

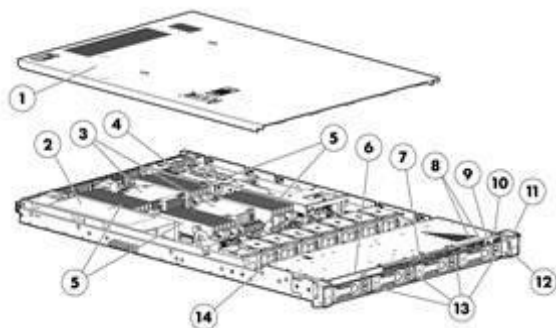
# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Overview

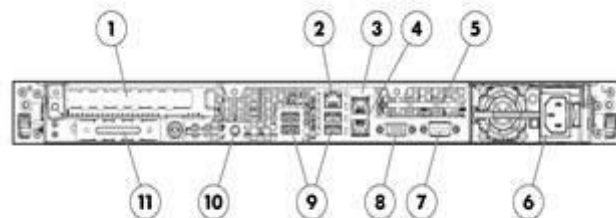
#### HP ProLiant DL160 Generation 8 (Gen8)

The HP ProLiant DL160 Gen8 is a dual-socket, high-performance, dense rack server with enhanced manageability and scalability suited for High Performance Computing (HPC) environments, web serving and other hyperscale environments.



#### Front View:

1. Access panel
2. Power supply (500 Watts multi-output - standard, common slot power supply factory installable options available)
3. Up to two Intel® Xeon® E5-2600 Series processors
4. FlexibleLOM slot
5. Up to 24 DIMM slots: DDR3 Registered (RDIMM), Load Reduced (LRDIMM) or Unbuffered (UDIMM) memory
6. Optical Disk Drive Bay
7. Serial label pull tab
8. (2) Front USB connectors
9. UID LED button
10. Power On/Standby button
11. Health LED
12. Aggregate network LED
13. Up to 4 LFF SAS/ SATA Hard drives
14. Up to seven Non hot plug redundant Fans



#### Rear View:

1. PCIe 3.0 I/O slot
2. Integrated Lights-Out Management Engine port
3. 1 GbE LAN port for NIC 1 (RJ-45)
4. 1 GbE LAN port for NIC 1 (RJ-45)
5. Torx tool
6. Power supply cable socket
7. Serial connector
8. Video connector
9. USB connectors
10. UID LED button
11. FlexibleLOM slot

### What's New

- New HDD offering.

## 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

**Eight -Core Processors**

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® E5-2665 (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)

**Six-Core Processors**

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® E5-2640 (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® E5-2630L (2.0GHz/6-core/15MB/8.0GT-s QPI/60W, 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)

**Quad- Core Processors**

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)

**NOTE:** Up to 2 processors supported.

**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 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:** 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.

**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 Chipset

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Standard Features

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 Drive Bay

2 PCIe Generation 3 IO slots for additional communications and storage expansion

Optical Drive Bay

#### On System Management Chipset

HP iLO (Firmware: HP iLO 4)

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo>.

#### Memory Protection

Advanced memory protection

Lockstep Mode

#### Memory

One of the following depending on model

Type	HP SmartMemory PC3-10600R Registered DDR3 (1333MHz)
DIMM Slots Available	24 DIMM slots
Standard (Entry Models)	4 GB (1 x 4 GB) RDIMM
Standard (Base Models)	8 GB (2 x 4 GB) RDIMM
Standard (Performance / Energy Star Models)	16 GB (4 x 4 GB) RDIMM
Maximum (RDIMM)	384 GB (24 x 16 GB)
Maximum (LRDIMM)	768 GB (24 x 32 GB)
Maximum (UDIMM)	128 GB (16 x 8 GB)

**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](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.

**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:** 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: <http://www.hp.com/go/ddr3memory-configurator>.

#### Network Controller

HP 361i Integrated Dual Port Gigabit Server Adapter

Expansion Slots #	Technology	Bus Width	Connector Width*	Form Factor	Notes
1	PCIe 3.0	X16	x16	Half length, full height or Full length, full height	
2	PCIe 3.0	X8	x8	Low Profile	Internal only

**NOTE:** \*Indicates the number of physical electrical lanes running to the connector.

**NOTE:** In order to access expansion slot #2 (the low profile internal only slot), expansion slot #1 may only be populated with a half-length, full height form factor card. If full length card is installed on the slot #1, low

## Standard Features

profile internal only slot will be inaccessible.

**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: <http://www.hp.com/support/rbsu>.

**Storage Controller**  
One of the following depending on model

Entry Models	HP Dynamic Smart Array B120i controller
Base Models	HP Dynamic Smart Array B120i controller
Performance Models	HP Smart Array P420/1GB FBWC controller

**NOTE:** Available upgrades: 512MB FBWC for B120i, 2GB FBWC for P420 Controller/ 1GB FBWC controller

**NOTE:** HP Dynamic Smart Array B120i controller supports up to 3Gb/s speed in HP ProLiant DL160 Gen8. HP Smart Array controller is required in PCIe slot to achieve 6Gb/s.

**Internal Storage Devices**

Diskette Drives	Via USB only
Optical Drives	Optional SATA 9.5mm DVD-ROM Optical Drive Optional SATA 9.5mm DVD RW Optical Drive
Drive Bays	Up to 4 Hot plug SAS/SATA 3.5" drives Up to 8 Hot plug SAS/SATA 2.5" drives
One of the following depending on model	

**Maximum Internal Storage**

One of the following depending on model

Hot Plug LFF SATA	16.0TB	4 x 4TB
Hot Plug LFF SATA SSD	3.2TB	4 x 800GB
Hot Plug LFF SAS	16.0TB	4 x 4TB
Hot Plug SFF SATA	8.0TB	8 x 1TB
Hot Plug SFF SATA SSD	6.4TB	8 x 800GB
Hot Plug SFF SAS	9.6TB	8 x 1.2TB
Hot Plug SAS SSD	6.4TB	8 x 800GB
Non-Hot Plug LFF SATA	12.0TB	4 x 3TB
Non-Hot Plug LFF SAS	2.4TB	4 x 600GB

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Standard Features

<b>Interfaces</b>	Network RJ-45(Ethernet)	2 NIC ports, 1 dedicated iLO port
	Serial	1 (Rear)
	Pointing Device (Mouse)	0 (via USB only)
	Graphics	2 VGA ports(1 rear, 1 front)
	Keyboard	0 (via USB only)
	USB 2.0 Ports	7 (two front, one internal, four rear)

**NOTE:** In order to use internal USB port, the internal USB Cable Gen8 Kit (P/N: 662961-B21) is required. Please note that this is a Factory installable Only (FIO) option and cannot be bought standalone.

<b>Industry Standard Compliance</b>	ACPI 2.0 Compliant
	PCIe 3.0 Compliant
	PXE Support
	WOL Support
	Microsoft® Logo certifications
	IPMI 2.0, SMASH CLP, DCMI 1.0 compliant
	USB 2.0 Support

<b>Server Power Cords</b>	One 6' Highline (IEC-IEC) power cord ships standard
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**NOTE:** HP ProLiant DL servers no longer ship standard with a 12-foot NEMA 5-15P to C13 power cords that allow connection to 110V US wall outlets in a home or office. HP ProLiant DL servers are primarily connected to PDU's in data center racks and now ship standard with only a PDU 6-foot C-14 to C13 power cord (142258-001). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 12-foot NEMA 5-15 to C13 power cord.

If customers require a power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: <http://www.hp.com/go/powercordmatrix>.

<b>Power Specifications</b>	To review typical system power ratings, use the HP Power Advisor tool available at URL: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> .
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**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](http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html)

<b>Common Slot Power Supplies</b>	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% 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.
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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 <http://www.hp.com/go/ipd>.

**NOTE:** 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: <http://www.hp.com/go/hppoweradvisor>.

**NOTE:** The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Standard Features

independently tests power supply efficiency and publicly posts the results on 80Plus.org.

**NOTE:** Common Slot power supplies require a new power backplane kit (p/n: 662959-B21) for installation. The Common Slot power supply and power backplane kits must be factory installed - neither should be bought as a standalone option for HP ProLiant DL160 Gen8.

**NOTE:** 10GbE FlexibleLOM mandatorily need common slot power supply and are not supported with 500W multi-output power supply. These FlexibleLOM options require Aux power connector that comes with the common slot power supply. Please see the options section for specific details.

**NOTE:** Since DL160 Gen8 only has only one power supply slot, above mentioned power supplies will not be Hot Plug in case of DL160 Gen8.

**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](http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html)

#### System Fans

One of the following depending on model

5 non-hot plug redundant fans ship standard in 1P models

7 non-hot plug redundant fans ship standard in 2P models

**NOTE:** The processor option kit contains two additional fan modules when upgrading from one processor to two processor models.

#### Required Cabling

For required cabling information, refer to the Web site at: <http://www.hp.com/servers/dl160-Gen8>

#### Operating Systems and Virtualization Software Support for ProLiant Servers

[Microsoft Windows Server](#)  
[Oracle Solaris](#)  
[Red Hat Enterprise Linux \(RHEL\)](#)  
[SUSE Linux Enterprise Server \(SLES\)](#)  
[VMware](#)

**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, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page <http://www.hp.com/support/DL160Gen8>.

#### 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)

#### Form Factor

One of the following depending on model

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

8 SFF Models

1.7" (43.2mm) Height x 17.1" (434.6mm) Width x 27.5" (699mm) Length

4 LFF Models

1.7" (43.18mm) Height x 17.11" (434.6mm) Width x 29.5" (750mm) Length

#### On System Management

##### HP iLO Management

HP iLO Management Engine is a complete set of embedded management



## Standard Features

**Engine**

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. HP iLO Management Engine portfolio includes:

- **HP iLO:** The HP iLO management processor is the core foundation for HP iLO Management Engine. HP iLO for HP ProLiant servers simplify server setup, engage health monitoring and power and thermal control, and promote remote administration for HP ProLiant ML, DL, BL and SL servers. Furthermore with the new HP iLO is the ability to access, deploy, and manage your server anytime from anywhere with your Smartphone device.
- **HP Agentless Management:** With HP iLO Management Engine in every HP ProLiant Gen8 server, the base hardware monitoring and alerting capability is built into the system (running on the HP iLO chipset) and starts working the moment that a power cord and an Ethernet cable is connected to the server.
- **HP Active Health System:** HP Active Health System is an essential component of the HP iLO Management Engine. It provides: Diagnostics tools/scanners wrapped into one; Always on, continuous monitoring for increased stability and shorter downtimes; Rich configuration history; Health and service alerts; Easy export and upload to Service and Support.
- **HP Active Health System:** HP Active Health System is an essential component of the HP iLO Management Engine. It provides customers with: Diagnostics tools/scanners wrapped into one; Always on, continuous monitoring for increased stability and shorter downtimes; Rich configuration history; Health and service alerts; Easy export and upload to Service and Support.
- **HP Intelligent Provisioning:** HP Intelligent Provisioning includes everything you need for painless system setup and deployment. All your HP Gen8 ProLiant servers and Gen8 ProLiant server blades are ready to set-up right out-of-the box. The firmware, drivers, and tools that you need to quickly get your systems online are embedded on a NAND flash chip on the server motherboard- no more SmartStart CDs or firmware DVDs needed. Intelligent Provisioning is agentless for improved performance, but you still have the ability to run agents if 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 <http://www.hp.com/go/intelligentprovisioning> for additional information and to view usage videos.
    - Use the Service Pack for ProLiant (SPP) at <http://www.hp.com/go/spp> to get firmware and software updates.

