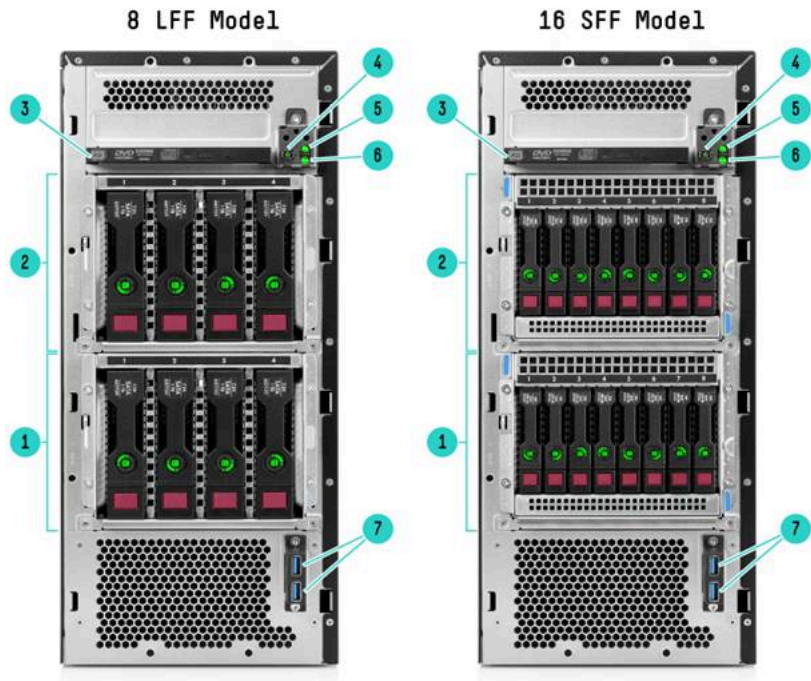


Overview

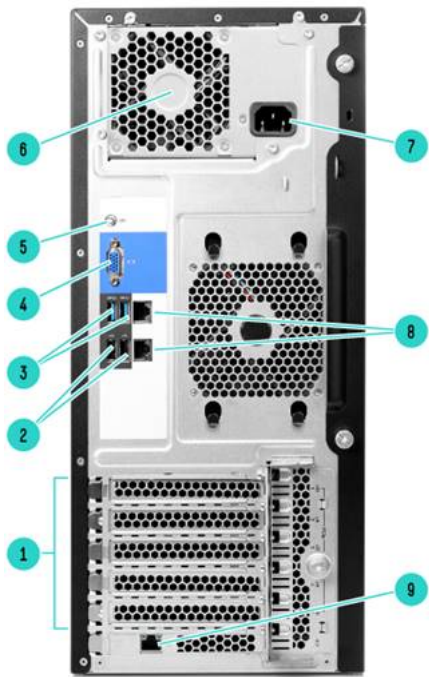
HPE ProLiant ML110 Generation9 (Gen9)

The HPE ProLiant ML110 Gen9 Server is a 1P/ 4.5U affordable single-socket tower server featuring better performance, expansion, and growth than previous 1P single-socket tower models. Designed to meet small and mid-sized businesses' performance compute demands the ML110 Gen9 delivers exceptional value at an affordable price.



Front View (details for 8LFF and 16SFF)

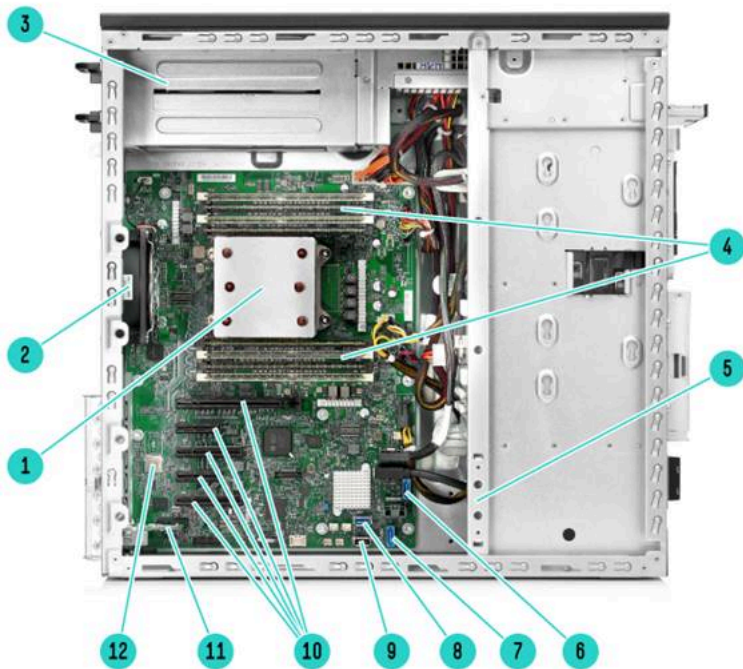
- |                            |                    |
|----------------------------|--------------------|
| 1 Drive cage               | 2 Drive cage       |
| 3 Optical drive (optional) | 4 Power button/LED |
| 5 Health LED               | 6 NIC status LED   |
| 7 USB 3.0 (2) connectors   |                    |



Rear View

- |                                 |                           |
|---------------------------------|---------------------------|
| 1 PCIe Slots (Slots 1-5)        | 2 USB 2.0 (2) connectors  |
| 3 USB 3.0 (2) connectors        | 4 Video connector         |
| 5 UID button/LED                | 6 Power supply bay        |
| 7 Power supply power connection | 8 Network RJ-45 ports (2) |

9 HPE ML Gen9 dedicated iLO port kit (optional)



Internal View

- 1 One (1) processor and heatsink with HPE Smart Socket Guide

2 System Fan (92x32mm default), upgrade system fan(92x38mm) is required for 140W E5-1600v3 Processor and SAS SSD

3 Power Supply backplane cage

4 Eight (8) DDR4 DIMM slots

5 PCIe fan (option required to support PCIe expansion cards)

6 Front USB 3.0 connector

7 SATA connector 1

8 Internal USB 3.0 connector

9 Internal USB 2.0 connector

10 Five (5) PCIe3 expansion slots

11 Dedicated iLO module slot (optional)

12 MicroSD slot

What's New

- HPE 12TB SATA 7.2K LFF HDD
- ClearOS, an easy to use OS with an application marketplace, allows you to build a fully functional server that is just right for you at no upfront cost. To learn more on what you can do, please visit <http://www.hpe.com/servers/clearos>.

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 | E5-1650v3  | 3.5GHz        | 6     | 15MB     | 140W  | 0.0GT/s | 2133    |
|                                         | E5-1603v3  | 2.8GHz        | 4     | 10MB     | 140W  | 0.0GT/s | 1866    |
|                                         | E5-1620v3  | 3.5GHz        | 4     | 10MB     | 140W  | 0.0GT/s | 2133    |
|                                         | E5-2660v4  | 2.0GHz        | 14    | 35MB     | 105W  | 9.6GT/s | 2400    |
|                                         | E5-2640v4  | 2.4GHz        | 10    | 25MB     | 90W   | 8.0GT/s | 2133    |
|                                         | E5-2630Lv4 | 1.8GHz        | 10    | 25MB     | 55W   | 8.0GT/s | 2133    |
|                                         | E5-2623v4  | 2.6GHz        | 4     | 10MB     | 85W   | 8.0GT/s | 2133    |
|                                         | E5-2620v4  | 2.1GHz        | 8     | 20MB     | 85W   | 8.0GT/s | 2133    |
|                                         | E5-2609v4  | 1.7GHz        | 8     | 20MB     | 85W   | 6.4GT/s | 1866    |
|                                         | E5-2603v4  | 1.7GHz        | 6     | 15MB     | 85W   | 6.4GT/s | 1866    |
|                                         | E5-1680v4  | 3.4GHz        | 8     | 20MB     | 140W  | 9.6GT/s | 2400    |
|                                         | E5-1660v4  | 3.2GHz        | 8     | 20MB     | 140W  | 9.6GT/s | 2400    |
|                                         | E5-1620v4  | 3.5GHz        | 4     | 10MB     | 140W  | 0.0GT/s | 2400    |
|                                         | E5-1607v4  | 3.1GHz        | 4     | 10MB     | 140W  | 0.0GT/s | 2400    |
|                                         | E5-1603v4  | 2.8GHz        | 4     | 10MB     | 140W  | 0.0GT/s | 2400    |

**NOTE:** Up to 1 processor supported. Mixing different processor models is not supported.

- Cache Memory

One of the following depending on model

10MB (1 x 10MB) Level 3 cache

**NOTE:** For Four-core processors.

15MB (1 x 15MB) Level 3 cache

**NOTE:** For Six-core processors.

20MB (1 x 20MB) Level 3 cache

**NOTE:** For Eight-core processors.

25MB (1 x 25MB) Level 3 cache

**NOTE:** For Ten-core processors.  
30MB (1 x 30MB) Level 3 cache  
**NOTE:** For Ten-core processors.  
35MB (1 x 35MB) Level 3 cache  
**NOTE:** For Fourteen-core processors.

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chipset</b> | Intel® C610 Series Chipset<br>Intel® E5-2600v4 Processor Family<br>Intel® E5-2600v3 Processor Family<br>Intel® E5-1600v4 Processor<br>Intel® E5-1600v3 Processor Family<br><b>NOTE:</b> This is a 140W processor which need to be ordered with the ML110 Gen9 System fan upgrade kit (789654-B21).<br><b>NOTE:</b> For more information regarding Intel® chipsets, please see the following URL:<br><a href="http://www.intel.com/products/server/chipsets/">http://www.intel.com/products/server/chipsets/</a> |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                     |                                                                                                                                    |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>On System Management Chipset</b> | HPE iLO (Firmware HPE iLO4 2.0 or later) with NAND<br><b>NOTE:</b> Read and learn more in the <a href="#">HPE iLO QuickSpecs</a> . |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Memory</b> | Type:<br>HPE SmartMemory and Standard Memory<br>DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)<br>DIMM Slots Available      8              (8 DIMM slots per processor, 4 channels per processor, 2 DIMMs per channel)<br>Maximum Capacity    128GB    (8 x 16GB LRDIMM @2133MHz) (LRDIMM)<br>Maximum Capacity    256GB    (8 x 32GB RDIMM @2133MHz) (RDIMM)<br><b>NOTE:</b> This server does not support mixing LRDIMMs and RDIMMs. Attempting to mix any combination of these DIMMs can cause the server to halt during BIOS installation. |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                          |              |                                                                                                                                            |
|--------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Memory Protection</b> | 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. |
|                          | Online spare | Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.                                        |

|                           |                               |
|---------------------------|-------------------------------|
| <b>Network Controller</b> | Broadcom 5717C0 Dual-port 1Gb |
|---------------------------|-------------------------------|

| Expansion Slots                                                                                                                             |                                    |                 |            |                                         |                        |       |
|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------|------------|-----------------------------------------|------------------------|-------|
| Expansion Technology Slots #                                                                                                                | Bus Width                          | Connector Width | Bus Number | Form Factor                             | Notes                  |       |
| 5                                                                                                                                           | PCIe 3.0                           | x8              | x8         | Full-height, half-length slot           | For processor 1        |       |
| 4                                                                                                                                           | PCIe 3.0                           | x4              | x4         | Full-height, half-length slot           | For processor 1        |       |
| 3                                                                                                                                           | PCIe 3.0                           | x8              | x8         | Full-height, half-length slot           | For processor 1        |       |
| 2                                                                                                                                           | PCIe 3.0                           | x4              | x4         | Full-height, half-length slot           | For processor 1        |       |
| 1                                                                                                                                           | PCIe 3.0                           | x16             | x16        | Full-height, ¾ length (up to 9.5") Slot | For processor 1        |       |
| <b>NOTE:</b> Bus number - Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number. |                                    |                 |            |                                         |                        |       |
| <b>NOTE:</b> Five total expansion PCIe 3.0 slots. One PCIe 3.0 x16 (x16 speed); Two PCIe 3.0 x 8 (x8 speed); Two PCIe 3.0 x 4 (x4 speed).   |                                    |                 |            |                                         |                        |       |
| Expansion Technology Slots #                                                                                                                | Bus Width                          | Connector Width | Bus Number | Device Number                           | Form Factor            | Notes |
| 6                                                                                                                                           | HPE ML Gen9 Dedicated iLO Port Kit | x1              |            |                                         | Dedicate for ML Series |       |

