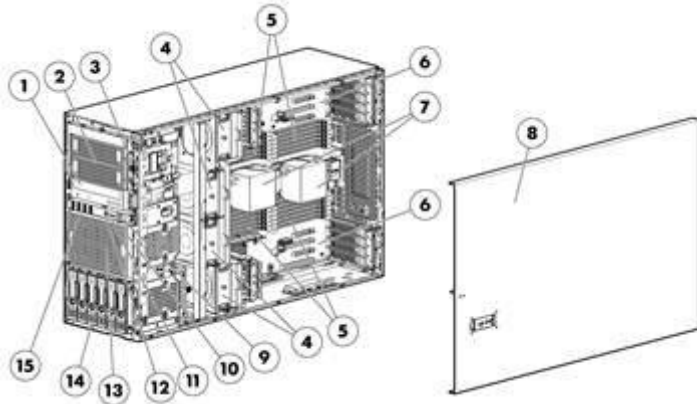


### Overview

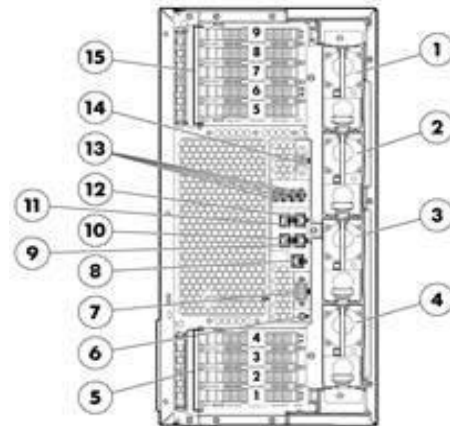
### HP ProLiant ML350p Generation 8 (Gen8)

The HP ProLiant ML350p Gen8 Server series is the latest generation of the best-selling ProLiant ML servers delivering best-in-class performance, availability and maximum expandability for enterprise data centers, remote branch offices and growing businesses. Incorporating key HP technologies from the HP ProActive Insight architecture, the ML350p Gen8 provides innovations in memory, server management, firmware management and server storage. It combines these innovations with the latest Intel® Xeon® processors for a system with unsurpassed flexibility and performance.



#### Front View:

1. Half height SATA DVD ROM or DVD RW optical drive
2. Two (2) removable media bays
3. Systems Insight Display (rack and CTO models only)
4. Four (4) system fans
5. Twenty-four (24) DIMM slots: DDR3 Load Reduced (LRDIMM), Registered (RDIMM) or Unbuffered (UDIMM)
6. Nine (9) PCIe expansion slots (8 PCIe 3.0 and 1 PCIe 2.0)
7. Two (2) processor heatsinks
8. Quick removal access panel
9. Power On / Standby button and system power LED button
10. NIC Activity LED
11. Health LED
12. UID LED button
13. Optional drive cage
14. Standard drive cage (6 LFF or 8 SFF)
15. Four (4) USB connectors



#### Rear View:

1. Power supply 1(CTO)
2. Power supply 2(CTO)
3. Power supply 3 (Default)
4. Power supply 4 (Default)
5. Four (4) PCIe slots (for processor 1)
6. UID LED button
7. Serial connector
8. iLO connector
9. NIC connector 4
10. NIC connector 3
11. NIC connector 2
12. NIC connector 1
13. Four (4) USB connectors
14. Video connector
15. Five (5) PCIe slots (for processor 2)

### What's New

- New HDD offering.

### Standard Features

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

#### Processor

One of the following  
depending on Model

#### E5-2600 v2 series Processors

##### Entry Processors

**NOTE:** All support up to 1333MHz DDR3 memory speeds.

Intel® Xeon® E5-2609 v2 (2.5GHz/4-core/10MB/6.4GT-s QPI/80W)

Intel® Xeon® E5-2603 v2 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W)

##### Base Processors

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

Intel® Xeon® E5-2640 v2 (2.0GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1600, HT, Turbo2-3/3/3/3/3/3/4/5)

Intel® Xeon® E5-2630 v2 (2.6GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5)

Intel® Xeon® E5-2620 v2 (2.1GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5)

Intel® Xeon® E5-2630L v2 (2.4GHz/6-core/15MB/7.2GT-s QPI/60W, DDR3-1600, HT, Turbo2-2/2/2/2/3/4)

##### Performance Processors

**NOTE:** All support up to 1866MHz DDR3 memory speeds.

Intel® Xeon® E5-2697 v2 (2.7GHz/12-core/30MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/3/4/5/6/7/8)

Intel® Xeon® E5-2690 v2 (3.0GHz/10-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/3/4/5/6)

Intel® Xeon® E5-2680 v2 (2.8GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-3/3/3/3/3/4/5/6/7/8)

Intel® Xeon® E5-2670 v2 (2.5GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2667 v2 (3.3GHz/8-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/4/5/6/7)

Intel® Xeon® E5-2650 v2 (2.6GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2643 v2 (3.5GHz/6-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-1/1/1/1/2/3)

Intel® Xeon® E5-2637 v2 (3.5GHz/4-core/15MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2- 1/1/2/3)

#### E5-2600 series Processors

##### Entry Processors

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

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

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

##### Base Processors

**NOTE:** All support up to 1333MHz DDR3 memory speeds.

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

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

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

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

##### Performance Processors

### Standard Features

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

Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/8.0GT-s QPI/135W, DDR3-1600, HT, Turbo2-4/4/4/5/5/7/7/9)

Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/8.0GT-s QPI/130W, DDR3-1600, HT, Turbo2-4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/8.0GT-s QPI/115W, DDR3-1600, HT, Turbo2-4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/8.0GT-s QPI/130W, DDR3-1600, HT, Turbo2-3/3/3/4/5/6)

Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/8.0GT-s QPI/115W, DDR3-1600, HT, Turbo2-4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1600, HT, Turbo2-5/5/6/6/7/7/8/8)

Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1600, HT, Turbo2-4/4/5/5/5/7/8/8)

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

Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/8.0GT-s QPI/130W, DDR3-1600, HT, Turbo2- 1/1/2/2)

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

**NOTE:** HT indicates that the processor model supports Intel® Hyper-Threading Technology.

**NOTE:** Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 8, 7, 6, 5, 4, 3, 2 or 1 core(s) active.

**NOTE:** DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

**NOTE:** Up to 2 processors supported. Mixing different processor models is not supported.

**NOTE:** For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, and x = L for low power SKUs.

#### Cache Memory

One of the following depending on Model

30MB (1 x 30MB) Level 3

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

25MB (1 x 25MB) Level 3

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

20MB (1 x 20MB) Level 3

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

15MB (1 x 15MB) Level 3

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

10MB (1 x 10MB) Level 3

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

5MB (1 x 5MB) Level 3

**NOTE:** For Dual-Core processors.

#### Chipset

Intel® C600 Chipset

Intel® E5-2600 Processor Family

Intel® E5-2600v2 Processor Family

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

#### Upgradeability

Upgradeable to two processors

**NOTE:** Total 4, 8, 12, 16, 20 or 24 cores

### Standard Features

**NOTE:** Processor upgrade available from Intel® Xeon® Processors E5-2600 to E5-2600 v2. Please contact HP Technology Sales (<http://www.hp.com/support>), your local HP Re-seller, or reference the following Customer Advisory: [ProLiant Servers-Instructions for Upgrading an HP ProLiant Gen8 Server from an Intel Xeon Processor E5-2600 to an Intel Xeon Processor E5-2600 v2](#), regarding critical details before upgrading. An explanation of requirements and limitations are provided.

**NOTE:** Customers who use ML350p Gen8 sandy bridge processors need to purchase Heatsink lever upgrade kit 749245-B21 when plan to upgrade to Ivy bridge processor

Up to 24 DIMM slots available for higher memory capacity

Up to 24 SFF Hard Drive Bays; Or 18 LFF Hard Drive Bays

8 PCIe 3.0 and 1 PCIe 2.0 I/O slots for additional communications and storage expansion

Redundant Power Supply and Redundant Fans

Optical Drive Bay (up to 3)

#### On System Management Chipset

HP iLO (Firmware: HP iLO4)

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

#### Memory Protection

Advanced ECC

Online Spare

Lock-step mode

#### Memory

|                           |                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------|
| Type                      | HP SmartMemory<br>DDR3 Load Reduced (LRDIMM), Registered (RDIMM) or Unbuffered (UDIMM) |
| DIMM Slots Available      | 24                                                                                     |
| Maximum Capacity (LRDIMM) | 768GB (24 x 32GB LRDIMM @1866MHz)                                                      |
| Maximum Capacity (RDIMM)  | 384GB (24x 16GB RDIMM @1866MHz)                                                        |
| Maximum Capacity (UDIMM)  | 128GB (16 x 8GB UDIMM @1866MHz)                                                        |

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

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

**NOTE:** If only one processor is installed, only 12 DIMM slots are available. When populating with two processors 24 DIMM slots are available. For maximum speed on some memory options on 16 DIMM slots may be populated.

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 1866MHz, 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hp.com/go/ddr3memory-configurator>.