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo>

**HP Insight management software**

**HP Service Pack for ProLiant (SPP)**

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

## Standard Features

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 interdependencies, 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 <http://www.hp.com/go/spp/download>. More information can be found: <http://www.hp.com/go/spp> and <http://www.hp.com/go/hpsum>

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**Security**

Power-on password  
Setup password  
Diskette boot control  
Secure Sockets Layer (SSL)  
Secure Shell (SSH)

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**Warranty**

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and parts replacement is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

**NOTE:** Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>.



## Optional Features

**HP Insight management software** HP Insight Control

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, visit: <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, please visit: <http://www.hp.com/services/insight>.

**NOTE:** HP Insight Control 7.2 introduces Insight Control server provisioning, a new capability ideal for multi-server OS and firmware provisioning to ProLiant and BladeSystem servers. Insight Control server provisioning is included and licensed as part of HP Insight Control. A media kit, "HP Insight Control server provisioning USB media kit" (# BD883A), including a USB, is available for customers who require a physical copy of the media loaded with Insight Control server provisioning software. Please note that this media kit is separate and in addition to the "HP Insight Management DVD media kit" (#C6N31A).

## 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>

## HP iLO Scale-Out

The HP iLO Scale-Out license ideal for web/hosting/cloud service providers and High Performance Computing environments. This license is a specific subset of iLO Advanced functionality, provides fast remote access through Text Console via SSH, lower operational cost with Dynamic power capping, and faster time to resolution through Email-based Alerting and proactive notifications. With this newly designed HP iLO Scale-Out HPC customers now have a server management package solely design and priced for their massive data environments. HP iLO Scale-Out is available on all HP ProLiant Gen8 SL and BL and DL 160 servers. For more information, see: <http://www.hp.com/go/iLO/scale-out>

## 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/iloadvanced>

**HP OneView**

The HP OneView architecture combines server, storage, and networking with control of datacenter environments into a single, integrated management platform. Architected to deliver lifecycle management for the complete Converged Infrastructure, it facilitates collaboration, removes friction,

## Optional Features

collapses cycle times, eliminates error-prone work, and accelerates time to value. HP OneView v1.0 combines management of servers and virtual connect with open integration to automate and customize existing tools and processes. With OneView, you'll work smarter—with greater visibility and control—and fully capitalize on the benefits of a Converged Infrastructure.

For more information on HP OneView management, see: <http://www.hp.com/go/oneview>.

**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. <a href="http://www.hp.com/go/clusters">http://www.hp.com/go/clusters</a>
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. <a href="http://www.hp.com/techservers/clusters/ucp/index.html">http://www.hp.com/techservers/clusters/ucp/index.html</a>
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. <a href="http://www.hp.com/go/cmu">http://www.hp.com/go/cmu</a>

**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: <http://www.hp.com/go/storage/software>.

## Optional Features

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**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. <http://www.hp.com/go/insightonline>

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**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>.

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**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**

HP Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HP to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

**Protect your business beyond warranty with HP Care Pack Services**

HP Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

**Optimized Care****Supports maintaining servers at optimum performance availability****HP Proactive Care with 24x7 coverage, three year Care Pack Service**

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HP ProLiant server.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

**Standard Care****Support recommendation that maintains high level of server availability****Foundation Care 24x7, three-year Care Pack Service**

HP Foundation Care 24x7 connects you to HP 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed; collaborative software included in this Care Pack service provides troubleshooting assistance on industry leading software running on your HP server. Simplify your support experience and make HP your first call for hardware or software questions.

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

**Basic Care****Delivers minimum recommended support service level****Foundation Care NBD, three-year Care Pack Service**

HP Foundation Care Next Business Day connects you to HP during business hours for assistance on resolving issues – features next business day hardware onsite response if needed and software call back within two hours. Collaborative software support is included and provides troubleshooting assistance on industry leading software running on your server. Simplify your support experience and make HP your first call for hardware or software questions.

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

**Related Services****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>

Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>

**Get connected to HP to improve your support experience**

Connecting products to HP will help prevent problems with 24x7 monitoring, prefailure alerts, automatic call logging, and parts dispatch. With Connected products, you can have a dashboard to manage your IT anywhere, anytime, from any device.

**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>

### Service and Support

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.

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#### 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.

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#### 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>

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### 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.

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

### Entry Model

<b>HP ProLiant DL160 Gen8 E5-2603 1P 4GB-R SATA 4 LFF 500W PS Entry Server</b> 662082-001	<b>Processor(s)</b>	(1) Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W)
	<b>Cache Memory</b>	10MB (1 x 10MB) L3 cache
	<b>Memory</b>	4GB (1 x 4GB DDR3-1333MHz RDIMMs) <b>NOTE:</b> Total of 24 DIMM slots
	<b>Network Controller</b>	HP 361i Integrated Dual Port Gigabit Server Adapter
	<b>Storage Controller</b>	HP Dynamic Smart Array B120i controller <b>NOTE:</b> Provides data transmission speeds up to 3Gb/s.
	<b>Hard Drive</b>	None ship standard; includes 3 LFF hard drive blanks
	<b>Internal Storage</b>	Up to 4 large form factor drives
	<b>Optical Drive</b>	(1) (Optional: DVD-ROM, DVD-RW)
	<b>Power Supply</b>	500W Platinum F10 Power Supply with Backplane (ships standard)
	<b>Fans</b>	(5) Non hot plug redundant fans
	<b>Management</b>	HP iLO Management Engine (standard) Optional: HP iLO Scale-Out or HP Insight Control
	<b>Form Factor</b>	1U <b>NOTE:</b> 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. 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
	<b>Warranty</b>	Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support (3-1-1 warranty in APJ)

### Base Model

<b>HP ProLiant DL160 Gen8 E5-2620 1P 8GB-R SATA 4 LFF 500W PS Base Server</b> 662083-001	<b>Processor(s)</b>	(1) Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) processor
	<b>Cache Memory</b>	15MB (1 x 15MB) L3 cache
	<b>Memory</b>	8GB (2x4GB DDR3-1333MHz RDIMMs) <b>NOTE:</b> Total of 24 DIMM slots
	<b>Network Controller</b>	HP 361i Integrated Dual Port Gigabit Server Adapter
	<b>Storage Controller</b>	HP Dynamic Smart Array B120i controller <b>NOTE:</b> Provides data transmission speeds up to 3Gb/s.
	<b>Hard Drive</b>	None ship standard; includes 3 LFF hard drive blanks
<b>Internal Storage</b>	Up to 4 large form factor drives	

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Pre-configured Models

<b>Optical Drive</b>	(1) (Optional: DVD-ROM, DVD-RW)
<b>Power Supply</b>	500W Platinum FIO Power Supply with Backplane (ships standard)
<b>Fans</b>	(5) Non hot plug redundant fans
<b>Management</b>	HP iLO Management Engine (standard) Optional: HP iLO Scale-Out or HP Insight Control
<b>Form Factor</b>	1U <b>NOTE:</b> 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. 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
<b>Warranty</b>	Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support (3-1-1 warranty in APJ)

### Energy Star- Performance Model

<b>HP ProLiant DL160 Gen8 E5-2640 2P 16GB-R P420 Hot Plug 8 SFF 500W PS Perf Server</b> 662084-001	<b>Processor(s)</b>	(2) 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
	<b>Cache Memory</b>	15MB (1 x 15MB) L3 cache
	<b>Memory</b>	16GB (4x 4GB DDR3-1333MHz RDIMMs) <b>NOTE:</b> Total of 24 DIMM slots
	<b>Network Controller</b>	HP 361i Integrated Dual Port Gigabit Server Adapter
	<b>Storage Controller</b>	HP Smart Array P420/ 1G FBWC controller
	<b>Hard Drive</b>	None ship standard; includes 7 SFF hard drive blanks
	<b>Internal Storage</b>	Up to 8 small form factor drives
	<b>Optical Drive</b>	(1) (Optional: DVD-ROM, DVD-RW)
	<b>Power Supply</b>	500W Platinum FIO Power Supply with Backplane (ships standard)
	<b>Fans</b>	(7) Non hot plug redundant fans
	<b>Management</b>	HP iLO Management Engine (standard) Optional: HP iLO Scale-Out or HP Insight Control
	<b>Form Factor</b>	1U <b>NOTE:</b> 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. 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
	<b>Warranty</b>	Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support (3-1-1 warranty in APJ)

## 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:** Configure-to-order (CTO) servers must start with a CTO Chassis.

**NOTE:** FIO indicates that this option is only available as a factory installable option.

**NOTE:** Rail kits and cable management solutions are optional in CTO. See "Step 3: Choose Additional Factory Integratable Options" for details on ordering.