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

**NOTE:** B140i can't mix with any standup internal controller.  
**NOTE:** B140i can't mix with any standup internal controller.

|                                                                            |                 |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Internal Storage Devices</b><br>One of the following depending on model | Optical Drive   | Optional SATA 9.5mm DVD-ROM Optical Drive<br>Optional SATA 9.5mm DVD RW Optical Drive<br><b>NOTE:</b> Optical is optional in Pre-Configured models.                                                                                                                                                                                                                                                                      |
|                                                                            | Hard Drives     | None ship standard                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                            | Hard Drive Bays | Up to 4 Non-hot plug SATA 3.5" drives<br><b>NOTE:</b> Mixing drive cage types is not allowed.<br><b>NOTE:</b> All Pre-configured Models come populated with hard drive blanks installed. The 4LFF configurations includes 3 blanks and 8SFF includes 7 blanks. Additional hard drive blanks can be ordered using either HPE LFF HDD Blank Kit (666986-B21) or HPE SFF HDD Blank Kit (666987-B21). These part numbers for |

single HDD blanks below are also provided should you require replacement HDD blanks for your server.

**NOTE:** NHP SATA is limited to B140i controller.

4 Hot plug LFF SAS/SATA HDD bays; upgradable to 8

8 Hot plug SFF SAS/SATA HDD bays; upgradable to 16

**NOTE:** 16SFF model is limited to P840 controller.

**NOTE:** H240 8LFF/8SFF models require 2 cable kits (784606-B21).

**NOTE:** P840 16SFF model requires 2 cable kits (784608-B21).

| Maximum Internal Storage                |                       | CAPACITY | CONFIGURATION |
|-----------------------------------------|-----------------------|----------|---------------|
| One of the following depending on model | Hot Plug LFF SAS      | 96TB     | 8x12TB        |
|                                         | Hot Plug LFF SATA     | 96TB     | 8x12TB        |
|                                         | Hot Plug SFF SAS      | 32TB     | 16x2TB        |
|                                         | Hot Plug SFF SATA     | 32TB     | 16x2TB        |
|                                         | Non Hot Plug LFF SATA | 16TB     | 4x4TB         |
|                                         | Hot Plug LFF SATA SSD | 15.36TB  | 8x1.92TB      |
|                                         | Hot Plug SFF SAS SSD  | 6.4TB    | 16x400GB      |
|                                         | Hot Plug SFF SATA SSD | 30.72TB  | 16x1.92TB     |
|                                         |                       |          |               |

**Power Supply**  
One of the following depending on model

HPE 350W ATX-Gen9 Power Supply FIO Kit  
HPE 550W ATX-Gen9 Power Supply Kit  
HPE 750W CS Gold Ht Plg Pwr Supply Kit  
**NOTE:** The first 750W CS Gold Ht Plg Pwr Supply Kit requires the RPS Enablement Kit.  
**NOTE:** The RPS Enablement kit will support two power supplies.  
HPE 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 HPE ProLiant Gen9 Essential Series servers.

The HPE 550W FIO Power Supply is the standard, non-redundant AC power supply option for most HPE 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.

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 HPE Power Advisor Tool located at **<http://www.hpe.com/info/hppoweradvisor>**.

Power specifications and technical content for all HPE Server power supplies can be found at **<http://www.hpe.com/info/proliant/powersupply>**.

| System Fans                             |          | Non-redundant                                                           | Redundant |
|-----------------------------------------|----------|-------------------------------------------------------------------------|-----------|
| One of the following depending on model | 1P model | 2 fans                                                                  | NA        |
|                                         |          | <b>NOTE:</b> One (1) Non-hot plug, non-redundant fan ships as standard. |           |

| Interfaces |                                        |                                                                                                                                                                        |
|------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | Video                                  | 1 (rear)                                                                                                                                                               |
|            | Network RJ-45 (Ethernet)               | 2                                                                                                                                                                      |
|            | HPE iLO Remote Management Network Port | 1GbE Optional Port                                                                                                                                                     |
|            | Micro SD Slot                          | 1 (internal)                                                                                                                                                           |
|            |                                        | <b>NOTE:</b> The Micro-SD slot is not a hot-pluggable device. Customers should not attempt to plug a Micro-SD card into the Micro-SD slot while the server is powered. |
|            | USB 3.0                                | 5 (2 rear, 1 internal, 2 front )                                                                                                                                       |
|            | USB 2.0                                | 3 (2 rear, 1 internal)                                                                                                                                                 |

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

**Microsoft Windows Server**  
**Red Hat Enterprise Linux (RHEL)**  
**SUSE Linux Enterprise Server (SLES)**  
**VMware**  
**ClearOS**

**NOTE:** ClearOS allows you to build a fully functional server that is just right for you at no upfront cost. It is available via CTO preload, Intelligent Provisioning or via download. For more information on ClearOS, please visit **<http://www.hpe.com/servers/clearos>**  
**NOTE:** For more information on Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: **<http://www.hpe.com/info/ossupport>** and our **[driver download page](#)**.

**Upgradeability** Up to 16 SFF Hard Drive Bays; Or 8 LFF Hard Drive Bays  
Up to 8 DIMM slots

Redundant Power Supply  
Optional optical drive (up to 1)

#### Industry Standard Compliance

ACPI 2.0b Compliant  
PCIe 3.0 Compliant  
PXE Support  
WOL Support  
Novell Certified  
IPMI 2.0, SMASH CLP, DCMI 1.0 compliant  
Microsoft® Logo certifications  
USB 3.0 Support  
SMBIOS 2.7.1  
ASHRAE A3

#### Graphics

16 bit color: maximum resolution of 1920 x 1200  
Integrated Matrox G200 video standard  
32 bit color: maximum resolution of 1280 x 1024  
• 16 MB Flash

• 128 MB DDR3

#### HPE Server UEFI/Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE 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 HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit

<http://www.hpe.com/servers/uefi>

UEFI enables numerous new capabilities specific to HPE 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 RESTful API for iLO 4
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM
- Network Stack configurations

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

**NOTE:** UEFI F10 Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant Gen9 Server.

#### Form Factor

Tower (4.5U)

**NOTE:** Sliding Shelf - 234672-B21 is optional to support rack form factor.

#### Embedded Management

##### HPE Integrated Lights-Out (HPE iLO)

Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Not available on ML10 Gen9. Learn more at <http://www.hpe.com/info/ilo>.

##### UEFI

Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <http://www.hpe.com/servers/uefi>.

##### RESTful API

RESTful API for iLO 4 is Redfish 1.0 conformance for simplified server management such as configuration and maintenance tasks based on modern industry standards. Learn more at <http://www.hpe.com/info/restfulapi>.

##### Intelligent Provisioning

Hassle free server and OS provisioning for 1 or few servers with Intelligent Provisioning. Learn more at <http://www.hpe.com/servers/intelligentprovisioning>.

##### Embedded Remote Support

The Hewlett Packard Enterprise embedded remote support, when used with Insight Online direct connect or HPE Insight Remote Support, allows HPE ProLiant servers to transmit hardware events directly to Hewlett Packard Enterprise or a Hewlett Packard Enterprise Authorized Partner for automated phone home support. Learn more at <http://www.hpe.com/info/insightonline/explore>.

#### Server utilities

##### Smart Update

Optimize firmware and driver updates with Smart Update solutions including Smart Update Manager (SUM) and Service Pack for ProLiant (SPP) and smart components. Learn more at <http://www.hpe.com/servers/smartupdatemanager>.

##### HPE Systems Insight Manager (HPE SIM)

HPE SIM allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers, and also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at

<http://www.hpe.com/servers/hpsim>.

**Scripting Tool Kit and Windows PowerShell** Provision 1 to many servers using your own scripts to discover and deploy them with Scripting Tool Kit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at <http://www.hpe.com/servers/proliant/stk> or <http://www.hpe.com/servers/powershell>.

**RESTful Interface Tool** RESTful Interface tool is a scripting tool to provision using RESTful API for iLO 4 to discover and deploy servers at scale. Learn more at <http://www.hpe.com/info/resttool>.

**HPE 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.hpe.com/info/ilo/mobileapp>.

**HPE Insight Online** HPE Insight Online, available at no additional cost as part of your Hewlett Packard Enterprise warranty, HPE Pointnext operational services or contractual support agreement with Hewlett Packard Enterprise, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at <http://www.hpe.com/info/insightonline/explore>.

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**Security**

- Power-on password
- Setup password
- Serial interface control
- Power switch security
- Administrator's password
- TPM 1.2
- TPM 2.0
- UEFI

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**Warranty** This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE 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 HPE Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

**NOTE:** Server Warranty includes 3-Year Parts, 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 Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <http://h17007.www1.hp.com/us/en/enterprise/servers/warranty/>

## Optional Features

**Embedded Management**

**iLO Essentials** HPE 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 HPE iLO Essentials at <http://www.hp.com/go/iLO/essentials>.

**iLO Advanced** HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE 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 provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. <http://www.hpe.com/info/cmu>. HPE iLO Advanced at <http://www.hp.com/go/iloadvanced>.

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**Server Management**

**HPE Insight Control** HPE Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see <http://www.hpe.com/info/insightcontrol>.

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**High Performance Clusters** HPE Insight Cluster Management Utility (CMU) is a Hewlett Packard Enterprise licensed and supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. <http://www.hpe.com/info/cmu>. HPE 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

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**HPC  
Interconnects**

**NOTE:** High Performance Computing (HPC) interconnect technologies are available for this server under the HPE Cluster Platform product portfolio. These high-speed interconnects are fully supported by Hewlett Packard Enterprise 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 HPEC Clusters with InfiniBand Interconnects: <https://www.hpe.com/info/hpc/solutions>.

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**Storage  
Software**

Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than Hewlett Packard Enterprise storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.  
Storage software that gets the job done:

- **Data Protection and Recovery Software**  
Whether you're a large enterprise or a smaller business, Hewlett Packard Enterprise data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.
- **Data Archive and Migration Software**  
Hewlett Packard Enterprise 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)**  
Hewlett Packard Enterprise 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**  
Hewlett Packard Enterprise 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 Hewlett Packard Enterprise storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.
- **HPE StoreVirtual VSA**  
With HPE 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. HPE ProLiant Gen9 servers include a 3-year limited license for HPE StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HPE StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at <http://www.hpe.com/info/vsa1TB>.

**NOTE:** For more information about Storage Software including QuickSpecs, please see: <https://www.hpe.com/us/en/storage/software-defined.html>.

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**ClearOS**

HPE and ClearCenter will help you lower the cost of building on-premise solutions without sacrificing security and ease of use. HPE ProLiant servers with ClearOS give you a simple, secure, and affordable operating system with an intuitive web based graphical user interface that provides a cloud-like experience on- premise, and an Application Marketplace with over 100 apps and growing. Whether you're starting out or scaling, you decide what applications you need and pay as you grow.

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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 Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance. <http://ocs.ext.hpe.com/>.