#### Network Controller

HP 1Gb Ethernet 4-port 331i Adapter

#### Expansion Slots

| Expansion Slot # | Technology | Bus Width | Connector Width | Bus Number | Form Factor             | Notes           |
|------------------|------------|-----------|-----------------|------------|-------------------------|-----------------|
| 9                | PCIe 3.0   | x4        | x8              | 32         | Full Length/Full Height | For processor 2 |

### Standard Features

|   |          |     |     |    |                         |                 |
|---|----------|-----|-----|----|-------------------------|-----------------|
| 8 | PCIe 3.0 | x16 | x16 | 32 | Full Length/Full Height | For processor 2 |
| 7 | PCIe 3.0 | x4  | x8  | 32 | Full Length/Full Height | For processor 2 |
| 6 | PCIe 3.0 | x16 | x16 | 32 | Full Length/Full Height | For processor 2 |
| 5 | PCIe 2.0 | x4  | x8  | 0  | Half Length/Full Height | For processor 2 |
| 4 | PCIe 3.0 | x4  | x8  | 0  | Full Length/Full Height | For processor 1 |
| 3 | PCIe 3.0 | x16 | x16 | 0  | Full Length/Full Height | For processor 1 |
| 2 | PCIe 3.0 | x4  | x8  | 0  | Full Length/Full Height | For processor 1 |
| 1 | PCIe 3.0 | x8  | x16 | 0  | Full Length/Full Height | For processor 1 |

**NOTE:** Bus number - Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

**NOTE:** Nine total expansion slots. Three PCIe 3.0 x16 (x16 speed); One PCIe 3.0 x16 (x8 speed); Four PCIe 3.0 x8 (x4 speed); One PCIe 2.0 x8 (x4 speed).

### HP Server ROM

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

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

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

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

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

**NOTE:** For further information, please refer to HP's RBSU (ROM based setup utility) user guide:

### Standard Features

[www.hp.com/support/rbsu](http://www.hp.com/support/rbsu).

|                                                                      |                    |                                                                                                                                                                                        |
|----------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Storage Controller</b><br>One of the following depending on model | Entry Models       | HP Smart Array P420i/Zero Memory Controller                                                                                                                                            |
|                                                                      | Base Models        | HP Smart Array P420i/512M FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)<br><b>NOTE:</b> The SA-P420i/512M FBWC is standard on tower model and SA-P420i/1G FBWC is standard on rack model. |
|                                                                      | Performance Models | HP Smart Array P420i/1G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)<br>HP Smart Array P420i/2G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)                                               |

|                                                                            |                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Internal Storage Devices</b><br>One of the following depending on model | <b>Optical Drives</b>                                                                   | HP Half-Height SATA DVD-ROM Optical Drive<br><b>NOTE:</b> DVD ROM is standard in entry and base tower models.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                            |                                                                                         | HP Half Height SATA DVD-RW Optical Drive<br><b>NOTE:</b> DVD-RW is standard in performance tower and all rack models.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                            | <b>Hard Drives</b><br><b>Hard Drive Bays</b><br>One of the following depending on model | None ship standard<br>(6) Hot plug LFF SAS/SATA HDD bays; upgradable to (18)<br>(8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)<br><b>NOTE:</b> All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit. These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server. |

|                                                                            |                       |        |            |
|----------------------------------------------------------------------------|-----------------------|--------|------------|
| <b>Maximum Internal Storage</b><br>One of the following depending on model | Hot Plug LFF SAS      | 72TB   | 18 x 4TB   |
|                                                                            | Hot Plug LFF SATA     | 72TB   | 18 x 4TB   |
|                                                                            | Hot Plug SFF SAS      | 28.8TB | 24 x 1.2TB |
|                                                                            | Hot Plug SFF SATA     | 24TB   | 24 x 1TB   |
|                                                                            | Hot Plug SFF SATA SSD | 9.6TB  | 24 x 400GB |
|                                                                            | Hot Plug SFF SAS SSD  | 19.2TB | 24 x 800GB |
|                                                                            | Hot Plug LFF SATA SSD | 7.2TB  | 18 x 400GB |

|                   |                                       |                                                                                                                                                                       |
|-------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interfaces</b> | Serial                                | 1                                                                                                                                                                     |
|                   | Video                                 | 1 (rear)                                                                                                                                                              |
|                   | Network RJ-45 (Ethernet)              | 5 (1 dedicated for HP Integrated Lights-Out)                                                                                                                          |
|                   | HP iLO Remote Management Network Port | 1 Gb Dedicated                                                                                                                                                        |
|                   | SD slot                               | 1 (internal)<br><b>NOTE:</b> The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered. |
|                   | USB                                   | 9 (4 front, 4 rear, 1 internal)                                                                                                                                       |

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| <b>Industry Standard Compliance</b> | ACPI 2.0b Compliant                     |
|                                     | PCIe 3.0 Compliant                      |
|                                     | PXE Support                             |
|                                     | WOL Support                             |
|                                     | Novell Certified                        |
|                                     | IPMI 2.0, SMASH CLP, DCMI 1.0 compliant |



### Standard Features

Microsoft® Logo certifications  
USB 2.0 Support  
SMBIOS 2.7.1

### Server Power Cords

ProLiant ML servers in a rack-mount configuration no longer ship standard with NEMA power cords that allow connection to 110V US wall outlets in a home or office. These servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant ML rack-mount server using a 110V receptacle (NEMA-15), the NEMA power cord must be ordered separately. The 12' cord (AF556A) or 6' cord (187335-001) can be purchased online at HP.COM. In a tower configuration, the servers ship standard with a 6' NEMA power cord. If customers require a power cord, they can check the power cord matrix for the appropriate sku. Please see the following power cord matrix:  
<http://www.hp.com/go/powercordmatrix>.

### Power Specifications

To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: <http://www.hp.com/go/proliant-energy-efficient> or [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor).

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

### Common Slot Power Supplies

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

HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HP Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HP CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. HP CS power supply options provide efficiency ratings of up to 94% (80 Plus Platinum) and are available in three power output options – 460W, 750W, and 1200W - allowing the customer to "right-size" a power supply for their specific server configuration. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.

**NOTE:** Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted you will get errors and operation will fail.

HP CS Platinum power supplies are required when enabling HP's Intelligent Power Discovery (IPD) solution. IPD is the first technology to create an automated, energy-aware network between IT systems and facilities. This allows your company to reclaim millions of dollars in wasted power capacity and downtime costs across data centers. For more information on HP's IPD solution, go to <http://www.hp.com/go/ipd>.

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP Power Advisor can be accessed at: [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor).

**NOTE:** The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on [80Plus.org](http://80Plus.org).

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

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

### Standard Features

#### System Fans

One of the following depending on Model

(4) hot plug, redundant fans plus louvers

Fan Redundancy is standard in performance model. Four fans, PCIe baffles plus fan louvers are required for fan redundancy.

(3) hot plug, non-redundant fans

For fan redundancy in entry and base models, the HP Hot Plug Redundant Fan Kit (659486-B21) must be purchased. HP Hot Plug Redundant Fan Kit includes 4th fan, PCIe baffles and fan louvers.

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

[Microsoft Windows Server](#)

[Canonical Ubuntu](#)

[Red Hat Enterprise Linux \(RHEL\)](#)

[SUSE Linux Enterprise Server \(SLES\)](#)

[Solaris](#)

[VMware](#)

[Citrix XenServer](#)

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our [Support Matrix](http://www.hp.com/go/ossupport) at: <http://www.hp.com/go/ossupport> and our [driver download page](http://www.hp.com/support/ML350pGen8) <http://www.hp.com/support/ML350pGen8>

#### Graphics

Integrated Matrox G200 video standard

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

HP iLO 4 On System Management Memory

- 16 MB Flash
- 256 MB DDR 3 with ECC (112 MB after ECC and video)

#### Form Factor

Tower or Rack (5U)

#### On System Management

HP iLO Management Engine

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

- **HP iLO:** The HP iLO (Integrated Lights-Out) management processor is the core foundation for the HP iLO Management Engine
- **HP Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
- **HP Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
- **HP Intelligent Provisioning:** Lets customers provision and configure a single server without any separate media. No more



### Standard Features

SmartStart CDs or Smart Update Firmware DVD are needed.

- To start Intelligent Provisioning:
  - Press the F10 key during the ProLiant Gen8 server boot process (also known as power on self-test or POST).
  - Please go to the Intelligent Provisioning website at:  
<http://www.hp.com/go/intelligentprovisioning> for additional information and to view usage videos.
  - Use the Service Pack for ProLiant (SPP) at:  
[www.hp.com/go/spp](http://www.hp.com/go/spp) to get firmware and software updates.
- **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: <http://www.hp.com/go/ilo/mobileapp>

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

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#### HP Insight Management    HP Service Pack for ProLiant (SPP)

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

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

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

### Standard Features

the correct updates and order of update deployment.

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

#### HP StoreVirtual VSA

HP StoreVirtual VSA allows you to create fully featured shared storage on a VMware vSphere or Microsoft Hyper-V virtualized server. This server model starting November 2013, includes a limited license for HP StoreVirtual VSA software with 1TB of capacity. To download the license key and StoreVirtual VSA software, visit: <http://www.hp.com/go/unlockVSA>.