**NOTE:** The DL160 ships standard with the HP Dynamic Smart Array B120i Controller which provides support for up to 4 SATA drives (data transmission speeds up to 3Gb/s). Customers requiring more than 4 drives or SAS support are required to choose a HP Smart Array controller

**NOTE:** Power Supply not included - choose from Power Options section.

**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)**

<b>HP Models</b>	<p>HP ProLiant DL160 Gen8 SFF Configure-to-order Server <span style="float: right;">666281-B21</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>2 x HP Smart Socket Guides for fast processor installation            HP 361i Integrated Dual Port Gigabit Server Adapter            Drive cage: Eight small form factor            I/O Slots- Two std            (1) FH/FL x16 PCIe 3.0 or (1) FH/HL x16 PCIe3.0 and (1)low profile x8 PCIe 3.0            (1)FlexibleLOM slot for networking upgrade            (24) DIMM slots for DIMMs installation            HP Dynamic Smart Array B120i controller            (5) Non-hot plug redundant fans            (7) USB ports-4 rear, 2 front, 1 internal            HP iLO Management Engine (standard)            Rack (1U), (1.75 in / 4.45 cm)            Power supply not included- Please choose from the power supply option section in Step 2 below.</p>
	<p>HP ProLiant DL160 Gen8 LFF Configure-to-order Server <span style="float: right;">666282-B21</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>2 x HP Smart Socket Guides for fast processor installation            HP 361i Integrated Dual Port Gigabit Server Adapter            Drive cage: Four large form factor            I/O Slots- Two std            (1) FH/FL x16 PCIe 3.0 or (1) FH/HL x16 PCIe3.0 and (1)low profile x8 PCIe 3.0            (1)FlexibleLOM slot for networking upgrade            (24) DIMM slots for DIMMs installation            HP Dynamic Smart Array B120i controller            (5) Non-hot plug redundant fans            (7) USB ports-4 rear, 2 front, 1 internal            HP iLO Management Engine (standard)            Rack (1U), (1.75 in / 4.45 cm)            Power supply not included- Please choose from the power supply option section in Step 2 below.</p>
	<p>HP ProLiant DL160 Gen8 Non-hot Plug LFF Configure-to-order Server <span style="float: right;">685622-B21</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>2 x HP Smart Socket Guides for fast processor installation            HP 361i Integrated Dual Port Gigabit Server Adapter            Drive cage: Four large form factor</p>



## Configuration Information - Factory Integrated Models

I/O Slots- Two std  
 (1) FH/FL x16 PCIe 3.0 or (1) FH/HL x16 PCIe3.0 and (1)low profile x8 PCIe 3.0  
 (1)FlexibleLOM slot for networking upgrade  
 (24) DIMM slots for DIMMs installation  
 HP Dynamic Smart Array B120i controller  
 (5) Non-hot plug redundant fans  
 (7) USB ports-4 rear, 2 front, 1 internal  
 HP iLO Management Engine (standard)  
 Rack (1U), (1.75 in / 4.45 cm)  
 Power supply not included- Please choose from the power supply option section in Step 2 below.

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

### 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](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 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-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 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-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 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-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

**Load Reduction 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: <http://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 "Memory" section later in this document and the Online Memory Configuration Tool for details at <http://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: <http://www.hp.com/go/proliant-energy-efficient>.

**NOTE:** PC3L is a low voltage memory.

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

**HP Power Supplies**

**NOTE:** Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.

**NOTE:** HP ProLiant DL160 Gen8 has only one power supply slot, above mentioned power supplies will not be Hot Plug for DL160 Gen8.

HP 500W Platinum Factory Integrated Power Supply Kit with Backplane 656365-B21

**NOTE:** Since this power supply is not common slot it does not allow iPDU to obtain HP Location Discovery Services information. iLO Advanced Pack is required for Discovery Services in DL160 Gen8.

**HP Common Slot Platinum Plus Power Supply Kits**

**NOTE:** The following Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.

**NOTE:** Common slot power supplies need an enablement kit(P/N: 662959-B21) in DL160 Gen8.

HP 460W Common Slot Platinum Plus Hot Plug Power Supply Kit 656362-B21

**NOTE:** Requires Power Backplane kit (p/n: 662959-B21).

HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit 656363-B21

**NOTE:** Requires Power Backplane kit (p/n: 662959-B21).

**HP Common Slot -48VDC Power Supplies**

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

**NOTE:** Requires Power Backplane kit (p/n: 662959-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 <http://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](http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html)

**Enablement Kit**

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Configuration Information - Factory Integrated Models

HP DL160 Gen8 FIO Power Backplane Kit 662959-B21

**NOTE:** When configuring the HP ProLiant DL160 Gen8 with a Common Slot power supply, the HP Power Backplane DL160 Gen8 FIO Kit (PN 662959-B21) must be used for proper installation. The Common Slot power supply and power backplane kit for the DL160 Gen8 must be factory installed and cannot be purchased as separate options.

**NOTE:** Common Slot power supply is mandatory with 10Gigabit FlexibleLOM.

**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](http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html)

### Step 3: Choose Additional Factory Integratable Options

<b>HP Insight Software</b>	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	C6N36A
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#### Converged Infrastructure Management Software **HP OneView with iLO Advanced - Server hardware required on same purchase order**

HP OneView for ProLiant DL Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic	E5Y43A
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<b>HP Optical Drives</b>	HP 9.5mm SATA DVD-ROM JackBlack Optical Drive	652238-B21
	HP 9.5mm SATA DVD-RW JackBlack Optical Drive	652241-B21

<b>HP USB and SD Options</b>	HP Gen8 FIO Internal USB Kit	662961-B21
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**NOTE:** Required to enable the internal USB port.

<b>HP Rack Options</b>	HP 1U FIO Friction Rail Kit	663200-B21
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**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. 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:** Additional Rack Options can be found in the "Additional Options" section of this QuickSpecs.

### Step 4: Choose Additional Options for Factory Integration

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

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### 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 Processors

##### Eight-Core Processors

HP DL160 Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) Processor Kit	662933-B21
HP DL160 Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) Processor Kit	662932-B21
HP DL160 Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) Processor Kit	662925-B21
HP DL160 Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) Processor Kit	662924-B21
HP DL160 Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) Processor Kit	662931-B21
HP DL160 Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) Processor Kit	668863-B21

##### Six-Core Processors

HP DL160 Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) Processor Kit	662927-B21
HP DL160 Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) Processor Kit	662930-B21
HP DL160 Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) Processor Kit	662929-B21
HP DL160 Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) Processor Kit	662928-B21
HP DL160 Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) Processor Kit	662921-B21

##### Quad-Core Processors

HP DL160 Gen8 Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/80W) Processor Kit	662923-B21
HP DL160 Gen8 Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/80W) Processor Kit	662922-B21

**NOTE:** Up to 2 processors supported. Energy Star - High Performance Model and Energy Star Certified configurations include two processors with 7 non- 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](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 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-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 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11	672631-B21

## Core Options

## Memory Kit

**Unbuffered with ECC DIMMs (UDIMMs)**

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669320-B21

HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647905-B21

HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit 669322-B21

HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647907-B21

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

HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit 647909-B21

**Load Reduction 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: <http://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 "Memory" section later in this document and the Online Memory Configuration Tool for details at: <http://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: <http://www.hp.com/go/proliant-energy-efficient>.

**NOTE:** PC3L is a low voltage memory.

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

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<b>HP Optical Drives</b>	HP 9.5mm SATA DVD-ROM JackBlack Optical Drive	652238-B21
	HP 9.5mm SATA DVD-RW JackBlack Optical Drive	652241-B21

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**HP Hard Drives**

**NOTE:** HP ProLiant 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, 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.

**12G SAS Hot Plug SmartDrive SFF (2.5-inch) Enterprise Drives**

HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759212-B21

HP 450GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759210-B21

HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759208-B21

**12G SAS Hot Plug SFF (2.5-inch) Enterprise Drives**

## Core Options

HP 1.2TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781518-B21
HP 900GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785069-B21
HP 600GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781516-B21
HP 300GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785067-B21
<b>12G SAS Hot Plug LFF (3.5-inch) Midline (MDL) 512e Drives</b>	
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765259-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765255-B21
HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765257-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765253-B21
<b>12G SAS Hot Plug SmartDrive LFF (3.5-inch) Converter Enterprise Drives</b>	
HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-B21
HP 450GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737394-B21
HP 300GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737261-B21
<b>12G SAS Hot Plug SFF (2.5-inch) SC 512e Drives</b>	
HP 2TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765466-B21
HP 1TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765464-B21
<b>12G SAS Hot Plug LFF (3.5-inch) SC 512e Performance Drives</b>	
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793671-B21
HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793669-B21
<b>6G SAS Hot Plug SmartDrive SFF (2.5-inch) Enterprise Drives</b>	
HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
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 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
<b>6G SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives</b>	
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
<b>12G SAS Hot Plug SmartDrive LFF (3.5-inch) Converter Enterprise Drives</b>	
HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-B21
HP 450GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737394-B21
HP 300GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737261-B21
<b>6G SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives</b>	
HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	761477-B21
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
<b>6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives</b>	
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
<b>6G SATA 2.5in WI-PLP SCC SSD</b>	
HP 1.2TB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804680-B21
HP 800GB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804674-B21
HP 400GB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804668-B21
HP 200GB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804642-B21
HP 800GB 6G SATA Write Intensive-2 LFF 3.5-in LPC 3yr Wty Solid State Drive	831725-B21
<b>6G SATA 2.5in MU-PLP SCC SSD</b>	
HP 1.6TB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804634-B21
HP 800GB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804628-B21
HP 480GB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	832417-B21
HP 200GB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804616-B21
<b>6G SATA 2.5in RI-PLP SCC SSD</b>	
HP 1.6TB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804608-B21
HP 800GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804602-B21
HP 480GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804596-B21
HP 240GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804590-B21
HP 120GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804584-B21
HP 80GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive	804578-B21
<b>6G SATA 2.5in WI-PLP SC SSD</b>	
HP 1.2TB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804677-B21
HP 800GB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804671-B21
HP 400GB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804665-B21
HP 200GB 6G SATA Write Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804639-B21
<b>6G SATA 2.5in MU-PLP SC SSD</b>	
HP 1.6TB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804631-B21
HP 800GB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804625-B21
HP 480GB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	832414-B21
HP 200GB 6G SATA Mixed Use-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804613-B21
<b>6G SATA 2.5in RI-PLP SC SSD</b>	
HP 1.6TB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804605-B21
HP 800GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804599-B21
HP 480GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804593-B21
HP 240GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804587-B21
HP 120GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804581-B21
HP 80GB 6G SATA Read Intensive-2 SFF 2.5-in SC 3yr Wty Solid State Drive	804575-B21
<b>6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	753874-B21
HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21

## Core Options

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 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
<b>6G SATA Non-hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
<b>6G SATA Hot Plug SFF (2.5-inch) SC 512e Drives</b>	
HP 2TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765455-B21
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765453-B21
<b>6G SATA Hot Plug LFF (3.5-inch) SC 512e Performance Drives</b>	
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793667-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drives	793665-B21
<b>NOTE: Please see QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html">http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html</a> (Worldwide)</b>	
<b>12G SAS Hot Plug Value Endurance SFF (2.5-inch) Enterprise Value Solid State Drives</b>	
HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762263-B21
HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762261-B21
HP 1.8TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 512e 3yr Warranty Hard Drive	791034-B21
HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC 512e Enterprise 3yr Warranty Hard Drive	748387-B21
<b>12G SAS Hot Plug LFF (3.5-inch) SC HDD</b>	
HP 8TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793703-B21
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793699-B21
<b>12G SAS Hot Plug Value Endurance LFF (3.5-inch) Enterprise Value Solid State Drives</b>	
HP 1.6TB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762272-B21
HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762270-B21
<b>12G SAS Mainstream Endurance Hot Plug SFF (2.5-inch) Enterprise Mainstream H2 Solid State Drives</b>	
HP 1.6TB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779176-B21
HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2	779172-B21