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## Service and Support

**HPE Support  
Services**

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support for need for your IT and business.

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**Connect your  
devices**

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%<sup>1</sup> reduction in down time, near 100%<sup>2</sup> diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support.  
**1- IDC 2 - HP CSC reports 2014 - 2015**

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**Recommended  
Support**

**Standard: HPE Foundation Care 24x7, three-year Support Service**  
HPE Foundation Care 24x7 gives you access to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on industry

leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call to help resolve hardware or software problems.

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

**Optimized: HPE Proactive Care\* with 24x7 coverage, three year Support Service**

HPE Proactive Care gives customers an enhanced call experience. When your products are connected to Hewlett Packard Enterprise, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.

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**Parts and Materials**

Hewlett Packard Enterprise will provide Hewlett Packard Enterprise-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 QuickSpecs, 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 Hewlett Packard Enterprise due to malfunction.

**Related Services**

**HPE Server Hardware Installation**

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<https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf>

**HPE Installation and Startup Service**

Provides for the installation and startup of Hewlett Packard Enterprise technology including BladeSystems, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

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The Hewlett Packard Enterprise 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.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Support Service or Hewlett Packard Enterprise contractual support agreement.

\*HPE Support Center Mobile App is subject to local availability.

For more information: <http://www.hpe.com/services>

## 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. Hewlett Packard Enterprise 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.

|                     | Entry Models                                                                | Base Models                                                            |
|---------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>[SKU Number]</b> | 838502-001                                                                  | 838503-001                                                             |
| <b>Model Name</b>   | HPE ProLiant ML110 Gen9 E5-2603v4 8GB-R B140i 4LFF NHP 350W PS Entry Server | HPE ProLiant ML110 Gen9 E5-2620v4 8GB-R B140i 4LFF 350W PS Base Server |
| <b>Processor</b>    | Intel® Xeon® E5-2603v4                                                      | Intel® Xeon® E5-2620v4                                                 |

|                      |                                                                                                                                                          |                               |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Number of Processors | One                                                                                                                                                      |                               |
| Memory               | 8GB (1x8GB Registered DIMMs, 2400 MHz)                                                                                                                   |                               |
| Network Controller   | Broadcom 5717 Dual-port 1GbE                                                                                                                             |                               |
| Storage Controller   | HPE Dynamic Smart Array B140i                                                                                                                            |                               |
| Hard Drive           | None ship standard                                                                                                                                       |                               |
| Internal Storage     | 4 LFF HDD Bays (Non Hot Plug)                                                                                                                            | 4 LFF HDD Bays (Hot Plug)     |
| Optical Drive Bay    | 1; (Optional: DVD-ROM, DVD-RW)                                                                                                                           |                               |
| Optical Drive        | Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive)                                                                                                |                               |
| PCI-Express Slots    | 5 PCIe 3.0 slots (without risers)                                                                                                                        |                               |
| Power Supply         | (1) 350W ATX Power Supply                                                                                                                                | (1) HPE 350W ATX Power Supply |
| Fans                 | 1 non hot plug, non-redundant                                                                                                                            |                               |
| Management           | iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional) |                               |
| Form Factor          | Tower (4.5U)                                                                                                                                             |                               |
| Warranty             | Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.                                              |                               |

## Smart Buy Models

|                      | E5-1600v4 and E5-2600v4 Series Smart Buy Models                                                          |                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| [SKU Number]         | 840665-S01                                                                                               | 840667-S01                                                                                               |
| Model Name           | HPE ProLiant ML110 Gen9 E5-2603v4 US Svr/S-Buy                                                           | HPE ProLiant ML110 Gen9 E5-1620v4 US Svr/S-Buy                                                           |
| Processor            | Intel® Xeon® E5-2603v4                                                                                   | Intel® Xeon® E5-1620v4                                                                                   |
| Number of Processors | One                                                                                                      |                                                                                                          |
| Memory               | 8GB (1x8GB Registered DIMMs, 2400MHz)<br><b>NOTE: DIMMs will operate at 1866MHz with this processor.</b> | 8GB (1x8GB Registered DIMMs, 2400MHz)<br><b>NOTE: DIMMs will operate at 2400MHz with this processor.</b> |
| Network Controller   | Broadcom 5717 Dual-port 1GbE                                                                             |                                                                                                          |
| Storage Controller   | HPE Dynamic Smart Array B140i                                                                            |                                                                                                          |
| Hard Drive           | One (1) 1TB SATA                                                                                         |                                                                                                          |
| Internal Storage     | 8 SFF HDD Bays (Hot Plug)                                                                                | 4 LFF HDD Bays (Non Hot Plug)                                                                            |
| Optical Drive        | HPE 9.5mm SATA JB DVD-RW/ROM Optical Drive                                                               |                                                                                                          |
| PCI-Express Slots    | 5 PCIe 3.0 slots (without risers)                                                                        |                                                                                                          |
| Power Supply         | 550W ATX Gen9 Power Supply                                                                               | 550W ATX Gen9 Power Supply                                                                               |
| Fans                 | 1 non hot plug, non-redundant                                                                            |                                                                                                          |
| Management           | iLO Management (standard), Intelligent Provisioning (standard)                                           |                                                                                                          |
| Form Factor          | Tower (4.5U)                                                                                             |                                                                                                          |
| Warranty             | 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.                       |                                                                                                          |

## 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, Hewlett Packard Enterprise recommends the use of an HPE 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)

| CTO Server         | HP ProLiant ML110 Gen9 Non-hot Plug 4LFF Configure-to-order Server                     | HP ProLiant ML110 Gen9 Hot Plug 4LFF Configure-to-order Server | HP ProLiant ML110 Gen9 Hot Plug 8SFF Configure-to-order Server |
|--------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|
| SKU Number         | 776933-B21                                                                             | 776934-B21                                                     | 776935-B21                                                     |
| Processor          | 1                                                                                      | 1                                                              | 1                                                              |
| DIMM Slots         | 8 DIMM slots for RDIMM, LRDIMM DDR4 Memory                                             |                                                                |                                                                |
| Storage Controller | HPE Dynamic Smart Array B140i                                                          |                                                                |                                                                |
| PCIe               | 5 PCIe 3.0 Slots                                                                       |                                                                |                                                                |
| Drive Cage         | 4LFF Non Hot Plug                                                                      | 4LFF Hot Plug                                                  | 8SFF Hot Plug                                                  |
| Network Controller | Broadcom 5717 Dual-port 1GbE                                                           |                                                                |                                                                |
| Fans               | 1 non hot plug, non-redundant                                                          |                                                                |                                                                |
| Management         | iLO Management (standard), Intelligent Provisioning (standard), HPE OneView (standard) |                                                                |                                                                |
| USB                | 2 front, 2 internal, 4 rear                                                            |                                                                |                                                                |

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

**HPE Processors** E5-2600v4 series Processors  
HPE ML110 Gen9 Intel® Xeon® E5-2620v4 (2.1GHz/8-core/20MB/85W) FIO Processor Kit 826101-L21

|                            |                                                                                                                                                                                                                                                                                                                                                               |            |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| HPE<br>Memory              | HPE ML110 Gen9 Intel® Xeon® E5-2609v4 (1.7GHz/8-core/20MB/85W) FIO Processor Kit                                                                                                                                                                                                                                                                              | 826102-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-2603v4 (1.7GHz/6-core/15MB/85W) FIO Processor Kit                                                                                                                                                                                                                                                                              | 826103-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-2630Lv4 (1.8GHz/10-core/25MB/55W) FIO Processor Kit                                                                                                                                                                                                                                                                            | 826104-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-2623v4 (2.6GHz/4-core/10MB/85W) FIO Processor Kit                                                                                                                                                                                                                                                                              | 826105-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-2640v4 (2.4GHz/10-core/25MB/90W) FIO Processor Kit                                                                                                                                                                                                                                                                             | 826100-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-2660v4 (2.0GHz/14-core/35MB/105W) FIO Processor Kit                                                                                                                                                                                                                                                                            | 826099-L21 |
|                            | <b>Entry Processors - E5-1600v4 series Processors</b>                                                                                                                                                                                                                                                                                                         |            |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-1620v4 (3.5GHz/4-core/10MB/140W) FIO Processor Kit                                                                                                                                                                                                                                                                             | 826107-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-1660v4 (3.2GHz/8-core/20MB/140W) FIO Processor Kit                                                                                                                                                                                                                                                                             | 826110-L21 |
|                            | HPE ML110 Gen9 Intel® Xeon® E5-1680v4 (3.4GHz/8-core/20MB/140W) FIO Processor Kit                                                                                                                                                                                                                                                                             | 826111-L21 |
|                            | <b>NOTE:</b> When any 140W processor kit is ordered, ML110 Gen9 Fan Upgrade Kit (789654-B21) must be selected.                                                                                                                                                                                                                                                |            |
|                            | <b>NOTE:</b> DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.                                                                                                                                                                                                             |            |
|                            | <b>NOTE:</b> When v4 Processor is selected, then only PC4-2400T Memory Kit can be selected.                                                                                                                                                                                                                                                                   |            |
|                            | <b>NOTE:</b> 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                                                    |            |
|                            | <b>NOTE:</b> Select one or more memory kits from below.                                                                                                                                                                                                                                                                                                       |            |
| HPE Power<br>Supplies      | <b>NOTE:</b> LRDIMM, RDIMM are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen9 servers support LRDIMM and RDIMM                                                                                                                                                                                           |            |
|                            | <b>NOTE:</b> HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant Server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9.                                                                                                |            |
|                            | <b>NOTE:</b> Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a>                                                                                                                       |            |
|                            | <b>NOTE:</b> Depending on the memory configuration and processor model, the memory speed may run at 2400MHz, 2133MHz, 1866MHz, 1600MHz or 1333MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <a href="http://www.hp.com/go/ddr4config">http://www.hp.com/go/ddr4config</a>                                               |            |
|                            | <b>Registered DIMMs (RDIMMs) for E5-2600v4 Series</b>                                                                                                                                                                                                                                                                                                         |            |
|                            | HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                                                                                                                                                                                                                                    | 805347-B21 |
|                            | HP 16GB (1x16GB) Single Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                                                                                                                                                                                                                                  | 805349-B21 |
|                            | HP 16GB (1x16GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                                                                                                                                                                                                                                    | 836220-B21 |
|                            | HP 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                                                                                                                                                                                                                                    | 805351-B21 |
|                            | <b>HPE Standard Memory for E5-2600v4 Series</b>                                                                                                                                                                                                                                                                                                               |            |
|                            | HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Standard Memory Kit                                                                                                                                                                                                                                                                           | 851353-B21 |
|                            | <b>NOTE:</b> These are standard memory DIMMs with no SmartMemory features.                                                                                                                                                                                                                                                                                    |            |
|                            | <b>NOTE:</b> Select quantity one or two HP Entry-Level Power Supplies below. Mixing of power supplies is not supported in the same server.                                                                                                                                                                                                                    |            |
|                            | <b>NOTE:</b> Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HPE Power Advisor tool to determine the right size power supply for your server configuration. The HPE Power Advisor is located at:<br><a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> |            |
|                            | <b>NOTE:</b> Check power advisor for power consumption for the customer usage case. Power specifications and technical content for all HP Server power supplies can be found at:<br><a href="http://www.hp.com/go/proliant/powersupply">http://www.hp.com/go/proliant/powersupply</a>                                                                         |            |
| HPE Storage<br>Controllers | <b>HPE Entry-Level Power Supplies</b>                                                                                                                                                                                                                                                                                                                         |            |
|                            | HP 750W Common Slot Gold Hot Plug Power Supply Kit                                                                                                                                                                                                                                                                                                            | 512327-B21 |
|                            | HP ML110 Gen9 350W ATX Gen9 Power Supply FIO Kit                                                                                                                                                                                                                                                                                                              | 776442-B21 |
|                            | HP 550W ATX Gen9 Power Supply Kit                                                                                                                                                                                                                                                                                                                             | 776444-B21 |
|                            | <b>Accessories</b>                                                                                                                                                                                                                                                                                                                                            |            |
|                            | HP ML110 Gen9 Redundant Power Supply Enhancement Kit                                                                                                                                                                                                                                                                                                          | 784582-B21 |
|                            | <b>NOTE:</b> This kit required with 750W CS Gold Hot Plug Power Supply Kit (512327-B21).                                                                                                                                                                                                                                                                      |            |
|                            | <b>Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)</b>                                                                                                                                                                                                                               |            |
|                            | <b>NOTE:</b> Select one controller listed below if ordering SAS Hard Drives in Step 4.                                                                                                                                                                                                                                                                        |            |
|                            | <b>HPE Smart Array Controller</b>                                                                                                                                                                                                                                                                                                                             |            |
|                            | HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller                                                                                                                                                                                                                                                                                               | 761872-B21 |
|                            | <b>NOTE:</b> Smart Storage Battery included.                                                                                                                                                                                                                                                                                                                  |            |
|                            | <b>NOTE:</b> Must select battery holder (786710-B21)                                                                                                                                                                                                                                                                                                          |            |
|                            | <b>NOTE:</b> B140i cannot mix with any standup internal controller.                                                                                                                                                                                                                                                                                           |            |
|                            | <b>NOTE:</b> Must also select one HP ML110 Gen9 Mini SAS P440/840 Cable Kit (789651-B21)                                                                                                                                                                                                                                                                      |            |
|                            | HP Smart Array P840/4GB FBWC 12Gb 2-ports Int FIO SAS Controller                                                                                                                                                                                                                                                                                              | 761874-B21 |
|                            | <b>NOTE:</b> Smart Storage Battery included.                                                                                                                                                                                                                                                                                                                  |            |
|                            | <b>NOTE:</b> Must select battery holder (786710-B21)                                                                                                                                                                                                                                                                                                          |            |
|                            | <b>NOTE:</b> B140i cannot mix with any standup internal controller.                                                                                                                                                                                                                                                                                           |            |
|                            | <b>NOTE:</b> Must select P840/4G Controller when utilizing 16 SFF Hard Drives.                                                                                                                                                                                                                                                                                |            |

