For ProLiant servers and storage systems, the services cover HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

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: All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.

Entry Models

Quad-Core Model **HP ProLiant DL360p Gen8 E5-2603 1P 4GB-R P420i SFF 460W PS Entry Server** 646900-001	**Processor(s)**	(1) Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W) Processor
	Cache Memory	10MB (1x10MB) L3
	Memory	4GB (1 x 4GB DDR3-1333MHz RDIMMs) **NOTE:** 24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel).
	Network Controller	HP Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HP Smart Array P420i/ZM (RAID 0/1/1+0)
	Hard Drive	None ship standard; includes 7 SFF hard drive blanks
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply	(1) HP 460W Common Slot Gold Hot Plug Power Supply (92% Efficient)
	Fans	6 Hot Plug Redundant Fan Modules
	Management	HP iLO Management Engine (standard) Optional: HP iLO Advanced or HP Insight Control
	Form Factor	Rack (1U) **NOTE:** Includes Rack Mounting Gen8 non-telescoping Friction Rail Kit which does not allow for in rack serviceability. The HP 1U Gen8 Cable Management Arm is not available when using Friction Rails. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative (p/n 695539-001). Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Pre-configured Models

Base Models

Six-Core Models **HP ProLiant DL360p Gen8 E5-2640 1P 16GB-R P420i SFF 460W PS Base Server** 646902-001 **HP ProLiant DL360p Gen8 E5-2630 1P 16GB-R P420i SFF 460W PS Base Server** 646901-001	**Processor(s)** One of the following depending on Model	(1) Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor (1) Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor
	Cache Memory	15MB (1x15MB) L3
	Memory	16GB (4 x 4GB DDR3-1333MHz RDIMMs) **NOTE:** 24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel).
	Network Controller	HP Ethernet 1Gb 4-port 331FLR Adapter
	Storage Controller	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)
	Hard Drive	None ship standard; includes 7 SFF hard drive blanks
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply	(1) HP 460W CS Platinum Plus Hot Plug Power Supply (94% Efficient)
	Fans	6 Hot Plug Redundant Fan Modules
	Management	HP iLO Management Engine (standard) Optional: HP iLO Advanced or HP Insight Control
	Form Factor	Rack (1U) **NOTE:** Includes Rack Mounting Gen8 telescoping SFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative (p/n 695539-001). Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

QuickSpecs

Pre-configured Models

High Performance Models
NOTE: These Models are Energy Star Certified.

Eight-Core Models **HP ProLiant DL360p Gen8 E5-2690 2P 32GB-R P420i SFF 750W PS Performance Server** 646905-001 **HP ProLiant DL360p Gen8 E5-2650 2P 32GB-R P420i SFF 460W PS Performance Server** 646904-001	**Processor(s)** One of the following depending on Model	(2) Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/8GT-s QPI/135W, DDR3-1600, HT, Turbo2- 4/4/4/5/5/7/7/9) Processors (2) Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8) Processors
	Cache Memory	20MB (1x20MB) L3
	Memory	32GB (4 x 8GBDDR3-1600MHz RDIMMs) **NOTE:** 24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel).
	Network Controller One of the following depending on Model	HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter (on E5-2690 Model) **NOTE:** SFP Transceivers for the 530FLR-SFP+ are not included with the server and must be purchased separately. HP Ethernet 1Gb 4-port 331FLR Adapter (on E5-2650 Model)
	Storage Controller	HP Smart Array P420i/2GB with FBWC (RAID 0/1/1+0/5/5+0)
	Hard Drive	None ship standard; includes 7 SFF hard drive blanks
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply One of the following depending on Model	(2) HP 750W CS Platinum Plus Hot Plug Power Supplies (94% Efficient) (on E5-2690 Model) (2) HP 460W CS Platinum Plus Hot Plug Power Supplies (94% Efficient) (on E5-2650 Model)
	Fans	8 Hot Plug Redundant Fan Modules
	Management	HP iLO Management Engine (standard) HP Insight Control Standard
	Energy Star	Meets Energy Star requirements
	Form Factor	Rack (1U) **NOTE:** Includes Rack Mounting Gen8 telescoping SFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative (p/n 695539-001). Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

Pre-configured Models

Energy Star - Base and Entry Models

NOTE: These Models are Energy Star Certified.

Six-Core Model
HP ProLiant DL360p Gen8 E5-2630 2P 16GB-R P420i SFF 460W PS Energy Star Server
677199-001

HP ProLiant DL360p Gen8 E5-2603 2P 8GB-R P420i SFF 460W PS Energy Star Server
677198-001

Processor(s) One of the following depending on Model	(2) Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processors (2) Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W) Processors **NOTE:** All added memory only runs at 1066MHz speed.
Cache Memory One of the following depending on Model	15MB (1x15MB) Level 3 10MB (1x10MB) Level 3
Memory	16GB (4 x 4GB DDR3-1333MHz LVRDIMMs) (on E5-2630 Model) 8GB (2 x 4GB DDR3-1333MHz LVRDIMMs) (on E5-2603 Model) **NOTE:** 24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel).
Network Controller	HP Ethernet 1Gb 4-port 331FLR Adapter
Storage Controller	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0) (on E5-2630 Model) HP Smart Array P420i/ZM (RAID 0/1/1+0) (on E5-2603 Model)
Hard Drive	None ship standard; includes 7 SFF hard drive blanks
Internal Storage	Standard: 8 SFF HDD Bays
Optical Drive Bay	1; (Optional: DVD-ROM, DVD-RW)
PCI-Express Slots	2 standard(1-FH/HL, 1-LP) PCIe 3.0
Power Supply	(1) HP 460W CS Platinum Plus Hot Plug Power Supply (94% Efficient)
Fans	8 Hot Plug Redundant Fan Modules
Management	HP iLO Management Engine (standard) Optional: HP iLO Advanced or HP Insight Control
Energy Star	Meets Energy Star requirements
Form Factor	Rack (1U) **NOTE:** Includes Rack Mounting Gen8 telescoping SFF Ball Bearing Rail Kit which does allow for in rack serviceability. Due to the size and weight of the server two people are required to install the server into the rack. The HP 1U Gen8 Cable Management Arm is optional. To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative (p/n 695539-001). Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Smart Buys

HP ProLiant DL360p Gen8 E5-2609 1P SFF Svr/S-Buy 670632-S01	**Processor**	Intel® Xeon® E5-2609 (2.40GHz/4-core/10MB/6.4GT-s QPI/80W)
	Cache Memory	10MB (1x10MB) Level 3
	Memory	8GB (1 x 8GB DDR3-1333MHz Low Voltage RDIMMs)
	Network Controller	HP FlexLOM 1Gb 4-port 331FLR Ethernet Adapter
	Storage Controller	HP Smart Array P420i/ZM (RAID 0/1/1+0)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply	(2) HP 460W CS Platinum Plus Hot Plug Redundant Power Supplies
	Fans	6 Hot Plug Redundant Fans
	Management	iLO Management Engine Standard
	Form Factor	Rack (1U)
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

