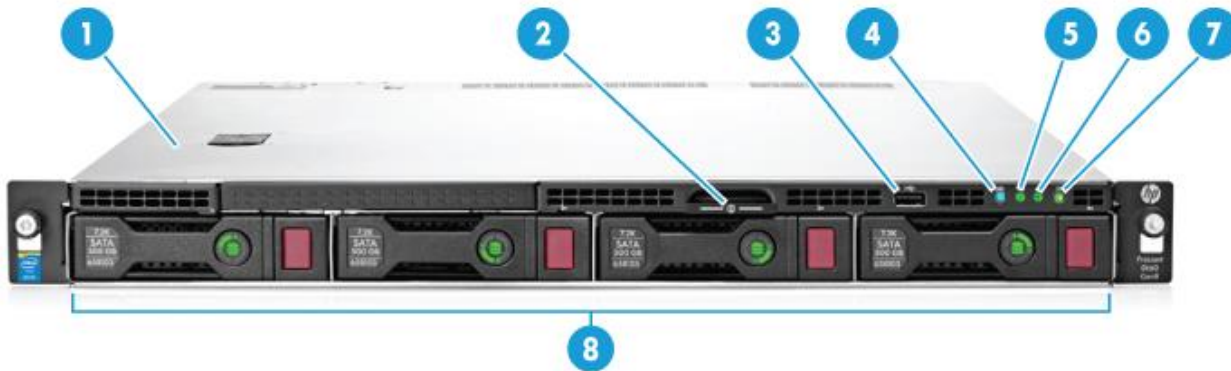


### Overview

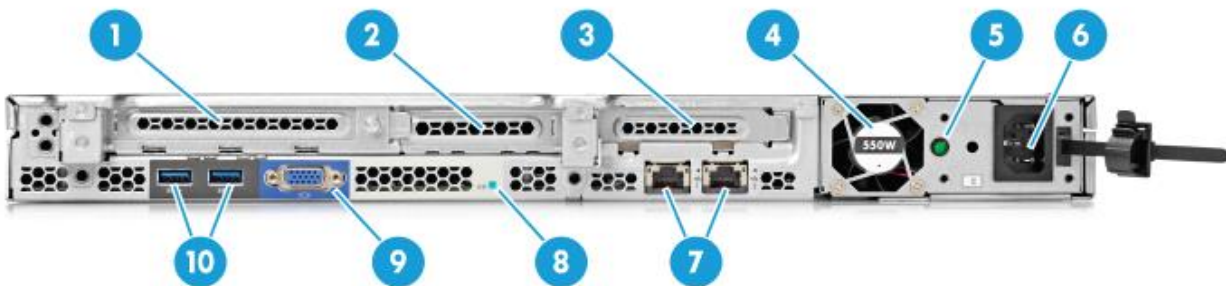
### HP ProLiant DL60 Generation9 (Gen9)