**NOTE:** Must also select one HP ML110 Gen9 Mini SAS P440/840 Cable Kit (789651-B21)

**HPE Smart Host Bus Adapter**

HP H240 12Gb 2-ports Int FIO Smart Host Bus Adapter 761873-B21

**NOTE:** Must select either one HP ML110 Gen9 Mini SAS H240 Cable Kit (789648-B21) if utilizing with the Hot Plug 4LFF Model; or two HP ML110 Gen9 Mini SAS H240 Cable Kits (789648-B21) if using with additional 4LFF Hot Plug drive cage or with 8SFF Model.

**HPE Unique Options**

HP AHCI-Enable FIO Setting 801845-B21

**NOTE:** This needs to be selected when advanced host controller interface mode is required on B140i controller.

**HPE Insight Software**

**HPE Insight Control**

HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License C6N36A

**Step 4: Choose Additional Options for Factory Integration from Core and Additional Options sections below**

**Core Options**

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

|                           |                                                                                                                                                  |            |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>HPE Unique Options</b> | HP ML110 Gen9 Mini SAS H240 Cable Kit                                                                                                            | 789648-B21 |
|                           | <b>NOTE:</b> Must be selected for H240 controller.                                                                                               |            |
|                           | <b>NOTE:</b> one cable kit is required for Hot Plug 4LFF configurations                                                                          |            |
|                           | <b>NOTE:</b> two cable kits are required for either Hot Plug 4+4 LFF (with additional drive cage) or 8SFF configurations                         |            |
|                           | HP ML110 Gen9 Mini SAS P440/P840 Cable Kit                                                                                                       | 789651-B21 |
|                           | <b>NOTE:</b> Must be selected for P440/P840 controller.                                                                                          |            |
|                           | <b>NOTE:</b> one cable kit is required for P440x1                                                                                                |            |
|                           | <b>NOTE:</b> two cable kits are required for P840x1                                                                                              |            |
|                           | HP ML110 Gen9 System Fan Upgrade Kit                                                                                                             | 789654-B21 |
|                           | <b>NOTE:</b> When any E5-1600 processor kit or SAS SSD is selected, then this option kit must be ordered.                                        |            |
|                           | HP ML110 Gen9 PCI Fan and Baffle Kit                                                                                                             | 784580-B21 |
|                           | <b>NOTE:</b> If any PCIe card is selected, then this option kit must be selected. This option kit cannot be selected if no PCIe card is ordered. |            |
|                           | HP ML110 Gen9 Redundant Power Supply Enablement Kit                                                                                              | 784582-B21 |
|                           | <b>NOTE:</b> If this kit must be selected when 750W CS Gold Ht Plg Pwr Supply Kit is ordered.                                                    |            |
|                           | HP ML150 Gen9 Dedicated iLO Management Port Kit                                                                                                  | 780310-B21 |
| <b>HPE Memory</b>         | <b>Registered DIMMs (RDIMMs) for E5-2600v3 Series</b>                                                                                            |            |
|                           | HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit                                                                       | 726717-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 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 |
|                           | 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 Standard Memory Kit                                                              | 803028-B21 |
|                           | <b>Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series</b>                                                                                         |            |
|                           | HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit                                                                     | 726720-B21 |
|                           | <b>Registered DIMMs (RDIMMs) for E5-2600v4 Series</b>                                                                                            |            |
|                           | HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                       | 805347-B21 |
|                           | HPE 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Standard Memory Kit                                                             | 851353-B21 |
|                           | HP 16GB (1x16GB) Single Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                     | 805349-B21 |
|                           | HPE 16GB (1x16GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                      | 836220-B21 |
|                           | HP 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit                                                                       | 805351-B21 |
| <b>HPE Optical Drives</b> | HP 9.5mm SATA DVD-ROM JackBlack Gen9 Optical Drive                                                                                               | 726536-B21 |
|                           | HP 9.5mm SATA DVD-RW JackBlack G9 Optical Drive                                                                                                  | 726537-B21 |

**HPE Drives** **NOTE:** User may select any combination of SAS or SATA Hard Drives. However, if RAID is selected and both SAS and SATA Hard Drives have been selected, then only the SAS Drives will be used in the RAID set.  
**NOTE:** If B140i is the primary controller, user can only select SATA drives.

**NOTE:** SAS drives require the selection of a SAS controller. See card lists in Controllers section.

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

|                                                                                            |            |
|--------------------------------------------------------------------------------------------|------------|
| HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 881457-B21 |
| HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 872481-B21 |
| HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD      | 872479-B21 |
| HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD                                | 781518-B21 |
| HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD      | 870759-B21 |
| HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 870765-B21 |
| HPE 900GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD                                | 785069-B21 |
| HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD      | 870757-B21 |
| HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD | 870763-B21 |
| HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD      | 872477-B21 |
| HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD                                | 759212-B21 |
| HPE 600GB SAS 12G Enterprise 10K SFF (2.5in ) SC 3yr Wty HDD                               | 781516-B21 |
| HPE 450GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD                                | 759210-B21 |
| HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD      | 870753-B21 |
| HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD      | 872475-B21 |
| HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD                                | 759208-B21 |
| HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD                                | 785067-B21 |

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

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD | 832514-B21 |
|-----------------------------------------------------------------------------------|------------|

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

|                                                              |            |
|--------------------------------------------------------------|------------|
| HPE 600GB SAS 12G Enterprise 15K LFF (3.5in) SC 3yr Wty HDD  | 765424-B21 |
| HPE 450GB SAS 12G Enterprise 15K LFF (3.5in) SCC 3yr Wty HDD | 737394-B21 |
| HPE 300GB SAS 12G Enterprise 15K LFF (3.5in) SCC 3yr Wty HDD | 737261-B21 |

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

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD | 857644-B21 |
| HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD  | 861590-B21 |
| HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD         | 819201-B21 |
| HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD                                   | 861754-B21 |
| HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 846514-B21 |
| HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 872487-B21 |
| HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD                                   | 861756-B21 |
| HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                        | 818367-B21 |
| HPE 3TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 846528-B21 |
| HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 872485-B21 |
| HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                        | 818365-B21 |
| HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 846524-B21 |

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

|                                                                                        |            |
|----------------------------------------------------------------------------------------|------------|
| HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD      | 655710-B21 |
| HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 765455-B21 |
| HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 765453-B21 |

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

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD | 881785-B21 |
| HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD | 857648-B21 |
| HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD  | 861594-B21 |
| HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD         | 819203-B21 |
| HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 846510-B21 |
| HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD                                   | 861750-B21 |
| HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD              | 872491-B21 |
| HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD                                   | 861752-B21 |

|                                                                                        |            |
|----------------------------------------------------------------------------------------|------------|
| HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                | 861678-B21 |
| HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive              | 628061-B21 |
| HPE 3TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD      | 861693-B21 |
| HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD      | 872489-B21 |
| HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                | 858596-B21 |
| HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                | 861676-B21 |
| HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                | 858594-B21 |
| HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD                                | 861691-B21 |
| <b>SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>                           |            |
| HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD                                | 801888-B21 |
| HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD                                | 801884-B21 |
| HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD                                | 801882-B21 |
| <b>12G SAS Hot Plug SFF (2.5-inch) SC 512e Drives</b>                                  |            |
| HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD                           | 765466-B21 |
| HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e HDD                       | 791034-B21 |
| HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD | 765464-B21 |
| HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e HDD                       | 748387-B21 |
| <b>12G SAS Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives</b>            |            |
| HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 870144-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872394-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875330-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 872392-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875326-B21 |
| HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 872390-B21 |
| HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 875313-B21 |
| HPE 480GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 875311-B21 |
| <b>12G SAS Hot Plug SFF (2.5-inch) SC Write Intensive Solid State Drives</b>           |            |
| HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873357-B21 |
| HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873355-B21 |
| HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 873351-B21 |
| <b>12G SAS Hot Plug SFF (2.5-inch) SC Mixed Use Solid State Drives</b>                 |            |
| HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 873367-B21 |
| HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 872386-B21 |
| HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 873365-B21 |
| HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 872382-B21 |
| HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 873363-B21 |
| HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 872376-B21 |
| HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 873359-B21 |
| HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 872374-B21 |
| <b>6G SATA Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives</b>            |            |
| HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877764-B21 |
| HPE 3.8TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 868830-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 877758-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 875513-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 868826-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | 871770-B21 |
| HPE 1.6TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 869386-B21 |

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|-----------------------------------------------------------------------------------------|------------|
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 877752-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 875511-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 868822-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 869384-B21 |
| HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD                             | 871768-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 877746-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 875509-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 868818-B21 |
| HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 869378-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 877740-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 875503-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 868814-B21 |
| HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 869376-B21 |
| HPE 150GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD   | 869374-B21 |
| <b>6G SATA Hot Plug SFF (2.5-inch) SC Write Intensive Solid State Drives</b>            |            |
| HPE 1.6TB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 872363-B21 |
| HPE 800GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 872359-B21 |
| HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD  | 872355-B21 |
| <b>6G SATA Hot Plug SFF (2.5-inch) SC Mixed Use Solid State Drives</b>                  |            |
| HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 877788-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 872352-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD       | 875478-B21 |
| HPE 1.6TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD                                  | 804631-B21 |
| HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 877782-B21 |
| HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 872348-B21 |
| HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 875474-B21 |
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 877776-B21 |
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 872344-B21 |
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 875470-B21 |
| HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 880295-B21 |
| HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD        | 875483-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives</b>             |            |
| HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD | 877760-B21 |
| HPE 1.6TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD  | 869388-B21 |
| HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD  | 877754-B21 |
| HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD  | 877748-B21 |
| HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD  | 869380-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) SC Mixed Use Solid State Drives</b>                  |            |
| HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD      | 877790-B21 |
| HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD      | 875480-B21 |
| HPE 1.6TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD                                 | 804634-B21 |
| HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD       | 877784-B21 |
| HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD       | 875476-B21 |