HP ProLiant DL360p Gen8 E5-2620 1P SFF Svr/S-Buy 670633-S01	**Processor**	Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)
	Cache Memory	15MB (1x15MB) Level 3
	Memory	16GB (2 x 8GB DDR3-1333MHz Low Voltage RDIMMs)
	Network Controller	HP FlexLOM 1Gb 4-port 331FLR Ethernet Adapter
	Storage Controller	HP Smart Array P420i/ZM (RAID 0/1/1+0)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply	(2) HP 460W CS Platinum Plus Hot Plug Redundant Power Supplies
	Fans	6 Hot Plug Redundant Fans
	Management	iLO Management Engine Standard
	Form Factor	Rack (1U)
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Smart Buys

HP ProLiant DL360p Gen8 E5-2640 2P SFF Svr/S-Buy 670634-S01	**Processor**	(2) Intel® Xeon® E5-2640 (2.50GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)
	Cache Memory	15MB (1x15MB) Level 3
	Memory	16GB (2 x 8GB DDR3-1333MHz Low Voltage RDIMMs)
	Network Controller	HP FlexLOM 1Gb 4-port 331FLR Ethernet Adapter
	Storage Controller	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply	(2) HP 460W CS Platinum Plus Hot Plug Redundant Power Supplies
	Fans	8 Hot Plug Redundant Fans
	Management	iLO Management Engine Standard
	Form Factor	Rack (1U)
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

HP ProLiant DL360p Gen8 E5-2660 2P SFF Svr/S-Buy 670635-S01	**Processor**	(2) Intel® Xeon® E5-2660 (2.20GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 5/5/6/6/7/7/8/8)
	Cache Memory	20MB (1x20MB) Level 3
	Memory	32GB (4 x 8GB DDR3-1333MHz Low Voltage RDIMMs)
	Network Controller	HP FlexLOM 1Gb 4-port 331FLR Ethernet Adapter
	Storage Controller	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF HDD Bays
	Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)
	PCI-Express Slots	2 standard (1-FH/HL, 1-LP) PCIe 3.0
	Power Supply	(2) HP 460W CS Platinum Plus Hot Plug Redundant Power Supplies
	Fans	8 Hot Plug Redundant Fans
	Management	iLO Management Engine Standard Also includes HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License
	Form Factor	Rack (1U)
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

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 configurable 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.
NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

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

HP Models   HP ProLiant DL360p Gen8 10 SFF Configure-to-order Server   666532-B21

Factory Integrated Model ships with:

2 x HP Smart Socket Guides for fast processor installation
Drive Cage - 10-Small Form Factor
NOTE: The 10 SFF drive cage requires cache with the P420i order to function properly.
24 DIMM slots for RDIMM, UDIMM and HDIMM SmartMemory installation
NOTE: LRDIMMs cannot be used in the 10 SFF drive configuration.
(1) FlexibleLOM connection point: (see Step2: HP FlexibleLOM NIC section below for NIC choices to populate the embedded connector)
Smart Array P420i Controller (Cache connection for 512MB, 1GB and 2GB FBWC options)

NOTE: A cache module is required for the P420i when used with the 10 SFF drive cage.
I/O slots - 2 Slots come standard:

- Slot 1 - Low Profile x 8 PCIe 3.0
- Slot 2 - Full-Height/Half-Length x 16 PCIe 3.0

System Fans - 6 (2 additional fans included with second processor)
USB - 4 Rear, 2 Front, 1 Internal
1 Internal SD slot
On System Server Management Processor - HP iLO 4 (embedded)
SID - System Insight Display(Active Health Indicator)
Power Supply not included - choose from Power Options section
NOTE: With new options available for Networking solutions and Rack Rail Kits these options are no longer standard on-board with this Model Part Number. Please see the Networking and HP Rack Options below for optional required options.

HP ProLiant DL360p Gen8 8 SFF Configure-to-order Server   654081-B21

Factory Integrated Model ships with:

2 x HP Smart Socket Guides for fast processor installation
Drive Cage - 8-Small Form Factor
24 DIMM slots for RDIMM, LRDIMM, UDIMM and HDIMM SmartMemory installation
(1) FlexibleLOM connection point: (see Step2: HP FlexibleLOM NIC section below for NIC choices to populate the embedded connector)
Smart Array P420i Controller (Cache connection for 512MB, 1GB and 2GB FBWC options)
I/O slots - 2 Slots come standard:

- Slot 1 - Low Profile x 8 PCIe 3.0
- Slot 2 - Full-Height/Half-Length x 16 PCIe 3.0

System Fans - 6 (2 additional fans included with second processor)

Configuration Information - Factory Integrated Models

USB - 4 Rear, 2 Front, 1 Internal
1 Internal SD slot
On System Server Management Processor - HP iLO 4 (embedded)
SID - System Insight Display(Active Health Indicator)
Power Supply not included - choose from Power Options section
NOTE: With new options available for Networking solutions and Rack Rail Kits these options are no longer standard on-board with this Model Part Number. Please see the Networking and HP Rack Options below for optional required options.

HP ProLiant DL360p Gen8 4 LFF Configure-to-order Server	655651-B21

Factory Integrated Model ships with:

2 x HP Smart Socket Guides for fast processor installation
Drive Cage - 4-Large Form Factor
24 DIMM slots for RDIMM, LRDIMM,UDIMM and HDIMM SmartMemory installation
(1) FlexibleLOM connection point: (see Step2: HP FlexibleLOM NIC section below for NIC choices to populate the embedded connector)
Smart Array P420i Controller (Cache connection for 512MB, 1GB and 2GB FBWC options)
I/O slots - 2 Slots come standard:

- Slot 1 - Low Profile x 8 PCIe 3.0
- Slot 2 - Full-Height/Half-Length x 16 PCIe 3.0

System Fans - 6 (2 additional fans included with second processor)
USB - 4 Rear, 2 Front, 1 Internal
1 Internal SD slot
On System Server Management - (HP iLO Management Engine) (embedded)
SID - System Insight Display(Active Health Indicator)
Power Supply not included - choose from Power Options section
NOTE: With new options available for Networking solutions and Rack Rail Kits these options are no longer standard on-board with this Model Part Number. Please see the Networking and HP Rack Options below for optional required options.

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

HP Processors

NOTE: If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.

Entry Processors
NOTE: All support up to 1066MHz DDR3 memory speeds.

HP DL360p Gen8 Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/80W) FIO Processor Kit	654766-L21
HP DL360p Gen8 Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/80W) FIO Processor Kit	654780-L21

Base Processors
NOTE: All support up to1333MHz DDR3 memory speeds.

HP DL360p Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) FIO Processor Kit	654770-L21
HP DL360p Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) FIO Processor Kit	654768-L21
HP DL360p Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) FIO Processor Kit	654782-L21
HP DL360p Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) FIO Processor Kit	654764-L21

Performance Processors
NOTE: All support up to 1600MHz DDR3 memory speeds.

