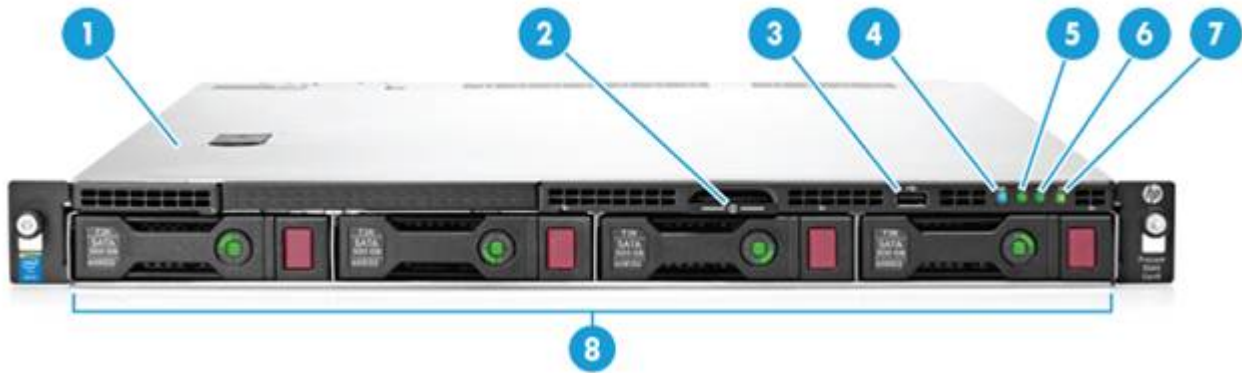


Overview

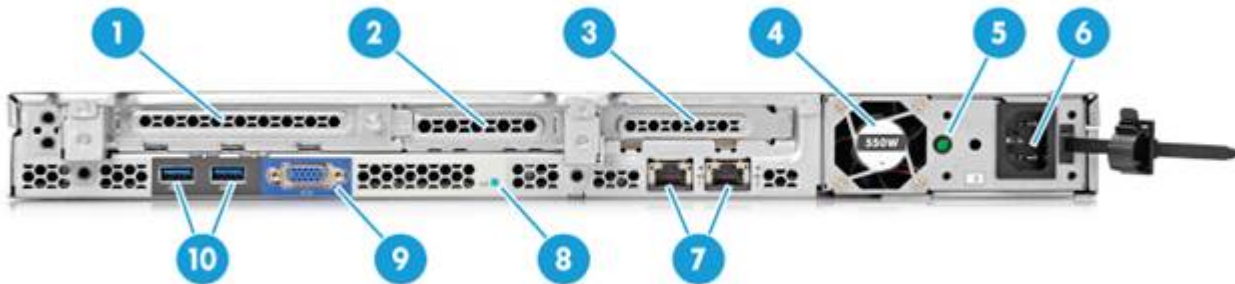
HP ProLiant DL60 Generation9 (Gen9)

The HP ProLiant DL60 Gen9 Server provides the right density, performance and manageability for file and print, messaging, collaboration workloads and cloud environments. All in a compact 1U chassis at an affordable price to meet the needs of cost conscious service providers and SMBs.



Front View

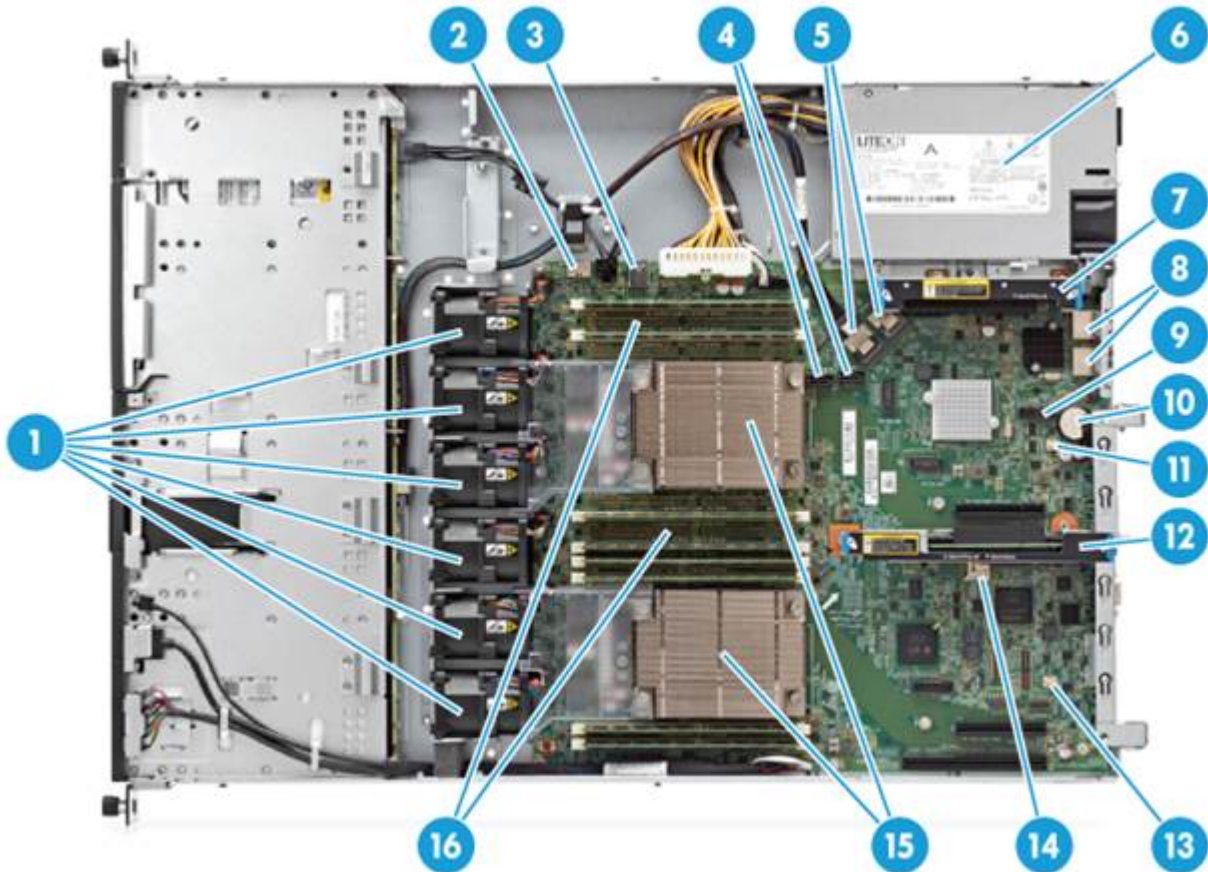
1. Access Panel
2. Serial label pull tab
3. USB 2.0 connector
4. UID button/LED
5. Health LED
6. NIC status LED
7. Power On/Standby button and system power LED
8. 4LFF drive



Rear view

1. Slot 3 PCIe3 x8 (8, 4, 1)
2. Slot 2 PCIe3 x8 (8, 4, 1)
3. Slot 1 PCIe3 x16 (16, 8, 4, 1)
4. Power supply bay (550w shown)
5. Power supply power LED
6. Power supply power connection
7. Embedded 2x1GbE network adapter
8. UID LED
9. Video connector
10. USB3.0 connectors

Overview



Internal View

1. Hot swappable fans (up to 6)
2. HP Smart Storage Battery connector
3. Internal USB 3.0
4. SATA connector
5. Mini-SAS connectors
6. Power supply bay
7. Primary PCIe riser board connector
8. Embedded 2x1GbE network adapter
9. TPM connector
10. System Battery
11. Storage backup power connector for PCIe slots 1-2
12. Secondary PCIe riser slot
13. Storage backup power connector for PCIe slot 3
14. MicroSD slot
15. Processor heat sinks (processors with HP Smart Socket placed below heat sink)
16. DDR4 DIMM slots (up to 8)

Standard Features

NOTE: For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>.