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

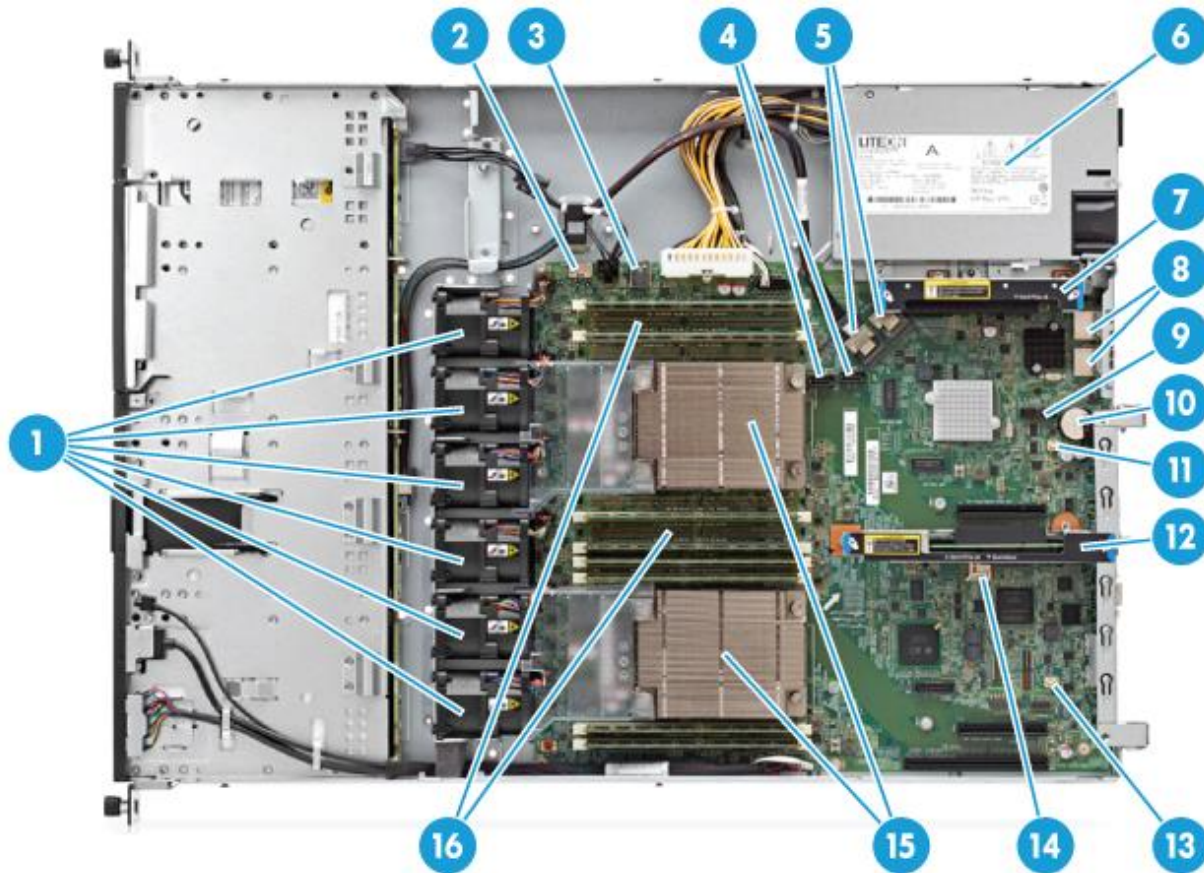
1. Access Panel
2. Serial label pull tab
3. USB 2.0 connector
4. UID button/LED
5. Health LED
6. NIC status LED
7. Power On/Standby button and system power LED
8. 4LFF drive



#### Rear view

1. Slot 3 PCIe x8 (8, 4, 1)
2. Slot 2 PCIe x8 (8, 4, 1)
3. Slot 1 PCIe x16 (16, 8, 4, 1)
4. Power supply bay (550w shown)
5. Power supply power LED
6. Power supply power connection
7. Embedded 2x1 GbE 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                               | Model      | CPU frequency | Cores | L3 Cache | Power | QPI     | DDR4 Hz |
|---|------------|---------------|-------|----------|-------|---------|---------|
| One of the following depending on model | 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 depending on model | Intel® E5-2600v3 Processor Family   |
|   | <b>NOTE:</b> For more information regarding Intel chipsets, please see the following URL: <a href="http://www.intel.com/products/server/chipsets/">http://www.intel.com/products/server/chipsets/</a> . |

| On System Management Chipset            | HP iLO (Firmware HP iLO4 2.0) 2GB NAND  |
|---|---|
| One of the following depending on model | <b>NOTE:</b> For more information, visit: <a href="http://www.hp.com/go/ilo">http://www.hp.com/go/ilo</a> . |

| Memory                                  | Type:  |   |
|---|--|---|
| One of the following depending on model | HP SmartMemory                                   |   |
|   | 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 | Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip. |
|---|--------------|--|
| One of the following depending on model | Online spare | Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.  |

| Expansion Slots                         | Expansion Slots #   | Technology   | Bus Width | Connector Width | Bus Number | Form Factor      | Notes                                     |
|---|---|--------------|-----------|-----------------|------------|------------------|---|
| CPU1 PCIe riser slots                   | 1   | PCIe 3.0     | x16       | x16             |            | Low profile      | CPU 1                                     |
| CPU1 FlexibleLOM riser slots (Option 1) | 2   | PCIe 3.0     | x8        | x8              |            | Low profile      | CPU1                                      |
|   | 3   | Flexible LOM | x8        | x8              |            | Flexible LOM     | CPU 1 (Can only be used for flexibleLOMs) |
|   | <b>NOTE:</b> This riser is mandatory for installing FlexibleLOMs. |              |           |                 |            |                  |   |
| CPU1 riser PCIe slots (Option 2)        | 2   | PCIe 3.0     | x8        | x8              |            | Low profile slot | CPU1                                      |

### Standard Features

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.

|  |              |   |
|--|--------------|---|
| <b>Storage Controller</b><br>One of the following depending on model | Entry Models | HP Dynamic Smart Array B140i Controller |
|  | Base Models  | 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.