## Core Options

Solid State Drive	
HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779168-B21
Solid State Drive	
HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779164-B21
<b>12G SAS Hot Plug SFF (2.5-inch) SC Read/Write Intensive Solid State Drives</b>	
HP 1.92TB 12G SAS Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802891-B21
HP 800GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802586-B21
HP 400GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802582-B21
HP 200GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802578-B21
<b>6G SATA Hot Plug LFF (3.5-inch) SC HDD</b>	
HP 8TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793695-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793683-B21
<b>6G SATA Hot Plug Value Endurance SFF (2.5-inch) Enterprise Boot Solid State Drives</b>	
<b>NOTE:</b> These drives support Gen8 servers only.	
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	717965-B21
HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734360-B21
<b>6G SATA Hot Plug MU-3 SFF (2.5-inch) SC Solid State Drives</b>	
HP 1.92TB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	817011-B21
HP 960GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816995-B21
HP 480GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816985-B21
HP 240GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816975-B21
HP 120GB 6G SATA Mixed Use-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816965-B21
<b>6G SATA Hot Plug RI-3 SFF (2.5-inch) SC Solid State Drives</b>	
HP 3.84TB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816929-B21
HP 1.92TB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816919-B21
HP 960GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816909-B21
HP 480GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816899-B21
HP 240GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816889-B21
HP 120GB 6G SATA Read Intensive-3 SFF 2.5-in SC 3yr Wty Solid State Drive	816879-B21
<b>6G SATA Hot Plug LFF (3.5-inch) RI-3 SCC SSD</b>	
HP 3.84TB 6G SATA Read Intensive-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816933-B21
HP 1.92TB 6G SATA Read Intensive-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816923-B21
HP 960GB 6G SATA Read Intensive-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816913-B21
HP 480GB 6G SATA Read Intensive-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816903-B21
HP 240GB 6G SATA Read Intensive-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816893-B21
HP 120GB 6G SATA Read Intensive-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816883-B21
<b>6G SATA Hot Plug LFF (3.5-inch) MU-3 SCC SSD</b>	

## Core Options

HP 1.92TB 6G SATA Mixed Use-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	817015-B21
HP 960GB 6G SATA Mixed Use-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816999-B21
HP 480GB 6G SATA Mixed Use-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816989-B21
HP 240GB 6G SATA Mixed Use-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816979-B21
HP 120GB 6G SATA Mixed Use-3 LFF 3.5-in SC Converter 3yr Wty Solid State Drive	816969-B21
<b>6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives</b>	
<b>NOTE:</b> These drives support Gen8 servers only.	
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	718171-B21
HP 80GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734362-B21
<b>6G SATA Hot Plug Value Endurance LFF (3.5-inch) Converter Enterprise Value M1 Solid State Drives</b>	
HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764945-B21
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764943-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764941-B21
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764939-B21
<b>6G SATA Hot Plug Value Endurance LFF (3.5-inch) Converter Enterprise Value G1 Solid State Drives</b>	
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756660-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756639-B21
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756624-B21
<b>6G SATA Hot Plug Value Endurance SFF (2.5-inch) Enterprise Value G1 Solid State Drives</b>	
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756621-B21
<b>6G SATA Hot Plug Value Endurance SFF (2.5-inch) Enterprise Value Solid State Drives</b>	
HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	757339-B21
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717973-B21
HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717971-B21
HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739888-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717969-B21
<b>6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Value Solid State</b>	

## Core Options

**Drives****NOTE:** These drives support Gen8 servers only.

HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	757342-B21
HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718189-B21
HP 600GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	739900-B21
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718183-B21
HP 300GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	739890-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718177-B21
<b>6G SATA Hot Plug Light Endurance SFF (2.5-inch) Enterprise Light G1 Solid State Drives</b>	
HP 960GB 6G SATA Light Endurance SFF 2.5-in SC Enterprise Light 3yr Wty G1 Solid State Drive	756601-B21
<b>6G SATA Hot Plug Light Endurance LFF (3.5-inch) Enterprise Light G1 Solid State Drives</b>	
HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive	756604-B21
<b>6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value M1 Solid State Drive</b>	
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764929-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764927-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764925-B21
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764923-B21
<b>6G SATA Mainstream Endurance Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
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
<b>6G SATA Mainstream Endurance Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives</b>	
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	691854-B21

## Core Options

Wty Solid State Drive	
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691852-B21
<b>6G SATA Non Hot-plug (2.5-inch) Value Enterprise Solid State Drives</b>	
HP 120GB 6G SATA 2.5in VE Non Hot-plug Solid State Drive	745794-B21
<b>6G SATA Non-hot Plug SFF (2.5-inch) Read Intensive Solid State Drives</b>	
HP 960GB 6G SATA Read Intensive SFF 2.5-in 3yr Wty Non-hot Plug Solid State Drive	789163-B21
HP 480GB 6G SATA Read Intensive SFF 2.5-in 3yr Wty Non-hot Plug Solid State Drive	789153-B21
HP 240GB 6G SATA Read Intensive SFF 2.5-in 3yr Wty Non-hot Plug Solid State Drive	789143-B21
<b>6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives</b>	
HP 960GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789157-B21
HP 480GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789147-B21
HP 240GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789137-B21
<b>6G SATA Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives</b>	
HP 960GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789155-B21
HP 480GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789145-B21
HP 240GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789135-B21
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html">http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html</a> (Worldwide)	
<b>Hard Drive Kits</b>	
HP Small Form Factor Hard Drive Blank Kit	666987-B21
HP Large Form Factor Hard Drive Blank Kit	666986-B21

## 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 2-port 332T Adapter	615732-B21
HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
HP Ethernet 1Gb 2-port 361T Adapter	652497-B21

**10 Gigabit Ethernet Adapters**

**NOTE:** No more than two 10GbE I/O devices are supported in a single ProLiant server.  
**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

**NOTE:** Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-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 561T Adapter	716591-B21

**FlexibleLOM Adapters**

HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
HP FlexFabric 10Gb 2-port 526FLR-SFP+ Adapter	629138-B21

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Core Options

HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21
HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
HP Ethernet 1Gb 4-port 331FLR FIO Adapter	684208-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ FIO Adapter	684210-B21
HP Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21

**NOTE:** HP ProLiant DL160 Gen8 has a dedicated slot for FlexibleLOM. PCIe slots need not be consumed for installing FlexibleLOM.

**NOTE:** Please note that common slot power supply is mandatorily required with 10Gb FlexibleLOM and 10Gb Ethernet adapters. Common slot power supplies are factory installable only and cannot be bought as standalone option kit in HP ProLiant DL160 Gen8.

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

### HP Secure Encryption

HP Secure Encryption No Media E-LTU per Drive	D8S85AAE
HP Secure Encryption No Media Flexible License per Drive	D8S84A

**NOTE:** HP Secure Encryption is supported on the HP Smart Array P731m and the P230i as an option. HP Secure Encryption licensing is based on the number of physical drives requiring encryption.

**NOTE:** For more information about HP Secure Encryption, go to <http://www.hp.com/go/hpsecureencryption>.

### HP InfiniBand

HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
HP InfiniBand FDR 2-port 545QSFP Adapter	702211-B21
HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544QSFP Adapter	649281-B21
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
QLogic InfiniBand 4X QDR PCI-E G2 Dual Port HCA	583211-B21

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/13078\\_na/13078\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13078_na/13078_na.html)

### HP Power Supplies

**NOTE:** Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at:

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

**NOTE:** Field upgrade is possible only from 460W Common Slot Power Supply to either of the below mentioned Common Slot Power Supplies. The 500W multi output power supplies are not field upgradable.

#### HP Common Slot Platinum Plus Power Supply Kits

**NOTE:** The following AC Power Supplies offer 94% Efficiency with support for Intelligent Power Discovery.

HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit	656363-B21
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#### 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
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### Core Options

**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 <http://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](http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html)

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### 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.

<b>HP Insight software</b>	<b>HP Insight Control</b>	
	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	C6N28ABE
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle FIO Electronic License	C6N36ABE
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A
	<b>NOTE:</b> HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.	
	<b>NOTE:</b> HP Insight Control 7.2 introduces Insight Control server provisioning, a new capability ideal for multi-server OS and firmware provisioning to ProLiant and BladeSystem servers. Insight Control server provisioning is included and licensed as part of HP Insight Control. A media kit, "HP Insight Control server provisioning USB media kit" (# BD883A), including a USB, is available for customers who require a physical copy of the media loaded with Insight Control server provisioning software. Please note that this media kit is separate and in addition to the "HP Insight Management DVD media kit" (#C6N31A).	

<b>HP iLO Advanced License</b>	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	<b>HP Integrated Lights-Out (iLO)</b>	
	<b>HP iLO Scale Out</b>	
	HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License	BD776A
	HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License	BD778A
	HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD776AAE
	HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD778AAE
	HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License	BD777A
	HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Tracking License	BD779A
	<b>NOTE:</b> Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.	
	<b>NOTE:</b> For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at <a href="http://www.hp.com/go/iLO">http://www.hp.com/go/iLO</a>	
	<b>NOTE:</b> Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.	

## Additional Options

**NOTE:** For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at <http://www.hp.com/go/iLO>

**Converged Infrastructure Management Software**
**HP OneView**
**HP OneView with iLO Advanced**

HP OneView incl 3yr 24x7 Supp Phys 1 Svr Lic E5Y34A

HP OneView incl 3yr 24x7 Supp Flex Qty E-LTU E5Y35AAE

HP OneView Media Kit Phys No Lic E5Y37A

**HP OneView without iLO Advanced**

HP OneView w/o iLO including 3yr 24x7 Support 1 Server LTU P8B24A

HP OneView w/o iLO including 3yr 24x7 Support Flex Quantity E-LTU P8B26AAE

HP OneView w/o iLO including 3yr 24x7 Support FIO 1 Server LTU P8B31A

HP OneView w/o iLO Adv incl 3yr 24x7 Supp Phys 1 Svr Lic E5Y38A

HP OneView w/o iLO Adv inc 3yr 24x7 Supp Flex Qty E-LTU E5Y39AAE

**NOTE:** For additional license kits please see the QuickSpecs at [http://h18004.www1.hp.com/products/quickspecs/14621\\_na/14621\\_na.html](http://h18004.www1.hp.com/products/quickspecs/14621_na/14621_na.html)

**HP High Performance Clusters**
**HP Cluster Management Utility**

HP Insight Cluster Management Utility 1yr 24x7 Flexible License QL803B

HP Insight Cluster Management Utility for ConvergedSystem 3yr 24x7 Flexible License G2E81A

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:** Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses CMU management. No license key is delivered or required

**NOTE:** For additional license kits please see the QuickSpecs at: [http://h18004.www1.hp.com/products/quickspecs/12612\\_na/12612\\_na.html](http://h18004.www1.hp.com/products/quickspecs/12612_na/12612_na.html)

**HP I/O Accelerator Options**
**Second Generation Accelerators**

HP 1205GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers 673646-B21

**NOTE:** When the Full length Graphic card is installed in the system, no additional PCIe slots is available and only embedded storage controller B120i is available for up to 4 SATA HDDs configuration