Processor One of the following depending on model	Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
	E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650Lv3	1.8GHz	12	30MB	65W	9.6GT/s	2133
	E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
	E5-2630v3	2.4Ghz	8	20MB	85W	8.0GT/s	1866
	E5-2630Lv3	1.8GHz	8	20MB	55W	8.0GT/s	1866
	E5-2623v3	3.0GHz	4	10MB	105W	8.0GT/s	1866
	E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
	E5-2609v3	1.9GHz	6	15MB	85W	6.4GT/s	1600
	E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600

Chipset Intel® C610 Series Chipset

One of the following Intel® E5-2600v3 Processor Family

depending on model **NOTE:** For more information regarding Intel chipsets, please see the following URL: <http://www.intel.com/products/server/chipsets/>.

On System Management HP iLO (Firmware HP iLO4 2.0) 2GB NAND

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

One of the following depending on model

Memory Type:

One of the following HP SmartMemory

depending on model DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)

DIMM Slots Available	8	(4 DIMM slots per processor, 4 channels per processor, 1 DIMMs per channel)
Maximum Capacity (LRDIMM)	256GB	(8 x 32GB LRDIMM @2133MHz)
Maximum Capacity (RDIMM)	128GB	(8 x 16GB RDIMM @2133MHz)

Memory Protection Advanced ECC

One of the following

depending on model Online spare

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

Expansion Slots

CPU1 PCIe riser slots

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
1	PCIe 3.0	x16	x16		Low profile	CPU 1

Standard Features

CPU1 FlexibleLOM riser slots (Option 1)	Expansion Technology Slots #	Expansion Technology	Bus Width	Connector Width	Bus Number	Device Number	Form Factor	Notes
	2	PCIe 3.0	x8	x8			Low profile	CPU1
	3	Flexible LOM	x8	x8			Flexible LOM	CPU 1 (Can only be used for flexibleLOMs)

NOTE: This riser is mandatory for installing FlexibleLOMs.

CPU1 riser PCIe slots (Option 2)	Expansion Technology Slots #	Expansion Technology	Bus Width	Connector Width	Bus Number	Device Number	Form Factor	Notes
	2	PCIe 3.0	x8	x8			Low profile slot	CPU1
	3	PCIe 3.0	x8	x8			Full-height, half-length slot	CPU1

NOTE: Only one of the CPU1 PCIe risers can be selected in any given configuration.

NOTE: One of the CPU1 risers is mandatory for all configurations.

Storage Controller	Entry Models	Base Models
One of the following depending on model	HP Dynamic Smart Array B140i Controller	HP Dynamic Smart Array B140i Controller

NOTE: B140i provides support for up to 4 SATA drives on DL60 Gen9 and supports RAID 0, 1, 1 + 0 & 5.

Internal Storage Devices	Optical Drives	Hard Drives	Hard Drive Bays
One of the following depending on model	Optional: DVD-ROM, DVD-RW	None ship standard	4 LFF drive bays total with Optical bay

Maximum Internal Storage	CAPACITY	CONFIGURATION
Hot Plug LFF SAS	24.0TB	4 x 6TB
Hot Plug LFF SATA	24.0TB	4 x 6TB
Non-Hot Plug LFF SATA	2.4TB	4 x 600GB
Hot Plug LFF SATA SSD	6.4TB	4 x 1.6TB

Power Supply	HP 550W FIO Power Supply
One of the following depending on model	HP 800W/900W Gold AC Power Input Module

HP Entry-Level Power Supplies provide lower-cost options for customers trying to balance their need for enterprise class efficiency and reliability while maintaining lowest possible hardware costs. All Entry-Level power supply options have been designed specifically for HP ProLiant Gen9 Essential Series servers.

The HP 550W FIO Power Supply is the standard, non-redundant AC power supply option for most HP ProLiant Gen9 Essential servers. It features Silver-level (89%) certified power efficiency with a set of features optimized for the Gen9 Essential-series rack and tower servers.

The HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module with Power Backplane can be configured to support power redundancy in ProLiant servers that offer only a single power supply bay, providing additional protection against power loss. With an 80 Plus Gold power efficiency rating (up to 92%), this power option helps to reduce operating expenses while protecting against trapped power capacity in the data center. Each power backplane option can support up to two (2) hot-plug AC power input modules.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

To review the power requirements for your selected system, please use the HP Power Advisor Tool located at <http://www.hp.com/go/hppoweradvisor>.

Power specifications and technical content for all HP Server power supplies can be found at <http://www.hp.com/go/proliant/powersupply>.

Standard Features

System Fans

One of the following 1P model
depending on model

Non-redundant

3 fans

Redundant

5 fans

2P model

Non-redundant

4 fans

Redundant

6 fans

NOTE: Redundant fan option kit (PN: 765513-B21) can be bought separately if redundancy is required with 1P or 2P configurations.

NOTE: Additional fans required with 2P configurations are included in "-B21" processor option kits.

Interfaces

Video

1 (Vaux Support)

LOM Network Ports

2 x 1GbE ports

Micro SD Slot

1 Micro SD

NOTE: The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.

USB

4 USB ports (standard);

Front: 1xUSB 2.0 std;

Rear: 2xUSB 3.0

Internal: 1x USB 3.0

Operating Systems and Virtualization [Microsoft Windows Server](#)

Software Support for ProLiant Servers [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/DL60Gen9>.

Upgradeability

Upgradeable to two processors (24 cores)

One of the following Up to 8 DIMM slots

depending on model FlexibleLOM slot for 1Gigabit or 10 Gigabit Ethernet or QDR/FDR InfiniBand networking options

Redundant Power Supply

Redundant Fan

Industry Standard Compliance

ACPI 2.0b Compliant

PCIe 3.0 Compliant

PXE Support

WOL Support

Microsoft® Logo certifications

USB 3.0 Support

ASHRAE A3

NOTE: Supports A3 extended ambient temperature.

NOTE: Refer to technical specifications section for more details.

Graphics

Integrated Matrox G200eH2 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)

Standard Features

HP Server UEFI/Legacy ROM	HP Server UEFI /Legacy ROM <p>Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration while interacting with your server at boot time. HP ProLiant Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.</p> <p>NOTE: The UEFI System Utilities function is analogous to the HP ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit http://www.hp.com/go/proliantuefi/docs.</p> <p>UEFI enables numerous new capabilities specific to HP ProLiant servers such as:</p> <ul style="list-style-type: none">• Secure Boot• Operating system specific functionality• Support for > 2.2 TB (using GPT) boot drives• USB 3.0 Stack• Embedded UEFI Shell• Mass Configuration Deployment Tool using HP RESTful API.• PXE boot support for IPv6 networks• Boot support for option cards that only support a UEFI option ROM <p>For more information please visit http://www.hp.com/go/proliant/uefi.</p> <p>NOTE: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.</p> <p>NOTE: HP UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.</p>
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Form Factor	1U Rack form factor
One of the following 4LFF version: depending on model	1.69" (4.29cm) Height x 17.11" (43.46cm) Width x 23.9" (60.70cm) Length

Embedded Management	HP Integrated Lights-Out (HP iLO)	Monitor your servers for ongoing management, service alerting, reporting and remote management with HP iLO. Learn more at http://www.hp.com/go/ilo .
	UEFI	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at http://www.hp.com/go/ProLiant/uefi .
	HP RESTful API	RESTful API is an application programming interface. RESTful Web Service API served by iLO's web server: Learn more at http://www.hp.com/go/restfulapi .
	Intelligent Provisioning	Provision servers by discovering and deploying 1 to few servers with Intelligent Provisioning. Learn more at http://www.hp.com/go/intelligentprovisioning .
	Embedded Remote Support	HP's embedded remote support, when used with Insight Online direct connect or HP Insight Remote Support, allows HP ProLiant servers to transmit hardware events directly to HP or an HP Authorized Partner for automated phone home support. Learn more at http://www.hp.com/go/insightonline/info .