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

| Maximum Internal Storage                | CAPACITY              | CONFIGURATION |
|---|-----------------------|---------------|
| One of the following depending on model | Hot Plug LFF SAS      | 4 x 8TB       |
|   | Hot Plug LFF SATA     | 4 x 8TB       |
|   | Non-Hot Plug LFF SATA | 4 x 600GB     |
|   | Hot Plug LFF SATA SSD | 4 x 1.6TB     |

|  |   |
|--|---|
| <b>Power Supply</b><br>One of the following depending on model | HP 550W FIO Power Supply                |
|  | 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>.

|   |          |                                |                            |
|---|----------|--------------------------------|----------------------------|
| <b>System Fans</b><br>One of the following depending on model | 1P model | <b>Non-redundant</b><br>3 fans | <b>Redundant</b><br>5 fans |
|   | 2P model | <b>Non-redundant</b><br>4 fans | <b>Redundant</b><br>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.

|                   |                   |                  |
|-------------------|-------------------|------------------|
| <b>Interfaces</b> | Video             | 1 (Vaux Support) |
|                   | LOM Network Ports | 2 x 1GbE ports   |
|                   | Micro SD Slot     | 1 Micro SD       |

### Standard Features

**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 Software Support for ProLiant Servers

[Microsoft Windows Server](#)  
[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](http://www.hp.com/go/ossupport) at: <http://www.hp.com/go/ossupport> and our [driver download page](http://www.hp.com/support/DL60Gen9) <http://www.hp.com/support/DL60Gen9>.

#### Upgradeability

One of the following depending on model

Upgradeable to two processors (24 cores)  
Up to 8 DIMM slots  
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)

#### HP Server UEFI/Legacy ROM

##### HP Server UEFI /Legacy ROM

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.

**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>.

UEFI enables numerous new capabilities specific to HP ProLiant servers such as:

- 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

### Standard Features

- Boot support for option cards that only support a UEFI option ROM

For more information please visit <http://www.hp.com/go/proliant/uefi>.

**NOTE:** For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

**NOTE:** HP UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.

**Form Factor** 1U Rack form factor  
 One of the following depending on model 4LFF version:  
 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.

**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>.

### Standard Features

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#### Security

Power-on password  
Serial interface control  
Administrator's password  
TPM 1.2  
UEFI

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#### Warranty

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

**NOTE:** Server Warranty includes 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>.

### Optional Features

|                                      |  |  |
|--------------------------------------|--|--|
| <b>Embedded Management</b>           | <b>iLO Essentials</b>  | 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 <a href="http://www.hp.com/go/iLO/essentials">http://www.hp.com/go/iLO/essentials</a> .   |
|                                      | <b>iLO Scale-Out</b>   | 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 <a href="http://www.hp.com/go/iLO/scale-out">http://www.hp.com/go/iLO/scale-out</a> .   |
|                                      | <b>iLO Advanced</b>  | 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 <a href="http://www.hp.com/go/ioloadvanced">http://www.hp.com/go/ioloadvanced</a> . |
| <b>Server Management</b>             | <b>HP Insight Control</b>  | 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 <a href="http://www.hp.com/go/insightcontrol">http://www.hp.com/go/insightcontrol</a> .  |
|                                      | <b>HP OneView Advanced</b>   | 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 <a href="http://www.hp.com/go/oneview">http://www.hp.com/go/oneview</a> .   |
| <b>Rack and Power Infrastructure</b> | 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.<br>Learn more at <a href="#">HP Rack and Power Infrastructure</a> . |  |
| <b>High Performance Clusters</b>     | HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. <a href="http://www.hp.com/go/clusters">http://www.hp.com/go/clusters</a> .   |  |
| <b>HPC Interconnects</b>             | <b>NOTE:</b> 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: <a href="http://www.hp.com/techservers/clusters/ucp/index.html">http://www.hp.com/techservers/clusters/ucp/index.html</a> .  |  |
| <b>Storage Software</b>              | 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.<br>Storage software that gets the job done:  |  |
|                                      | <ul style="list-style-type: none"> <li> <b>Data Protection and Recovery Software</b><br/>           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.         </li> </ul>   |  |



### Optional Features

- **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 1 TB 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>.

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#### 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 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.