Configuration Information - Factory Integrated Models

HP DL360p Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) FIO Processor Kit	664011-L21
HP DL360p Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) FIO Processor Kit	654789-L21
HP DL360p Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) FIO Processor Kit	654786-L21
HP DL360p Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) FIO Processor Kit	654791-L21
HP DL360p Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) FIO Processor Kit	666029-L21
HP DL360p Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) FIO Processor Kit	654784-L21
HP DL360p Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) FIO Processor Kit	654772-L21
HP DL360p Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) FIO Processor Kit	654778-L21
HP DL360p Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) FIO Processor Kit	654774-L21
HP DL360p Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) FIO Processor Kit	654776-L21

HP Memory

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21

Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21

Configuration Information - Factory Integrated Models

HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21

Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647903-B21

NOTE: LRDIMMs are not supported in the 10 SFF drive configuration.

HyperCloud DIMMs (HDIMM)

HP 16GB (1x16GB) Dual Rank x4 PC3-10600H (DDR3-1333) HyperCloud CAS-9 FIO Memory Kit	678279-B21

NOTE: In order to use HyperCloud memory, 12 DIMMs per processor must be populated.

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

NOTE: Depending on the memory configuration and processor model, 1600MHz and 1333MHz memory may operate at a lower speed. Please see the see the "Memory" section later in this document and the Online Memory Configuration Tool for details at www.hp.com/go/ddr3memory-configurator.

NOTE: For additional memory rules and guidelines, see the "Memory" section later in this document.

NOTE: For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient

NOTE: PC3L is a low voltage memory.

NOTE: Intel E5 E5-2620 processor does not support LV DIMMs running at 1.35V. The HP RBSU can be changed to run at 1.5V.

NOTE: Not all Intel E5 processor series support 1600MHz or 1333MHz speeds. Memory speed is a function of the processor QPI speed.

HP Networking

FlexibleLOM Adapters

NOTE: The HP ProLiant DL360p Gen8 server requires one FlexibleLOM to be installed in the FlexibleLOM slot. The choice is one of the from the "HP Networking" or "HP InfiniBand" sections. The FlexibleLOM Adapters in these two sections are Factory Integrated Options (FIO) only since this server requires a FlexibleLOM in the configuration. The FlexibleLOM Adapters listed in Step 4 are for upgrades or changes from the original FlexibleLOM and the part numbers are different.

NOTE: FLR Indicates new HP FlexibleLOM Adapter for rack server series.

HP Ethernet 1Gb 4-port 331FLR FIO Adapter	684208-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ FIO Adapter	684210-B21
HP FlexFabric 10Gb 2-port 554FLR-SFP+ FIO Adapter	684213-B21
HP Ethernet 1Gb 4-port 366FLR FIO Adapter	684217-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ FIO Adapter	684218-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.

HP InfiniBand

HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP Adapter	649282-B21
HP Infiniband QDR/Ethernet 10Gb 2-port 544FLR-QSFP Adapter	649283-B21

NOTE: 10Gb Ethernet requires the use of the QSFP to SFP+ adapter P/N 655874-B21.

NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_na/13078_na.html

Configuration Information - Factory Integrated Models

HP Power Supplies

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.

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: www.hp.com/go/hppoweradvisor.

HP Common Slot Platinum Plus Power Supply Kits
NOTE: The following Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.

HP 460W Common Slot Platinum Plus Hot Plug Power Supply Kit	656362-B21
HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit	656363-B21
HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

HP Common Slot Gold Power Supplies
NOTE: The following Power Supplies offer up to 92% efficiency

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21

HP Common Slot -48VDC Power Supplies
NOTE: The following Power Supplies offer 92% Efficiency.

HP 750W Common Slot -48VDC Hot Plug Power Supply Kit	636673-B21

NOTE: The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user.

NOTE: Option Kits for AC power supplies include the power supply and one PDU IEC cable.

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

NOTE: Power Specification and Technical Content for supported power supplies can be found at:
http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Factory Integratable Options

HP Rack Kits	**NOTE:** Gen8 rail kits have changed significantly from prior generation rail kits. Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen8 server.	
	NOTE: Rail kits are optional for Gen8 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.	
	Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.	
	HP 1U Friction Gen8 FIO Rail Kit	663200-B21
	NOTE: Kit contains non-telescoping friction rails which do not allow for in rack serviceability. The HP 1U Gen8 Cable Management Arm is not available when using Friction Rails. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.	
	NOTE: See HP Rack Options in Additional Options section of this QuickSpec for more rack kit choices.	
HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	582765-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section 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 DL360 Gen8 Front Video Adapter Kit	655915-B21

HP Processors

NOTE: If two processors are desired, select the second from the xxxxxx-B21 below.

Entry Processors
NOTE: All Entry Processors support up to 1600MHz DDR3 memory speed.

HP DL360p Gen8 Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/80W) Processor Kit	654766-B21
HP DL360p Gen8 Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/80W) Processor Kit	654780-B21

Base Processors
NOTE: All Base Processors support up to 1333MHz DDR3 memory speed.

HP DL360p Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) Processor Kit	654770-B21
HP DL360p Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) Processor Kit	654768-B21
HP DL360p Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) Processor Kit	654782-B21
HP DL360p Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) Processor Kit	654764-B21

Performance Processors
NOTE: All support up to 1600MHz DDR3 memory speeds.

HP DL360p Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) Processor Kit	664011-B21
HP DL360p Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) Processor Kit	654789-B21
HP DL360p Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) Processor Kit	654786-B21
HP DL360p Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) Processor Kit	654791-B21
HP DL360p Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) Processor Kit	666029-B21
HP DL360p Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) Processor Kit	654784-B21
HP DL360p Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) Processor Kit	654772-B21
HP DL360p Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) Processor Kit	654778-B21
HP DL360p Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) Processor Kit	654774-B21
HP DL360p Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) Processor Kit	654776-B21

NOTE: Up to 2 processors supported. Energy Star - High Performance Model and Energy Star Certified configurations include two processors with 8 Hot Plug Redundant fans.
NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

HP Memory

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html
NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

Core Options

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit S-Buy	647893-S21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit S-Buy	647897-S21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit S-Buy	647901-S21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit S-Buy	647895-S21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit S-Buy	647899-S21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit S-Buy	672631-S21

Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit S-Buy	647905-S21
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit S-Buy	647907-S21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21

Load Reduced DIMMs (LRDIMMs)

Core Options

| | HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit | 647903-B21 |

NOTE: LRDIMMs are not supported in the 10 SFF drive configuration.