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

Standard Features

Server utilities	HP Smart Update	Optimize firmware and driver updates with HP Smart Update solutions. Learn more at http://www.hp.com/go/smartupdate .
	HP Systems Insight Manager (HP SIM)	HP SIM allows you to monitor the health of your HP ProLiant Servers and HP Integrity Servers, and also provides you with basic support for non-HP servers. HP SIM also integrates with HP SUM to provide quick and seamless firmware updates. Learn more at http://www.hp.com/go/sim .
	HP OneView Standard	HP OneView Standard can inventory, monitor, alert, and report on your G6, G7, Gen8, and Gen9 servers, while using the HP OneView user interface. Annual support is optionally available. Learn more at http://www.hp.com/go/oneview .
	Scripting Tool Kit and Windows PowerShell	Provision 1 to many servers using your own scripts to discover and deploy them with HP Scripting Tool Kit for Windows and Linux or HP Scripting Tools for Windows PowerShell. Learn more at http://www.hp.com/go/ProLiantSTK or http://www.hp.com/go/powershell .
	HP RESTful Interface Tool	HP RESTful Interface tool is a scripting tool to provision servers using RESTful API Interface to discover and deploy servers at scale. Learn more at http://www.hp.com/go/restfulapi .
	HP iLO Mobile Application	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: http://www.hp.com/go/ilo/mobileapp .
	HP Insight Online	HP Insight Online, available at no additional cost as part of your HP warranty, Care Pack or contractual support agreement with HP, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at http://www.hp.com/go/insightonline/info .

Security	Power-on password Serial interface control Administrator's password TPM 1.2 UEFI
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Warranty	<p>This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.</p> <p>NOTE: Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.</p>
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Optional Features

Embedded Management	iLO Essentials	HP iLO Essentials is the preferred license for small and medium business that offers full remote server management capabilities for small and medium business via the Integrated Remote Console (IRC), virtual media, and e-mail based alerts. Learn more about HP iLO Essentials at http://www.hp.com/go/iLO/essentials .
	iLO Scale-Out	HP iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications. For more information, visit http://www.hp.com/go/iLO/scale-out .
	iLO Advanced	HP iLO Advanced licenses offer smart remote functionality without compromise, for all HP ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HP iLO Advanced at http://www.hp.com/go/ioloadvanced .
Server Management	HP Insight Control	HP Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see http://www.hp.com/go/insightcontrol .
	HP OneView Advanced	HP OneView Advanced is converged management that eliminates infrastructure complexity with automation simplicity. This modern architecture is designed to accelerate your IT operations across servers, storage, and network resources using software-defined approaches and automation, see http://www.hp.com/go/oneview .
Rack and Power Infrastructure	HP Rack and Power Infrastructure products and services create highly efficient and intelligent solutions for existing or new IT data centers. HP Rack and Power infrastructure solutions – rack infrastructure, power protection and management, performance optimized data centers (PODs) – are the foundation you are looking for to help secure your long-term IT success. These products are designed to help you react to changes in the industry. They deliver efficient, easy-to-use capabilities to manage, monitor, deploy and provision infrastructure from entry to enterprise. As an industry leader, HP is uniquely positioned to address the key concerns of power, cooling, cable management and system access. Learn more at HP Rack and Power Infrastructure .	
High Performance Clusters	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters .	
HPC Interconnects	NOTE: High Performance Computing (HPC) interconnect technologies are available for this server under the HP Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html .	

Optional Features

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 create a virtual array within your host server. Manage it as a single pool of shared storage capacity, and scale it to match your evolving needs. HP ProLiant Gen9 servers include a 3-year limited license for HP StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HP StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at <http://www.hp.com/go/vsa1TB>.

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

One Config Simple (SCE) 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

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 Package

Supports maintaining 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

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>

Factory Express 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. 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>.

Data Privacy Services

Protect your data through better media management. HP Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware. <http://www.hp.com/services/dataprivacy>

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

Service and Support

Get connected to HP Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: <http://www.hp.com/go/proactiveinsightexperience>

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

HP's Support Center Mobile App** allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

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

Parts and Materials HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction.

Pre-configured Models

For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

1. Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
2. HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
3. If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
4. Not all models are available in all regions. Check with your local country HP offices for availability.

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 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Hard Drive Blank Kit.

NOTE: All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

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.

	Entry Models	Base Models
[SKU Number]	777394-B21	785836-B21
Model Name	HP ProLiant DL60 Gen9 E5-2603v3 4GB-R B140i 4LFF NHP SATA 550W PS Entry Server	HP ProLiant DL60 Gen9 E5-2609v3 8GB-R B140i 4LFF SATA 550W PS Base Server
Processor	Intel® Xeon® E5-2603v3	Intel® Xeon® E5-2609v3
Number of Processors	One	
Memory	4GB (1x4GB Registered DIMMs, 2133 MHz)	8GB (1x8GB Registered DIMMs, 2133 MHz)
Network Controller	HP Embedded Dual Port 361i Adapter Network Interface	
Storage Controller	HP Dynamic Smart Array B140i	
Hard Drive	None ship standard	
Internal Storage	4 LFF HDD Bays (Non Hot Plug)	4 LFF HDD Bays
Optical Drive Bay	1; (Optional: DVD-ROM, DVD-RW)	
PCI-Express Slots	3 PCIe 3.0 slots	
Power Supply	(1) HP 550W FIO Power Supply	
Fans	3 hot swap fans, non-redundant	
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)	
Form Factor	Rack (1U), HP Easy Install Rails	
Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.	

Country Code Key	xx1 = B21	Worldwide
	xx1 = 291	Japan
	xx1 = AA1	PRC

Configuration Information - Factory Integrated Models

This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

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

[Chassis]	HP ProLiant DL60 Gen9 4LFF Non-hot Plug Configure-to-order Server	HP ProLiant DL60 Gen9 4LFF Configure-to-order Server
SKU Number	777404-B21	777403-B21
Processor	2 (optional) x HP Smart Socket Guides	
DIMM Slots	8 DIMM slots for RDIMM, LRDIMM DDR4 Memory	
Storage Controller	HP Dynamic Smart Array B140i	
PCIe	3 PCIe 3.0 slots	
Drive Cage	4LFF Non Hot Plug	4LFF Hot Plug
Network Controller	HP Embedded Dual Port 361i Adapter Network Interface	
Fans	3 hot swap fans, non-redundant	
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)	
USB	1 front, 1 internal, 2 rear	
Ears	HP Thumbscrew Ears	

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

HP Processors

Select one or two processors from Core options-Processor section below,

- If one processor is desired, select one xxxxxx-L21
- If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.
- Up to 2 processors supported. Mixing different processor models is not supported.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

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

Select one or more memory from Core options-Memory section below,

- LRDIMM, RDIMM are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen9 servers support LRDIMM and RDIMM.
- 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 Gen9.
- If only one processor is installed, only half of the total DIMM slots are available. When populating with two processors all DIMM slots are available.
- Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <http://www.hp.com/go/proliant-energy-efficient>.
- Depending on the memory configuration and processor model, the memory speed may run at 2133MHz, 1866MHz, 1600MHz or 1333MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hp.com/go/ddr4memory-configurator>.