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|                                                  | HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD                                                                                                                                                                                                          | 872350-B21 |
|                                                  | HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD                                                                                                                                                                                                          | 872378-B21 |
|                                                  | HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD                                                                                                                                                                                                          | 875472-B21 |
|                                                  | HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD                                                                                                                                                                                                          | 872346-B21 |
|                                                  | <b>Hard Drive Blank Kits</b>                                                                                                                                                                                                                                                               |            |
|                                                  | HPE Large Form Factor Hard Drive Blank Kit                                                                                                                                                                                                                                                 | 666986-B21 |
|                                                  | HPE Small Form Factor Hard Drive Blank Kit                                                                                                                                                                                                                                                 | 666987-B21 |
|                                                  | <b>Hard Drive Kits</b>                                                                                                                                                                                                                                                                     |            |
|                                                  | HP ML110 Gen9 4LFF Hot Plug Drive Cage Kit                                                                                                                                                                                                                                                 | 784584-B21 |
|                                                  | HP ML110 Gen9 8SFF Hot Plug Drive Cage Kit                                                                                                                                                                                                                                                 | 784586-B21 |
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| <b>HPE Networking</b>                            | <b>1 Gigabit Ethernet adapters</b>                                                                                                                                                                                                                                                         |            |
|                                                  | HP Ethernet 1Gb 4-port 331T Adapter                                                                                                                                                                                                                                                        | 647594-B21 |
|                                                  | HP Ethernet 1Gb 2-port 332T Adapter                                                                                                                                                                                                                                                        | 615732-B21 |
|                                                  | HP Ethernet 1Gb 2-port 361T Adapter                                                                                                                                                                                                                                                        | 652497-B21 |
|                                                  | HP Ethernet 1Gb 4-port 366T Adapter                                                                                                                                                                                                                                                        | 811546-B21 |
|                                                  | <b>10 Gigabit Ethernet adapters</b>                                                                                                                                                                                                                                                        |            |
|                                                  | HP Ethernet 10Gb 2-port 560SFP+ Adapter                                                                                                                                                                                                                                                    | 665249-B21 |
|                                                  | HP Ethernet 10Gb 2-port 561T Adapter                                                                                                                                                                                                                                                       | 716591-B21 |
|                                                  | HP Ethernet 10Gb 2-port 546SFP+ Adapter                                                                                                                                                                                                                                                    | 779793-B21 |
|                                                  | HPE Ethernet 10Gb 2-port 562SFP+ Adapter                                                                                                                                                                                                                                                   | 727055-B21 |
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| <b>HPE Power Supplies</b>                        | <b>HPE Entry-Level Power Supplies</b>                                                                                                                                                                                                                                                      |            |
|                                                  | HPE 750W Common Slot Gold Hot Plug Power Supply Kit                                                                                                                                                                                                                                        | 512327-B21 |
|                                                  | HPE 550W ATX-Gen9 Power Supply Kit                                                                                                                                                                                                                                                         | 776444-B21 |
|                                                  | HP ML110 Gen9 Redundant Power Supply Enablement Kit                                                                                                                                                                                                                                        | 784582-B21 |
|                                                  | <b>NOTE:</b> If this kit must be selected when 750W CS Gold Ht Plg Pwr Supply Kit is ordered.                                                                                                                                                                                              |            |
|                                                  | <b>NOTE:</b> Check power advisor for power consumption for the customer usage case. Power specifications and technical content for all HPE Server power supplies can be found at <a href="http://www.hpe.com/info/proliant/powersupply">http://www.hpe.com/info/proliant/powersupply</a> . |            |
| <hr/>                                            |                                                                                                                                                                                                                                                                                            |            |
| <b>HPE Computation and Graphics Accelerators</b> | HP ML110 Gen9 GPU Supporting Holder Kit                                                                                                                                                                                                                                                    | 787006-B21 |
|                                                  | HPE NVIDIA Quadro M2000 Graphics Accelerator                                                                                                                                                                                                                                               | P8Y48A     |
|                                                  | <b>NOTE:</b> Only the above listed Graphics cards are HPE standard supported options in this server.                                                                                                                                                                                       |            |
|                                                  | <b>NOTE:</b> The NVIDIA Quadro modules are supported only on 64-bit versions of Linux and Windows operating systems as well as on Virtual Machine client operating systems. The supported bare metal operating systems are RHEL6, SLES 11 and Windows Server 2012 R2.                      |            |
|                                                  | <b>NOTE:</b> Please see the HPE Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HPE Power Advisor is located at: <a href="http://www.hpe.com/info/hppoweradvisor">http://www.hpe.com/info/hppoweradvisor</a>           |            |
| <hr/>                                            |                                                                                                                                                                                                                                                                                            |            |
| <b>HPE Cooling Options</b>                       | HP ML110 Gen9 PCI Fan and Baffle Kit                                                                                                                                                                                                                                                       | 784580-B21 |
|                                                  | <b>NOTE:</b> If any PCIe card is selected, then this option kit must be selected. This option kit cannot be selected if no PCIe card is ordered.                                                                                                                                           |            |
|                                                  | HP ML110 Gen9 System Fan Upgrade Kit                                                                                                                                                                                                                                                       | 789654-B21 |
|                                                  | <b>NOTE:</b> When any 140W processor kit or SAS SSD is selected, then this option kit must be ordered.                                                                                                                                                                                     |            |

## Additional Options

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

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| <b>HPE Insight Software</b> | <b>HPE Insight Control</b>                                                                                                                                                                                                                                                  |        |
|                             | HPE Insight Management Media Kit                                                                                                                                                                                                                                            | C6N31A |
|                             | <b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.                                                                                                                                              |        |
|                             | <b>NOTE:</b> 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 HPE Software Technical Support and Update Service. |        |
|                             | <b>NOTE:</b> Licenses ship without media. The HPE Insight Control Media Kit can be ordered separately, or can be downloaded at:                                                                                                                                             |        |
|                             | <a href="https://www.hpe.com/info/insightmanagement">https://www.hpe.com/info/insightmanagement</a>                                                                                                                                                                         |        |
|                             | <b>NOTE:</b> For additional license options please see the QuickSpecs at:                                                                                                                                                                                                   |        |
|                             | <a href="https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04123391">https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04123391</a>                                                                                                                                     |        |

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| <b>Embedded Management</b> | <b>HPE iLO Advanced</b>                                                   |          |
|                            | HPE iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU   | E6U64ABE |
|                            | HPE iLO Advanced including 3yr 24x7 Tech Support and Updates 1-server LTU | BD505A   |

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|                                | HPE iLO Advanced including 1yr 24x7 Technical Support and Updates 1-server LTU                                                                                                                                                                                                                                                                                                                                                                                                               | 512485-B21 |
|                                | HPE iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity LTU                                                                                                                                                                                                                                                                                                                                                                                                      | 512486-B21 |
|                                | HPE iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking LTU                                                                                                                                                                                                                                                                                                                                                                                                               | 512487-B21 |
|                                | HPE iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU                                                                                                                                                                                                                                                                                                                                                                                                                      | E6U59ABE   |
|                                | <b>HPE iLO Essentials</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
|                                | HPE iLO Essentials including 3yr 24x7 Technical Support and Updates E-LTU                                                                                                                                                                                                                                                                                                                                                                                                                    | E6U61ABE   |
|                                | HPE iLO Essentials including 1yr 24x7 Technical Support and Updates E-LTU                                                                                                                                                                                                                                                                                                                                                                                                                    | E6U62ABE   |
|                                | HPE iLO Essentials including 3yr 24x7 Tech Support and Updates 1-server LTU                                                                                                                                                                                                                                                                                                                                                                                                                  | BD774A     |
|                                | HPE iLO Essentials including 1yr 24x7 Tech Support and Updates 1-server LTU                                                                                                                                                                                                                                                                                                                                                                                                                  | BD775A     |
| <b>HPE Security</b>            | HP Trusted Platform Module 2.0 Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 745823-B21 |
|                                | <p><b>NOTE:</b> HPE Trusted Platform Module 2.0 Option works with Gen9 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.</p> <p><b>NOTE:</b> HPE Gen9 servers purchased earlier may need the latest firmware update to be compatible with the TPM 2.0 Option.</p> <p><b>NOTE:</b> HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.</p> |            |
|                                | HP Trusted Platform Module Option                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 488069-B21 |
|                                | <p><b>NOTE:</b> The HPE Trusted Platform Module Option (488069-B21) is the TPM 1.2 version. Compatible server platforms include Gen8 and Gen9 servers</p> <p><b>NOTE:</b> HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.</p>                                                                                                                                                                                   |            |
| <b>HPE Storage Controllers</b> | <b>SAS Controller</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |
|                                | HP Smart Array P440/2GB FBWC 12Gb 1-port Int SAS Controller                                                                                                                                                                                                                                                                                                                                                                                                                                  | 820834-B21 |
|                                | 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 P840/4GB FBWC 12Gb 2-ports Int SAS Controller                                                                                                                                                                                                                                                                                                                                                                                                                                 | 726897-B21 |
|                                | <p><b>NOTE:</b> When additional 8SFF Drive cage is ordered and also P840 is selected, then must select one separate HPE ML110 Gen9 Mini SAS P440/P840 Cbl Kit.</p>                                                                                                                                                                                                                                                                                                                           |            |
|                                | HP Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller                                                                                                                                                                                                                                                                                                                                                                                                                                 | 726903-B21 |
|                                | HP ML110 Gen9 Mini SAS H240 Cable Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 789648-B21 |
|                                | <p><b>NOTE:</b> Must be selected for H240 controller.</p> <p><b>NOTE:</b> One cable kit is required for Hot Plug 4LFF configuration</p> <p><b>NOTE:</b> Two cable kits are required for either: Hot Plug 4+4 LFF (with additional drive cage) or 8SFF configurations</p>                                                                                                                                                                                                                     |            |
|                                | HP ML110 Gen9 Mini SAS P440/P840 Cable Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 789651-B21 |
|                                | <p><b>NOTE:</b> Must be selected for P440/P840 controller.</p> <p><b>NOTE:</b> One cable kit is required for P440x1</p> <p><b>NOTE:</b> Two cable kits are required for P840x1</p> <p><b>NOTE:</b> Must select battery holder kit when P series FIO controller is selected.</p>                                                                                                                                                                                                              |            |
|                                | <b>SAS Controller Options</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |
|                                | HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers                                                                                                                                                                                                                                                                                                                                                                                                                           | 727258-B21 |
|                                | <b>HPE Host Bus Adapter</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |
|                                | HP H240 12Gb 2-ports Int Smart Host Bus Adapter                                                                                                                                                                                                                                                                                                                                                                                                                                              | 726907-B21 |
|                                | HP H241 12Gb 2-ports Ext Smart Host Bus Adapter                                                                                                                                                                                                                                                                                                                                                                                                                                              | 726911-B21 |
|                                | <b>Battery Holder</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |
|                                | HP ML150 Gen9 Smart Storage Battery Holder Kit                                                                                                                                                                                                                                                                                                                                                                                                                                               | 786710-B21 |
|                                | <p><b>NOTE:</b> Only support P series controllers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |
|                                | <b>Optional Software</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |
|                                | HPE SmartCache No Media 24x7 Technical Support 1-server LTU                                                                                                                                                                                                                                                                                                                                                                                                                                  | D7S26A     |
|                                | HPE SmartCache No Media 24x7 Technical Support Flexible LTU                                                                                                                                                                                                                                                                                                                                                                                                                                  | D7S27A     |
|                                | HPE SmartCache No Media 24x7 Technical Support E-LTU                                                                                                                                                                                                                                                                                                                                                                                                                                         | D7S27AAE   |
|                                | <p><b>NOTE:</b> HPE SmartCache is supported when one of the supported Smart Array Controllers is installed in the server.</p> <p><b>NOTE:</b> HPE SmartCache comes standard (no licensing is required) if the HPE Smart Array P840 Controller is installed in the server.</p>                                                                                                                                                                                                                |            |
| <b>HPE Tape Backup</b>         | <p><b>NOTE:</b> For the complete range of tape drives, autoloaders, libraries and media see: <a href="http://www.hpe.com/storage/storeever">http://www.hpe.com/storage/storeever</a>. For hardware and software compatibility of HPE tape backup products see: <a href="http://www.hpe.com/storage/spock">http://www.hpe.com/storage/spock</a></p> <p><b>NOTE:</b> Limited to H241, P441, P841 when select External Tape Drive.</p>                                                          |            |
|                                | <b>Tape Drives</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |
|                                | HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive                                                                                                                                                                                                                                                                                                                                                                                                                                        | BB874A     |
|                                | HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable                                                                                                                                                                                                                                                                                                                                                                                                              | K2R09A     |
|                                | HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 4m Cable                                                                                                                                                                                                                                                                                                                                                                                                              | K2R10A     |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |

|                                                             |                                                                                                                                                                         |            |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>HPE Disk Backup</b>                                      | <b>HPE RDX Removable Disk Backup System</b>                                                                                                                             |            |
|                                                             | HPE D3700 Enclosure                                                                                                                                                     | QW967A     |
|                                                             | HPE D3600 Enclosure                                                                                                                                                     | QW968A     |
|                                                             | HPE RDX 4TB USB Ext Disk Backup Sys                                                                                                                                     | Q2R33A     |
|                                                             | HPE RDX+ 3TB USB 3.0 External Disk Backup System                                                                                                                        | P9L72A     |
|                                                             | HP RDX+ 500GB External Backup System                                                                                                                                    | B7B66B     |
|                                                             | HP RDX+ 1TB External Backup System                                                                                                                                      | B7B69B     |
|                                                             | HP RDX 2TB USB3.0 External Disk Backup System                                                                                                                           | E7X53B     |
|                                                             | HPE RDX+ External Docking System                                                                                                                                        | C8S07B     |
| <b>HPE Rack Mount Consoles, KVM Switches, and Keyboards</b> | <b>HPE Location Discovery Services</b>                                                                                                                                  |            |
|                                                             | HPE Location Discovery Services LCD8500 Kit                                                                                                                             | TL052A     |
|                                                             | <b>NOTE: Please see the <u>HPE Location Discovery Services QuickSpecs</u> for information on additional options and product specifications.</b>                         |            |
|                                                             | <b>HPE Rack Mount Consoles</b>                                                                                                                                          |            |
|                                                             | HP LCD8500 1U US Rackmount Console Kit                                                                                                                                  | AF630A     |
|                                                             | HP LCD8500 1U US TAA Rackmount Console Kit                                                                                                                              | AF645A     |
|                                                             | <b>HPE KVM Switches</b>                                                                                                                                                 |            |
|                                                             | HP USB Remote Access Key for G3 KVM Console Switches                                                                                                                    | AF650A     |
|                                                             | HP 0x1x8 G3 KVM Console Switch                                                                                                                                          | AF651A     |
|                                                             | HP 0x2x16 G3 KVM Console Switch                                                                                                                                         | AF652A     |
|                                                             | HP TAA 0x2x16 G3 KVM Console Switch                                                                                                                                     | AF653A     |
|                                                             | 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     |
|                                                             | <b>HPE USB Keyboard and Mouse</b>                                                                                                                                       |            |
|                                                             | HP USB BFR with PVC Free US Keyboard/Mouse Kit                                                                                                                          | 631341-B21 |
|                                                             | <b>HPE Other Options</b>                                                                                                                                                |            |
|                                                             | HPE Rack LED Light Kit                                                                                                                                                  | BW939A     |
|                                                             | HP Kit LCD 1.83m Latch Display Port Cable                                                                                                                               | G7T29A     |
| <b>HPE Uninterruptible Power Systems (UPS)</b>              | <b>HPE DirectFlow Three Phase UPS</b>                                                                                                                                   |            |
|                                                             | <b>Power Unit (1U UPS)</b>                                                                                                                                              |            |
|                                                             | HPE R12000 DirectFlow - 1U Rackmount Uninterruptible Power System                                                                                                       | G9Y75A     |
|                                                             | HPE R12000 DirectFlow - POD 1U Rackmount Uninterruptible Power System                                                                                                   | AF478A     |
|                                                             | <b>Input/Output Module Options for 1U UPS</b>                                                                                                                           |            |
|                                                             | HPE 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module                                                                                    | AF489A     |
|                                                             | HPE 30A 480 Volt Three Phase NA R12000 DirectFlow UPS L22-30 Input/Output Module                                                                                        | AF491A     |
|                                                             | HPE 30A 480 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module                                                                                        | AF492A     |
|                                                             | HPE 30A 400-415 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module                                                                                    | G9Y76A     |
|                                                             | <b>Power Unit (2U UPS)</b>                                                                                                                                              |            |
|                                                             | HPE R18000 DirectFlow - 2U Rackmount Uninterruptible Power System                                                                                                       | AF479A     |
|                                                             | <b>Input/Output Module Options for 2U UPS</b>                                                                                                                           |            |
|                                                             | HPE 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module                                                                                        | AF486A     |
|                                                             | HPE 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module                                                                                        | AF487A     |
|                                                             | HPE 30A 400 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module                                                                                        | D9Q02A     |
|                                                             | HPE 30A 400-415V Three Phase NA R18000 DirectFlow UPS 1:1 IEC309 Input/Output Module                                                                                    | AF484A     |
|                                                             | <b>NOTE: All Input/Output Modules support dual output outlets except the AF484A.</b>                                                                                    |            |
|                                                             | <b>Battery Pack Options</b>                                                                                                                                             |            |
|                                                             | HPE DirectFlow UPS - 1U Rackmount Lithium-ion Battery Pack                                                                                                              | AF480A     |
|                                                             | HPE DirectFlow UPS - 3U Rackmount VRLA Battery Pack                                                                                                                     | AF482A     |
|                                                             | HPE WW DirectFlow Secondary Battery Cable                                                                                                                               | AF497A     |
|                                                             | <b>NOTE: Please see the <u>HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs</u> for information on additional options and product specifications.</b> |            |
|                                                             | <b>HPE Tower UPS</b>                                                                                                                                                    |            |
|                                                             | <b>HPE T750 G4 UPS Models</b>                                                                                                                                           |            |
|                                                             | HPE T750 G4 NA/JP Uninterruptible Power System                                                                                                                          | J2P85A     |
|                                                             | <b>HPE T1000 G4 UPS Models</b>                                                                                                                                          |            |
|                                                             | HPE T1000 G4 NA/JP Uninterruptible Power System                                                                                                                         | J2P86A     |

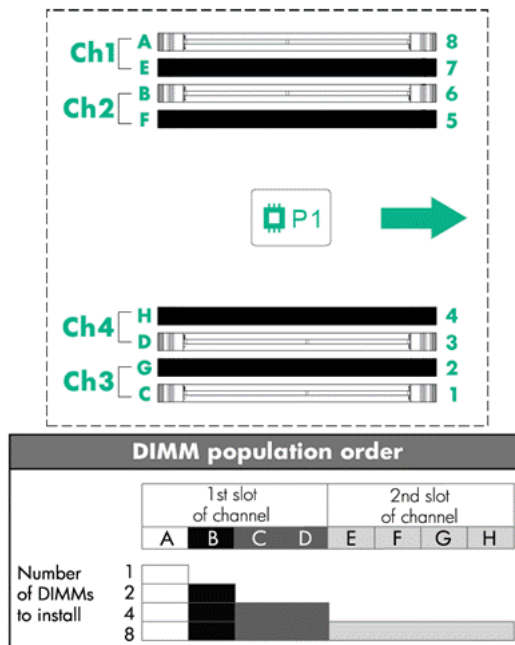
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| <b>HPE T1500 G4 UPS Models</b>                                                                                 |  |        |
| HPE T1500 G4 NA/JP Uninterruptible Power System                                                                |  | J2P87A |
| <b>HPE Rack/Tower UPS</b>                                                                                      |  |        |
| <b>HPE R/T2200 G4 UPS Models</b>                                                                               |  |        |
| HPE R/T2200 G4 NA/JP Uninterruptible Power System                                                              |  | J2R00A |
| <b>HPE R/T3000 G4 UPS Models</b>                                                                               |  |        |
| HPE R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System                                                  |  | J2R01A |
| HPE R/T3000 G4 High Voltage NA/JP Uninterruptible Power System                                                 |  | J2R02A |
| <b>R1500 G4 Models</b>                                                                                         |  |        |
| HPE R1500 G4 NA Uninterruptible Power System                                                                   |  | J2Q99A |
| <b>R7000 Uninterruptible Power System (UPS)</b>                                                                |  |        |
| HPE R7000 4U 50A High Voltage NA/JP Uninterruptible Power System                                               |  | AF462A |
| <b>R5000 Uninterruptible Power System (UPS)</b>                                                                |  |        |
| HPE R5000 3U L630 High Voltage NA/JP Uninterruptible Power System                                              |  | AF460A |
| <b>HPE UPS Options</b>                                                                                         |  |        |
| HPE R/T2200 G4 Extended Runtime Module                                                                         |  | J2R09A |
| HPE R/T3000 G4 Extended Runtime Module                                                                         |  | J2R10A |
| HPE 2U Rack/Tower UPS Shipping Kit                                                                             |  | L4Q11A |
| HPE DirectFlow UPS Management Card                                                                             |  | AF493A |
| <b>NOTE: To learn more, please visit the <a href="#">HPE Uninterruptible Power Systems (UPS) web page</a>.</b> |  |        |

|                               |                                                                    |            |
|-------------------------------|--------------------------------------------------------------------|------------|
| <b>HPE USB and SD Options</b> | <b>HPE Enterprise Mainstream Flash Media Kits for Memory Cards</b> |            |
|                               | HPE 32GB microSD Mainstream Flash Media Kit                        | 700139-B21 |
|                               | HPE 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>HPE Support Services</b> | <b>Foundation Care</b>                                      |        |
|                             | HPE 3 year Foundation Care 24x7 ML110 Gen9 Service          | U8JB1E |
|                             | HPE 3 year Foundation Care 24x7 wDMR ML110 Gen9 Service     | U8JB2E |
|                             | HPE 3 year Foundation Care 24x7 wCDMR ML110 Gen9 Service    | U8JG2E |
|                             | <b>Proactive Care</b>                                       |        |
|                             | HPE 3 year Proactive Care 24x7 ML110 Gen9 Service           | U8JB3E |
|                             | HPE 3 year Proactive Care 24x7 with DMR ML110 Gen9 Service  | U8JB4E |
|                             | HPE 3 year Proactive Care 24x7 with CDMR ML110 Gen9 Service | U8JG3E |
|                             | <b>Installation Services</b>                                |        |
|                             | HPE Installation ML310e/ML110 Service                       | U6G21E |

## Memory

### Memory Population guidelines



#### General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- White DIMM slots denote the first slot to be populated in a channel.
- Place the DIMMs with the highest number of ranks in the white slot when mixing DIMMs of different ranks on the same channel.
- Do not mix RDIMMs or LRDIMMs.