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: [http://h18004.www1.hp.com/products/quickspecs/13587\\_na/13587\\_na.html](http://h18004.www1.hp.com/products/quickspecs/13587_na/13587_na.html)

**HP PCIe Workload Accelerator Options**
**Mainstream Endurance (ME) PCIe Workload Accelerators**

HP 1.4TB HH/HL Mainstream Endurance (ME) PCIe Workload Accelerator 729307-B21

HP 700GB HH/HL Mainstream Endurance (ME) PCIe Workload Accelerator 729305-B21

**High Endurance (HE) PCIe Workload Accelerators**

HP 700GB HH/HL High Endurance (HE) PCIe Workload Accelerator 708090-B21



## Additional Options

HP 350GB HH/HL High Endurance (HE) PCIe Workload Accelerator	708088-B21
<b>Value Endurance (VE) PCIe Workload Accelerators</b>	
HP 6.4TB FH/HL Value Endurance (VE) PCIe Workload Accelerator	763840-B21
HP 3.2TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763838-B21
HP 1.6TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763836-B21
HP 1.3TB HH/HL Value Endurance (VE) PCIe Workload Accelerator	763834-B21
<b>Light Endurance (LE) PCIe Workload Accelerators</b>	
HP 5.2TB FH/HL Light Endurance (LE) PCIe Workload Accelerator	775672-B21
HP 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775670-B21
HP 1.3TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775668-B21
HP 1.0TB HH/HL Light Endurance (LE) PCIe Workload Accelerator	775666-B21
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18004.www1.hp.com/products/quickspecs/14528_na/14528_na.html">http://h18004.www1.hp.com/products/quickspecs/14528_na/14528_na.html</a>	

## HP Security

HP Trusted Platform Module Option	488069-B21
<b>NOTE:</b> 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: <a href="http://www.hp.com/go/TPM">http://www.hp.com/go/TPM</a> .	
<b>NOTE:</b> ProLiant OS pre-installed units will come with the partition required for TPM deployment.	
<b>NOTE:</b> 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 Bezel Kit	664918-B21

## HP Storage Controllers

<b>NOTE:</b> Embedded HP B120i Dynamic Smart Array controller supports only up to 4 SATA drives. For SAS support and more than 4 drives support (in 8SFF models), a HP Smart Array controller is required.	
<b>SAS Controllers</b>	
<b>Smart Array P222 Controller</b>	
HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller	631667-B21
<b>NOTE:</b> Mini SAS 700mm cable (PN 662963-B21) required with this controller.	
<b>NOTE:</b> HP Smart Array P222 controller can only be installed in the external PCI-e slot.	
<b>NOTE:</b> HP Smart Array P222 controller is supported on LFF models only.	
<b>HP Smart Array P420 Controller</b>	
HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller	631671-B21
HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller	631670-B21
<b>NOTE:</b> HP Smart Array P420 controller can only be installed in the internal PCI-e slot. It is not supported on external PCI-e slot.	
<b>HP Smart Array P421 Controller</b>	
HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21

## Additional Options

HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21
<b>HP Smart Array P822 Controller</b>	
HP Smart Array P822/2GB FBWC 6Gb 2-ports-Int/4-ports Ext SAS Controller	615418-B21
<b>NOTE:</b> Requires two cable kits (P/N: 676895-B21 and P/N: 662963-B21) with 8SFF models.	
<b>Optional upgrades</b>	
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 SmartCache No Media 24x7 Technical Support 1 Svr License	D7S26A
HP SmartCache No Media 24x7 Technical Support Flexible License	D7S27A
HP SmartCache No Media 24x7 Technical Support Electronic License	D7S27AAE
HP Mini SAS 800mm Gen8 Cable Kit	676895-B21
<b>NOTE:</b> This cable option kit is required with HP Smart Array P822/ 2GB FBWC controller.	
HP Mini SAS 700mm Gen8 Cable Kit	662963-B21
<b>NOTE:</b> This cable option kit is required with HP Smart Array P822/ 2GB FBWC controller, HP Smart Array P222/512 FBWC controller and H222 Host bus adapter.	
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:	
<a href="http://h18000.www1.hp.com/products/quickspecs/14227_na/14227_na.html">http://h18000.www1.hp.com/products/quickspecs/14227_na/14227_na.html</a> (Smart Array P222 Controller)	
<a href="http://h18000.www1.hp.com/products/quickspecs/14228_na/14228_na.html">http://h18000.www1.hp.com/products/quickspecs/14228_na/14228_na.html</a> (Smart Array P420 Controller)	
<a href="http://h18000.www1.hp.com/products/quickspecs/14229_na/14229_na.html">http://h18000.www1.hp.com/products/quickspecs/14229_na/14229_na.html</a> (Smart Array P421 Controller)	
<a href="http://h18000.www1.hp.com/products/quickspecs/14337_na/14337_na.html">http://h18000.www1.hp.com/products/quickspecs/14337_na/14337_na.html</a> (Smart Array P822 Controller)	
<b>HP Smart Array Advanced Pack</b>	
<a href="http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html">http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html</a> (SAAP)	
<b>Host Bus Adapter</b>	
HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
<b>NOTE:</b> Supports SCSI Tapes only, no RAID support.	
<b>NOTE:</b> HBA is recommended for SCSI tape drive support.	
HP H220 Host Bus Adapter	650933-B21
HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
HP H222 Host Bus Adapter	650926-B21
<b>NOTE:</b> Mini SAS 700mm cable (PN 662963-B21) required with this controller	
<b>NOTE:</b> HP H222 Host Bus Adapter is supported on LFF models only.	
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:	
<a href="http://h18004.www1.hp.com/products/quickspecs/12566_na/12566_na.html">http://h18004.www1.hp.com/products/quickspecs/12566_na/12566_na.html</a> (SC11Xe HBA)	
<a href="http://h18004.www1.hp.com/products/quickspecs/14336_na/14336_na.html">http://h18004.www1.hp.com/products/quickspecs/14336_na/14336_na.html</a> (HBA 220)	
<a href="http://h18004.www1.hp.com/products/quickspecs/14222_na/14222_na.html">http://h18004.www1.hp.com/products/quickspecs/14222_na/14222_na.html</a> (HBA 221)	
<a href="http://h18004.www1.hp.com/products/quickspecs/14337_na/14337_na.html">http://h18004.www1.hp.com/products/quickspecs/14337_na/14337_na.html</a> (HBA 222)	

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### 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 <http://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 SAS Internal Tape Drive	EH963A
HP StoreEver LTO-6 Ultrium 6650 SAS 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 StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A

#### HP Tape Storage Systems

##### HP StoreEver MSL6480

HP StoreEver MSL6480 Scalable Base Module	QU625A
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**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/14604\\_na/14604\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14604_na/14604_na.html)

#### 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 RDX Removable Disk Backup System

HP RDX320 USB3.0 External Disk Backup System	B7B63A
HP RDX500 USB3.0 Internal Disk Backup System	B7B64A
HP RDX1000 USB3.0 Internal Disk Backup System	B7B67A
HP RDX 2TB USB3.0 Internal Disk Backup System	E7X52A

**NOTE:** Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13036\\_na/13036\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13036_na/13036_na.html)

#### HP Disk Storage Systems Disk Enclosures

HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A
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**NOTE:** Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13404\\_na/13404\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html)

HP D6000 w/70 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 280TB Bundle	E7W31A
HP D6000 w/35 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 140TB Bundle	E7W30A
HP D6000 w/70 3TB 6G SAS 7.2K LFF Dual port MDL HDD 210TB Bundle	QQ700A
HP D6000 w/35 3TB 6G SAS 7.2K LFF Dual port MDL HDD 105TB Bundle	QQ699A
HP D6000 w/70 2TB 6G SAS 7.2K LFF Dual port MDL HDD 140TB Bundle	QQ698A
HP D6000 w/35 2TB 6G SAS 7.2K LFF Dual port MDL HDD 70TB Bundle	QQ697A
HP D6000 Dual I/O Module Disk Enclosure	QQ695A

**NOTE:** Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information:

[http://h18000.www1.hp.com/products/quickspecs/14419\\_na/14419\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14419_na/14419_na.html)

#### HP Storage Options

##### Fibre Channel HBA



## Additional Options

**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:

<http://h18006.www1.hp.com/storage/saninfastructure/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 StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter C8R38A

HP StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter C8R39A

**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 StoreFabric CN1100R Dual Port Converged Network Adapter QW990A

**HP Uninterruptible Power Systems****HP DirectFlow Three Phase UPS Power Unit (1U UPS)**

**NOTE:** #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP R12000 DirectFlow - 1U Rackmount Uninterruptible Power System G9Y75A

HP R12000 DirectFlow - POD 1U Rackmount Uninterruptible Power System AF478A

**Input/Output Module Options for 1U UPS**

**NOTE:** Choose one I/O Module per UPS.

**NOTE:** #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module AF489A

HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS L22-30 Input/Output Module AF491A

HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module AF492A

HP 30A 400-415 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module G9Y76A

**NOTE:** All Input/Output Modules support dual output outlets except the AF484A.

**HP Tower UPS****HP T750 G4 UPS Models**

HP T750 G4 NA/JP Uninterruptible Power System J2P85A

**HP T1000 G4 UPS Models**

HP T1000 G4 NA/JP Uninterruptible Power System J2P86A

**HP T1500 G4 UPS Models**

HP T1500 G4 NA/JP Uninterruptible Power System J2P87A

## Additional Options

**HP Rack/Tower UPS****HP R/T2200 G4 UPS Models**

HP R/T2200 G4 NA/JP Uninterruptible Power System	J2R00A
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**HP R/T3000 G4 UPS Models**

HP R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System	J2R01A
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HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System	J2R02A
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**HP Rack-mountable UPS****HP R1500 G4 Uninterruptible Power Supply (UPS)**

HP R1500 G4 NA Uninterruptible Power System	J2Q99A
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HP R1500 G4 INTL Uninterruptible Power System	J2R03A
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HP R1500 G4 JP/TWN Uninterruptible Power System	J2R05A
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**R5000 Uninterruptible Power System (UPS)**

HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
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**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14109\\_na/14109\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14109_na/14109_na.html)

**R7000 Uninterruptible Power System (UPS)**

HP R7000 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
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**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14110\\_na/14110\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14110_na/14110_na.html)

**NOTE:** For additional information on HP Uninterruptible Power Systems please go to:

<http://www.hp.com/servers/rackups>.

**NOTE:** For additional information on sizing your server, please reference:

<http://www.upssizer.com>.