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**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>

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**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>

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**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>

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**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>

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

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>

### Service and Support

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

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

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

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

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**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 (AOK02A). 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   |
|-----------------------------|---|---|
| <b>[SKU Number]</b>         | 777394-B21  | 785836-B21  |
| <b>Model Name</b>           | 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 |
| <b>Processor</b>            | Intel® Xeon® E5-2603v3  | Intel® Xeon® E5-2609v3  |
| <b>Number of Processors</b> | One   |   |
| <b>Memory</b>               | 4GB (1x4GB Registered DIMMs, 2133 MHz)  | 8GB (1x8GB Registered DIMMs, 2133 MHz)                                    |
| <b>Network Controller</b>   | HP Embedded Dual Port 361i Adapter Network Interface  |   |
| <b>Storage Controller</b>   | HP Dynamic Smart Array B140i  |   |
| <b>Hard Drive</b>           | None ship standard  |   |
| <b>Internal Storage</b>     | 4 LFF HDD Bays (Non Hot Plug)   | 4 LFF HDD Bays  |
| <b>Optical Drive Bay</b>    | 1; (Optional: DVD-ROM, DVD-RW)  |   |
| <b>PCI-Express Slots</b>    | 3 PCIe 3.0 slots  |   |
| <b>Power Supply</b>         | (1) HP 550W FIO Power Supply  |   |
| <b>Fans</b>                 | 3 hot swap fans, non-redundant  |   |
| <b>Management</b>           | iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)                   |   |
| <b>Form Factor</b>          | Rack (1U), HP Easy Install Rails  |   |
| <b>Warranty</b>             | Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. |   |

|                         |           |           |
|-------------------------|-----------|-----------|
| <b>Country Code Key</b> | 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, HP 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)

|                           |   |  |
|---------------------------|---|--|
| <b>[Chassis]</b>          | HP ProLiant DL60 Gen9 Non-hot Plug 4LFF Configure-to-order Server                         | HP ProLiant DL60 Gen9 4LFF Configure-to-order Server |
| <b>SKU Number</b>         | 777404-B21  | 777403-B21   |
| <b>Processor</b>          | 2 (optional) x HP Smart Socket Guides   |  |
| <b>DIMM Slots</b>         | 8 DIMM slots for RDIMM, LRDIMM DDR4 Memory  |  |
| <b>Storage Controller</b> | HP Dynamic Smart Array B140i  |  |
| <b>PCIe</b>               | 3 PCIe 3.0 slots  |  |
| <b>Drive Cage</b>         | 4LFF Non Hot Plug   | 4LFF Hot Plug  |
| <b>Network Controller</b> | HP Embedded Dual Port 361i Adapter Network Interface                                      |  |
| <b>Fans</b>               | 3 hot swap fans, non-redundant  |  |
| <b>Management</b>         | iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional) |  |
| <b>USB</b>                | 1 front, 1 internal, 2 rear   |  |
| <b>Ears</b>               | 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/ddr4config>.

#### HP Power Supplies

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

### Configuration Information - Factory Integrated Models

- 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.

### 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.

### Configuration Information - Factory Integrated Models

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- 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 an HP approved configurator. Contact your local sales representative for additional information.

|                          |  |            |
|--------------------------|--|------------|
| <b>HP Unique Options</b> | 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 |
|                          | <b>NOTE:</b> 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 |

### 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 | 726536-B21 |
| 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 |
|---|------------|



### Core Options

|   |            |
|---|------------|
| 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 |
| <b>SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>   |            |
| HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                            | 761477-B21 |
| HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                            | 695510-B21 |
| HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                            | 652766-B21 |
| HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                            | 652757-B21 |
| HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                            | 652753-B21 |
| <b>SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>  |            |
| HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                           | 753874-B21 |
| HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                           | 693687-B21 |
| 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 |
| <b>SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>  |            |
| 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 |
| <b>12G SAS Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>                          |            |
| HP 1.6TB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive           | 762272-B21 |
| HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive           | 762270-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives</b>                     |            |
| HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691860-B21 |
| HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691856-B21 |
| HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr 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 |
| HP 200GB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                         | 804642-B21 |
| HP 400GB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                         | 804668-B21 |
| HP 800GB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                         | 804674-B21 |
| HP 1.2TB 6G SATA Write Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                         | 804680-B21 |
| HP 800GB 6G SATA Write Intensive-2 LFF 3.5-in LPC 3yr Wty Solid State Drive                         | 831725-B21 |