**NOTE:** You will need your server serial number in order to complete the registration form. Fully functional, capacity-based licenses are available in 4TB, 10TB, and 50TB sizes. For more information and access to the 60-day free trial, visit: [www.hp.com/go/tryVSA](http://www.hp.com/go/tryVSA)

#### Security

- Power-on password
- Setup password
- Serial interface control
- Power switch security
- Administrator's password

#### Warranty

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

**NOTE:** Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

### Optional Features

|                                  |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HP Insight Management</b>     | HP Insight Control                    | <p>HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. HP Insight Control also supports Location and Power Discovery Services to automate many configuration, asset tracking, and power management tasks to speed implementation and prevent downtime. For more information, see <a href="http://www.hp.com/go/insightcontrol">http://www.hp.com/go/insightcontrol</a>.</p> <p>HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, see: <a href="http://www.hp.com/services/insight">http://www.hp.com/services/insight</a>.</p> |
|                                  | HP iLO Advanced                       | <p>HP Integrated Lights-Out Advanced License a product option, providing smart remote server management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HP ProLiant servers by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: <a href="http://www.hp.com/go/iloadvanced">http://www.hp.com/go/iloadvanced</a></p>                                                                                                                                                                                                                                                                                                                             |
|                                  | HP Matrix Operating Environment       | <p>The HP Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business.</p> <p>The HP Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HP CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).</p> <p><b>NOTE:</b> For more information, visit: <a href="http://www.hp.com/go/matrixoe">http://www.hp.com/go/matrixoe</a></p>                                                                                                                                                                                                          |
| <b>High Performance Clusters</b> | HP Cluster Platforms                  | <p>HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. <a href="http://www.hp.com/go/clusters">http://www.hp.com/go/clusters</a>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                  | HP HPC Interconnects                  | <p>High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. <a href="http://www.hp.com/techservers/clusters/ucp/index.html">http://www.hp.com/techservers/clusters/ucp/index.html</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                  | HP Insight Cluster Management Utility | <p>HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. <a href="http://www.hp.com/go/cmu">http://www.hp.com/go/cmu</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### Storage Software

Whether you need to solve a specific data protection, archiving, or storage command and control

### Optional Features

challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.

Storage software that gets the job done:

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

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

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#### HP Insight Online

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

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#### HP Proactive Insight experience

Prevent problems with innovative, automated monitoring tools and proactive services. The HP Proactive Insight experience consists of using Insight Online, Insight Remote Support, and Proactive Care Support Service as one integrated solution. The Proactive Insight experience provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: <http://www.hp.com/go/proactiveinsightexperience>

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#### Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

### Optional Features

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>

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**HP Simple Configurator**

SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

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**HP Computation and Graphics Accelerators**

Each ML350p server will accommodate up to three NVIDIA Quadro and Tesla GPU PCIe cards for high-end QUADRO® graphics and accelerated high performance computing.

### Service and Support

#### Service and Support

##### **HP Technology Services for Industry Standard Servers**

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

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

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

#### Optimized Care

##### **Supports maintaining servers at optimum performance availability**

##### **HP Proactive Care with 6 hour call-to-repair commitment, three year Care Pack Service**

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our highest level reactive coverage and enhanced escalation management, HP's 24x7, six hour call-to-repair hardware commitment. HP is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable servers. Service includes 24x7 collaborative software support for leading industry standard software running on your HP ProLiant server.

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

#### Standard Care

##### **Service recommendation that maintains high level of server availability**

##### **HP Proactive Care with 24x7 coverage, three year Care Pack Service**

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

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

#### Related Services

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

##### **Factory Express for Servers and storage**

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. For more information on Factory Express services for your specific server model please contact your sales representative or go to:

<http://www.hp.com/go/factory-express>

##### **Data Privacy Services**

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

<http://www.hp.com/services/dataprivacy>

### Service and Support

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

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

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

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**Parts and Material**

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

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

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

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**For more information**

To learn more on HP ProLiant servers, please contact your HP sales representative or HP Authorized ServiceOne Channel Partner. Or visit: <http://www.hp.com/services/proliant>



### Pre-configured Models

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

**NOTE:** Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.

**NOTE:** HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

**NOTE:** If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

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

### Entry Models

#### E5-2600 v2 series Processors

##### HP ProLiant ML350p Gen8 Processor

##### E5-2609v2 1P 4GB-R

##### P420i/ZM 6 LFF 460W PS

##### Server

736947-001

##### Cache Memory

##### Network Controller

##### Storage Controller

##### Hard Drive

##### Internal Storage

##### Optical Drive

##### Power Supply

##### Fans

##### Accessories

##### Management

##### Form Factor

##### Warranty

(1) Intel® Xeon® E5-2609 v2 (2.50GHz/4-core/10MB/6.4GT-s QPI/80W) Processor

10MB (1 x 10MB) L3

4GB (1x4GB) PC3L-12800R (DDR3-1600LV) Registered DIMMS

**NOTE:** 11 DIMM slots available (23 if second processor is purchased).

HP 1Gb Ethernet 4-port 331i Adapter

HP Smart Array P420i/Zero Memory Controller

None ship standard; includes 5 LFF hard drive blanks

(6) Hot plug LFF SAS/SATA HDD bays; upgradable to (18)

HP Half-Height SATA DVD-ROM Optical Drive

(1) HP 460W Common Slot Gold Hot Plug Power Supply

3 hot plug, non-redundant fans

USB Keyboard and Mouse ship standard

HP iLO Management Engine (standard)

Optional: HP Insight Control

Tower (5U)

Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

#### E5-2600 series Processors

##### HP ProLiant ML350p Gen8 Processor

##### E5-2609 1P 4GB-R P420i

##### Hot Plug 6 LFF 460W PS

##### Entry Svr

646675-001

##### Cache Memory

##### Network Controller

##### Storage Controller

##### Hard Drive

##### Internal Storage

##### Optical Drive

##### Power Supply

##### Fans

##### Accessories

##### Management

(1) Intel® Xeon® E5-2609(2.40GHz/4-core/10MB/6.4GT-s QPI/80W) Processor

10MB (1 x 10MB) L3

4GB (1x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS

**NOTE:** 11 DIMM slots available (23 if second processor is purchased).

HP 1Gb Ethernet 4-port 331i Adapter

HP Smart Array P420i/Zero Memory Controller

None ship standard; includes 5 LFF hard drive blanks

(6) Hot plug LFF SAS/SATA HDD bays; upgradable to (18)

HP Half-Height SATA DVD-ROM Optical Drive

(1) HP 460W Common Slot Gold Hot Plug Power Supply

3 hot plug, non-redundant fans

USB Keyboard and Mouse ship standard

HP iLO Management Engine (standard)

### Pre-configured Models

#### Form Factor Warranty

Optional: HP Insight Control

Tower (5U)

Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

### Base Models

#### E5-2600 v2 series Processors

##### HP ProLiant ML350p Gen8 Processor

##### E5-2620v2 1P 8GB-R

##### P420i/512 FBWC 8 SFF

##### 460W PS Server

736958-001

#### Cache Memory Memory

#### Network Controller

#### Storage Controller

#### Hard Drive

#### Internal Storage

#### Optical Drive

#### Power Supply

#### Fans

#### Accessories

#### Management

#### Form Factor

#### Warranty

(1) Intel® Xeon® E5-2620 v2 (2.1GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor

15MB (1 x 15MB) L3

8GB (1x8GB) PC3L-12800R (DDR3-1600LV) Registered DIMMS

**NOTE:** 11 DIMM slots available (23 if second processor is purchased)

HP 1Gb Ethernet 4-port 331i Adapter

HP Smart Array P420i/512M FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)

None ship standard; includes 7 SFF hard drive blanks

(8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)

HP Half-Height SATA DVD-RW Optical Drive

(1) HP 460W Common Slot Gold Hot Plug Power Supply

3 hot plug, non-redundant fans

USB Keyboard and Mouse ship standard

HP iLO Management Engine (standard)

Optional: HP Insight Control

Tower (5U)

Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

#### E5-2600 series Processors

##### HP ProLiant ML350p Gen8 Processor

##### E5-2620 1P 8GB-R P420i

##### Hot Plug 8 SFF 460W PS

##### Base Svr

646676-001

#### Cache Memory Memory

#### Network Controller

#### Storage Controller

#### Hard Drive

#### Internal Storage

#### Optical Drive

#### Power Supply

#### Fans

#### Accessories

#### Management

#### Form Factor

#### Warranty

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

15MB (1 x 15MB) L3

8GB (2x4B) PC3L-10600R (DDR3-1333) Registered DIMMS

**NOTE:** 10 DIMM slots available (22 if second processor is purchased).

HP 1Gb Ethernet 4-port 331i Adapter

HP Smart Array P420i/512M FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)

None ship standard; includes 7 SFF hard drive blanks

(8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)

HP Half-Height SATA DVD-ROM Optical Drive

(1) HP 460W Common Slot Gold Hot Plug Power Supply

3 hot plug, non-redundant fans

USB Keyboard and Mouse ship standard

HP iLO Management Engine (standard)

Optional: HP Insight Control

Tower (5U)

Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

### Pre-configured Models

|                                                                                                                                             |                           |                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p Gen8 Processor</b><br><b>E5-2630 1P 8GB-R P420i</b><br><b>Hot Plug 8 SFF 750W PS</b><br><b>Base Svr</b><br>646677-001 | <b>Cache Memory</b>       | (1) Intel® Xeon® E5-2630 (2.30GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processor                        |
|                                                                                                                                             | <b>Memory</b>             | 15MB (1 x 15MB) L3                                                                                                                  |
|                                                                                                                                             |                           | 8GB (2x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS<br><b>NOTE: 10 DIMM slots available (22 if second processor is purchased).</b> |
|                                                                                                                                             | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                                                 |
|                                                                                                                                             | <b>Storage Controller</b> | HP Smart Array P420i/1G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)                                                                  |
|                                                                                                                                             | <b>Hard Drive</b>         | None ship standard; includes 7 SFF hard drive blanks                                                                                |
|                                                                                                                                             | <b>Internal Storage</b>   | (8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)                                                                              |
|                                                                                                                                             | <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical Drive                                                                                            |
|                                                                                                                                             | <b>Power Supply</b>       | (1) HP 750W Common Slot Platinum Plus Hot Plug Power Supply                                                                         |
|                                                                                                                                             | <b>Management</b>         | HP iLO Management Engine (standard)<br>Optional: HP Insight Control                                                                 |
|                                                                                                                                             | <b>Fans</b>               | 3 hot plug, non-redundant fans                                                                                                      |
|                                                                                                                                             | <b>Form Factor</b>        | Rack (5U)                                                                                                                           |
|                                                                                                                                             | <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response                          |

### Performance Models

|                                                                                                                                               |                           |                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p Gen8 Processor</b><br><b>E5-2650 2P 16GB-R P420i</b><br><b>Hot Plug 8 SFF 750W PS</b><br><b>ES Server</b><br>678237-001 | <b>Cache Memory</b>       | (2) Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8) Processors |
|                                                                                                                                               | <b>Memory</b>             | 20MB (1 x 20MB) L3                                                                                             |
|                                                                                                                                               |                           | 16GB (4x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS<br><b>NOTE: 20 DIMM slots available.</b>                 |
|                                                                                                                                               | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                            |
|                                                                                                                                               | <b>Storage Controller</b> | HP Smart Array P420i/2G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)                                             |
|                                                                                                                                               | <b>Hard Drive</b>         | None ship standard; includes 7 SFF hard drive blanks                                                           |
|                                                                                                                                               | <b>Internal Storage</b>   | (8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)                                                         |
|                                                                                                                                               | <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical Drive                                                                       |
|                                                                                                                                               | <b>Power Supply</b>       | (2) HP 750W Common Slot Platinum Plus Hot Plug Power Supply                                                    |
|                                                                                                                                               | <b>Fans</b>               | 4 hot plug, redundant fans plus louvers                                                                        |
|                                                                                                                                               | <b>Accessories</b>        | USB Keyboard and Mouse ship standard                                                                           |
|                                                                                                                                               | <b>Management</b>         | HP iLO Management Engine (standard)<br>HP Insight Control Standard                                             |
|                                                                                                                                               | <b>Energy Star</b>        | Meets Energy Star requirements                                                                                 |
|                                                                                                                                               | <b>Form Factor</b>        | Tower (5U)                                                                                                     |
|                                                                                                                                               | <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response     |

### Performance Models

**NOTE:** These Models are Energy Star Certified.

#### E5-2600 v2 series Processors

|                                                                                                                                               |                     |                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p Gen8 Processor</b><br><b>E5-2650v2 2P 16GB-R</b><br><b>P420i/2GB FBWC 8 SFF</b><br><b>750W RPS Server</b><br>736968-001 | <b>Cache Memory</b> | (2) Intel® Xeon® E5-2650 v2 (2.60GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5) Processors |
|                                                                                                                                               | <b>Memory</b>       | 20MB (1 x 20MB) L3                                                                                               |
|                                                                                                                                               |                     | 16GB (2x8GB) PC3-14900R (DDR3-1866) Registered DIMMS<br><b>NOTE: 20 DIMM slots available.</b>                    |

### Pre-configured Models

|                           |                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                        |
| <b>Storage Controller</b> | HP Smart Array P420i/2G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)                                         |
| <b>Hard Drive</b>         | None ship standard; includes 7 SFF hard drive blanks                                                       |
| <b>Internal Storage</b>   | (8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)                                                     |
| <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical Drive                                                                   |
| <b>Power Supply</b>       | (2) HP 750W Common Slot Platinum Plus Hot Plug Power Supplies                                              |
| <b>Fans</b>               | 4 hot plug, redundant fans plus louvers                                                                    |
| <b>Accessories</b>        | USB Keyboard and Mouse ship standard                                                                       |
| <b>Management</b>         | HP iLO Management Engine (standard)<br>Optional: HP Insight Control                                        |
| <b>Energy Star</b>        | Meets Energy Star requirements                                                                             |
| <b>Form Factor</b>        | Tower(5U)                                                                                                  |
| <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response |

**HP ProLiant ML350p Gen8 Processor**  
**E5-2640v2 2P 16GB-R**  
**P420i/2GB FBWC 8 SFF**  
**750W RPS Server**  
736967-001

|                           |                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Cache Memory</b>       | 20MB (1 x 20MB) L3<br>16GB (2x8GB) PC3L-12800R (DDR3-1600LV) Registered DIMMS<br><b>NOTE: 20 DIMM slots available.</b> |
| <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                                    |
| <b>Storage Controller</b> | HP Smart Array P420i/2G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)                                                     |
| <b>Hard Drive</b>         | None ship standard; includes 7 SFF hard drive blanks                                                                   |
| <b>Internal Storage</b>   | (8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)                                                                 |
| <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical Drive                                                                               |
| <b>Power Supply</b>       | (2) HP 750W Common Slot Platinum Plus Hot Plug Power Supply                                                            |
| <b>Fans</b>               | 4 hot plug, redundant fans plus louvers                                                                                |
| <b>Management</b>         | HP iLO Management Engine (standard)<br>Optional: HP Insight Control                                                    |
| <b>Energy Star</b>        | Meets Energy Star requirements                                                                                         |
| <b>Form Factor</b>        | Rack (5U)                                                                                                              |
| <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response             |

### E5-2600 series Processors

**HP ProLiant ML350p Gen8 Processor**  
**E5-2640 2P 16GB-R P420i**  
**Hot Plug 8 SFF 750W PS**  
**Perf Svr**  
646678-001

|                           |                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Cache Memory</b>       | 15MB (1 x 15MB) L3<br>16GB (4x4GB) PC3L-10600R (DDR3-1333) Registered DIMMS<br><b>NOTE: 20 DIMM slots available.</b> |
| <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                                  |
| <b>Storage Controller</b> | HP Smart Array P420i/2G FBWC Controller (RAID 0/1/1+0/5/5+0/6/6+0)                                                   |
| <b>Hard Drive</b>         | None ship standard; includes 7 SFF hard drive blanks                                                                 |
| <b>Internal Storage</b>   | (8) Hot plug SFF SAS/SATA HDD bays; upgradable to (24)                                                               |
| <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical Drive                                                                             |
| <b>Power Supply</b>       | (2) HP 750W Common Slot Platinum Plus Hot Plug Power Supplies                                                        |
| <b>Fans</b>               | 4 hot plug, redundant fans plus louvers                                                                              |

Pre-configured Models

|             |                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------|
| Management  | HP iLO Management Engine (standard)<br>HP Insight Control Standard                                         |
| Energy Star | Meets Energy Star requirements                                                                             |
| Form Factor | Rack(5U)                                                                                                   |
| Warranty    | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response |