HP Power Supplies

Select one or more power supplies from Core Options-Power Supplies section below:

- Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HP Power Advisor tool to determine the right size power supply for your server configuration. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.
- Mixing of power supplies in the same server is not supported. All power supplies must be of the same input voltage, output rating, and efficiency rating. If non-matching power supplies are installed, you may receive an error message and/or experience operational issues with your server.

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Factory Integratable Options

HP Unique Options

Select one or more Unique options from Core options section below.

- This section may contain FIO options, please see the Unique options section below.
- FIO indicates that this option is only available as a factory installable option.

HP Drives

Select one or more drives from Core options-HP Drives section below:

- The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
- Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
- The HP ProLiant Gen9 Smart Storage solutions are equipped with 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".

HP Flexible LOM

Select a FlexibleLOM from Core options-Networking section below,

- Only one FlexibleLOM can be added to the server. These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.

HP Networking

Select a standup NIC adapter from Core options-Networking section below,

- Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.
- These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

HP I/O Expansion Options

Select one or more Riser Kit options from Core options section below.

- To take advantage of the additional PCI slot upgrade, the second processor must be installed.
- This section may contain FIO options, please see HP I/O Expansion Options section below.
- FIO indicates that this option is only available as a factory installable option.

HP Cooling Options

Select one or more Fan Kits from Core options section below.

- This section may contain FIO options, please see HP Cooling Options section below.
- FIO indicates that this option is only available as a factory installable option.

HP Rail Kits

Select one type of rail kit from Additional options section below.

- Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen9 server.
- To assist in the installation of the server into the rack, an optional installation tool is available by contacting your local services representative (p/n 695539-001).
- See HP Rack Options in Additional Options section of this QuickSpecs for more rack kit choices.

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.

Core Options

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

HP Unique Options	HP DL60/120 Gen9 CPU1 Riser Kit	765508-B21
	HP DL60/120 Gen9 FlexibleLOM Riser Kit	765509-B21
	HP DL60/120 Gen9 Full Height Half Length PCIe Riser Kit	765510-B21
	HP AHCI-Enable FIO Setting	801845-B21

NOTE: This needs to be selected when Advanced Host Controller Interface mode is required on B140i controller.

HP Processors	Entry Processors - E5-2600v3 series Processors	
	HP DL60 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit	765536-B21
	HP DL60 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	765536-L21
	HP DL60 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit	765538-B21
	HP DL60 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) FIO Processor Kit	765538-L21
	Base Processors - E5-2600v3 series Processors	
	HP DL60 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit	765540-B21
	HP DL60 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	765540-L21
	HP DL60 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit	765541-B21
	HP DL60 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	765541-L21
	HP DL60 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit	765542-B21
	HP DL60 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit	765542-L21
	HP DL60 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) Processor Kit	779928-B21
	HP DL60 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) FIO Processor Kit	779928-L21
	HP DL60 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor Kit	765545-B21
	HP DL60 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) FIO Processor Kit	765545-L21
	Performance Processors - E5-2600v3 series Processors	
	HP DL60 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) Processor Kit	765543-B21
	HP DL60 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) FIO Processor Kit	765543-L21
	HP DL60 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit	765551-B21
	HP DL60 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) FIO Processor Kit	765551-L21
	HP DL60 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) Processor Kit	765544-B21
	HP DL60 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit	765544-L21

Core Options

HP Memory	Registered DIMMs (RDIMMs) for E5-2600v3 Series	
	HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726717-B21
	HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803026-B21
	HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
	HP 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	759934-B21
	HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803028-B21
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726719-B21
	HP 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	728629-B21
	Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series	
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21
	HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21
	HP Optical Drives	HP 9.5mm SATA DVD-ROM JackBlack Gen9 Optical Drive
HP 9.5mm SATA DVD-RW JackBlack G9 Optical Drive		726537-B21
HP Drives	SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	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
	HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793669-B21
	HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793671-B21
	SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	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
	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
	SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	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
	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
	HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765253-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 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765259-B21
	HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drives	793665-B21
	HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793667-B21
	SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	

Core Options

HP 4TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801888-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801886-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801884-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801882-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
12G SAS Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives	
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
6G SATA Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives	
HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691860-B21
HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691856-B21
HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691854-B21
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691852-B21
6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value G1 Solid State Drives	
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
6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value M1 Solid State Drives	
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
6G SATA Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives	
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

Core Options

12G SAS Hot Plug SmartDrive LFF (3.5-inch) Midline 512e Helium Drives

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

6G SATA Hot Plug LFF (3.5-inch) Enterprise Light G1 Solid State Drives

HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive	756604-B21
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6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives

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

6G SATA Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives

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

6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline 512e Helium Drives

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

Hard Drive Blank Kits

HP Large Form Factor Hard Drive Blank Kit	666986-B21
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M.2 SSD

HP Dual 120GB Value Endurance Solid State M.2 Enablement Kit for ProLiant ML/DL Servers	777894-B21
HP 120GB Value Endurance Solid State M.2 Enablement Kit for ProLiant ML/DL Servers	788028-B21

NOTE: M.2 drives go in PCIe slot and use B140i SATA controller only.

HP Networking

1 Gigabit Ethernet adapters

HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
HP Ethernet 1Gb 4-port 366T Adapter	811546-B21
HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
HP Ethernet 1Gb 2-port 332T Adapter	615732-B21

10 Gigabit Ethernet adapters

HP Ethernet 10Gb 2-port 530T Adapter	656596-B21
HP Ethernet 10Gb 2-port 561T Adapter	716591-B21
HP Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HP Ethernet 10Gb 2-port 546SFP+ Adapter	779793-B21
HP Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	779799-B21
HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21

NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

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

FlexibleLOM Adapters

HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HP Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B22

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

HP InfiniBand

HP InfiniBand FDR 2-port 545QSFP Adapter	702211-B21
HP InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-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_div/13078_div.html.

Core Options

HP I/O Expansion Options	HP DL60/120 Gen9 Full Height Half Length PCIe Riser Kit	765510-B21
	HP DL60/120 Gen9 FlexibleLOM Riser Kit	765509-B21
	HP DL60/120 Gen9 CPU1 Riser Kit	765508-B21

HP Power Supplies	HP Entry-Level Power Supplies	
	HP 550W FIO Power Supply Kit	730941-B21
	HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module	744689-B21
	HP Server Redundant Power Supply Backplane Kit	745813-B21
	NOTE: Required to be bought when 900W/800W power supply (P/N: 744689-B21) is selected.	
	HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input FIO Module	813534-B21
	NOTE: HP Server RPS FIO Backplane Kit (P/N: 813535-B21) is required for this power supply.	
	NOTE: Up to two of these option kits can be installed in one system.	
	NOTE: This FIO kit only be bought integrated in the server. It cannot be ordered as standalone option after server purchase.	
	NOTE: With just one power supply module installed, up to 900W wattage is supported while with both power supply modules installed in RPS mode, up to 800W is supported.	
	HP Server Redundant Power Supply Backplane FIO Kit	813535-B21
	NOTE: Required for RPS capability.	
	NOTE: This FIO kit only be bought integrated in the server. It cannot be ordered as standalone option after server purchase.	
	NOTE: The above power supply option is 80Plus Gold-certified with an efficiency rating of up to 92%. Each power backplane kit (813535-B21) can support up to two (2) AC power input modules (813534-B21). Power specifications and technical content for all HP Server power supplies can be found at http://www.hp.com/go/proliant/powersupply .	