**NOTE:** Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: <http://www.hp.com/products/powercords>.

**HP Basic Power Distribution Units**

HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
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HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
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HP 3.6kVA 200-240 Volt Detachable C20 Input ( 12xC13) WW Basic PDU	H5M56A
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HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
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HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
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HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
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HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
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HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
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HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
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HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
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HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
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HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
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HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
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HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU	H3X08A
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**HP 277 Volt options for H3X07A and H3X08A**

HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
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**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

## Additional Options

[http://h18000.www1.hp.com/products/quickspecs/14557\\_na/14557\\_na.html](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:

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

<b>HP Remote Monitored Power Distribution Units (mPDU)</b>	<b>HP Remote Monitored Power Distribution Unit: 1U Version</b>	
	HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
	HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
	<b>HP Remote Monitored Power Distribution Unit: Half Height Version</b>	
	HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
	HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	G9Z05A
	<b>HP Remote Monitored Power Distribution Unit: Mid Height Version</b>	
	HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
	HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
	HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
	<b>HP Remote Monitored Power Distribution Unit: Full Height Version</b>	
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
	HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
	HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
	HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
	HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU	G9Z07A
	HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
	<b>HP Environmental Sensor for Remote Monitored PDUs</b>	
	HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A
<b>NOTE:</b> Please see the QuickSpecs for additional information:		
<a href="http://h18000.www1.hp.com/products/quickspecs/14669_na/14669_na.html">http://h18000.www1.hp.com/products/quickspecs/14669_na/14669_na.html</a>		

<b>HP Intelligent Power Distribution Units (iPDU)</b>	<b>iPDU Core Units</b>	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	<b>PDU Kits with Standard Extension Bars</b>	
	HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
	HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A
	HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A

## Additional Options

HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
<b>iPDU Extension Bars</b>	
HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

**HP Managed Power Distribution Units (mPDU)**
**Half Height Models**

HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU	H8B49A
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**Full Height Models**

HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU	H8B48A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Managed PDU	H8B50A
HP 8.6kVA 208 Volt L15-30 3 Phase Input (18xC13/6xC19) NA/JP Managed PDU	H8B52A
HP 8.6kVA 208 Volt L21-30 3 Phase Input (20xC13/3xC19/1x NEMA 5-20) NA/JP Managed PDU	H8B53A
HP 14.4kVA 208V CS8365C 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B55A
HP 17.3kVA 208V IEC309 60A 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B56A

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

<http://www8.hp.com/h20195/v2/GetHtml.aspx?docname=c04376673>

**HP Rack Series**
**Rack Intelligent Series rack**

HP 36U 600mm x 1075mm Enterprise Pallet Rack	BW895A
HP 36U 600mm x 1075mm Enterprise Shock Rack	BW896A
HP 42U 600mm x 1075mm Enterprise Pallet Rack	BW903A
HP 42U 600mm x 1075mm Enterprise Shock Rack	BW904A
HP 47U 600mm x 1075mm Enterprise Pallet Rack	BW911A
HP 47U 600mm x 1075mm Enterprise Shock Rack	BW912A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14223\\_na/14223\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14223_na/14223_na.html)

**NOTE:** The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

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

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

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

**NOTE:** High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL160 in 7000 series racks.

## Additional Options

Cable Management Arm is not supported on 7000 series racks.

**NOTE:** Cable management arm must be removed to access power supplies when the cable management arm is mounted on the right.

**HP Rack Options****HP LCD8500 1U Rackmount Console Kit Models**

HP LCD8500 1U US Rackmount Console Kit AF630A

HP LCD8500 1U US TAA Rackmount Console Kit AF645A

**HP LCD8500 1U Rackmount Console Kit Options**

HP Kit LCD 1.83m Latch Display Port Cable G7T29A

HP Location Discovery Services LCD8500 Kit TL052A

HP Rack LED Light Kit BW939A

**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](http://h18000.www1.hp.com/products/quickspecs/14429_na/14429_na.html)

**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](http://h18000.www1.hp.com/products/quickspecs/13972_na/13972_na.html)

**HP Server Console Switches**

HP KVM Console USB Interface Adapter AF628A

HP 0x1x8 G3 KVM Console Switch AF651A

HP 0x2x16 G3 KVM Console Switch AF652A

HP TAA 0x2x16 G3 KVM Console Switch AF653A

HP USB Remote Access Key for G3 KVM Console Switches AF650A

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

[http://h18000.www1.hp.com/products/quickspecs/11834\\_na/11834\\_na.html](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 Console USB 2.0 Virtual Media CAC Interface Adapter AF629A

KVM USB Cnsl Itfc Adapter 1PK ALL 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](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:



## Additional Options

[http://h18000.www1.hp.com/products/quickspecs/13474\\_na/13474\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13474_na/13474_na.html)

**Rack Kits**

HP Rack Cable Management Velcro Clips 379820-B21

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

**NOTE:** For SFF models.

HP 1U Cable Management Arm for Ball Bearing Rail Kit 663203-B21

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

**NOTE:** For LFF models.

**NOTE:** For additional information regarding Rack Cabinets and Telco Rack support, please see the following URL: <http://www.hp.com/go/rackandpower>.

**HP Flash Media Kits for USB Drives****HP Enterprise Mainstream Flash Media Kits for Memory Cards**

HP 8GB SD Enterprise Mainstream Flash Media Kit 726113-B21

HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit 737953-B21

HP 32GB SD Enterprise Mainstream Flash Media Kit 700136-B21

**HP Care Pack Services**

**Proactive Care** - Collaborative Support plus Proactive services delivered by the on shore/near shore Advanced Solution Center (ASC) and backed by the global delivery organization, 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.

**Proactive Care Personalized Support Environmental Option** - 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 advice for the customer's environment.

HP 3 year 4 hour 24x7 ProLiant DL16x Proactive Care Service U3A18E

HP 3 year 4-Hour 24x7 with Comprehensive Defective Material Retention DL16x ProactiveCare Service U8Z30E

HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL16x Proactive Care Service U3A21E

**Foundation Care**

HP 3 year Next business day DL16x Foundation Care Service U2GW1E

HP 3 year Next business day with Defective Media Retention DL16x Foundation Care Service U2GW2E

HP 3 year Next business day wComprehensiveDefectiveMaterialRetention DL16x Foundation Care Service U2GW3E

HP 3 year 24x7 DL16x Foundation Care Service U2GW4E

HP 3 year 24x7 with Defective Media Retention DL16x Foundation Care Service U2GW5E

HP 3 year 24x7 with Comprehensive Defective Material Retention DL16x Foundation Care Service U2GW6E

**Installation Services**

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

HP Startup ProLiant DL16x Service U8K79E

HP Installation ProLiant DL16X Gen8 Service U9520E

Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### 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:  
<http://www.hp.com/go/ddr3memory-configurator>

#### HP ProLiant DL160 Gen8

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

#### Standard Memory

4GB (1x4GB) , 8GB (2 x 4GB) or 16GB(4 x 4GB) depending on model, DDR3-1333MHz Registered RDIMM memory

#### Maximum Memory

Up to 768GB

**NOTE:** Charts do not represent all possible memory configurations.

#### DDR3 memory population guidelines

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

Some DIMM installation guidelines are summarized below:

- For servers with twenty-four (24) memory slots:
  - There are four (4) channels per processor; eight (8) channels per server
  - There are three (3) DIMM slots for each memory channel; twenty-four (24) total slots
- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- 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.
- When two processors are installed, balance the DIMMs across the two processors.
- To maximize performance, balance the total memory capacity between all installed 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
- Do not mix UDIMMs, RDIMMs or LRDIMMs
- LR DIMMs are supported up to 3 DIMMs per channel.
- DIMMs of different voltages (1.35V & 1.5V) may be mixed in any order
- The system will power them at the higher voltage
- DIMMs of different speed grades may be mixed in any order
  - The system will select a common optimal speed
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at:  
[http://h18000.www1.hp.com/products/quickspecs/14225\\_na/14225\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html) (Worldwide)

**DIMM slot/capacity/populated speed table**

DIMM Type	Registered DIMMS (RDIMMs)		Load Reduced (LRDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)	
	Single Rank (1R)	Dual Rank (2R)	Quad Rank (4R)	Single Rank	Dual Rank (2R)
DIMM Rank					

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Memory

									(1R)						
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	1600	1333	1333	1600	
	LV	Std	Std	LV	Std	LV	Std	LV	Std	LV	Std	LV	LV	Std	
<b>SLOTS THAT CAN BE POPULATED</b>															
24 slot servers	24	24	24	24	24	24	24	24	16	16	16	16	16	16	
<b>MAXIMUM CAPACITY (GB)*</b>															
	96	96	192	192	192	384	384	768	32	32	64	64	128	128	
<b>POPULATED DIMM SPEED (MHz)</b>															
1 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***	1600	1333	1600	1333	1333	1600	
2 DIMM Per Channel	1333	1600	1600	1333	1600	1333	1600	1333***	1600	1333****	1600	1333****	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	

#### NOTES:

Memory speed is a function of the processor QPI bus speed.

\* 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 support 3DPC @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 Speed by Processor Model

Processor Models

Supported Memory Speeds

E5-2680, E5-2670, E5-2667, E5-2665, E5-2660, E5-2650, E5-2650L

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 E5-2640	16GB (4x 4GB)	336GB (20x16GB, 4x4GB)	768GB (24 x 32GB)
Intel Xeon E5-2620	8GB (2x 4GB)	360GB (22x16GB, 2x4GB)	768GB (24 x 32GB)
Intel Xeon E5-2603	4GB (1x 4GB)	372GB (23x16GB, 1x4GB)	768GB (24 x 32GB)

#### DIMM slot and configuration diagrams



# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Memory

#### Basic memory slot & population diagram

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

24 DIMM SLOTS (12 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A	1	C	Chnl 1
	2	E	2	G	
	3	I	3	K	
Chnl 2	4	B	4	D	Chnl 2
	5	F	5	H	
	6	J	6	L	
Chnl 3	7	L	7	J	Chnl 3
	8	H	8	F	
	9	D	9	B	
Chnl 4	10	K	10	I	Chnl 4
	11	G	11	E	
	12	C	12	A	

#### Standard memory configuration (1 CPU model)

- 8GB, consisting of four (4) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 2GB DIMM	1	C; empty	Chnl 1
	2	E; empty	2	G; empty	
	3	I; empty	3	K; empty	
Chnl 2	4	B; 2GB DIMM	4	D; empty	Chnl 2
	5	F; empty	5	H; empty	
	6	J; empty	6	L; empty	
Chnl 3	7	L; empty	7	J; empty	Chnl 3
	8	H; empty	8	F; empty	
	9	D; 2GB DIMM	9	B; empty	
Chnl 4	10	K; empty	10	I; empty	Chnl 4
	11	G; empty	11	E; empty	
	12	C; 2GB DIMM	12	A; empty	