### Smart Buys

|                                                                            |                           |                                                                                                                              |
|----------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p<br/>Gen8 E5-2620 LFF<br/>Svr/S-Buy</b><br>686713-S01 | <b>Processor</b>          | Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)                                |
|                                                                            | <b>Cache Memory</b>       | 15MB (1 x 15MB) L3 cache                                                                                                     |
|                                                                            | <b>Memory</b>             | 8GB (2x4GB) DDR3 RDIMM Low Voltage<br><b>NOTE:</b> 10 additional DIMM slots available (22 if second processor is purchased). |
|                                                                            | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                                          |
|                                                                            | <b>Storage Controller</b> | HP Smart Array P420i/512MB FBWC Controller                                                                                   |
|                                                                            | <b>Hard Drive</b>         | None ship standard                                                                                                           |
|                                                                            | <b>Internal Storage</b>   | (6) Hot plug LFF SAS/SATA HDD bays                                                                                           |
|                                                                            | <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical JB Drive                                                                                  |
|                                                                            | <b>Power Supply</b>       | HP 460W Common Slot Gold Hot Plug Power Supply Kit                                                                           |
|                                                                            | <b>Fans</b>               | 3 hot plug, non-redundant fans; upgradeable to 4 redundant fans with kit                                                     |
|                                                                            | <b>Management</b>         | iLO Management Engine Standard                                                                                               |
|                                                                            | <b>Form Factor</b>        | Tower (5U)                                                                                                                   |
|                                                                            | <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response                   |

|                                                                            |                           |                                                                                                                              |
|----------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p<br/>Gen8 E5-2620 SFF<br/>Svr/S-Buy</b><br>686714-S01 | <b>Processor</b>          | Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)                                |
|                                                                            | <b>Cache Memory</b>       | 15MB (1 x 15MB) L3 cache                                                                                                     |
|                                                                            | <b>Memory</b>             | 8GB (2x4GB) DDR3 RDIMM Low Voltage<br><b>NOTE:</b> 10 additional DIMM slots available. (22 if second processor is purchased) |
|                                                                            | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                                          |
|                                                                            | <b>Storage Controller</b> | HP Smart Array P420i/512MB FBWC Controller                                                                                   |
|                                                                            | <b>Hard Drive</b>         | None ship standard                                                                                                           |
|                                                                            | <b>Internal Storage</b>   | None ship standard                                                                                                           |
|                                                                            | <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical JB Drive                                                                                  |
|                                                                            | <b>Power Supply</b>       | HP 460W Common Slot Gold Hot Plug Power Supply Kit                                                                           |
|                                                                            | <b>Fans</b>               | 460 Watt Power Supply                                                                                                        |
|                                                                            | <b>Management</b>         | 3 hot plug, non-redundant fans; upgradeable to 4 redundant fans with kit                                                     |
|                                                                            | <b>Form Factor</b>        | Tower (5U)                                                                                                                   |
|                                                                            | <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response                   |

|                                                                              |                           |                                                                                     |
|------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p<br/>Gen8 E5-2609v2 LFF<br/>Svr/S-Buy</b><br>736983-S01 | <b>Processor</b>          | Intel® Xeon® E5-2609 v2 (2.5GHz/4-core/10MB/6.4GT-s QPI/80W)                        |
|                                                                              | <b>Cache Memory</b>       | 10MB (1 x 10MB) L3 cache                                                            |
|                                                                              | <b>Memory</b>             | HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage |
|                                                                              | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                 |
|                                                                              | <b>Storage Controller</b> | HP Smart Array P420i/Zero Memory Controller                                         |
|                                                                              | <b>Hard Drive</b>         | None ship standard                                                                  |
|                                                                              | <b>Internal Storage</b>   | Up to 6 SAS/SATA LFF                                                                |
|                                                                              | <b>Optical Drive</b>      | HP Half-Height SATA DVD-ROM Optical JB Drive                                        |
|                                                                              | <b>Power Supply</b>       | HP 460W Common Slot Gold Hot Plug Power Supply Kit                                  |
|                                                                              |                           |                                                                                     |

### Smart Buys

|                                                                                   |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                   | <b>Fans</b><br><b>Management</b><br><b>Form Factor</b><br><b>Warranty</b>                                                                                                                                                                                                                              | 3 hot plug, non-redundant fans<br>iLO Management Engine Standard<br>Tower (5U)<br>Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>HP ProLiant ML350p Gen8 E5-2609v2 2x300GB SAS 8SFF Svr/S-Buy</b><br>777883-S01 | <b>Processor</b><br><b>Cache Memory</b><br><b>Memory</b><br><br><b>Network Controller</b><br><b>Storage Controller</b><br><b>Hard Drive</b><br><b>Internal Storage</b><br><b>Optical Drive</b><br><b>Power Supply</b><br><b>Fans</b><br><b>Management</b><br><br><b>Form Factor</b><br><b>Warranty</b> | Intel® Xeon® E5-2609 v2 (2.5GHz/4-core/10MB/6.4GT-s QPI/80W)<br>10MB (1 x 10MB) L3 cache<br>HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage<br>HP 1Gb Ethernet 4-port 331i Adapter<br>HP Smart Array P420i/Zero Memory Controller<br>Includes (2) HP 300GB 6G SAS 10K SFF SC ENT Hard Drives; up to 8 SFF<br>Up to 8 SFF<br>Optional<br>HP 460W Common Slot Gold Hot Plug Power Supply Kit<br>3 hot plug, non-redundant fans<br>iLO Management Engine Standard<br>Includes iLO Advanced 3yr 24x7 TS&U License<br>Tower (5U)<br>Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response |
| <b>HP ProLiant ML350p Gen8 E5-2620v2 SFF Svr/S-Buy</b><br>736984-S01              | <b>Processor</b><br><b>Cache Memory</b><br><b>Memory</b><br><br><b>Network Controller</b><br><b>Storage Controller</b><br><b>Hard Drive</b><br><b>Internal Storage</b><br><b>Optical Drive</b><br><b>Power Supply</b><br><b>Fans</b><br><b>Management</b><br><b>Form Factor</b><br><b>Warranty</b>     | Intel® Xeon® E5-2620 v2 (2.1GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2- 3/3/3/3/4/5)<br>15MB (1 x 15MB) L3 cache<br>HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage<br>HP 1Gb Ethernet 4-port 331i Adapter<br>HP Smart Array P420i/512MB FBWC Controller<br>None ship standard<br>Up to 8 SAS/SATA SFF<br>HP Half-Height SATA DVD-ROM Optical JB Drive<br>HP 460W Common Slot Gold Hot Plug Power Supply Kit<br>3 hot plug, non-redundant fans<br>iLO Management Engine Standard<br>Tower (5U)<br>Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response                  |
| <b>HP ProLiant ML350p Gen8 E5-2640v2 SFF Svr/S-Buy</b><br>736985-S01              | <b>Processor</b><br><br><b>Cache Memory</b><br><b>Memory</b><br><br><b>Network Controller</b><br><b>Storage Controller</b>                                                                                                                                                                             | Intel® Xeon® E5-2640 v2 (2.0GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1600, HT, Turbo2- 3/3/3/3/3/4/5)<br>20MB (1 x 20MB) L3 cache<br>HP 16GB (2x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage<br>HP 1Gb Ethernet 4-port 331i Adapter<br>HP Smart Array P420i/512MB FBWC Controller                                                                                                                                                                                                                                                                                                                                                                   |



### Smart Buys

|                         |                                                                                                            |
|-------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Hard Drive</b>       | None ship standard                                                                                         |
| <b>Internal Storage</b> | Up to 8 SAS/SATA SFF                                                                                       |
| <b>Optical Drive</b>    | HP Half-Height SATA DVD-ROM Optical JB Drive                                                               |
| <b>Power Supply</b>     | (2) HP 460W Common Slot Gold Hot Plug Power Supply Kit                                                     |
| <b>Fans</b>             | 3 hot plug, non-redundant fans                                                                             |
| <b>Management</b>       | iLO Management Engine Standard                                                                             |
| <b>Form Factor</b>      | Tower (5U)                                                                                                 |
| <b>Warranty</b>         | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response |

|                                                                               |                           |                                                                                                            |
|-------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p<br/>Gen8 E5-2630v2 LFF<br/>Svr/S-Buy<br/>748305-S01</b> | <b>Processor</b>          | Intel® Xeon® E5-2630 v2 (2.6GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2- 3/3/3/3/4/5)           |
|                                                                               | <b>Cache Memory</b>       | 15MB (1 x 15MB) L3 cache                                                                                   |
|                                                                               | <b>Memory</b>             | HP 32GB (2x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage                        |
|                                                                               | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                        |
|                                                                               | <b>Storage Controller</b> | HP Smart Array P420i/512MB FBWC Controller                                                                 |
|                                                                               | <b>Hard Drive</b>         | None ship standard                                                                                         |
|                                                                               | <b>Internal Storage</b>   | Up to 6 SAS/SATA LFF                                                                                       |
|                                                                               | <b>Optical Drive</b>      | HP Half-Height SATA DVD-RW Optical JB Drive                                                                |
|                                                                               | <b>Power Supply</b>       | HP 460W Common Slot Gold Hot Plug Power Supply Kit                                                         |
|                                                                               | <b>Fans</b>               | 3 hot plug, non-redundant fans                                                                             |
|                                                                               | <b>Management</b>         | iLO Management Engine Standard                                                                             |
|                                                                               | <b>Form Factor</b>        | Tower (5U)                                                                                                 |
|                                                                               | <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response |

|                                                                                  |                           |                                                                                                                |
|----------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>HP ProLiant ML350p<br/>Gen8 E5-2670v2 2P SFF<br/>Svr/S-Buy<br/>748306-S01</b> | <b>Processor</b>          | (2) Intel® Xeon® E5-2670 v2 (2.5GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2- 4/4/4/4/4/4/5/6/7/8) |
|                                                                                  | <b>Cache Memory</b>       | 25MB (1 x 25MB) L3 cache                                                                                       |
|                                                                                  | <b>Memory</b>             | HP 32GB (2x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13                                         |
|                                                                                  | <b>Network Controller</b> | HP 1Gb Ethernet 4-port 331i Adapter                                                                            |
|                                                                                  | <b>Storage Controller</b> | HP Smart Array P420i/1GB FBWC Controller                                                                       |
|                                                                                  | <b>Hard Drive</b>         | None ship standard                                                                                             |
|                                                                                  | <b>Internal Storage</b>   | Up to 8 SAS/SATA SFF                                                                                           |
|                                                                                  | <b>Optical Drive</b>      | HP Half-Height SATA DVD-ROM Optical JB Drive                                                                   |
|                                                                                  | <b>Power Supply</b>       | 2xHP 460W Common Slot Gold Hot Plug Power Supply Ki                                                            |
|                                                                                  | <b>Fans</b>               | 4 hot plug, redundant fans plus louvers                                                                        |
|                                                                                  | <b>Management</b>         | iLO Management Engine Standard                                                                                 |
|                                                                                  | <b>Form Factor</b>        | Tower (5U)                                                                                                     |
|                                                                                  | <b>Warranty</b>           | Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response     |