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.
NOTE: PC3L is a low voltage memory.

| **HP Optical Drives** | HP 9.5mm SATA DVD-ROM JackBlack Optical Drive | 652238-B21 |
| | HP 9.5mm SATA DVD-RW JackBlack Optical Drive | 652241-B21 |

HP Hard Drives

NOTE: The HP ProLiant DL360p Gen8 Smart Storage solutions are equipped with entirely re-designed Small Form Factor (SFF 2.5 in) and Large Form Factor (LFF 3.5 in) hot plug carriers for HP Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove".
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 with SmartDrive SFF (2.5-inch) Enterprise Drives

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	697574-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652589-S21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652583-S21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652564-S21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652611-S21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652605-S21

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

HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21

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

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652620-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652615-B21

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

HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	695510-B21

Core Options

HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html

6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives

HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	655710-S21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	655708-S21

6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives

HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	657750-S21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	658071-S21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html

6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691868-B21
HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691866-B21
HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21
HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691862-B21

6G SATA ME Hot Plug SFF (3.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691860-B21
HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691856-B21
HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691854-B21
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691852-B21

6G SAS ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	690829-B21

Core Options

	HP 400GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	690827-B21
	HP 200GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	690825-B21

6G SAS SLC Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives

	HP 400GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653082-B21
	HP 200GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653078-B21

3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

	HP 400GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653120-B21
	HP 200GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653118-B21
	HP 100GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653112-B21

3G SATA MLC Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives

	HP 400GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653126-B21
	HP 200GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653124-B21
	HP 100GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653122-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html

Hard Drive Kits

NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

HP SFF Gen8 Hard Drive Blank Kit	666987-B21
HP LFF Gen8 Hard Drive Blank Kit	666986-B21

Hard Drive Cables

HP DL38x/DL360 Gen8 Embedded SATA Cable Kit	664009-B21

NOTE: This cable is only required to connect a single SATA drive to the embedded Intel SATA controller. The P420i controller is not used in this configuration and should be disabled via RBSU to save power.

Core Options

HP Networking	**Gigabit Ethernet Adapters**	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
	HP Ethernet 1Gb 2-port 332T Adapter	615732-B21

10 Gigabit Ethernet Adapters

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. See cables/options below.

HP NC552SFP 10Gb 2-port Ethernet Server Adapter		614203-B21
HP NC523SFP 10Gb 2-port Server Adapter		593717-B21
HP Ethernet 10Gb 2-port 530SFP Adapter		652503-B21
HP Ethernet 10Gb 2-port 530T Adapter		656596-B21
HP Ethernet 10Gb 2-port 560SFP+ Adapter		665249-B21
HP Ethernet 10Gb 2-port 570SFP+ Adapter		718904-B21

FlexibleLOM Adapters

NOTE: For the following FlexibleLOM Network Adapters, only 1 FlexibleLOM can be added to the server, which is selected in Step 2 of the "Configuration Information - Factory Integrated Models" section. These options are for upgrade or change from original configuration after the server is shipped.

HP Ethernet 1Gb 4-port 331FLR Adapter		629135-B21
HP Ethernet 1Gb 4-port 366FLR Adapter		665240-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter		647581-B21
HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter		629142-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter		665243-B21

NOTE: SFP Transceivers for the 530FLR-SFP+ are not included with the server and must be purchased separately.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.

Core Options

HP InfiniBand	QLogic InfiniBand 4X QDR PCI-E G2 Dual Port HCA	583211-B21
	HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
	HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544QSFP Adapter	649281-B21

NOTE: For the following two InfiniBand Adapters, only 1 FlexibleLOM can be added to the server, which is selected in Step 2 for the "Configuration Information - Factory Integrated Models" section. These two options are for upgrade or change from original configuration.

NOTE: FLR Indicates new HP FlexibleLOM Adapter series.

	HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP Adapter	649282-B21
	HP Infiniband QDR/Ethernet 10Gb 2-port 544FLR-QSFP Adapter	649283-B21

NOTE: 10Gb Ethernet requires the use of the QSFP to SFP+ adapter P/N 655874-B21.
NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13078_na/13078_na.html

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HP Power Supplies

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.

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: www.hp.com/go/hppoweradvisor

HP Common Slot Platinum Plus Power Supply Kits
NOTE: The following Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.

	HP 460W Common Slot Platinum Plus Hot Plug Power Supply Kit	656362-B21
	HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit	656363-B21
	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

HP Common Slot Gold Power Supplies
NOTE: The following Power Supplies offer up to 92% efficiency.

	HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
	HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21

HP Common Slot -48VDC Power Supplies
NOTE: The following Power Supplies offer 92% Efficiency.

	HP 750W Common Slot -48VDC Hot Plug Power Supply Kit	636673-B21

NOTE: The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user.

NOTE: Option Kits for AC power supplies include the power supply and one PDU IEC cable.

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

NOTE: Power Specification and Technical Content for supported power supplies can be found at:
http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html

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Core Options

HP Graphic Options   HP DL360 Gen8 Front Video Adapter Kit   655915-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 Insight Software	HP Insight Control	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	C6N28AAE
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Electronic License	C6N36AAE
	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: 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 QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html

HP Integrated Lights-Out (iLO) Advanced for ProLiant

	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
	HP iLO Advanced Electronic License with 3yr 24x7 Tech Support and Updates	BD506AAE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A

NOTE: For additional license options please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_na/14276_na.html **NOTE:** For more information, visit: http://www.hp.com/go/ilo

Additional Options

High Performance Clusters	**HP Cluster Management Utility**	
	HP Insight Cluster Management Utility 1yr 24x7 Flexible License	QL803B
	HP Insight Cluster Management Utility 3yr 24x7 Flexible License	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: For additional license kits please see the QuickSpecs at http://h18004.www1.hp.com/products/quickspecs/12612_na/12612_na.html.	
	HP HPC Linux Value Pack	
	HP High Performance Computing Linux Value Pack 1 Processor Flexible License for ProLiant Servers	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.	
	HP High Performance Computing Linux Value Pack Media Kit for ProLiant Servers	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_na/13485_na.html.	
HP I/O Accelerator Options	**Second Generation Accelerators**	
	HP 365GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673642-B21
	HP 785GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673644-B21
	HP 1205GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673646-B21
	HP 3TB G2 FH/HL PCIe ioDrive2 IO Accelerator for ProLiant Servers	721458-B21
	First Generation Accelerators	
	HP 160GB Single Level Cell PCIe ioDrive for ProLiant Servers	600278-B21
	NOTE: A low-profile PCI bracket is included for use in low-profile slots.	
	HP 320GB Single Level Cell PCIe ioDrive Duo for ProLiant Servers	600281-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13587_na/13587_na.html	

Additional Options

HP PCIe Workload Accelerator Options	HP 350GB HH/HL PCIe Workload Accelerator for ProLiant Servers	708088-B21
	HP 700GB HH/HL PCIe Workload Accelerator for ProLiant Servers	708090-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14528_na/14528_na.html

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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. 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 1U Security Gen8 Bezel Kit	664918-B21

HP Storage Controllers

SAS Controllers

Smart Array P222 Controller

HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller	631667-B21

NOTE: A quantity of 1 HP Mini SAS Str to Left 33in Cable Assy (662899-B21) is required for proper connectivity.

Smart Array P421 Controller

HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21
HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21

Smart Array P822 Controller

HP Smart Array P822/2GB FBWC 2-ports Int/4-ports Ext SAS Controller	615418-B21

NOTE: A quantity of 2 HP Mini SAS Str to Left 33in Cable Assy (662899-B21) are required for proper connectivity.