HP Cooling Options	HP DL60/120 Gen9 Redundant Fan Kit	765513-B21
	NOTE: Includes two fans and is required to move from non-redundant to redundant configurations.	

Additional Options

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

HP Insight Software HP Insight Control

HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	C6N28ABE
HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	C6N36A
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

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24x7 HP Software Technical Support and Update Service.

NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/insightupdates>.

NOTE: For additional license options please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html.

Embedded Management

HP iLO Advanced

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE

HP iLO Essentials

HP Integrated Lights-Out Essentials including 3yr 24x7 Technical Support and Updates E-LTU	E6U61ABE
HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates Single Svr License	BD774A
HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates Single Svr License	BD775A
HP Integrated Lights-Out Essentials including 1yr 24x7 Technical Support and Updates E-LTU	E6U62ABE

HP iLO Scale-out

HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License	BD776A
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 3yr 24x7 Tech Support and Updates Tracking License	BD777A
HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License	BD778A
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 1yr 24x7 Tech Support and Updates Tracking License	BD779A

Additional Options

HP Converged Infrastructure Management Software	HP OneView Advanced (with HP 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 for ProLiant DL Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic	E5Y43A
	HP OneView without iLO Advanced	
	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
	HP OneView Media Kit Phys No Lic	E5Y37A
	HP Operations Analytics for HP OneView LTU	K8G29A
	HP Operations Analytics for HP OneView E-LTU	K8G29AAE

NOTE: Full licenses of HP OneView Advanced also provide the right-to-use HP Insight Control without additional charge.

NOTE: Server provisioning (via 'HP Insight Control server provisioning') is licensed as part of HP OneView Advanced and provides multi-server OS and driver provisioning. Media kit #BD883A can be ordered for a physical copy of this software (USB flash drive).

NOTE: Licenses ship without media. The HP OneView Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/oneview>.

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

HP Security	HP Trusted Platform Module Option	488069-B21
	NOTE: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: http://www.hp.com/go/TPM .	
	NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.	
	NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	
	HP 1U Security Bezel Kit	664918-B21
	HP DL60 Gen9 Quick Release Ear FIO Kit	777324-B21
	HP DL60 Gen9 Thumbscrew Ear FIO Kit	787218-B21

HP Storage Controllers	SAS Controllers	
	HP Smart Array Controllers	
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
	HP Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	761872-B21
	HP Smart Host Bus Adapters	
	HP H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
	HP H240 12Gb 2-ports Int FIO Smart Host Bus Adapter	761873-B21
	HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
	HP Cable Options	
	HP DL60/120 Gen9 4LFF Smart Array H240 SAS Cable Kit	777385-B21
	HP DL60/120 Gen9 4LFF Smart Array P440 SAS Cable Kit	777382-B21
	HP DL60/80/120 Gen9 4LFF Cable FIO Kit	777331-B21
	NOTE: One of the above cables is required to be selected depending on the combination of chassis and storage controller. Cable option kit descriptions include the right chassis and storage controller names.	
	NOTE: FIO indicates that this option is only available as a factory installable option. Please select FIO option if you want the option to be factory installed.	
NOTE: NHP server chassis (Mod-x) includes SATA cables required to connect drives to embedded B140i SATA controller.		
Optional Software		

Additional Options

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

NOTE: HP Secure Encryption is supported when one of the supported Smart Array Controllers or the supported Smart SAS HBA (configured in a RAID mode) is installed in the server.

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 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

NOTE: HP SmartCache is supported when one of the supported Smart Array Controllers is installed in the server.

NOTE: HP SmartCache comes standard (no licensing is required) if the HP Smart Array P840 Controller is installed in the server.

Optional Upgrades

HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
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NOTE: This option is mandatorily required with HP Smart Array controllers. One server can accommodate only 1 Smart Storage Battery that would suffice the requirement of all HP Smart Array controllers.

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.

Tape Drives

HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HP StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B
HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive	EH900B
HP StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive	EH920B
HP StoreEver LTO-3 Ultrium 920 SAS External Tape Drive	EH848B

SAS Rack-Mount Tape Solutions

HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
HP StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rack-mount	EJ014B
HP StoreEver LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rack-mount	EJ013B
HP StoreEver LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946C
HP StoreEver 1U SAS Rack-mount Kit	AE459B
HP Mini SAS High Density to 4-lane Mini SAS External Fanout 2 Meter Cable	K2R09A
HP Mini SAS High Density to 4-lane Mini SAS External Fanout 4 Meter Cable	K2R10A

HP DAT Autoloader

HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A
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HP MSL2024 Tape Library

HP MSL2024 0-Drive Tape Library	AK379A
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HP MSL4048 Tape Library

HP MSL4048 0-Drive Tape Library	AK381A
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HP StoreEver MSL6480

HP StoreEver MSL6480 Scaleable Expansion Module	QU626A
HP StoreEver MSL6480 Scalable Base Module	QU625A

Additional Options

HP Disk Backup	HP RDX Removable Disk Backup System	
	HP RDX1000 USB 3.0 External Disk Backup System	B7B69A
	HP RDX+ 1TB External Backup System	B7B69B
	HP RDX500 USB 3.0 External Disk Backup System	B7B66A
	HP RDX+ 500GB External Backup System	B7B66B
	HP RDX320 USB3.0 External Disk Backup System	B7B63A
	HP RDX 2TB USB3.0 External Disk Backup System	E7X53A
	HP RDX 2TB USB3.0 External Disk Backup System	E7X53B
	HP D3700 Enclosure	QW967A
	HP D3600 Enclosure	QW968A
	HP RDX+ External Docking System	C8S07B
	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 .	
	NOTE: Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html (Worldwide).	

HP Storage Options **NOTE:** These adapters are only supported with Windows Server 2012 R2 operating system as of now. Support for other operating systems will follow later

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 StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A
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HP Disk Storage Systems

Disk Enclosures

HP D6000 Dual I/O Module Disk Enclosure	QQ695A
HP D6000 w/35 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 140TB Bundle	E7W30A
HP D6000 w/70 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 280TB Bundle	E7W31A
HP D6000 w/35 2TB 6G SAS 7.2K LFF Dual port MDL HDD 70TB Bundle	QQ697A
HP D6000 w/70 2TB 6G SAS 7.2K LFF Dual port MDL HDD 140TB Bundle	QQ698A
HP D6000 w/35 3TB 6G SAS 7.2K LFF Dual port MDL HDD 105TB Bundle	QQ699A
HP D6000 w/70 3TB 6G SAS 7.2K LFF Dual port MDL HDD 210TB Bundle	QQ700A
HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A