### Configuration Information - Factory Integrated Models

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

**NOTE:** Factory Integrated Models must start with a CTO Server.

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

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

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

#### HP Models

#### ML350p Gen8 Tower Models

HP ProLiant ML350p Gen8 Hot Plug 8 SFF Configure-to-order Tower Server 652065-B21

##### Includes:

HP 1Gb Ethernet 4-port 331i Adapter  
 HP Smart Array P420i Controller  
 Eight (8) Hot-Plug (SFF) SAS/SATA Drive Bays  
 Seven (7) HDD blanks  
 Nine (9) USB ports  
 Eight (8) PCIe 3.0 slots (3x16, 1x8, 4x4), One (1) PCIe 2.0 slot (1x4)  
 USB Keyboard & Mouse (optional)  
 HP iLO Management Engine (standard)  
 Tower (5U) form factor  
 SID Module (optional)

HP ProLiant ML350p Gen8 Hot Plug 6 LFF Configure-to-order Tower Server 652066-B21

##### Includes:

HP 1Gb Ethernet 4-port 331i Adapter  
 HP Smart Array P420i Controller  
 Six (6) Hot-Plug (LFF) SAS/SATA Drive Bays  
 Five (5) HDD blanks  
 Nine (9) USB ports  
 Eight (8) PCIe 3.0 slots (3x16, 1x8, 4x4), One (1) PCIe 2.0 slot (1x4)  
 USB Keyboard & Mouse (optional)  
 HP iLO Management Engine (standard)  
 Tower (5U) form factor  
 SID Module (optional)

#### ML350p Gen8 Rack Models

HP ProLiant ML350p Gen8 Hot Plug 8 SFF Configure-to-order Rack Server 652063-B21

##### Includes:

HP 1Gb Ethernet 4-port 331i Adapter  
 HP Smart Array P420i Controller  
 Eight (8) Hot-Plug (SFF) SAS/SATA Drive Bays  
 Seven (7) HDD blanks  
 Nine (9) USB ports  
 Eight (8) PCIe 3.0 slots (3x16, 1x8, 4x4), One (1) PCIe 2.0 slot (1x4)  
 HP iLO Management Engine (standard)  
 Rack (5U) form factor  
 Sliding Rail Kit  
 SID module (standard)

HP ProLiant ML350p Gen8 Hot Plug 6 LFF Configure-to-order Rack Server 652064-B21

##### Includes:

HP Embedded 1 Gb Ethernet 4-port 331i Adapter  
 Embedded HP Smart Array P420i Controller

### Configuration Information - Factory Integrated Models

Six(6) Hot-Plug (LFF) SAS/SATA Drive Bays  
 Five(5) HDD blanks  
 Nine (9) USB ports  
 Eight (8) PCIe 3.0 slots (3x16, 1x8, 4x4), One (1) PCIe 2.0 slot (1x4)  
 HP iLO Management Engine (standard)  
 Rack (5U) form factor  
 Sliding Rail Kit  
 SID module (standard)

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

#### HP Processors

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

#### Entry Processors - E5-2600 v2 series Processors

**NOTE:** All support up to 1333MHz memory speeds.

HP ML350p Gen8 Intel® Xeon® E5-2609v2 (2.5GHz/4-core/10MB/80W) FIO Processor Kit 722284-L21

HP ML350p Gen8 Intel® Xeon® E5-2603v2 (1.8GHz/4-core/10MB/80W) FIO Processor Kit 722285-L21

#### Base Processors - E5-2600 v2 series Processors

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

HP ML350p Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) FIO Processor Kit 709491-L21

HP ML350p Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) FIO Processor Kit 709492-L21

HP ML350p Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) FIO Processor Kit 709493-L21

HP ML350p Gen8 Intel® Xeon® E5-2630Lv2 (2.4GHz/6-core/15MB/60W) FIO Processor Kit 722287-L21

#### Performance Processors - E5-2600 v2 series Processors

**NOTE:** All support up to 1866MHz DDR3 memory speeds

HP ML350p Gen8 Intel® Xeon® E5-2697v2 (2.7GHz/12-core/30MB/130W) FIO Processor Kit 722301-L21

HP ML350p Gen8 Intel® Xeon® E5-2690v2 (3.0GHz/10-core/25MB/130W) FIO Processor Kit 709486-L21

HP ML350p Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) FIO Processor Kit 709487-L21

HP ML350p Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) FIO Processor Kit 709488-L21

HP ML350p Gen8 Intel® Xeon® E5-2667v2 (3.3GHz/8-core/25MB/130W) FIO Processor Kit 722303-L21

HP ML350p Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) FIO Processor Kit 709490-L21

HP ML350p Gen8 Intel® Xeon® E5-2643v2 (3.5GHz/6-core/25MB/130W) FIO Processor Kit 722304-L21

HP ML350p Gen8 Intel® Xeon® E5-2637v2 (3.5GHz/4-core/15MB/130W) FIO Processor Kit 722305-L21

#### Base Processors - E5-2600 series Processors

**NOTE:** All support up to 1333MHz DDR3 memory speeds.

HP ML350p Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) FIO Processor Kit 660598-L21

### Configuration Information - Factory Integrated Models

#### Performance Processors - E5-2600 series Processors

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

|                                                                                 |            |
|---------------------------------------------------------------------------------|------------|
| HP ML350p Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) FIO Processor Kit | 660596-L21 |
|---------------------------------------------------------------------------------|------------|

#### HP Memory

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

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

#### Registered DIMMs (RDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 713981-B21 |
|------------------------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit | 708637-B21 |
|-----------------------------------------------------------------------------------|------------|

|                                                                                              |            |
|----------------------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 713983-B21 |
|----------------------------------------------------------------------------------------------|------------|

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 731765-B21 |
|------------------------------------------------------------------------------------------------|------------|

|                                                                                 |            |
|---------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit | 708639-B21 |
|---------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit | 731761-B21 |
|-----------------------------------------------------------------------------------|------------|

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 713985-B21 |
|------------------------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit | 708641-B21 |
|-----------------------------------------------------------------------------------|------------|

#### Registered DIMMs (RDIMMs)

**NOTE:** The following memory is supported by the E5-2600 series Processors.

|                                                                                               |            |
|-----------------------------------------------------------------------------------------------|------------|
| HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit | 647893-B21 |
|-----------------------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit | 647895-B21 |
|-----------------------------------------------------------------------------------|------------|

|                                                                                             |            |
|---------------------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit | 647897-B21 |
|---------------------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit | 647899-B21 |
|-----------------------------------------------------------------------------------|------------|

|                                                                                 |            |
|---------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit | 690802-B21 |
|---------------------------------------------------------------------------------|------------|

|                                                                                               |            |
|-----------------------------------------------------------------------------------------------|------------|
| HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit | 647901-B21 |
|-----------------------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit | 672631-B21 |
|-----------------------------------------------------------------------------------|------------|

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit | 713975-B21 |
|------------------------------------------------------------------------------------------------|------------|

### Configuration Information - Factory Integrated Models

|                                                                                              |            |
|----------------------------------------------------------------------------------------------|------------|
| HP 2GB (1x2GB) Single Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit            | 708631-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit | 713977-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit              | 708633-B21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit | 713979-B21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit              | 708635-B21 |

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** The following memory is supported by the E5-2600 series Processors.