### Core Options

|   |            |
|---|------------|
| <b>6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value G1 Solid State Drives</b> |            |
| HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive         | 756660-B21 |
| HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive         | 756639-B21 |
| HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive         | 756624-B21 |
| <b>6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value M1 Solid State Drives</b> |            |
| HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive         | 764945-B21 |
| HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive         | 764943-B21 |
| HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive         | 764941-B21 |
| HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive         | 764939-B21 |
| HP 200GB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                                   | 804616-B21 |
| HP 800GB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                                   | 804628-B21 |
| HP 1.6TB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                                   | 804634-B21 |
| HP 480GB 6G SATA Mixed Use-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                                   | 832417-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>                              |            |
| HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive     | 757342-B21 |
| HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive               | 718189-B21 |
| HP 600GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive     | 739900-B21 |
| HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive               | 718183-B21 |
| HP 300GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive     | 739890-B21 |
| HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive               | 718177-B21 |
| <b>12G SAS Hot Plug SmartDrive LFF (3.5-inch) Midline 512e Helium Drives</b>                            |            |
| HP 8TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive                           | 793703-B21 |
| HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive                           | 793699-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Light G1 Solid State Drives</b>                           |            |
| HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive         | 756604-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives</b>                             |            |
| HP 960GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive                       | 789157-B21 |
| HP 480GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive                       | 789147-B21 |
| HP 240GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive                       | 789137-B21 |
| HP 80GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                               | 804578-B21 |
| HP 120GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                              | 804584-B21 |
| HP 240GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                              | 804590-B21 |
| HP 480GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                              | 804596-B21 |
| HP 800GB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                              | 804602-B21 |
| HP 1.6TB 6G SATA Read Intensive-2 LFF 3.5-in SCC 3yr Wty Solid State Drive                              | 804608-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives</b>                               |            |
| HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive                | 718171-B21 |
| HP 80GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive                 | 734362-B21 |
| <b>6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline 512e Helium Drives</b>                       |            |

### Core Options

|   |            |
|---|------------|
| HP 8TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive           | 793695-B21 |
| HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive           | 793683-B21 |
| <b>Hard Drive Blank Kits</b>  |            |
| HP Large Form Factor Hard Drive Blank Kit   | 666986-B21 |
| <b>M.2 SSD</b>  |            |
| 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 |
| <b>NOTE:</b> M.2 drives go in PCIe slot and use B140i SATA controller only.             |            |

### HP Networking

|  |            |
|--|------------|
| <b>1 Gigabit Ethernet adapters</b>   |            |
| 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 |
| <b>10 Gigabit Ethernet adapters</b>  |            |
| 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 |
| <b>NOTE:</b> A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.  |            |
| <b>NOTE:</b> Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. See cables/options below.   |            |
| <b>FlexibleLOM Adapters</b>  |            |
| 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 560FLR-SFP+ Adapter  | 665243-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 |
| <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:<br><a href="http://www.hp.com/go/ProLiantNICs">http://www.hp.com/go/ProLiantNICs</a> . |            |

### 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 |
| <b>NOTE:</b> Please see the QuickSpecs for additional information:<br><a href="http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html">http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html</a> . |            |

### 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

|   |            |
|---|------------|
| <b>HP Entry-Level Power Supplies</b>  |            |
| 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 |
| <b>NOTE:</b> 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 |

### Core Options

**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 an HP approved configurator. Contact your local sales representative for additional information.

|                            |  |          |
|----------------------------|--|----------|
| <b>HP Insight Software</b> | <b>HP Insight Control</b>  |          |
|                            | HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License        | C6N27A   |
|                            | HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License           | C6N28ABE |
|                            | HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle 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](http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html).

|                            |  |            |
|----------------------------|--|------------|
| <b>Embedded Management</b> | <b>HP iLO Advanced</b>   |            |
|                            | 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   |
|                            | <b>HP iLO Essentials</b>   |            |
|                            | 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   |
|                            | <b>HP iLO Scale-out</b>  |            |
|                            | HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License         | BD776A     |
|                            | HP Integrated Lights-Out Scale-Out 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     |

|   |  |          |
|---|--|----------|
| <b>HP Converged Infrastructure Management Software</b>  | <b>HP OneView Advanced (with HP iLO Advanced)</b>                                  |          |
|   | 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   |
|   | <b>HP OneView without iLO Advanced</b>   |          |
|   | 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   |          |

### Additional Options

|  |          |
|--|----------|
| 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

|  |          |
|--|----------|
| 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.