Additional Options

HP Data Center Racks	HP 11000 G2 Series Racks		
	HP 11648 1075mm Pallet Universal Rack	H6J87A	
	HP 11648 1075mm Shock Universal Rack	H6J88A	
	HP 11642 1075mm Pallet Universal Rack	H6J65A	
	HP 11642 1075mm Shock Universal Rack	H6J66A	
	HP 11642 1200mm Pallet Universal Rack	H6J67A	
	HP 11642 1200mm Shock Universal Rack	H6J68A	
	HP 11636 1075mm Pallet Universal Rack	H6J77A	
	HP 11636 1075mm Shock Universal Rack	H6J78A	
	HP 11622 G2 1075mm Shock Universal Rack	H6J83A	
	HP 11622 G2 1075mm Shock Universal Rack	H6J84A	
	HP 11614 1075mm Shock Universal Rack	H6J82A	
	NOTE: Please see the HP 11000 G2 Series Racks QuickSpecs for information on additional racks options and rack specifications.		
		HP Intelligent Series Rack	
	HP 647 1075mm Pallet Intelligent Series Rack	BW911A	
HP 647 1075mm Shock Intelligent Series Rack	BW912A		
HP 647 1200mm Pallet Intelligent Series Rack	BW913A		
HP 647 1200mm Shock Intelligent Series Rack	BW914A		
HP 642 1075mm Pallet Intelligent Series Rack	BW903A		
HP 642 1075mm Shock Intelligent Series Rack	BW904A		
HP 642 1200mm Pallet Intelligent Series Rack	BW907A		
HP 642 1200mm Shock Intelligent Series Rack	BW908A		
HP 636 1075mm Pallet Intelligent Series Rack	BW895A		
HP 636 1075mm Shock Intelligent Series Rack	BW896A		
HP 842 1075mm Pallet Intelligent Series Rack	BW917A		
HP 842 1075mm Shock Intelligent Series Rack	BW918A		
NOTE: Please see the HP Intelligent Series Racks QuickSpecs for information on additional racks options and rack specifications.			
	HP Value Series Rack		
HP V142 1075mm deep Pallet 100 series Rack	AF046A		
NOTE: Please see the HP Value Series Rack QuickSpecs for information on additional racks options and rack specifications.			

HP Power	HP Basic Power Distribution Unit (bPDU)
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Additional Options

Distribution Units (PDUs)	HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU	H5M56A
	HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
	HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
	HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
	HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
	HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A
	HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
	HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
	HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
	HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
	HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU	H3X08A
	HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
	HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
	HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74
	HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
	HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
	HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
	HP 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit	AF512A
	HP 11kVA 16A Three Phase INTL Modular Power Distribution Unit	AF513A
	HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit	AF519A
	HP 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit	AF511A
	HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A
	NOTE: To learn more about HP Basic Power Distribution Units (bPDU), please visit the HP website at http://www.hp.com/go/pdu.	
	HP Monitored Power Distribution Units (mPDU)	
	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
	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
	HP 7.3kVA 230 Volt IEC309 32A Input (12xC13) INTL Monitored PDU	G9Z06A
	HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
	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
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
	HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
	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

Additional Options

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
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Watertight Input (12xC13/12xC19) INTL Monitored PDU	G9Z08A
HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A
NOTE: Please see the HP Monitored Power Distribution Units QuickSpecs for information on additional options and product specifications.	
HP Intelligent Power Distribution Units (iPDU)	
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 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
HP 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 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A
NOTE: Please see the HP Intelligent Power Distribution Units QuickSpecs for information on additional options and product specifications.	
HP Managed Power Distribution Units (maPDU)	
HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU	H8B48A
HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU	H8B49A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Managed PDU	H8B50A
HP 7.3kVA 200-240 Volt IEC309 32A Input (20xC13/4xC19) INTL Managed PDU	H8B51A
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 11kVA 400 Volt IEC309 16A 3 Phase Input (21xC13/3xC19) INTL Managed PDU	H8B54A
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 (Worldwide).	
NOTE: To learn more, please visit the HP Uninterruptible Power Systems (UPS) web page .	

Additional Options

HP Rack Mount Consoles, KVM Switches, and Keyboards

HP Location Discovery Services

HP Location Discovery Services LCD8500 Kit TL052A

NOTE: Please see the [QuickSpecs for Technical Specifications and additional information:](#)

http://h18000.www1.hp.com/products/quickspecs/14429_div/14429_div.html (Worldwide)

HP Rack Mount Consoles

HP LCD8500 1U US Rackmount Console Kit AF630A

HP LCD8500 1U UK Rackmount Console Kit AF631A

HP LCD8500 1U DE Rackmount Console Kit AF632A

HP LCD8500 1U FR Rackmount Console Kit AF633A

HP LCD8500 1U JP Rackmount Console Kit AF642A

HP LCD8500 1U RU Rackmount Console Kit AF643A

HP LCD8500 1U INTL Rackmount Console Kit AF644A

HP LCD8500 1U US TAA Rackmount Console Kit AF645A

HP KVM Switches

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

HP KVM Console USB Interface Adapter AF628A

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

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: To learn more, please visit the [HP KVM Switches web page](#).

HP USB Keyboard and Mouse

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

HP USB BFR with PVC Free UK Keyboard/Mouse Kit 631344-B21

HP USB BFR with PVC Free FR Keyboard/Mouse Kit 631346-B21

HP USB BFR with PVC Free ES Keyboard/Mouse Kit 631348-B21

HP USB BFR with PVC Free DE Keyboard/Mouse Kit 631358-B21

HP USB BFR with PVC Free JP Keyboard/Mouse Kit 631360-B21

HP USB BFR with PVC Free IT Keyboard/Mouse Kit 631362-B21

HP USB BFR with PVC Free CN Keyboard/Mouse Kit 631364-B21

HP USB BFR with PVC Free AE Keyboard/Mouse Kit 638212-B21

HP USB BFR with PVC Free RU Keyboard/Mouse Kit 638214-B21

HP USB BFR with PVC Free SE Keyboard/Mouse Kit 672097-103

HP USB BFR with PVC Free CH Keyboard/Mouse Kit 672097-113

HP USB BFR with PVC Free PT Keyboard/Mouse Kit 672097-133

HP USB BFR with PVC Free TR Keyboard/Mouse Kit 672097-143

HP USB BFR with PVC Free CZ Keyboard/Mouse Kit 672097-223

HP USB BFR with PVC Free FI Keyboard/Mouse Kit 672097-353

HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit 672097-373

HP USB BFR with PVC Free Intl Keyboard/Mouse Kit 672097-B33

HP USB BFR with PVC Free IN Keyboard/Mouse Kit 672097-D63

HP USB BFR with PVC Free KR Keyboard/Mouse Kit 672097-KD3

HP 1U INT Rackmount Keyboard with USB AG086A

HP 1U US Rackmount Keyboard with USB AG072A

NOTE: Please see the [HP USB Keyboard and Mouse QuickSpecs](#) for information on additional options and product specifications.