Optional Upgrades

HP 1GB P-series Smart Array Flash Backed Write Cache	631679-B21
HP 2GB P-series Smart Array Flash Backed Write Cache	631681-B21
HP 512MB P-series Smart Array Flash Backed Write Cache	661069-B21
HP Mini SAS Straight to Left 33in Cable Assembly	662899-B21
HP Smart Array Advanced Pack 2.0 No Media 1 Server 1yr 24x7 Support Software	BC377A
HP Smart Array Advanced Pack 2.0 No Media Electronic Lic 1yr 24x7 Support Software	BC390AAE

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

Additional Options

http://h18000.www1.hp.com/products/quickspecs/14227_na/14227_na.html
(Smart Array P222 Controller)
http://h18000.www1.hp.com/products/quickspecs/14229_na/14229_na.html
(Smart Array P421 Controller)
http://h18000.www1.hp.com/products/quickspecs/14341_na/14341_na.html
(Smart Array P822 Controller)
http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html
(Smart Array Advanced Pack)

Host Bus Adapter

HP H221 Host Bus Adapter	650931-B21

NOTE: This is a 2 x4 External Port HBA.
NOTE: This is only approved for the HP P2000 G3 SAS Modular Smart and tape drives.

HP H222 Host Bus Adapter	650926-B21

NOTE: A quantity of 1 HP Mini SAS Str to Left 33in Cable Assy (662899-B21) is required for proper connectivity.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/14222_na/14222_na.html
(HBA 221)
http://h18004.www1.hp.com/products/quickspecs/14337_na/14337_na.html
(HBA 222)

SCSI HBA

HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21

NOTE: Please see the following QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html
(SC11Xe HBA)

HP Cable Options		
	HP BladeSystem c-Class Small Form-Factor Pluggable 5m 10GbE Copper Cable	537963-B21
	HP BladeSystem c-Class Small Form-Factor Pluggable .5m 10GbE Copper Cable	487649-B21
	HP BladeSystem c-Class Small Form-Factor Pluggable 1m 10GbE Copper Cable	487652-B21
	HP BladeSystem c-Class Small Form-Factor Pluggable 3m 10GbE Copper Cable	487655-B21
	HP BladeSystem c-Class Small Form-Factor Pluggable 7m 10GbE Copper Cable	487658-B21
	HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable	J9300A
	HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
	HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A
	HP C-Series SFP+ to SFP+ Copper 3.0m Direct Attach Cable	AP784A
	HP C-Series SFP+ to SFP+ Copper 5.0m Direct Attach Cable	AP785A
	HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
	HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
	HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
	HP C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A
	HP C-series SFP+ to SFP+ Active Copper 10.0m Direct Attach Cable	QK702A
	HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
	HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A

Additional Options

HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
HP B-series SFP+ to SFP+ Active Copper 1.0m Direct Attach Cable	AP818A
HP B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable	AP819A
HP B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable	AP820A

HP Power Cords	HP C13 - C14 WW 250V 10A Gray 0.7m Jumper Cord	A0K03A
	HP C13 - C14 WW 250V 10A Gray 1.37m Jumper Cord	A0K04A
	HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	HP C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
	HP C13 - NBR-14136 BR 250V 10Amp 1.83m Power Cord	AF591A
	HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	HP C13 - C14 WW 250V 10Amp 2.0m Jumper Cord	A0K02A
	HP C13 - IS-1293 IN 250V 10Amp HV 2.5m Power Cord	SG579A
	HP C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
	HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	HP C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
	HP C13 - C14 WW 250V 10A Gray 3.0m Jumper Cord	A0K06A
	HP C13 - Nema 6-15P US 250V 15A JP 3.6m Power Cord	A0N33A
	HP C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
	HP C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
	HP C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
	HP C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
	HP C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A
	HP C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
	HP C13 - C14 WW 250V 10Amp Flint Gray 2.0m Jumper Cord	AF573A

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 and www.hp.com/go/ebs. **NOTE:** For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.	
	HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
	HP StoreEver LTO-6 Ultrium 6650 Internal Tape Drive	EH963A
	HP StoreEver LTO-6 Ultrium 6650 External Tape Drive	EH964A
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HP Disk Backup	**NOTE:** 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 Rack-mount Kits	
	HP StoreEver 1U USB Rack-mount Kit	A8007B
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	AP770B
	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 SN1000E 16Gb 1-port PCIe Fibre Channel Host Bus Adapter	QR558A
	HP SN1000E 16Gb 2-port PCIe Fibre Channel Host Bus Adapter	QR559A
	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 StoreFabric SN1000Q 16GB 1-port PCIe Fibre Channel Host Bus Adapter	QW971A
	HP StoreFabric SN1000Q 16GB 2-port PCIe Fibre Channel Host Bus Adapter	QW972A
	Converged Network Adapter	
	HP CN1100E Dual Port Converged Network Adapter	BK835A
	HP CN1000Q Dual Port Converged Network Adapter	BS668A

Additional Options

HP Uninterruptible Power Systems	**HP Rack-mountable UPS**

HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14059_na/14059_na.html

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

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14058_na/14058_na.html

R5000 Uninterruptible Power System (UPS)

HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14109_na/14109_na.html

R7000 Uninterruptible Power System (UPS)

HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14110_na/14110_na.html

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.
NOTE: For additional information on HP Uninterruptible Power Systems please go to: www.hp.com/servers/rackups.

HP Power Distribution Units	**Monitored PDUs**

HP Monitored Power Distribution Unit: Full Rack Version

HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF504A
HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF506A

HP Monitored Power Distribution Unit: Half Rack Version

HP 4.9kVA 24A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF914A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html

Modular PDUs 1U/0U
NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).

HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
HP 4.9kVA 24A High Voltage NA/JP Modular Power Distribution Unit	252663-D72

Additional Options

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: 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 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
	iPDU Extension Bars	
	HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
	HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13650_na/13650_na.html
NOTE: Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit www.hp.com/go/rackandpower.

HP Basic Power Distribution Units	HP 1.9kVA 120 Volt 12 Outlet NA/JP Basic Power Distribution Unit	H5M54A
	HP 2.8kVA 120 Volt 18 Outlet NA/JP Basic Power Distribution Unit	H5M55A
	HP 3.6kVA 200-240 Volt 12 Outlet WW Basic Power Distribution Unit	H5M56A
	HP 3.6kVA 200-240 Volt 20 Outlet WW Basic Power Distribution Unit	H5M57A
	HP 4.9kVA 208 Volt 20 Outlet NA/JP Basic Power Distribution Unit	H5M58A
	HP 4.9kVA 208 Volt 30 Outlet NA/JP Basic Power Distribution Unit	H5M59A
	HP 8.3kVA 208 Volt 36 Outlet NA/JP Basic Power Distribution Unit	H5M60A
	HP 8.6kVA 208 Volt Three Phase 18 Outlet NA/JP Basic Power Distribution Unit	H5M61A
	HP 8.6kVA 208 Volt Three Phase 30 Outlet NA/JP Basic Power Distribution Unit	H5M62A
	HP 5.7kVA 208 Volt Three Phase 27 Outlet NA/JP Dual Voltage Basic Power Distribution Unit	H5M63A
	HP 8.6kVA 208 Volt Three Phase 30 Outlet NA/JP Dual Voltage Basic Power Distribution Unit	H5M64A
	HP 11kVA 400 Volt Three Phase 42 Outlet NA Basic Power Distribution Unit	H5M67A
	HP Hardwired 200-240 Volt 36 Outlet WW Basic Power Distribution Unit	H5M75A
	HP 13.2kVA 480 Volt Three Phase 15 Outlet NA Basic Power Distribution Unit	H3X07A
	HP 19.9kVA 480 Volt Three Phase 30 Outlet NA Basic Power Distribution Unit	H3X08A
	HP 277 Volt options for H3X07A and H3X08A	
	HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14557_na/14557_na.html

NOTE: Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit www.hp.com/go/rackandpower.