### Additional Options

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

**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

#### HP MSL2024 Tape Library

HP MSL2024 0-Drive Tape Library AK379A

#### HP MSL4048 Tape Library

HP MSL4048 0-Drive Tape Library AK381A

#### HP StoreEver MSL6480

HP StoreEver MSL6480 Scaleable Expansion Module QU626A

HP StoreEver MSL6480 Scalable Base Module QU625A

### 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

### Additional Options

|                                 |        |
|---------------------------------|--------|
| HP D3600 Enclosure              | QW968A |
| HP RDX+ External Docking System | C8507B |

**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](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 |
|---|--------|

### 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 |

### 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 |



### Additional Options

|  |        |
|--|--------|
| 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 Distribution Units (PDUs)

#### HP Basic Power Distribution Unit (bPDU)

|   |            |
|---|------------|
| 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 |

### Additional Options

|   |        |
|---|--------|
| 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 |
| 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](#):

### Additional Options

<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](#).

#### 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: \[http://h18000.www1.hp.com/products/quickspecs/14429\\\_div/14429\\\_div.html\]\(http://h18000.www1.hp.com/products/quickspecs/14429\_div/14429\_div.html\)](#) (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

### Additional Options

**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 |

#### 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

##### 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 |
|--|--------|

### Additional Options

|  |        |
|--|--------|
| HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System  | J2R02A |
| HP R/T3000 G4 High Voltage INTL Uninterruptible Power System   | J2R04A |
| <b>R1500 G4 Models</b>   |        |
| 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 |
| <b>R7000 Uninterruptible Power System (UPS)</b>  |        |
| HP R7000 4U 50A High Voltage NA/JP Uninterruptible Power System  | AF462A |
| HP R7000 4U IEC-32A High Voltage INTL Uninterruptible Power System   | AF463A |
| <b>R5000 Uninterruptible Power System (UPS)</b>  |        |
| HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System   | AF460A |
| HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System  | AF461A |
| <b>NOTE:</b> To learn more, please visit the <a href="#">HP Uninterruptible Power Systems (UPS) web page</a> . |        |

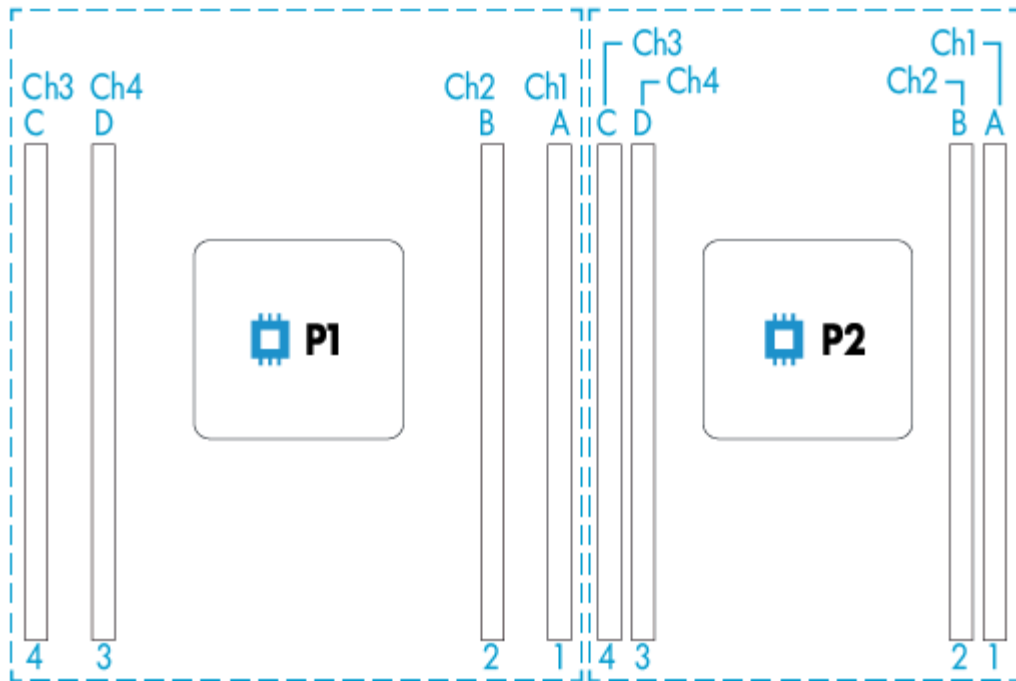
|                              |   |            |
|------------------------------|---|------------|
| <b>HP USB and SD Options</b> | <b>HP Enterprise Mainstream Flash Media Kits for Memory Cards</b> |            |
|                              | HP 32GB microSD Enterprise Mainstream Flash Media Kit             | 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 |