#### Standard memory plus optional memory (1 CPU model)

- 60GB, consisting of three (3) 4GB RDIMMs plus six (6) 8GB RDIMMs



# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Memory

- 3x 4GB dual-rank PC3-10600 RDIMMs
- 6x 8GB dual-rank PC3-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 4GB DIMM	1	C; empty	Chnl 1
	2	E; 8GB DIMM	2	G; empty	
	3	I; 8GB DIMM	3	K; empty	
Chnl 2	4	B; 4GB DIMM	4	D; empty	Chnl 2
	5	F; 8GB DIMM	5	H; empty	
	6	J; empty	6	L; empty	
Chnl 3	7	L; empty	7	J; empty	Chnl 3
	8	H; 8GB DIMM	8	F; empty	
	9	D; 8GB DIMM	9	B; empty	
Chnl 4	10	K; empty	10	I; empty	Chnl 4
	11	G; 8GB DIMM	11	E; empty	
	12	C; 4GB DIMM	12	A; empty	

### Standard memory replaced with optional memory (1 CPU model) RDIMM maximum configuration

- 192GB, consisting of twelve (12) 16GB quad-rank PC3L-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 16GB DIMM	1	C; empty	Chnl 1
	2	E; 16GB DIMM	2	G; empty	
	3	I; 16GB DIMM	3	K; empty	
Chnl 2	4	B; 16GB DIMM	4	D; empty	Chnl 2
	5	F; 16GB DIMM	5	H; empty	
	6	J; 16GB DIMM	6	L; empty	
Chnl 3	7	L; 16GB DIMM	7	J; empty	Chnl 3
	8	H; 16GB DIMM	8	F; empty	
	9	D; 16GB DIMM	9	B; empty	
Chnl 4	10	K; 16GB DIMM	10	I; empty	Chnl 4
	11	G; 16GB DIMM	11	E; empty	
	12	C; 16GB DIMM	12	A; empty	

### UDIMM maximum configuration (1 CPU model)

- 64GB, consisting of eight (8) 4GB dual-rank PC3-10600 UDIMMs

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 8GB DIMM	1	C; empty	Chnl 1
	2	E; 8GB DIMM	2	G; empty	
	3	I; empty	3	K; empty	
Chnl 2	4	B; 8GB DIMM	4	D; empty	Chnl 2
	5	F; 8GB DIMM	5	H; empty	
	6	J; empty	6	L; empty	
Chnl 3	7	L; empty	7	J; empty	Chnl 3
	8	H; 8GB DIMM	8	F; empty	
	9	D; 8GB DIMM	9	B; empty	
Chnl 4	10	K;	10	I; empty	Chnl 4
	11	G; 8GB DIMM	11	E; empty	
	12	C; 8GB DIMM	12	A; empty	

#### Standard memory replaced with optional memory (2 CPU model)

##### RDIMM maximum configuration

- 768GB, consisting of twenty-four (24) 32GB quad-rank PC3-10600 LRDIMMs DDR3 Registered (LRDIMM) memory, operating at 1333MHz or 1066MHz when populated at 3 DIMMs per Channel in 24 slots.

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 32GB DIMM	1	A; 32GB DIMM	Chnl 1
	2	E; 32GB DIMM	2	E; 32GB DIMM	
	3	I; 32GB DIMM	3	I; 32GB DIMM	
Chnl 2	4	B; 32GB DIMM	4	B; 32GB DIMM	Chnl 2
	5	F; 32GB DIMM	5	F; 32GB DIMM	
	6	J; 32GB DIMM	6	J; 32GB DIMM	
Chnl 3	7	L; 32GB DIMM	7	L; 32GB DIMM	Chnl 3
	8	H; 32GB DIMM	8	H; 32GB DIMM	
	9	D; 32GB DIMM	9	D; 32GB DIMM	
Chnl 4	10	K; 32GB DIMM	10	K; 32GB DIMM	Chnl 4
	11	G; 32GB DIMM	11	G; 32GB DIMM	
	12	C; 32GB DIMM	12	C; 32GB DIMM	

##### UDIMM maximum configuration (2 CPU model)

- 128GB, consisting of sixteen (16) 8GB dual-rank PC3-10600E DDR3 Unbuffered (UDIMM) memory operating at 1333MHz when populated at 2 DIMMs per Channel in 16 slots

	CPU1	CPU2	
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# QuickSpecs

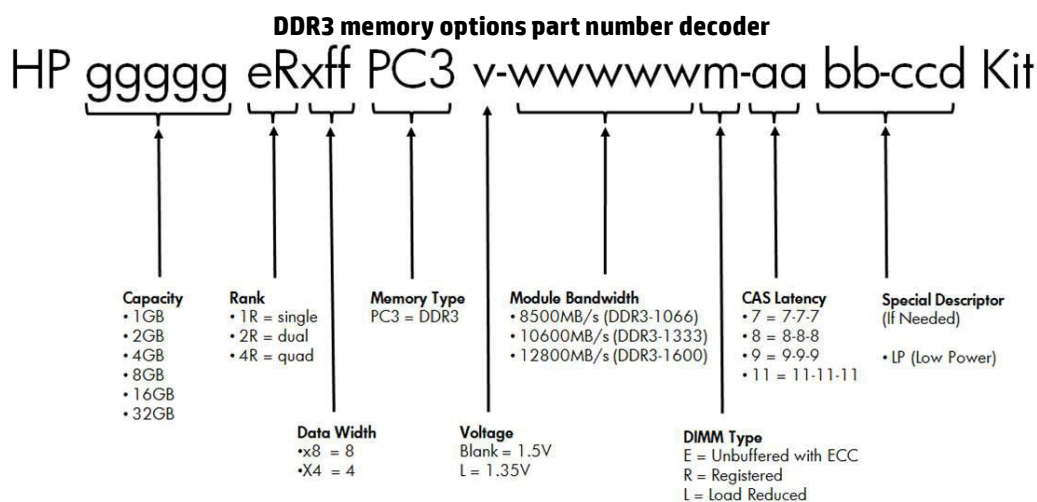
## HP ProLiant DL160 Generation 8 (Gen8)

### Memory

	slot #	population order	slot #	population order	
Chnl 1	1	A; 8GB DIMM	1	C; 8GB DIMM	Chnl 1
	2	E; 8GB DIMM	2	G; 8GB DIMM	
	3	I; empty	3	K; empty	
Chnl 2	4	B; 8GB DIMM	4	D; 8GB DIMM	Chnl 2
	5	F; 8GB DIMM	5	H; 8GB DIMM	
	6	J; empty	6	L; empty	
Chnl 3	7	L; empty	7	J; empty	Chnl 3
	8	H; 8GB DIMM	8	F; 8GB DIMM	
	9	D; 8GB DIMM	9	B; 8GB DIMM	
Chnl 4	10	K; empty	10	I; empty	Chnl 4
	11	G; 8GB DIMM	11	E; 8GB DIMM	
	12	C; 8GB DIMM	12	A; 8GB DIMM	

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

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16 GB=16384MB
- 32GB = 32768MB



**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:

## Memory

[http://h18000.www1.hp.com/products/quickspecs/14225\\_na/14225\\_na.html](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 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-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 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-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 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21

**Load Reduction DIMMs (LRDIMMs)**

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647903-B21
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**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: <http://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 "Memory" section later in this document and the Online Memory Configuration Tool for details at: <http://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: <http://www.hp.com/go/proliant-energy-efficient>.

**NOTE:** PC3L is a low voltage memory.

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



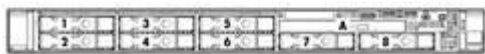
# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Storage



- 1-4 Four LFF Hot-plug SAS/SATA hard drive bays
- A Optional DVD-ROM, or DVD RW



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

### 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
		External	HP Smart Array P421/2GB FBWC Controller

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D) (with bezel)	4 LFF	1.7" (43.2mm) Height x 17.1" (434.6mm) Width x 29.5" (750mm) Length	
		8 SFF	1.7" (43.2mm) Height x 17.1" (434.6mm) Width x 27.5" (699mm) Length	
	<b>Weight</b> (approximate)	Maximum (all hard drives, power supplies, and processors installed)	33..00 lb (15.2kg)	
		Minimum (one hard drive, power supply, and processor installed)	31 lb (14.1kg)	
	<b>Input Requirements</b> (per power supply)	Rated Line Voltage	100 to 120 VAC, 200 to 240 VAC	
		Rated Input Current	10 A at 100 VAC 5 A at 200 VAC	
		Rated Input Frequency	50 Hz to 60 Hz	
	<b>BTU Rating</b>	Rated Input Power	562 W at 100V AC input 562 W at 200V AC input	
		Maximum	500W	1917 at 100 V AC 1898 at 115 V AC 1856 at 200 V AC 1850 at 230 V AC
			460W	1764 at 100V AC 1736 at 115V AC 1694 at 200V AC 1687 at 230V AC
			750W	2878 at 100 V AC 2834 at 115 V AC 2769 at 200 V AC 2758 at 230 V AC
			<b>Power Specifications</b>	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a> Or <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a>
- Click on the system of interest. Example: DL160 G8 - Follow the instructions of the next screens.				
	<b>Power Supply Output</b> (per power supply)	Rated Steady-State Power	500 Watts (at 100 VAC), 500 Watts (at 200 VAC)	
		Maximum Peak Power (See Power Specifications Tables)	500Watts (at 100 VAC), 500 Watts (at 200 VAC)	
	<b>System Inlet Temperature</b>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed.	

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Technical Specifications

		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).
<b>Relative Humidity</b> (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
<b>Altitude</b>	Operating	30480 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).
<b>Acoustic Noise</b>	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).	
	<b>NOTE:</b> The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
	<b>Idle</b>	
	LWAd	5.3 B (1P SKU) 5.3 B (2P SKU)
	LpAm	36 dBA (1P SKU) 36 dBA (2P SKU)
	<b>Operating</b>	
	LWAd	5.3 B (1P SKU) 5.9 B (2P SKU)
	LpAm	37 dBA (1P SKU) 42 dBA (2P SKU)
<b>Emissions Classification (EMC)</b>	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.

<b>HP Ethernet 1Gb 2-port 361i Adapter</b>	<b>Network Interface Capability</b>	10Base-T/100Base-TX/1000Base-TX IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 1588, IEEE 802.1AS
	<b>Data Transfer Method</b>	PCI Express v 2.1, 5.0 GT/s and 2.5 GT/s bus speeds and supports for x1, x2,

## Technical Specifications

	x4 links widths (Lanes)
<b>Controller</b>	I350 Powerville
<b>Network Transfer Rate</b>	10Base-T (Half-Duplex) 10 Mb/s per port, 20 Mb/s Combined
	10Base-T (Full-Duplex) 20 Mb/s per port, 40 Mb/s Combined
	100Base-TX (Half-Duplex) 100 Mb/s per port, 200 Mb/s Combined
	100Base-TX (Full-Duplex) 200 Mb/s per port, 400 Mb/s Combined
	1000Base-TX (Half and Full-Duplex) 1000Mb/s per port, 2000 Mb/s Combined
<b>Connector</b>	RJ-45
<b>Cable Support</b>	10Base-T Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
	10/100/1000Base-TX Category 5 UTP; up to 328 ft (100 m)

<b>HP Dynamic Smart Array B120i Controller</b>	<b>Dimensions</b>	Embedded
	<b>Disk Drive and Enclosure Interface - Transfer rate</b>	Up to 6Gb/s SATA (Serial ATA)
	<b>Connectors</b>	6 internal SATA connectors
	<b>Server Interface</b>	x4 PCIe 2.0
	<b>SATA Speed</b>	6Gb/s SATA links
	<b>Cache Memory</b>	Zero Memory RAID has no cache memory
	<b>Logical Drives Supported</b>	Up to 8 logical volumes (6 physical drives)
	<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space
	<b>Hot Plug Support</b>	Yes
<b>RAID Support</b>	RAID 0 (Striping), RAID 1 (Mirroring) RAID 1+0 (Striping & Mirroring)	

<b>Environment-friendly Products and Approach</b>	<b>End-of-life Management and Recycling</b>	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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> . To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
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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.