Rail Kits

HP 1U Small Form Factor Easy Install Rail Kit 734807-B21

HP 1U Cable Management Arm for Easy Install Rail Kit 734811-B21

HP Other Options

HP Rack LED Light Kit BW939A

HP Kit LCD 1.83m Latch Display Port Cable G7T29A

Additional Options

HP Uninterruptible Power Systems (UPS)	HP DirectFlow Three Phase UPS Power Unit (1U UPS)	
	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	
	HP 32A 400-415 Volt Three Phase INTL R12000 DirectFlow UPS IEC309 Input/Output Module	AF488A
	HP 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module	AF489A
	HP 32A 380 Volt Three Phase China R12000 DirectFlow UPS Unterminated Input/Output Module	AF490A
	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
	Power Unit (2U UPS)	
	HP R18000 DirectFlow - 2U Rackmount Uninterruptible Power System	AF479A
	Input/Output Module Options for 2U UPS	
	HP 32A 400-415 Volt Three Phase INTL R18000 DirectFlow UPS IEC309 Input/Output Module	AF483A
	HP 30A 380 Volt Three Phase China R18000 DirectFlow UPS Unterminated Input/Output Module	AF485A
	HP 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF486A
	HP 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF487A
	HP 30A 400 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	D9Q02A
	HP 30A 400-415V Three Phase NA R18000 DirectFlow UPS 1:1 IEC309 Input/Output Module	AF484A
	NOTE: All Input/Output Modules support dual output outlets except the AF484A.	
	Battery Pack Options	
	HP DirectFlow UPS - 1U Rackmount Lithium-ion Battery Pack	AF480A
	HP DirectFlow UPS - 3U Rackmount VRLA Battery Pack	AF482A
	HP WW DirectFlow Secondary Battery Cable	AF497A
	NOTE: Please see the HP DirectFlow Three Phase Uninterruptible Power System QuickSpecs for information on additional options and product specifications.	
	HP Tower UPS	
	HP T750 G4 UPS Models	
	HP T750 G4 NA/JP Uninterruptible Power System	J2P85A
	HP T750 G4 INTL Uninterruptible Power System	J2P88A
	HP T1000 G4 UPS Models	
	HP T1000 G4 NA/JP Uninterruptible Power System	J2P86A
	HP T1000 G4 INTL Uninterruptible Power System	J2P89A
	HP T1500 G4 UPS Models	
	HP T1500 G4 NA/JP Uninterruptible Power System	J2P87A
	HP T1500 G4 INTL Uninterruptible Power System	J2P90A
	HP Rack/Tower UPS	

Additional Options

HP R/T2200 G4 UPS Models

HP R/T2200 G4 NA/JP Uninterruptible Power System J2R00A

HP R/T3000 G4 UPS Models

HP R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System J2R01A

HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System J2R02A

HP R/T3000 G4 High Voltage INTL Uninterruptible Power System J2R04A

HP R/T3000 G2 Uninterruptible Power System (UPS)

HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System AF466A

HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System AF467A

R1500 G4 Models

HP R1500 G4 NA Uninterruptible Power System J2Q99A

HP R1500 G4 JP/TWN Uninterruptible Power System J2R05A

HP R1500 G4 INTL Uninterruptible Power System J2R03A

R7000 Uninterruptible Power System (UPS)

HP R7000 4U 50A High Voltage NA/JP Uninterruptible Power System AF462A

HP R7000 4U IEC-32A High Voltage INTL Uninterruptible Power System AF463A

R5000 Uninterruptible Power System (UPS)

HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System AF460A

HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System AF461A

NOTE: To learn more, please visit the [HP Uninterruptible Power Systems \(UPS\) web page](#).

HP USB and SD Options

HP Enterprise Mainstream Flash Media Kits for Memory Cards

HP 32GB microSD Enterprise Mainstream Flash Media Kit 700139-B21

HP 8GB microSD Enterprise Mainstream Flash Media Kit 726116-B21

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

HP Dual 8GB microSD Enterprise Midline USB Kit 741279-B21

HP Care Pack Services

Installation & Start-up Services

HP Installation DL60/DL80 Service U7WZ5E

HP Startup DL60/DL80 Service U7WZ7E

Foundation Care

HP 3 year Next business day DL60 Gen9 Foundation Care Service U7VX4E

HP 3 year Next business day with Defective Media Retention DL60 Gen9 Foundation Care Service U7VX5E

HP 3 year Next business day w/ComprehensiveDefectiveMaterialRetention DL60 Gen9 Foundation Care SVC U7VX6E

HP 3 year 24x7 DL60 Gen9 Foundation Care Service U7VX7E

HP 3 year 24x7 with Defective Media Retention DL60 Gen9 Foundation Care Service U7VX8E

HP 3 year 24x7 w/Comprehensive Defective Material Retention DL60 Gen9 Foundation Care Service U7VX9E

Proactive Care

HP 3 year 24x7 DL60 Gen9 Proactive Care Service U7WA4E

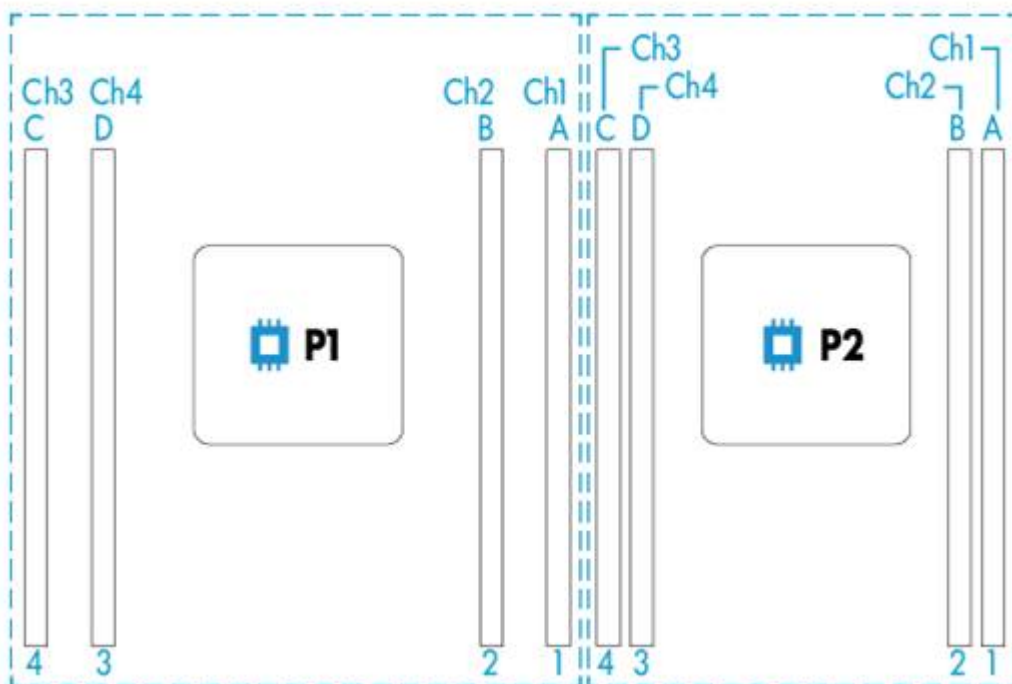
HP 3 year 24x7 with Defective Media Retention DL60 Gen9 Proactive Care Service U7WA5E

HP 3 year 24x7 w/ComprehensiveDefectiveMaterialRetention DL60 Gen9 Proactive Care SVC U7WA6E

Memory

Memory Subsystem Architecture Each Intel® Xeon® E5-2600v3 family processor socket contains four memory channels per installed processor with one DIMM per channel for a total of four (4) DIMMs or a grand total of eight (8) DIMMs for the server.

Memory Population guidelines



General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Do not mix RDIMMs or LRDIMMs.
- Quad rank RDIMMs are not supported in HP ProLiant DL60 Gen9 servers.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required.