HP Rack Series	**HP Intelligent Series Rack**	
	HP 636 1075mm Pallet Intelligent Series Rack	BW895A
	HP 636 1075mm Shock Intelligent Series Rack	BW896A
	HP 642 1075mm Pallet Intelligent Series Rack	BW903A
	HP 642 1075mm Shock Intelligent Series Rack	BW904A
	HP 647 1075mm Pallet Intelligent Series Rack	BW911A
	HP 647 1075mm Shock Intelligent Series Rack	BW912A

NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:
http://h18000.www1.hp.com/products/quickspecs/14223_na/14223_na.html (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

HP Rack Options	**HP Location Discovery Services**	
	HP 36U Location Discovery Kit	BW945A
	HP 42U Location Discovery Kit	BW946A
	HP 47U Location Discovery Kit	BW947A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14429_na/14429_na.html (Worldwide)

HP USB Keyboard and Mouse

HP USB BFR with PVC Free US Keyboard/Mouse Kit		631341-B21

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

HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor		AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor		AZ885A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13731_na/13731_na.html

HP Server Console Switches

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

Additional Options

HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A

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

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
HP KVM CAT5 1-pack USB Interface Adapter	336047-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13475_na/13475_na.html

HP 1x4 USB/PS2 KVM Console Switch

HP 1x4 USB/PS2 KVM Console Switch	AF611A
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: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13474_na/13474_na.html

Rail Kits

NOTE: Gen8 rail kits have changed significantly from prior generation rail kits. Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen8 server.
NOTE: Rail kits are optional for Gen8 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.
NOTE: To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative (p/n 695539-001).
Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

HP 1U Small Form Factor Ball Bearing Gen8 Rail Kit	663201-B21

NOTE: For SFF models.
NOTE: HP 1U Small Form Factor Ball Bearing Gen8 Rail Kit ships standard with some BTO Preconfigured Channel Models.

HP 1U Gen8 Cable Management Arm	663203-B21

NOTE: The HP 1U Gen8 Cable Management Arm is optional for the SFF and LFF Ball Bearing Rail Kits and is not available for use with the Friction Rail Kit.

HP 1U Large Form Factor Ball Bearing Gen8 Rail Kit	663202-B21

NOTE: For LFF models.

Additional Options

HP USB and SD Options	**HP Flash Media Kits for USB Drives**	

HP USB and SD Options

HP Flash Media Kits for USB Drives

HP 2GB USB Flash Media Drive Key Kit — 608447-B21

NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software. 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.

HP Enterprise Performance Flash Media Kits for Memory Cards

HP 4GB SD Enterprise Performance Flash Media Kit — 580387-B21

NOTE: Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization.

HP Enterprise Mainstream Flash Media Kits for Memory Cards — 700136-B21

HP 32GB SD Enterprise Mainstream Flash Media Kit

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13971_na/13971_na.html

HP Care Pack Services

Proactive Care

NOTE: Collaborative Support plus Proactive services delivered by the onshore, local language Advanced Solution Center (ASC), end-to-end case ownership from a Technical Solution Specialists and Technical Account Manager who remotely delivers firmware/software revision management, proactive scans and incident trend reports. Recommended for customers running a virtualized infrastructure and/or customers who desire an enhanced call support experience.

HP 3 year 4 hour 24x7 ProLiant DL36x(p) Proactive Care Service — U2Z86E

HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL36x(p) Proactive Care Service — U2Z89E

HP 3 year 6 hour Call To Repair 24x7 ProLiant DL36x(p) Proactive Care Service — U2Z92E

HP 3 year 6 hour Call To Repair 24x7w/Defective Media Retention ProLiant DL36x(p) Proactive Care SVC — U2Z95E

HP 3 year 4 hour 24x7 ProLiant DL36x(p) with Insight Control Proactive Care Service — U3N59E

HP 3 year 4hr 24x7 with Defective Media Retention DL36x(p) with Insight Control Proactive Care SVC — U3N62E

HP 3 year 6 hour Call To Repair 24x7 ProLiant DL36x(p) with Insight Control Proactive Care Service — U3N65E

HP 3yr 6hrCallToRepair 24x7w/Defective Media Retention DL36x(p) w/Insight Control Proactive Care SVC — U3N68E

Collaborative Support

NOTE: Hardware break/fix plus 24x7 software diagnosis support with collaborative call management for a broad spectrum of 3rd Party software products including O/S and hypervisors. Recommended for customers procuring 3rd party SW O/S and hypervisors from the software vendors directly and deploying them on HP ProLiant servers.

HP 3 year 4 hour 24x7 ProLiant DL36x(p) Collaborative Support — U1J66E

Additional Options

HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL36x(p) Collaborative Support	U1J69E
HP 3 year 6 hour Call To Repair 24x7 ProLiant DL36x(p) Collaborative Support	U1J72E
HP 3 year 6hr Call To Repair 24x7 withDefective Media Retention ProLiant DL36x(p) Collaborative Supp	U1J75E

Proactive Care Personalized Support Option

NOTE: To add an onsite Account Support Manager (ASM) to Proactive Care. ASM is an assigned resource who delivers support planning and brings technical expertise and best practices advices for the customer's environment.

HP 3 year ISS ProactiveCare Personalized Support	U6W98E

Installation Services

NOTE: Reduce the time required to get your system up and running and help minimize disruptions to your business.

HP Install ProLiant DL36x(p) Service	U4506E
HP Startup ProLiant DL36x(p) Service	U4507E
HP Installation of ProLiant Add On/In Options Service	UH745E
HP Install ProLiant DL38x(p) Service	U4554E
HP Startup ProLiant DL38x(p) Service	U4555E
HP Installation and Startup for Insight Control Server Deployment - previously Rapid Deployment Pack	U5683E

NOTE: For more information, customer/resellers can contact:

http://www.hp.com/services/carepack.