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Summary Of Changes

Date	Version History	Action	Description of Change:
28-Sep-2015	From Version 34 to 35	Added	Added new 6Gb SATA Solid State Drives.
		Removed	Added new HP OneView management software. Obsolete SKUs were removed from the QuickSpecs.
17-Aug-2015	From Version 33 to 34	Added	New Solid State Drives offering was added to HP Hard Drives section.
01-Jun-2015	From Version 32 to 33	Added	New Hard Drives were added to Core Options.
		Removed	Obsolete SKUs were removed from Configuration Information - Factory Integrated Models, Core Options, and Additional Options.
30-Mar-2015	From Version 31 to 32	Added	New Hard Drives were added to Core Options.
		Removed	Removed obsolete SKUs from HP Insight software and HP Care Pack Services.
09-Feb-2015	From Version 30 to 31	Added	New Hard Drives, DirectFlow UPS, Rack and Tower G4 Models, LCD8500 1U Rackmount Models and Options were added to the Additional Options section.
		Changed	HP Uninterruptible Power Systems, HP Rack Options, and HP Care Pack Services in Additional Options section were revised.
01-Dec-2014	From Version 29 to 30	Added	HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive and HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive were added to HP Hard Drives.
01-Nov-2014	From Version 28 to 29	Changed	Version number increased in sequence to match Product Bulletin version number.
01-Nov-2014	From Version 27 to 28	Changed	Service and Support section was revised.
29-Sep-2014	From Version 26 to 27	Added	New Solid State Drives were added.
			HP Managed Power Distribution Units (mPDU) was added to Additional Options.
		Changed	Service and Support section was revised. HP Hard Drives was revised in Core Options section.  Broken hyperlinks were updated throughout the QuickSpecs.
18-Aug-2014	From Version 25 to 26	Added	New Hard Drives were added. HP Remote mPDUs half height version were added.
		Changed	Core Options and Additional Options sections were revised.
10-Jun-2014	From Version 24 to 25	Added	762272-B21, 762270-B21, 739898-B21 and 739888-B21 – Added to Hard drives. Gigabit Ethernet Adapters 593722-B21 and 615732-B21. HP PCIe Workload Accelerator Options, HP Tape Storage Systems, HP Disk Storage Systems and HP Remote Monitoring Power Distribution Units (mPDU) – Added to Additional Options.
		Changed	Core Options, Additional Options and Memory were revised.
		Removed	Core Options – Removed 690829-B21, 690825-B21, 653078-B21 and 653082-B21 from Hard drives. H221 Host Bus Adapter. HP Flash Media Kits for USB Drives.
18-Apr-2014	From Version 23 to 24	Changed	Service and Support, Memory, Core Options, and Additional Options were revised.
18-Feb-2014	From Version 22 to 23	Changed	Hard Drives and HP InfiniBand were revised HP secure Encryption was added to Core Options
13-Dec-2013	From Version 21 to 22	Changed	Dual Core Processors were removed from Processors NVIDIA Quadro 4000 2GB PCI-E Adapter were removed from

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Summary Of Changes

			<p>Graphics Options</p> <p>First Generation Accelerators were removed from HP I/O Accelerator Options</p> <p>HP OneView was added to Optional Features</p> <p>Converged Infrastructure Management Software was added</p> <p>HP H221 PCIe 3.0 SAS Host Bus Adapter was added to Storage Controllers</p> <p>HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit was added and HP 4GB SD Enterprise Performance Flash Media Kit was removed from HP Flash Media Kits for USB Drives</p>
11-Oct-2013	From Version 20 to 21	Changed	Changes made: Support for new Value Endurance Solid State Drives and SD Enterprise Mainstream Flash Media Kit
20-Sep-2013	From Version 19 to 20	Changed	HP Dynamic Smart Array B120i Controller in Technical Specifications was revised.
13-Sep-2013	From Version 18 to 19	Changed	High Performance Clusters, Memory, HP Networking, HP Optical Drives, HP InfiniBand, HP Insight software, HP iLO Advanced License, HP Storage Controllers, HP Tape Backup, HP Disk Backup, HP Storage Options, and HP Rack Options were revised.
15-Jul-2013	From Version 17 to 18	Changed	Additional Options: Updated HP Disk Backup section.
24-May-2013	From Version 16 to 17	Changed	Additional Options: Updated HP Storage Options section.
13-May-2013	From Version 15 to 16	Removed	Additional Options: Removed HP Disk Storage Systems and Modular PDUs 1u/0U sections. Storage: Removed Drive Support section.
		Changed	<p>Overview: Updated What's New with HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive.</p> <p>Standard Features: Updated Maximum Internal Storage section.</p> <p>Configuration Information-Factory Integrated Models: Updated Step 1, Step 2 and Step 3.</p> <p>Core Options: Updated HP Memory, HP Optical Drives and HP Hard Drives sections.</p> <p>Additional Options: Updated HP I/O Accelerator Options, HP Rack Options, HP USB and SD Options and HP Care Pack Services sections.</p> <p>Memory: Updated HP Memory,</p>
29-Apr-2013	From Version 14 to 15	Changed	Technical Specifications: Updated HP Dynamic Smart Array B120i Controller section.
25-Mar-2013	From Version 13 to 14	Removed	Additional Options: Removed 641027-B21, 600279-B21 and 600282-B21 from the HP i/o Accelerator Options section.
25-Feb-2013	From Version 11 to 13	Removed	<p>Removed HP Storage Controllers, Software 582765-B21 and TC203A from HP Insight Software</p> <p>Core Options: Removed SAS Hot Plug SmartDrive SFF (2.5 inch) Enterprise Drives and SAS Hot Plug SmartDrive SFF (2.5 inch) Midline Drive, 6G SAS MLC Hot Plug SFF (2.5 inch) Enterprise Mainstream Solid Stated Drive and Removed p/ns 652503-B21 and 665249-B21 from HP Networking.</p> <p>Additional Options: Removed p/n T9074BAE, 45214B22, TC278AAE, 436222-B21, TC213AAE, TC209A, TC203AAE, TC208A and NOTES from HP Insight Control, Removed HP Backup &amp; Recovery Software section</p>
		Changes	<p>What's New: Updated with Support for HP 1.2TB 6G SAS 10K 2.5in DP ENT SC HDD, Support for HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive, Support for 6G SATA ME 2.5in SC EM SSD and Support new HP iLO Scale-</p>

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Summary Of Changes

			<p>Out license for massive scale out environments.</p> <p>Standard Features: Maximum Internal Storage updated storage amounts</p> <p>Optional Features: Updated first link and NOTE in HP Insight Control</p> <p>Pre-Configured Models: Updated NOTES before Entry Models, Updated Hard Drive throughout entire section</p> <p>Configuration Information - Factory Integrated Models: Updated description in Step 1, updated product description to HP Memory and Updated product description to 652238-B21</p> <p>Core Options: Updated product descriptions in Unbuffered with ECC DIMMs (UDIMMs) and HP Optical Drives, Updated note in HP Hard Drives</p> <p>Additional Options: Completely updated HP iLO Advanced License, Update product description for TC293B and TC294A, Updated product description for 655915-B21 in HP Graphics Options, Updated NOTES in HP Storage Controllers, Completely updated HP Tape Backup, HP Disk Backup, HP Storage Options, HP Disk Storage Systems, HP Power Distribution Units, HP Intelligent Power Distribution Units (iPDU), HP Rack Series, HP USB and SD Options, and HP Care Pack Services.</p> <p>Storage: Update amounts and Controllers</p>
		Added	<p>Standard Features: HP iLO 4 On System Management Memory to Graphics</p> <p>Optional Features: HP iLO Scale-Out and HP iLO Advanced to HP Insight Management Software and Storage Software section.</p> <p>Pre-Configured Models: Added note to Storage Controller throughout Entry Models section</p> <p>Configuration Information - Factory Integrated Models: Added NOTES before Step 1 and added p/n 652241-B21 to HP Insight Software</p> <p>Core Options: Added p/n 697574-B21, 693687-B21, 6G SAS ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives, 6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives and 6G SATA ME Hot Plug SFF (3.5-inch) Enterprise Mainstream Solid State Drives sections to HP Hard Drive, Added p/ns 656596-B21, 652503-B21, 665249-B21, 665240-B21 and 665243-B21 to HP Networking</p> <p>Additional Options: Added Second Generation Accelerators section to HP I/O Accelerator Options, HP Location Discovery Services, HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor, HP Server Console Switch G2 with Virtual Media &amp; CAC to HP Rack Options</p> <p>Storage: Added 6G SAS ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</p>
19-Dec-2012	From Version 10 to 11	Changes	Changes made to the description of the Disk Drive Interface - Transfer rate in the Technical Specifications section.
24-Sep-2012	From Version 9 to 10	Changes	Changes made in Optional Features section.
13-Aug-2012	From Version 8 to 9	Changes	Changes made throughout the QuickSpecs.
30-Jul-2012	From Version 7 to 8	Changes	Change made in the Configuration Information - Factory Integrated Models section.
15-Jun-2012	From Version 6 to 7	Changes	Revised a Note in the Standard Features, Power Specifications section.
06-Jun-2012	From Version 5 to 6	Changes	Changed "Smart Drive" to "SmartDrive" and Changed a Note in the Power Supplies section.

# QuickSpecs

## HP ProLiant DL160 Generation 8 (Gen8)

### Summary Of Changes

04-Jun-2012	From Version 4 to 5	Changes	Changes were made throughout.
18-May-2012	From Version 3 to 4	Changed	Changes made in the Processors section of Standard Features.
04-May-2012	From Version 2 to 3	Removed	Removed the Note in the Graphics section of Standard Features.
06-Apr-2012	From Version 1 to 2	Changes	Storage Controller note and Step 1 in Configuration Information - Factory Integrated Models were revised Tape and Disk Backup was removed from Storage and Cache Memory was removed from HP Embedded SATA controller

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