|                              |   |        |
|------------------------------|---|--------|
| <b>HP Care Pack Services</b> | <b>Installation &amp; Start-up Services</b>   |        |
|                              | HP Installation DL60/DL80 Service   | U7WZ5E |
|                              | HP Startup DL60/DL80 Service  | U7WZ7E |
|                              | <b>Foundation Care</b>  |        |
|                              | 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 |
|                              | <b>Proactive Care</b>   |        |
|                              | 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

| [DIMM Type]              | Registered DIMMs (RDIMMs) |     |           |      | Load Reduced (LRDIMMs) |      |
|--------------------------|---------------------------|-----|-----------|------|------------------------|------|
| DIMM Rank                | Single Rank               |     | Dual Rank |      | Quad Rank              |      |
| DIMM Capacity            | 4GB                       | 8GB | 16GB      | 32GB | 16GB                   | 32GB |
| DIMM Native Speed (MT/s) | 2133                      |     |           |      |                        |      |
| Voltage                  | Std Voltage 1.2V          |     |           |      |                        |      |

### Memory

| SLOTS THAT CAN BE POPULATED |      |    |     |     |      |     |   |
|-----------------------------|------|----|-----|-----|------|-----|---|
| 8 slot servers              | 8    | 8  | 8   | 8   | 8    | 8   | 8 |
| MAXIMUM CAPACITY (GB)       |      |    |     |     |      |     |   |
|                             | 32   | 64 | 128 | 256 | 128  | 256 |   |
| <b>1 DIMM Per Channel</b>   | 2133 |    |     |     |      |     |   |
| <b>2 DIMM Per Channel</b>   | 2133 |    |     |     |      |     |   |
| <b>3 DIMM Per Channel</b>   | 1600 |    |     |     | 1866 |     |   |

#### 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)

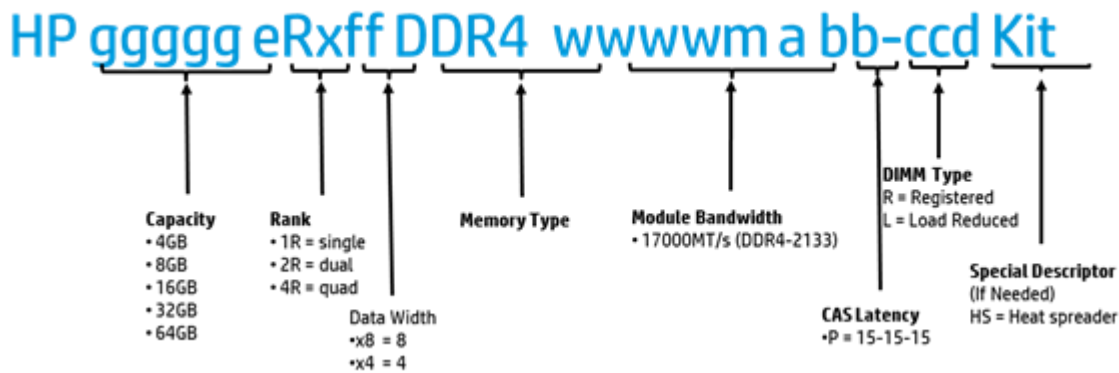
| Pre-Configured Models | Standard Memory | Maximum Memory Plus Optional Memory | Standard Memory Replaced with Optional Memory |
|-----------------------|-----------------|-------------------------------------|---|
| E5-2603v3,            | 4GB (1x4GB)     | 228GB (7x32GB, 1x4GB)               | 256GB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