- Quad rank RDIMMs are not supported in HPE ProLiant ML110 Gen9 servers.
- Quad rank LRDIMMs are capable of up to three DIMMs per channel.
- RDIMMs operating at 1.2V.
- 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, HPE SmartMemory is required.
- There are four (4) channels per processor. There are two (2) DIMM slots for each memory channel; eight (8) total slots. Memory channels 1 and 3 consists of the two (2) DIMMs that are furthest from the processor. Memory channel 2 and 4 consists of the two (2) DIMMs that are closest to the processor.

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

| Memory Bandwidth and Capacity |                           |                  |                  |                  |                  |    |
|-------------------------------|---------------------------|------------------|------------------|------------------|------------------|----|
| [DIMM Type]                   | Registered DIMMs (RDIMMs) |                  |                  |                  |                  | Lo |
| HPE SKU P/N                   | 726717-B21                | 726718-B21       | 759934-B21       | 726719-B21       | 728629-B21       |    |
| DIMM Rank                     | Single Rank               | Single Rank      | Dual Rank        | Dual Rank        | Dual Rank        |    |
| DIMM Capacity                 | 4GB                       | 8GB              | 8GB              | 16GB             | 32GB             |    |
| Voltage                       | Std Voltage 1.2V          | Std Voltage 1.2V | Std Voltage 1.2V | Std Voltage 1.2V | Std Voltage 1.2V |    |
| DRAM Depth [bit]              | 512M                      | 1G               | 512M             | 1G               | 1G               |    |
| DRAM Width [bit]              | x8                        | x4               | x8               | x4               | x4               |    |
| DRAM Density                  | 4Gb                       | 4Gb              | 4Gb              | 4Gb              | 4Gb              |    |
| CAS Latency                   | 15-15-15                  | 15-15-15         | 15-15-15         | 15-15-15         | 15-15-15         |    |
| DIMM Native Speed (MT/s)      | 2133                      | 2133             | 2133             | 2133             | 2133             |    |
| SLOTS THAT CAN BE POPULATED   |                           |                  |                  |                  |                  |    |
| 8 slot servers                | 8                         | 8                | 8                | 8                | 8                |    |
| MAXIMUM CAPACITY (GB)         |                           |                  |                  |                  |                  |    |
|                               | 32                        | 64               | 64               | 128              | 256              |    |
| POPULATED DIMM SPEED (MT/s)   |                           |                  |                  |                  |                  |    |
| 1 DIMM Per Channel            | 2133                      | 2133             | 2133             | 2133             | 2133             |    |
| 2 DIMM Per Channel            | 2133                      | 2133             | 2133             | 2133             | 2133             |    |
| 3 DIMM Per Channel            | 1600                      | 1600             | 1600             | 1600             | 1600             |    |

#### Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E5-2600v4 Series Processor Family

| Memory Bandwidth and Capacity |                           |                  |                  |  |
|-------------------------------|---------------------------|------------------|------------------|--|
| [DIMM Type]                   | Registered DIMMs (RDIMMs) |                  |                  |  |
| HPE SKU P/N                   | 805347-B21                | 805349-B21       | 836220-B21       |  |
| DIMM Rank                     | Single Rank               | Single Rank      | Dual Rank        |  |
| DIMM Capacity                 | 8GB                       | 16GB             | 16GB             |  |
| Voltage                       | Std Voltage 1.2V          | Std Voltage 1.2V | Std Voltage 1.2V |  |
| DRAM Depth [bit]              | 1G                        | 2G               | 1G               |  |
| DRAM Width [bit]              | x8                        | x4               | x4               |  |
| DRAM Density                  | 8Gb                       | 8Gb              | 4Gb              |  |
| CAS Latency                   | 17-17-17                  | 17-17-17         | 17-17-17         |  |
| DIMM Native Speed (MT/s)      | 2400                      | 2400             | 2400             |  |
| SLOTS THAT CAN BE POPULATED   |                           |                  |                  |  |
| 8 slot servers                | 8                         | 8                | 8                |  |
| MAXIMUM CAPACITY (GB)         |                           |                  |                  |  |
|                               | 64                        | 128              | 128              |  |
| POPULATED DIMM SPEED (MT/s)   |                           |                  |                  |  |
| 1 DIMM Per Channel            | 2400                      | 2400             | 2400             |  |
| 2 DIMM Per Channel            | 2133                      | 2133             | 2133             |  |
| 3 DIMM Per Channel            | n/a                       | n/a              | n/a              |  |

#### DIMM slot and configuration diagram

#### DIMM slot and configuration diagrams

- 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, CP2-C

|        | CPU 1  |                  | CPU 2  |                  |        |
|--------|--------|------------------|--------|------------------|--------|
|        | Slot # | population order | Slot # | population order |        |
| Chnl 3 | 1      | C                | 1      | C                | Chnl 1 |
|        | 2      | G                | 2      | G                |        |
|        | CPU 1  |                  | CPU 2  |                  |        |
|        | Slot # | population order | Slot # | population order |        |
| Chnl 4 | 3      | D                | 3      | B                | Chnl 2 |
|        | 4      | H                | 4      | F                |        |
|        | CPU 1  |                  | CPU 2  |                  |        |
|        | Slot # | population order | Slot # | population order |        |
| Chnl 2 | 5      | F                | 5      | H                | Chnl 4 |
|        | 6      | B                | 6      | D                |        |
|        | CPU 1  |                  | CPU 2  |                  |        |
|        | Slot # | population order | Slot # | population order |        |
| Chnl 1 | 7      | E                | 7      | G                | Chnl 3 |
|        | 8      | A                | 8      | C                |        |

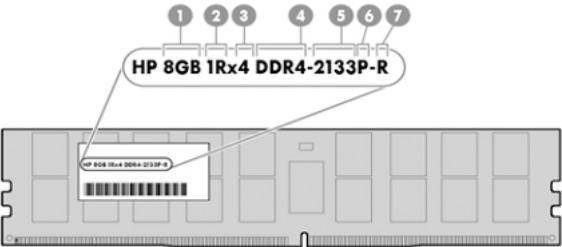
| Memory Speed by Processor Model | Processor Models                                                 | Supported Memory Speeds |
|---------------------------------|------------------------------------------------------------------|-------------------------|
|                                 | E5-1603v3                                                        | 1866MT/s                |
|                                 | E5-1620v3, E5-1650v3                                             | 2133MT/s                |
|                                 | E5-2609v4, E5-2603v4                                             | 1866MT/s                |
|                                 | E5-2630Lv4, E5-2620v4, E5-2623v4, E5-2640v4                      | 2133MT/s                |
|                                 | E5-2660v4, E5-1603v4, E5-1620v4, E5-1607v4, E5-1660v4, E5-1680v4 | 2400MT/s                |
|                                 |                                                                  |                         |

| Standard and Maximum Memory Capacity (Pre-configured Models) | Pre Configured Models | Standard Memory | Maximum Memory Plus Optional Memory | Standard Memory Replaced with Optional Memory |
|--------------------------------------------------------------|-----------------------|-----------------|-------------------------------------|-----------------------------------------------|
|                                                              | E5-2620v4, E5-2603v4  | 8GB (1x8GB)     | 232GB (7x32GB, 1x8GB)               | 256GB (8x32GB)                                |

DDR4 memory options part number decoder

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

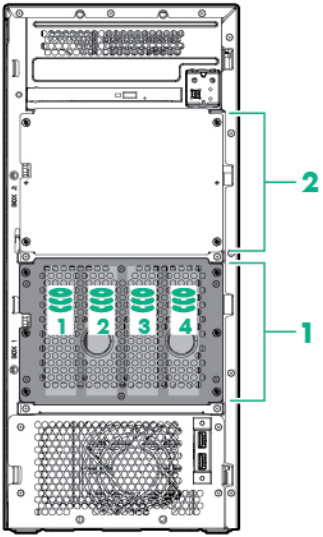
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB



1. Capacity: 4GB/8GB/16GB/32GB
2. Rank: 1R = Single-rank; 2R = Dual-rank; 4R = Quad-rank
3. Data width: x4 = 4-bit; x8 = 8-bit
4. Memory generation: DDR4
5. Maximum memory speed: 2133 MT/s
6. CAS latency: P = 15
7. DIMM type: R = RDIMM (registered); L = LRDIMM (load reduced)

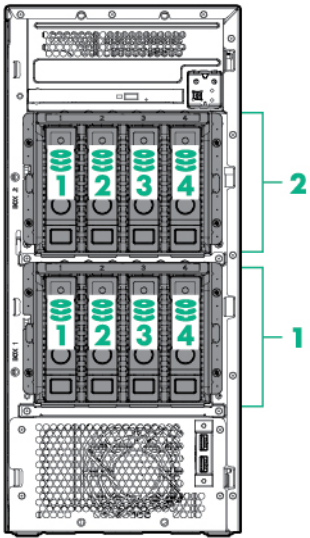
Storage

4-bay LFF non-hot-plug drive model      1-4      4 x LFF SATA/SSD Non-hot-plug Hard Drive Bays



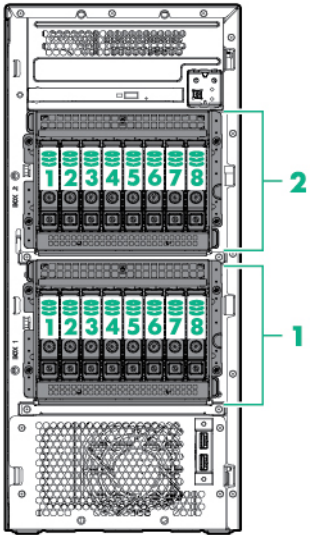
4-bay LFF hot-plug drive model

- 1 x 1-4 4 x LFF SAS/SSD Hot Pluggable Hard Drive Bays
- 1 x 2-4 4 x LFF SAS/SSD Hot Pluggable Hard Drive Bays



8-bay SFF hot-plug drive model

- 1 x 1-8 8 x SFF SATA/SSD Hot Pluggable Hard Drive Bays
- 1 x 2-8 8 x SFF SATA/SSD Hot Pluggable Hard Drive Bays