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

#### Load Reduced DIMMs (LRDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                     |            |
|-------------------------------------------------------------------------------------|------------|
| HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit | 708643-B21 |
|-------------------------------------------------------------------------------------|------------|

#### Load Reduced DIMMs (LRDIMMs)

**NOTE:** The following memory is supported by the E5-2600 series Processors.

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

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

**NOTE:** Depending on the memory configuration and processor model, 1866MHz, 1600MHz, and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

### HP Power Supplies

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

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

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

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

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

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

### Configuration Information - Factory Integrated Models

|                                                                                                                                                                                                         |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit                                                                                                                                             | 656363-B21 |
| HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit                                                                                                                                            | 656364-B21 |
| <b>HP Common Slot Gold Power Supplies</b>                                                                                                                                                               |            |
| <b>NOTE:</b> The following Power Supplies offer up to 92% efficiency.                                                                                                                                   |            |
| HP 460W CS Gold Ht Plg Power Supply Kit                                                                                                                                                                 | 503296-B21 |
| HP 750W Common Slot Gold Hot Plug Power Supply Kit                                                                                                                                                      | 512327-B21 |
| <b>HP Common Slot -48VDC Power Supplies</b>                                                                                                                                                             |            |
| HP 750W Common Slot -48VDC Hot Plug Power Supply Kit                                                                                                                                                    | 636673-B21 |
| <b>NOTE:</b> The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user. |            |
| <b>Enablement Kit</b>                                                                                                                                                                                   |            |
| HP 4X1200W RPS FIO Enablement Kit                                                                                                                                                                       | 659487-B21 |
| <b>NOTE:</b> This kit Requires the selection of either 2 x 1200W power supply kits or 4 x 1200w power supply kits.                                                                                      |            |

### Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

|                              |                                                                                                                                                    |            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>HP Graphics Options</b>   | HP 3rd FIO Graphic Card Power Cable Kit                                                                                                            | 700835-B21 |
|                              | <b>NOTE:</b> This FIO kit only required when 3rd graphic card ordered.                                                                             |            |
| <b>HP SID Module</b>         | HP Systems Insight Display FIO Kit                                                                                                                 | 660583-B21 |
|                              | <b>NOTE:</b> Provides health status for key components (option for Tower Models only P/N: 652065-B21 and P/N: 652066-B21, standard in Rack Models) |            |
| <b>HP Insight Software</b>   | HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License                                                   | C6N36A     |
| <b>HP Storage Controller</b> | <b>Optional Upgrade</b>                                                                                                                            |            |
|                              | HP 4GB Flash Backed Write Cache FIO Kit for P-series Smart Array Controllers                                                                       | 698537-B21 |

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

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

### Core Options

**NOTE:** Some options may not be integrated at the factory. Contact your local sales representative for additional information.

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>HP Unique Options</b> | HP Hot Plug Redundant Fan Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 659486-B21 |
|                          | HP Tower to Rack Conversion Tray Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 659488-B21 |
|                          | HP Security Bezel Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 660584-B21 |
|                          | <b>NOTE:</b> For restricting access to a rack model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |
|                          | HP Graphic Card Support Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 660582-B21 |
|                          | <b>NOTE:</b> The ML350p Gen8 supports up to 3 graphic cards. HP Graphic Card Support Kit (660582-B21) will be required per Graphic Card HP 3rd Graphic Card Power Cable FIO Kit (700835-B21) will be an additional request for the 3rd graphics card support<br><b>NOTE:</b> Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at: <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a> . |            |
|                          | HP ML350p Gen8 Smart Array Cable Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 725675-B21 |
|                          | <b>NOTE:</b> While P430 purchased, this option kit needs to be purchased.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |

### HP Processors

#### Entry Processors - E5-2600 v2 series Processors

**NOTE:** All support up to 1333MHz memory speeds.

|                                                                              |            |
|------------------------------------------------------------------------------|------------|
| HP ML350p Gen8 Intel® Xeon® E5-2609v2 (2.5GHz/4-core/10MB/80W) Processor Kit | 722284-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2603v2 (1.8GHz/4-core/10MB/80W) Processor Kit | 722285-B21 |

#### Base Processors - E5-2600 v2 series Processors

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

|                                                                                    |            |
|------------------------------------------------------------------------------------|------------|
| HP ML350p Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) Processor Kit       | 709491-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) Processor Kit/S-Buy | 709491-S21 |
| HP ML350p Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) Processor Kit       | 709492-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) Processor Kit       | 709493-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) Processor Kit/S-Buy | 709493-S21 |
| HP ML350p Gen8 Intel® Xeon® E5-2630Lv2 (2.4GHz/6-core/15MB/60W) Processor Kit      | 722287-B21 |

#### Performance Processors - E5-2600 v2 series Processors

**NOTE:** All support up to 1866MHz DDR3 memory speeds.

|                                                                                |            |
|--------------------------------------------------------------------------------|------------|
| HP ML350p Gen8 Intel® Xeon® E5-2697v2 (2.7GHz/12-core/30MB/130W) Processor Kit | 722301-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2690v2 (3.0GHz/10-core/25MB/130W) Processor Kit | 709486-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) Processor Kit | 709488-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2667v2 (3.3GHz/8-core/25MB/130W) Processor Kit  | 722303-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) Processor Kit   | 709490-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2643v2 (3.5GHz/6-core/25MB/130W) Processor Kit  | 722304-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2637v2 (3.5GHz/4-core/15MB/130W) Processor Kit  | 722305-B21 |

#### Entry Processors - E5-2600 series Processors

**NOTE:** All support up to 1066MHz memory speeds.

|                                                                             |            |
|-----------------------------------------------------------------------------|------------|
| HP ML350p Gen8 Intel® Xeon® E5-2609 (2.40GHz/4-core/10MB/80W) Processor Kit | 660597-B21 |
|-----------------------------------------------------------------------------|------------|



### Core Options

|                                                                                                                                                                         |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| HP ML350p Gen8 Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/80W) Processor Kit                                                                                              | 660595-B21 |
| <b>Base Processors - E5-2600 series Processors</b>                                                                                                                      |            |
| <b>NOTE:</b> All support up to 1333MHz DDR3 memory speeds.                                                                                                              |            |
| HP ML350p Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) Processor Kit                                                                                              | 660600-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2630 (2.30GHz/6-core/15MB/95W) Processor Kit                                                                                             | 660599-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) Processor Kit                                                                                              | 660598-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) Processor Kit                                                                                             | 660607-B21 |
| <b>Performance Processors - E5-2600 series Processors</b>                                                                                                               |            |
| <b>NOTE:</b> All support up to 1600MHz DDR3 memory speeds.                                                                                                              |            |
| HP ML350p Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) Processor Kit                                                                                             | 660605-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) Processor Kit                                                                                             | 660604-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) Processor Kit                                                                                             | 660603-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) Processor Kit                                                                                             | 660608-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) Processor Kit                                                                                             | 660596-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) Processor Kit                                                                                              | 660602-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) Processor Kit                                                                                              | 660601-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) Processor Kit                                                                                             | 660606-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) Processor Kit                                                                                             | 678242-B21 |
| HP ML350p Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) Processor Kit                                                                                               | 678244-B21 |
| <b>Processor Upgrade Kit</b>                                                                                                                                            |            |
| HP ML350p Gen8 Processor Upgrade Lever Kit                                                                                                                              | 749245-B21 |
| <b>NOTE:</b> Customers who use ML350p Gen8 sandy bridge processors need to purchase Heatsink lever upgrade kit 749245-B21 when plan to upgrade to Ivy bridge processor. |            |

### HP Memory

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

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

#### Registered DIMMs (RDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 713981-B21 |
| HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 LP Memory Kit/S-Buy    | 713981-S21 |
| HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit              | 708637-B21 |
| HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit/S-Buy        | 708637-S21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit   | 713983-B21 |
| HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 731765-B21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit                | 708639-B21 |

### Core Options

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit                   | 731761-B21 |
| HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit/S-Buy             | 731761-S21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit      | 713985-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 LP Memory Kit/S-Buy         | 713985-S21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit                   | 708641-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit/S-Buy             | 708641-S21 |
| <b>Registered DIMMs (RDIMMs)</b>                                                                    |            |
| <b>NOTE:</b> The following memory is supported by the E5-2600 series Processors.                    |            |
| HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit       | 647893-B21 |
| HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit/S-Buy | 647893-S21 |
| HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit                   | 647895-B21 |
| HP 4GB (1x4GB) Single Rank x4 PC3-12800 (DDR3-1600) Reg CAS-11 Memory Kit/S-Buy                     | 647895-S21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit         | 647897-B21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit/S-Buy   | 647897-S21 |
| HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit                   | 647899-B21 |
| HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit S-Buy             | 647899-S21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit                     | 690802-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit       | 647901-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit/S-Buy | 647901-S21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit                   | 672631-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit S-Buy             | 672631-S21 |
| <b>Unbuffered with ECC DIMMs (UDIMMs)</b>                                                           |            |
| <b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.                 |            |
| HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit      | 713975-B21 |
| HP 2GB (1x2GB) Single Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit                   | 708631-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit        | 713977-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 LP                            | 713977-S21 |