Memory

HP SmartMemory

New HP SmartMemory now provides additional protection for your servers. With HP Authentication it can verify that you have true HP Qualified Memory in your HP ProLiant Gen8 server. With HP SmartMemory your new HP ProLiant server can take advantage of additional Gen8 enhancements in performance, durability and future manageability support through HP Active Health System
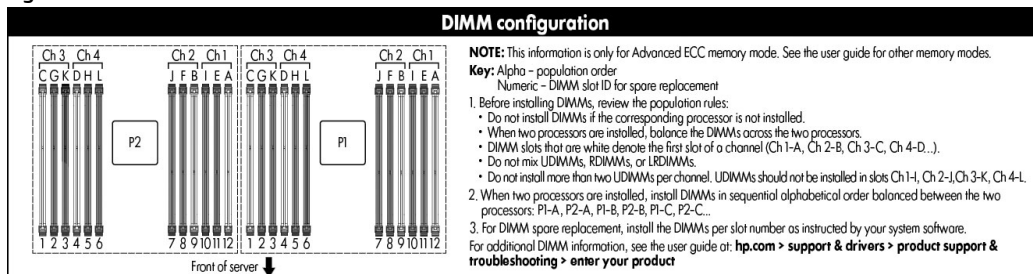
For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:
www.hp.com/go/ddr3memory-configurator

Memory Subsystem Architecture

Each Intel® Xeon® E5-2600 family processor socket contains four memory channels that support three DIMMs each for a total of twelve (12) DIMMs per installed processor or a grand total of Twenty Four (24) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 768GB of max memory (for Best Speed (1600MHz) run 2 DIMMs per channel or 16 DIMM slots x 16GB per DIMM = 256GB).

Memory population guidelines

General Memory Population Rules and Guidelines:

- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- A minimum of one DIMM is required per server.
- When using HDIMM, 12 DIMMs per processor must be populated.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and to load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- 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 processor.
- The Intel Xeon E5-2620 processor does not support DIMMs at 1.35V. Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.
- Do not mix UDIMMs, RDIMMs,LRDIMMs or HDIMMs.
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- HP memory from previous generation servers is not compatible with the DL360p Gen8 Server. Certain HP SmartMemory features such as memory authentication and enhanced performance may not be supported.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at:

Memory

http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html (Worldwide)

- For memory population rules and additional memory guidelines, please see the DL360p Gen8 user guide at http://www.hp.com/support
- There are four (4) Memory channels per processor; eight (8) channels per 2 processor server .
- There are three (3) DIMM slots for each memory channel; twenty four (24) total slots for 2 processor server .
- Memory channels1 and 3 consists of the three (3) DIMMs that are furthest from the processor .
- Memory channel 2 and 4 consists of the three (3) DIMMs that are closest to the processor.

For Servers with 24 DIMM slots available

Gen8 Supported Memory Bandwidth and Capacity

DIMM Type	Registered DIMMS (RDIMMs)							Load Reduced (LRDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)						Hy M (H
DIMM Rank	Single Rank (1R)			Dual Rank (2R)				Quad Rank (4R)	Single Rank (1R)		Dual Rank (2R)				Du
DIMM Capacity	4GB	4GB	8GB	8GB	8GB	16GB	16GB	32GB	2GB	2GB	4GB	4GB	8GB	8GB	
DIMM Native Speed (MHz)	1333	1600	1600	1333	1600	1333	1600	1333	1600	1333	1333	1600	1333	1600	
Voltage	LV	Std	Std	LV	Std	LV	Std	LV	Std	LV	LV	Std	LV	Std	
SLOTS THAT CAN BE POPULATED															
24 slot servers	24	24	24	24	24	24	24	24	16	16	16	16	16	16	
MAXIMUM CAPACITY (GB) *															
24 slot servers	96	96	192	192	192	384	384	768	32	32	64	64	128	128	
POPULATED DIMM SPEED (MHz)															
1 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***	1600	1333	1333	1600	1333	1600	
2 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***	1600	1333****	1333****	1600	1333****	1600	
3 DIMM Per Channel	1066**	1333##	1333##	1066**	1333##	1066**	1333##	1066	n/a	n/a	n/a	n/a	n/a	n/a	1

NOTES:
* Maximum capacity will vary based on individual server platform qualification schedule
** For HP SmartMemory, RDIMM support 3DPC@1066 at 1.35V. Third party memory may only support up to 3DPC@1066 at 1.5V.
*** LRDIMM enables 3 DIMMs per channel. HP SmartMemory will support up to 3DPC@1066 at 1.35V. Third party memory may only suppo @1066 at 1.5V.
**** For HP SmartMemory, UDIMM is supported at 2DPC@1333. Third party memory may only support up to 2DPC@1066.
RBSU setting required

Memory

Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2690, E5-2680, E5-2670, E5-2667, E5-2665, E5-2660, E5-2650, E5-2650L, E5-2643, E5-2637	1600/1333/1066MHz
E5-2640, E5-2630, E5-2630L, E5-2620	1333/1066MHz
E5-2609, E5-2603	1066MHz

Standard and Maximum Memory Capacity (Pre-configured Models)

Pre Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
Intel Xeon E5-2690, E5-2650	32GB (4x 8GB)	352GB (20x16GB, 4x8GB)	768GB (24 x 32GB)
Intel Xeon E5-2640, E5-2630	16GB (4x 4GB)	336GB (20x16GB, 4x4GB)	768GB (24 x 32GB)
Intel Xeon E5-2603	4GB (1x 4GB)	372GB (23x16GB, 1x4GB)	768GB (24 x 32GB)

DIMM slot and configuration diagrams
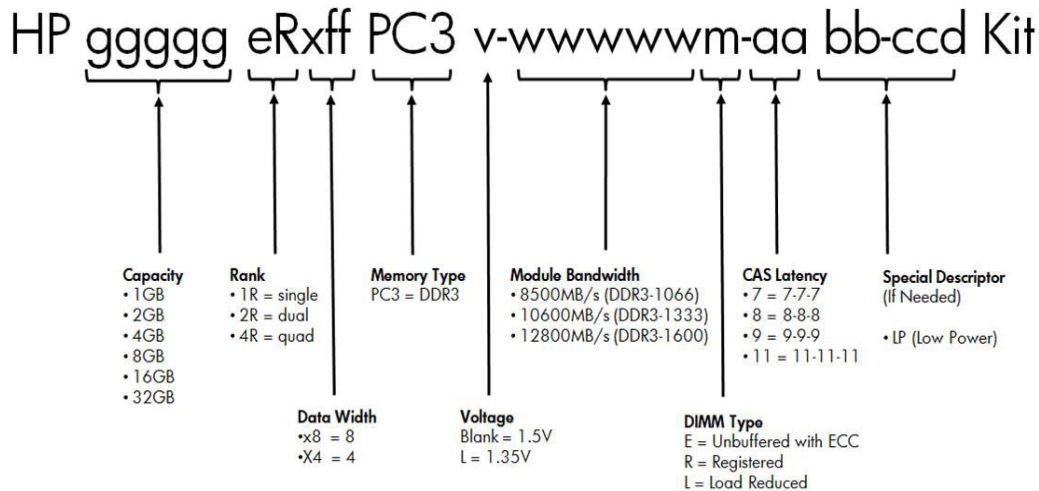**Basic memory slot & population diagram**

- Population order; looking from the front of your server CPU#1 is on right side and CPU#2 is on the left. The CPUs sit in the middle of the memory they manage and are populated from the right and left to the center for best performance. See the population order by alphabetic and numeric progression below.