#### Maximum Storage Capacity -

Total (8 LFF Drive) 80 TB  
Total (16 SFF Drive) 32 TB

## Technical Specifications

|                                 |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>System Unit</b>              | <b>Tower Dimensions</b>                                                                                                                                                                                                                                                                                                            | 17.32(H) x 7.68(W) x 18.92(D) in (44 x 19.5 x 48.05 cm)                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                 | <b>Tower Weight</b>                                                                                                                                                                                                                                                                                                                | Minimum: 27.56lb (12.5kg)<br>Maximum: 55lb (24.9g)                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Input Requirements</b>       | Range Line                                                                                                                                                                                                                                                                                                                         | 100 to 240 VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                 | Voltage                                                                                                                                                                                                                                                                                                                            | For 350W & 550W Power Supply:8A (at 100~240 VAC)                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                 | Rated Input Current                                                                                                                                                                                                                                                                                                                | 50 to 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                 | Frequency                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                 | Rated Input Power                                                                                                                                                                                                                                                                                                                  | For 550 W Power Supply:< 639 W (at 100 VAC),< 605 W (at 200 VAC)<br>For 350 W Power Supply:< 427 W (at 100 VAC),< 427 W (at 200 VAC)                                                                                                                                                                                                                                                                                                                                        |
| <b>BTU Rating</b>               | Maximum                                                                                                                                                                                                                                                                                                                            | For 550 W Power Supply:2204 BTU/hr (at 100 VAC),2113 BTU/hr (at 200 VAC)<br>For 350 W Power Supply:1452 BTU/hr (at 100 VAC),1544 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:<br><a href="http://www.hpe.com/info/hppoweradvisor">http://www.hpe.com/info/hppoweradvisor</a> - Click on the system of interest.                                                                                                                                                                                                                           |
| <b>Power Supply Output</b>      | Rated Steady-State Power                                                                                                                                                                                                                                                                                                           | For 550 W Power Supply:550 W (at 100 VAC),550 W (at 200 VAC),                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                 | Maximum Peak Power                                                                                                                                                                                                                                                                                                                 | For 350 W Power Supply:350 W (at 100 VAC),350 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 3048m (10,000 ft). The approved hardware configurations for this system are listed at the URL:<br><a href="http://www.hpe.com/servers/ashrae">http://www.hpe.com/servers/ashrae</a> .      |
| <b>Relative Humidity</b>        | Non-operating                                                                                                                                                                                                                                                                                                                      | -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                 | Operating                                                                                                                                                                                                                                                                                                                          | Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.                                                                                                                                                                                                                                                                                  |
| <b>Altitude</b>                 | Non-operating                                                                                                                                                                                                                                                                                                                      | 5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.                                                                                                                                                                                                                                                                                                                                                                            |
|                                 | 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 457m/min (1500 ft/min).                                                                                                                                                                                                                                                                                                                |
| <b>Acoustic Noise</b>           | Non-operating                                                                                                                                                                                                                                                                                                                      | 9144 m (30,000 ft). Maximum allowable altitude change rate is 457m/min (1500 ft/min).                                                                                                                                                                                                                                                                                                                                                                                       |
|                                 | 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                                                                                                                                                                                                                                                                                                                              | 3.6 Bels (LFF Non Hot-Plug Base)<br>3.6 Bels (LFF Hot-plug Base)<br>4.1 Bels (LFF Hot-plug Performance)                                                                                                                                                                                                                                                                                                                                                                     |
|                                 | L pAm                                                                                                                                                                                                                                                                                                                              | 21 dBA (LFF Non Hot-Plug Base)<br>21 dBA (LFF Hot-plug Base)                                                                                                                                                                                                                                                                                                                                                                                                                |

|                                                 |                                             |                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                 |                                             | 27 dBA (LFF Hot-plug Performance)                                                                                                                                                                                                                                                                                                                                                                |
|                                                 | <b>Operating</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                 | L WAd                                       | 3.6 Bels (LFF Non Hot-Plug Base)<br>3.7 Bels (LFF Hot-plug Base)<br>4.2 Bels (LFF Hot-plug Performance)                                                                                                                                                                                                                                                                                          |
|                                                 | L pAm                                       | 21 dBA (LFF Non Hot-Plug Base)<br>21 dBA (LFF Hot-plug Base)<br>25 dBA (LFF Hot-plug Performance)                                                                                                                                                                                                                                                                                                |
|                                                 |                                             | <b>NOTE:</b> Configurations tested for LFF non hot-plug based models included one (1) 1TB LFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.                                                                                                                                                                                                                                               |
|                                                 |                                             | <b>NOTE:</b> Configurations tested for LFF hot-plug base models included one (1) 1TB LFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.                                                                                                                                                                                                                                                    |
|                                                 |                                             | <b>NOTE:</b> Configurations tested for LFF hot-plug performance models included four (4) 2TB LFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.                                                                                                                                                                                                                                            |
|                                                 |                                             | <b>NOTE:</b> The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.                                                                                                                                                                                                                                                         |
|                                                 | <b>Emissions Classification</b>             | FCC Rating Class B<br>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                                                                                                                                                                                                                |
|                                                 |                                             | <b>NOTE:</b> 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>HPE Dynamic Smart Array B140i Controller</b> | <b>Number of PCI links</b>                  | Four                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                 | <b>PCI link rate</b>                        | 4Gb/s                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                 | <b>Storage protocol support</b>             | SATA                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                 | <b>SAS/SATA peak data transfer rate</b>     | 6Gb/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>                  | HPE SSA, SMH, SIM                                                                                                                                                                                                                                                                                                                                                                                |
|                                                 | <b>Warranty</b>                             | Server warranty                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                 | <b>HPE Secure Encryption license</b>        | Not Supported                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                 | <b>HPE SmartCache License</b>               | Not Supported                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                 | <b>HPE Smart Storage Administrator</b>      | Supported                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>HPE Ethernet 1Gb 2-port 330i Adapter</b>     | <b>Network Interface</b>                    | 10Base-T/100Base-TX/1000Base-TX                                                                                                                                                                                                                                                                                                                                                                  |
|                                                 | <b>Compatibility</b>                        | IEEE 802.3 10Base-T<br>IEEE 802.3ab 1000Base-T<br>IEEE 802.3u 100Base-TX                                                                                                                                                                                                                                                                                                                         |
|                                                 | <b>Data Transfer Method</b>                 | PCI Express, two lanes (x2)                                                                                                                                                                                                                                                                                                                                                                      |
|                                                 | <b>Controller</b>                           | BCM5717                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                 | <b>Network Transfer Rate</b>                | 10Base-T (Half-Duplex) 10 Mb/s per port, 40 Mb/s combined<br>10Base-T (Full-Duplex) 20 Mb/s per port, 80 Mb/s combined<br>100Base-TX (Half-Duplex) 100 Mb/s per port, 400 Mb/s combined<br>100Base-TX (Full-Duplex) 200 Mb/s per port, 800 Mb/s combined<br>1000Base-TX (Half-Duplex) 1000 Mb/s per port, 4000 Mb/s combined<br>1000Base-TX (Full-Duplex) 2000 Mb/s per port, 8000 Mb/s combined |
|                                                 | <b>Connector</b>                            | RJ-45                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                 | <b>Cable Support</b>                        | 10 Base-T Categories 3, 4 or 5 UTP; up to 328 ft (100 m)<br>10/100/1000 Base-TX Category 5 or higher UTP; up to 328 ft (100 m)                                                                                                                                                                                                                                                                   |
| <b>Environment-friendly</b>                     | <b>End-of-life Management and Recycling</b> | Hewlett Packard Enterprise offers end-of-life product return, trade-in, and recycling programs, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled,                                                                                                                                                                                    |

## Products and Approach

recovered or disposed of in a responsible manner.

<http://www.hpe.com/recycle>

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 Enterprise web site. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

<http://www.hpe.com/recycle>

## Summary of Changes

| Date        | Version History       | Action  | Description of Change                                                                                                                         |
|-------------|-----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 4-Dec-2017  | From Version 22 to 23 | Added   | Added new HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD.                                     |
|             |                       | Changed | Maximum Internal Storage was revised.                                                                                                         |
| 23-Oct-2017 | From Version 21 to 22 | Changed | Care Pack naming and Service and Support-Parts and Materials updated.                                                                         |
| 25-Sep-2017 | From Version 20 to 21 | Added   | Added new Solid State Drive offering to the HPE Drives section.<br>Added new Storage option.                                                  |
|             |                       | Changed | Core Options and Additional Options were revised.                                                                                             |
|             |                       | Removed | Obsolete SKUs were removed from the QuickSpecs.                                                                                               |
| 7-Aug-2017  | From Version 19 to 20 | Added   | Added new Solid State Drive offering to the HPE Drives section.                                                                               |
| 11-Jul-2017 | From Version 18 to 19 | Added   | Added support for HPE OneView Standard version 3.1.                                                                                           |
| 5-Jun-2017  | From Version 17 to 18 | Added   | Added new Solid State Drive offering to the HPE Drives section.                                                                               |
| 8-May-2017  | From Version 16 to 17 | Added   | Added support for ClearOS.                                                                                                                    |
|             |                       | Changed | Operating Systems and Virtualization Software Support for ProLiant Servers and HPE Drives were revised.                                       |
|             |                       | Removed | Obsolete SKUs were removed from the QuickSpecs.                                                                                               |
| 3-Apr-2017  | From Version 15 to 16 | Changed | Smart Buy models section was revised for the NA version only.                                                                                 |
| 27-Mar-2017 | From Version 14 to 15 | Changed | Added new Hard Drives.                                                                                                                        |
| 13-Feb-2017 | From Version 13 to 14 | Added   | Added new HDD and SSD offering to the HPE Drives section.                                                                                     |
| 28-Nov-2016 | From Version 12 to 13 | Added   | Added new Hard Drives offering.                                                                                                               |
|             |                       | Changed | Maximum Internal Storage and Storage were revised.                                                                                            |
|             |                       | Removed | Obsolete SKUs were removed from the QuickSpecs.                                                                                               |
| 28-Oct-2016 | From Version 11 to 12 | Removed | Obsolete Hard Drives were removed from the QuickSpecs.                                                                                        |
| 26-Sep-2016 | From Version 10 to 11 | Changed | Core Options and Additional Options were revised.                                                                                             |
|             |                       | Removed | Obsolete SKUs were removed from the QuickSpecs.                                                                                               |
| 7-Jun-2016  | From Version 9 to 10  | Added   | Added new HPE Memory, new HPE Drives offering, new HPE NVIDIA Quadro M2000 Graphics Accelerator, and new HPE Disk Backup options.             |
|             |                       | Changed | HPE Processors, Upgradeability, and HPE Memory sections were revised.                                                                         |
| 8-Apr-2016  | From Version 8 to 9   | Changed | HPE Processors section was revised.                                                                                                           |
| 31-Mar-2016 | From Version 7 to 8   | Added   | Added Intel® E5-2600v4 processor support.<br>New hard drives offering added to the HPE Drives section.                                        |
|             |                       | Changed | Maximum Internal Storage, Embedded Management, Service and Support, Pre-configured Models, HPE Security, and Memory sections were revised.    |
|             |                       | Removed | Obsolete SKUs were removed from the QuickSpecs.                                                                                               |
| 17-Dec-2015 | From Version 6 to 7   | Added   | Smart Buy models were added to the NA version.                                                                                                |
| 1-Dec-2015  | From Version 5 to 6   | Changed | On System Management Chipset, Embedded Management, Server utilities, and HPE Unique Options were revised.<br><br>Product images were updated. |
|             |                       | Removed | Obsolete SKUs were removed from the QuickSpecs.                                                                                               |
| 28-Sep-2015 | From Version 4 to 5   | Added   | Added new 6Gb SATA Solid State Drives.                                                                                                        |

|             |                     |                                 |                                                               |
|-------------|---------------------|---------------------------------|---------------------------------------------------------------|
|             |                     | Removed                         | Obsolete SKUs were removed from the QuickSpecs.               |
| 17-Aug-2015 | From Version 3 to 4 | Changed                         | Rear view image was replaced.                                 |
|             |                     | Additional Options was revised. |                                                               |
| 1-Jun-2015  | From Version 2 to 3 | Removed                         | Obsolete SKUs were removed from the QuickSpecs.               |
|             |                     | Added                           | New Hard Drives were added to Core Options.                   |
|             |                     |                                 | HPE Insight Software section was added to Additional Options. |
|             |                     |                                 | Optional Software was added to HPE Storage Controllers.       |
|             |                     | Changed                         | Standard Features was revised.                                |
|             |                     |                                 | HPE Storage Controllers and HPE Disk Backup were revised.     |
|             |                     | Removed                         | Obsolete SKUs were removed from the QuickSpecs.               |
| 24-Apr-2015 | From Version 1 to 2 | Added                           | Smart Buy models added to the NA version only.                |



hpe.com/qrel/ml110gen9



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

c04545445 - 15204 - North America - V23 - 4-December-2017