|  |   |   |
|--|---|---|
| <b>System Unit</b>   | <b>Dimensions</b><br>(H x W x D)  | 4 LFF - 1.69 x 17.11 x 23.9 inches (4.29 x 43.46 x 60.70 cm)  |
|  | <b>Weight</b><br>(approximate)  | <p>Maximum: 37.44 lb (17kg)<br/>(all hard drives, power supplies, and processors installed)</p> <p>Minimum: 19.82 lb (9kg)<br/>(one hard drive, power supply, and processor installed)</p>  |
| <b>Input Requirements</b><br>for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies) | Rated Line Voltage  | 100 to 240 VAC  |
|  | Rated Input Current   | For 550W Power Supply:<br>6.7 A (at 100 VAC)<br>3.3 A (at 200 VAC)  |
|  | Rated Input Frequency   | 47 to 63 Hz   |
|  | Rated Input Power   | For 550 W Power Supply:<br>< 670 W (at 100 VAC),<br>< 660 W (at 200 VAC),   |
| <b>BTU Rating</b>  | Maximum   | For 550 W Power Supply:<br>2201 BTU/hr (at 100 VAC),<br>2153 BTU/hr (at 200 VAC)  |
| <b>Power Specifications</b>  | To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> - Click on the system of interest. Example: DL160 Gen9- Follow the instructions of the next screens. |   |
| <b>Power Supply Output</b>   | Rated Steady-State Power  | For 550 W Power Supply:<br>550 W (at 100 VAC),<br>550 W (at 200 VAC),   |
|  | Maximum Peak Power  | For 550 W Power Supply:<br>550 W (at 100 VAC),<br>550 W (at 200 VAC),   |
| <b>System Inlet Temperature</b>  | 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: <a href="http://www.hp.com/servers/ashrae">http://www.hp.com/servers/ashrae</a> .          |
|  |   | System performance may be reduced if operating in the extended ambient operating range or with a fan fault.   |
| <b>Relative Humidity</b>   | Non-operating   | <b>NOTE: Supports A3 extended ambient.</b><br>-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.  |
| <b>Altitude</b>                       | 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).  |
| <b>Acoustic Noise</b>                 | Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). |   |
|                                       | <b>Idle</b>  |   |
|                                       | L WAd  | Entry 5.7 B<br>Base 5.0 B   |
|                                       | L pAm  | Entry 33 dBA<br>Base 37 dBA   |
|                                       | <b>Operating</b>   |   |
|                                       | L WAd  | Entry 5.8 B<br>Base 5.5 B   |
| L pAm                                 | Entry 38 dBA<br>Base 40 dBA  |   |
| <b>Emissions Classification (EMC)</b> | FCC Rating   | Class A   |
|                                       | Normative Standards  | CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1                       |

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

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

|   |                          |                                 |
|---|--------------------------|---------------------------------|
| <b>HP Embedded Dual Port 361i Adapter</b> | <b>Network Interface</b> | 10Base-T/100Base-TX/1000Base-TX |
|   | <b>Compatibility</b>     | IEEE 802.3 10Base-T             |

### Technical Specifications

|                              |  |  |
|------------------------------|--|--|
|                              | IEEE 802.3ab 1000Base-T                        |  |
|                              | IEEE 802.3u 100Base-TX                         |  |
|                              | IEEE 1588, IEEE 802.1AS                        |  |
|                              | IEEE 802.3az - Energy Efficient Ethernet (EEE) |  |
| <b>Data Transfer Method</b>  | PCI Express v 2.0, 5.0 GT/s, two lanes (x2)    |  |
| <b>Controller</b>            | Intel I350 Powerville                          |  |
| <b>Network Transfer Rate</b> | 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          |
| <b>Connector</b>             | Two RJ-45                                      |  |
| <b>Cable Support</b>         | 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

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   |
|-------------|---------------------|---------|---|
| Aug-17-2015 | From Version 5 to 6 | Added   | New Solid State Drives offering was added to Core Options.  |
|             |                     | Changed | Maximum Internal Storage was revised.   |
|             |                     | Removed | Obsolete SKUs were removed from QuickSpecs.   |
| Jun-01-2015 | From Version 4 to 5 | Added   | New Hard Drives were added to Core Options.<br><br>New options added to HP Power Supplies.<br><br>New HP OneView LTUs added to HP Converged Infrastructure Management Software.<br><br>New RDX+ external backup options were added. |
|             |                     | Changed | Core Options and Additional Options were revised.   |
|             |                     | Removed | Obsolete SKUs were removed from QuickSpecs.   |
| Apr-24-2015 | From Version 3 to 4 | Added   | Added 813534-B21 and 813535-B21 to HP Power Supplies.   |
| Mar-30-2015 | From Version 2 to 3 | Added   | New Hard Drives offering.<br><br>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.  |
| Feb-09-2015 | From Version 1 to 2 | Added   | Added HP Insight Software, HP Disk Backup.<br><br>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.  |



[hp.com/qref/dl60gen9](http://hp.com/qref/dl60gen9)

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