CPU #1 IS PROCESSOR ON RIGHT - LOOKING FROM FRONT OF SERVER												
	Channel 3			Channel 4			CPU #1	Channel 2			Channel 1		
slot #	1	2	3	4	5	6		7	8	9	10	11	12
population order	C	G	K	D	H	L		J	F	B	I	E	A
In Order	3	7	11	4	8	12	-	10	6	2	9	5	1

CPU #2 IS PROCESSOR ON LEFT - LOOKING FROM FRONT OF SERVER												
	Channel 3			Channel 4			CPU #2	Channel 2			Channel 1		
slot #	1	2	3	4	5	6		7	8	9	10	11	12
population order	C	G	K	D	H	L		J	F	B	I	E	A
In Order	3	7	11	4	8	12	-	10	6	2	9	5	1

DDR3 memory options part number decoder

Memory

HP ggggg eRxff PC3 v-wwwwwm-aa bb-ccd Kit

Capacity	Rank	Memory Type	Module Bandwidth	CAS Latency	Special Descriptor
• 1GB	• 1R = single	PC3 = DDR3	• 8500MB/s (DDR3-1066)	• 7 = 7-7-7	(If Needed)
• 2GB	• 2R = dual		• 10600MB/s (DDR3-1333)	• 8 = 8-8-8	
• 4GB	• 4R = quad		• 12800MB/s (DDR3-1600)	• 9 = 9-9-9	• LP (Low Power)
• 8GB				• 11 = 11-11-11	
• 16GB					
• 32GB					

Data Width
• x8 = 8
• X4 = 4

Voltage
Blank = 1.5V
L = 1.35V

DIMM Type
E = Unbuffered with ECC
R = Registered
L = Load Reduced

Following are memory options available from HP:

HP Memory

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21

Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21

Memory

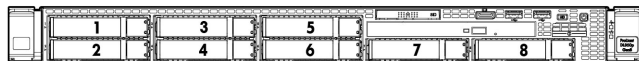|	
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21

Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647903-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: 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.

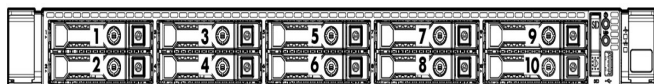## Storage

1-8   8 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays with Optical Media Bay option available for this configuration

1-4   4 x LFF SATA/SAS/SSD Hot Pluggable Hard Drives with Optical Media Bay option

1-10   10 x SFF SATA/SAS/SSD Hot Pluggable Hard Drives

Drive Support

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P222/512MB FBWC Controller
	Up to 8	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P222/512MB FBWC Controller
	Up to 4	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller

Technical Specifications

System Unit				
	Dimensions (H x W x D)	8 SFF and 10 SFF	1.7 x 17.1 x 27.5 inches (4.32 x 43.47 x 69.85 cm)	
		4 LFF	1.7 x 17.1 x 29.5 inches (4.32 x 43.47 x 74.67 cm)	
	Weight (approximate)	Maximum (all hard drives, power supply, and processor installed)	8 SFF	42.3 lb (19.2 kg)
			10 SFF	42.3 lb (19.2 kg)
			4 LFF	45.6 lb (20.7 kg)
		Minimum (one hard drive, power supply, and processor installed)	32 lb (14.51 kg)	
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC	
		Rated Input Current	4.5 Amps (at 120VAC) to 2.2 Amps (at 240 VAC)	
		Rated Input Frequency	50 to 60 Hz	
	BTU Rating	Maximum	1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)	
	Power Supply Output (per power supply)	Rated Steady-State Power	460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)	
			750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC)	
		Maximum Peak Power	460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)	
			750 W (at 100 to 120 VAC), 750 W (at 200 to 240 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 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 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	3048 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).	

Technical Specifications

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 (Note 1)

	LWAd	5.1 B Average Bystander
	LpAm	35.8 dBA

Operating

	LWAd	5.4 B Average Bystander
	LpAm	39.9 dBA

Idle (Note 2)

	LWAd	5.2 B Average Bystander
	LpAm	38 dBA

Operating

	LWAd	5.9 B Average Bystander
	LpAm	41.6 dBA

NOTE: Configuration tested included two Intel E5-2640, 2.5GHz processors, one 500GB SAS HDD, eight system fans, two 4GB RDIMM's 1333MHz, one 460W power supply.

NOTE: Configuration tested included two Intel E5-2640, 2.5GHz processors, four 500GB SAS HDD, eight system fans, sixteen 4GB RDIMM's 1333MHz, one 460W power supply, P421 HDD controller PCI card with 1GB cache.

NOTE: Values are subject to change without notification and are for reference only.

NOTE: Performance of system, options, and ancillary equipment will vary depending on the system configuration.

NOTE: Levels presented do not account for non-Hewlett-Packard installed hardware.

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.

Technical Specifications

HP Smart Array P420i Controller	**Dimensions**	Embedded
	Disk Drive and Enclosure Interface - Transfer rate	6Gb/s SAS (Serial Attached SCSI) 6Gb/s SATA (Serial ATA)
	SAS Connectors	2 internal 4X connectors
	Cache Memory Speed	512MB FBWC - DDR3-1333MHz with 40-bit wide bus, 1GB or 2 GB FBWC DDR3-1333MHz with 72-bit wide bus
	Server Interface	x8 PCIe 3.0 provides 2GB/s maximum bandwidth
	SAS Speed	8 6Gb/s SAS links provide 4.8GB/s maximum bandwidth
	Cache Memory	Zero Memory RAID has no cache memory 40-bit 512MB ECC protected flash back write cache 72-bit 1GB FBWC or 72-bit 2GB FBWC
	Logical Drives Supported	Zero Memory, Up to 2 logical volumes (8SFF or 4LFF physical drives) Up to 64 logical drives with cache
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) **NOTE:** RAID 6, 6+0 can be enabled with one of the following combinations:

- 512 MB FBWC and Smart Array Advanced Pack License key option upgrades
- 1G or 2GB FBWC and Smart Array Advanced Pack License key option upgrades

RAID 5, 5+0 (Distributed Data Guarding)
NOTE: A minimum or 512 MB cache is required to enable RAID 5, 5+0 support

RAID 1+0 (Striping & Mirroring)

RAID 0 (Striping), RAID 1 (Mirroring)

HP Ethernet 1Gb 4-port 331FLR Adapter	**HP Flexible Network Technology**	HP FlexibleNet Technology consists of replaceable network solutions to meet the customers require now or in the future. **NOTE:** Part of the DL360p Gen8 platform is the HP FlexibleLOM. The FlexibleLOM comes in multiple versions and is a removable card system similar to PCI cards. Shown here are the technical specifications for the HP Ethernet 1Gb 4-port 331FLR Adapter on most DL360p Gen8 BTO Entry, Base and Performance models.
	Network Interface	10Base-T/100Base-TX/1000Base-TX
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 802.3ad 1000Base-TX IEEE 802.1p 100Base-TX IEEE 802.1q 100Base-TX
	Data Transfer Method	PCI Express, four lanes (x4)
	Chipset	BCM5719
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s
		10Base-T (Full-Duplex) 20 Mb/s

Technical Specifications

		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher 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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