Intel Gen9 Supported Memory Bandwidth for HP ProLiant Gen9 Intel® Xeon®E5-2600v3 Series Processor Family

Memory Bandwidth and Capacity

Memory

[DIMM Type]	Registered Dimms (RDIMMs)							Load Reduced (LRDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)
DIMM Rank	Single Rank		Dual Rank					Dual Rank	Quad Rank
DIMM Capacity	4GB	8GB	8GB	16GB				16GB	32GB
Voltage	Std Voltage 1.2V								
SLOTS THAT CAN BE POPULATED									
16 slot servers	8	8					8		
MAXIMUM CAPACITY (GB)									
	128	256					512		
1 DIMM Per Channel	2133								

DIMM slot and configuration diagram

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.
- When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...
- When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A, CPU1-B, CPU2-B, CPU1-C, CPU2-C

CPU #1 IS PROCESSOR ON RIGHT - LOOKING FROM FRONT OF SERVER

	CPU 1			CPU 2		
	Slot #	population order		Slot #	population order	
Chnl 1	1	A1		1	A1	
	CPU 1			CPU 2		
	Slot #	population order		Slot #	population order	
Chnl 2	2	B2		2	B2	
	CPU 1			CPU 2		
	Slot #	population order		Slot #	population order	
Chnl 4	3	D3		3	D3	
	CPU 1			CPU 2		
	Slot #	population order		Slot #	population order	
Chnl 3	4	C4		4	C4	

Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2603v3, E5-2609v3,	1600MHz
E5-2620v3, E5-2630v3, E5-2640v3, E5-2623v3, E5-2630Lv3,	1866MHz
E5-2650v3, E5-2650Lv3, E5-2660v3,	2133MHz

Standard and Maximum Memory Capacity (Pre-configured Models)

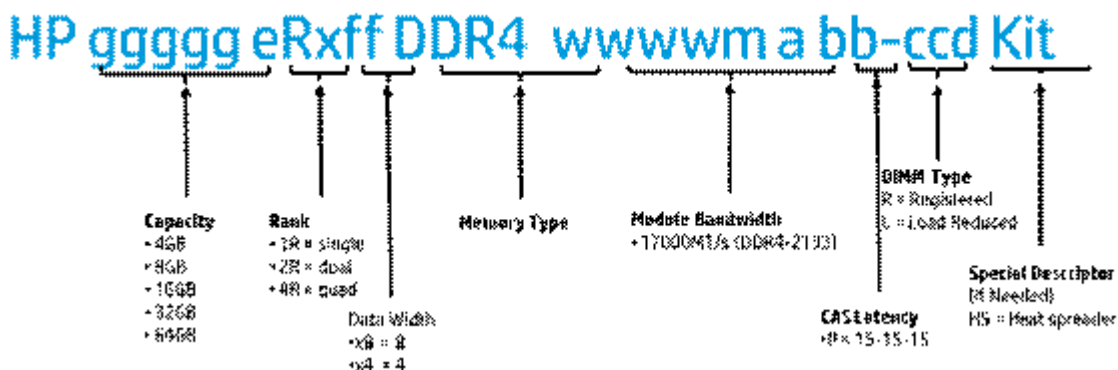
Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E5-2603v3,	4GB (1x4GB)	228GB (7x32GB, 1x4GB)	256GB (8x32GB)
E5-2609v3,	8GB (1x8GB)	232GB (7x32GB, 1x8GB)	256GB (8x32GB)

Memory

DDR4 memory options part number decoder

NOTE: Capacity references are rounded to the common gigabyte (GB) values:

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB



Storage



1-4

4 x LFF SATA/SAS/SSD Hot Pluggable Hard Drives
Bays

Technical Specifications

System Unit	Dimensions	4 LFF - 1.69 x 17.11 x 23.9 inches (4.29 x 43.46 x 60.70 cm) (H x W x D)
	Weight	Maximum: 37.44 lb (17kg) (all hard drives, power supplies, and processors installed) Minimum: 19.82 lb (9kg) (one hard drive, power supply, and processor installed)
	Input Requirements	Rated Line Voltage 100 to 240 VAC
	for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies)	Rated Input For 550W Power Supply: Current 6.7 A (at 100 VAC) 3.3 A (at 100 VAC) Rated Input Frequency 47 to 63 Hz
	BTU Rating	Maximum For 550 W Power Supply: 2201 BTU/hr (at 100 VAC), 2153 BTU/hr (at 200 VAC)
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL160 Gen9- Follow the instructions of the next screens.
	Power Supply Output	Rated Steady-State Power For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC), Maximum Peak Power For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC),
	System Inlet Temperature	Standard Operating Support 10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F). Extended Ambient Operating Support For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3048 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hp.com/servers/ashrae . System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
	Relative Humidity	NOTE: Supports A3 extended ambient. Non-operating -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr). Operating Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.

Technical Specifications

(non-condensing)	Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457.2 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
	L WAd	Entry 5.7 B Base 5.0 B
	L pAm	Entry 33 dBA Base 37 dBA
	Operating	
	L WAd	Entry 5.8 B Base 5.5 B
	L pAm	Entry 38 dBA Base 40 dBA
Emissions Classification (EMC)	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

HP Dynamic Smart Array B140i Controller	Number of PCI links	Four
	PCI link rate	4 Gb/s
	Storage protocol support	SATA
	SAS/SATA peak data transfer rate	6 Gb/s
	Number of SAS/SATA links	10 links
	SAS/SATA connectivity	2x4 connectors; 2x1 connectors
	Expander support	No
	Drives supported (max)	Up to 10 Internal Drives
	RAID support	0, 1, 10, 5 SATA
	Software management	HP SSA, SMH, SIM
	Warranty	Server warranty
	HP Secure Encryption license	Not Supported
	HP SmartCache License	Not Supported
	HP Smart Storage Administrator	Supported

HP Embedded Dual Network Interface 10Base-T/100Base-TX/1000Base-TX

Technical Specifications

Port 361i Adapter	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 1588, IEEE 802.1AS IEEE 802.3az - Energy Efficient Ethernet (EEE)		
	Data Transfer Method	PCI Express v 2.0, 5.0 GT/s, two lanes (x2)		
	Controller	Intel I350 Powerville		
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s per port, 40 Mb/s combined	
		10Base-T (Full-Duplex)	20 Mb/s per port, 80 Mb/s combined	
		100Base-TX (Half-Duplex)	100 Mb/s per port, 400 Mb/s combined	
		100Base-TX (Full-Duplex)	200 Mb/s per port, 800 Mb/s combined	
		1000Base-TX (Half and Full-Duplex)	1000Mb/s per port, 4000 Mb/s combined	
		Connector	Two RJ-45	
	Cable Support	10 Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)	
10/100/1000 Base-TX		Category 5 or higher UTP; up to 328 ft (100 m)		

Environment-friendly Products and Approach	End-of-life Management and Recycling
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Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Summary of Changes

Date	Version History	Action	Description of Change
06/01/2015	From Version 4 to 5	Added	New Hard Drives were added to Core Options. New options added to HP Power Supplies. New HP OneView LTUs added to HP Converged Infrastructure Management Software. New RDX+ external backup options were added.
		Changed	Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from QuickSpecs.
04/24/2015	From Version 3 to 4	Added	Added 813534-B21 and 813535-B21 to HP Power Supplies.
03/30/2015	From Version 2 to 3	Added	New Hard Drives offering. Optional Software added to HP Storage Controllers.
		Changed	HP Memory, HP Disk Storage Systems, HP USB and SD Options, HP Storage Controllers, and HP Disk Storage Systems were updated.
02/09/2015	From Version 1 to 2	Added	Added HP Insight Software, HP Disk Backup. Added new HP Drives and new G4 UPS models.
		Changed	HP Memory, HP Drives, HP Tape Backup, HP Rack Mount Consoles, KVM Switches, and Keyboards, and HP Uninterruptible Power Systems (UPS) sections were revised.



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