### Core Options

|                                                                                                                                                                                                                                                                                                                                                               |  |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|
| Memory Kit/S-Buy                                                                                                                                                                                                                                                                                                                                              |  |            |
| HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit                                                                                                                                                                                                                                                                               |  | 708633-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit/S-Buy                                                                                                                                                                                                                                                                         |  | 708633-S21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit                                                                                                                                                                                                                                                                  |  | 713979-B21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 LP Memory Kit/S-Buy                                                                                                                                                                                                                                                                     |  | 713979-S21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit                                                                                                                                                                                                                                                                               |  | 708635-B21 |
| <b>Unbuffered with ECC DIMMs (UDIMMs)</b>                                                                                                                                                                                                                                                                                                                     |  |            |
| <b>NOTE:</b> The following memory is supported by the E5-2600 series Processors.                                                                                                                                                                                                                                                                              |  |            |
| HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit                                                                                                                                                                                                                                                                             |  | 669320-B21 |
| HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit                                                                                                                                                                                                                                                                 |  | 647905-B21 |
| HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit/S-Buy                                                                                                                                                                                                                                                           |  | 647905-S21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit                                                                                                                                                                                                                                                                               |  | 669322-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit                                                                                                                                                                                                                                                                   |  | 647907-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit/S-Buy                                                                                                                                                                                                                                                             |  | 647907-S21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit                                                                                                                                                                                                                                                                               |  | 669324-B21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit                                                                                                                                                                                                                                                                   |  | 647909-B21 |
| <b>Load Reduced DIMMs (LRDIMMs)</b>                                                                                                                                                                                                                                                                                                                           |  |            |
| <b>NOTE:</b> The following memory is supported by the E5-2600 v2 series Processors.                                                                                                                                                                                                                                                                           |  |            |
| HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit                                                                                                                                                                                                                                                                           |  | 708643-B21 |
| HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit/S-Buy                                                                                                                                                                                                                                                                     |  | 708643-S21 |
| <b>Load Reduced DIMMs (LRDIMMs)</b>                                                                                                                                                                                                                                                                                                                           |  |            |
| <b>NOTE:</b> The following memory is supported by the E5-2600 series Processors.                                                                                                                                                                                                                                                                              |  |            |
| HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit                                                                                                                                                                                                                                                               |  | 647903-B21 |
| <b>NOTE:</b> All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: <a href="http://www.hp.com/go/ddr3memory-configurator">http://www.hp.com/go/ddr3memory-configurator</a> .                                                                 |  |            |
| <b>NOTE:</b> Depending on the memory configuration and processor model, 1866MHz, 1600MHz, and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at: <a href="http://www.hp.com/go/ddr3memory-configurator">www.hp.com/go/ddr3memory-configurator</a> . |  |            |

### HP Optical Drives

|                                                                                           |            |
|-------------------------------------------------------------------------------------------|------------|
| HP Half-Height SATA DVD ROM JackBlack Optical Drive                                       | 624189-B21 |
| HP Half-Height SATA DVD RW JackBlack Optical Drive                                        | 624192-B21 |
| <b>NOTE:</b> A total of two optical drives can be added. A second and third optical drive |            |

### Core Options

requires the HP 2nd Media Bay Cage Kit (Part Number 661618-B21).

#### HP Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

**NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

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

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

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

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

#### 12G SAS Hot Plug SmartDrive LFF (3.5-inch) Converter Enterprise Drives

HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive 765424-B21

HP 450GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive 737394-B21

HP 300GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive 737261-B21

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

HP 1.2TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 781518-B21

HP 900GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 785069-B21

HP 600GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 781516-B21

HP 300GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 785067-B21

#### 12G SAS Hot Plug LFF (3.5-inch) Midline (MDL) 512e Drives

HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive 765259-B21

HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive 765255-B21

HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive 765257-B21

HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive 765253-B21

#### 12G SAS Hot Plug SFF (2.5-inch) SC 512e Drives

HP 2TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive 765466-B21

HP 1TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive 765464-B21

#### 12G SAS Hot Plug LFF (3.5-inch) SC 512e Performance Drives

HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive 793671-B21

HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive 793669-B21

#### 6G SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive 718162-B21

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port ENT 3yr Wty Hard Drive/S-Buy 718162-S21

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652589-B21

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive/S-Buy 652589-S21

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652583-B21

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive/S-Buy 652583-S21

### Core Options

|                                                                                                                                                                                                                                                            |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive                                                                                                                                                                               | 652572-B21 |
| HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive                                                                                                                                                                               | 652564-B21 |
| HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive/S-Buy                                                                                                                                                                         | 652564-S21 |
| HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive                                                                                                                                                                               | 652611-B21 |
| HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive/S-Buy                                                                                                                                                                         | 652611-S21 |
| HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive                                                                                                                                                                               | 652605-B21 |
| HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive/S-Buy                                                                                                                                                                         | 652605-S21 |
| <b>6G SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives</b>                                                                                                                                                                                            |            |
| HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 652749-B21 |
| HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                 | 652745-B21 |
| <b>6G SAS Hot Plug SmartDrive LFF (3.5-inch) Enterprise Drives</b>                                                                                                                                                                                         |            |
| HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive                                                                                                                                                                               | 652620-B21 |
| HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive                                                                                                                                                                               | 652615-B21 |
| <b>6G SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives</b>                                                                                                                                                                                            |            |
| HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 652749-B21 |
| HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                 | 652745-B21 |
| <b>6G SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives</b>                                                                                                                                                                                            |            |
| HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 761477-B21 |
| HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 695510-B21 |
| HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 652766-B21 |
| HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 652757-B21 |
| HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                   | 652753-B21 |
| <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:<br><a href="http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html">http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html</a> |            |
| <b>6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives</b>                                                                                                                                                                                |            |
| HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                  | 655710-B21 |
| HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive/S-Buy                                                                                                                                                                            | 655710-S21 |
| HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                | 655708-B21 |
| HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive/S-Buy                                                                                                                                                                          | 655708-S21 |
| <b>6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives</b>                                                                                                                                                                                |            |
| HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                  | 753874-B21 |
| HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                  | 693687-B21 |
| HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                  | 628061-B21 |
| HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                  | 658079-B21 |
| HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive/S-Buy                                                                                                                                                                            | 658079-S21 |
| HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                  | 657750-B21 |
| HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive/S-Buy                                                                                                                                                                            | 657750-S21 |
| HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive                                                                                                                                                                                | 658071-B21 |
| HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Wty Hard Drive/S-Buy                                                                                                                                                                               | 658071-S21 |
| <b>6G SATA Hot Plug SFF (2.5-inch) SC 512e Drives</b>                                                                                                                                                                                                      |            |
| HP 2TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive                                                                                                                                                                                     | 765455-B21 |



### Core Options

|                                                                                                                                                         |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive                                                                                  | 765453-B21 |
| <b>6G SATA Hot Plug LFF (3.5-inch) SC 512e Performance Drives</b>                                                                                       |            |
| HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive                                                                      | 793667-B21 |
| HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drives                                                                     | 793665-B21 |
| <b>NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information:</b>                |            |
| <a href="http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html">http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html</a> |            |
| <b>12G SAS Hot Plug Value Endurance SFF (2.5-inch) Enterprise Value Solid State Drives</b>                                                              |            |
| HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive                                                               | 762263-B21 |
| HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive                                                               | 762261-B21 |
| <b>12G SAS Hot Plug Value Endurance SFF (3.5-inch) Enterprise Value Solid State Drives</b>                                                              |            |
| HP 1.6TB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive                                                               | 762272-B21 |
| HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive                                                               | 762270-B21 |
| <b>NOTE: Please see the QuickSpecs for Technical Specifications and additional information:</b>                                                         |            |
| <a href="http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html">http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html</a> |            |
| <b>12G SAS High Endurance Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives</b>                                                         |            |
| HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive                                                          | 741155-B21 |
| <b>NOTE: This drive supports Gen8 servers only.</b>                                                                                                     |            |
| <b>12G SAS Mainstream Endurance Hot Plug SFF (2.5-inch) Enterprise Mainstream H2 Solid State Drives</b>                                                 |            |
| HP 1.6TB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive                                                         | 779176-B21 |
| HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive                                                         | 779172-B21 |
| HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive                                                         | 779168-B21 |
| HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive                                                         | 779164-B21 |
| <b>12G SAS Hot Plug SFF (2.5-inch) SC Read/Write Intensive Solid State Drives</b>                                                                       |            |
| HP 1.92TB 12G SAS Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive                                                                                | 802891-B21 |
| HP 800GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive                                                                                | 802586-B21 |
| HP 400GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive                                                                                | 802582-B21 |
| HP 200GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive                                                                                | 802578-B21 |
| <b>6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives</b>                                                               |            |
| HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive                                                                | 717965-B21 |
| HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State                                                                       | 734360-B21 |

### Core Options

#### Drive

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

HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive 718171-B21

HP 80GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive 734362-B21

##### **6G SATA Hot Plug Value Endurance LFF (3.5-inch) Converter Enterprise Value M1 Solid State Drives**

HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive 764945-B21

HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive 764943-B21

HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive 764941-B21

HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive 764939-B21

##### **6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives**

HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 757339-B21

HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 717973-B21

HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 739898-B21

HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 717971-B21

HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 739888-B21

HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 717969-B21

##### **6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives**

HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive 757342-B21

HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive 718189-B21

HP 600GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive 739900-B21

HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive 718183-B21

HP 300GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive 739890-B21

HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive 718177-B21

##### **6G SATA Hot Plug Light Endurance SFF (2.5-inch) Enterprise Light G1 Solid State Drives**

HP 960GB 6G SATA Light Endurance SFF 2.5-in SC Enterprise Light 3yr Wty G1 Solid State Drive 756601-B21



### Core Options

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

|                                                                                                 |            |
|-------------------------------------------------------------------------------------------------|------------|
| HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive | 756604-B21 |
|-------------------------------------------------------------------------------------------------|------------|

#### **6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value M1 Solid State Drive**

|                                                                                              |            |
|----------------------------------------------------------------------------------------------|------------|
| HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive | 764929-B21 |
|----------------------------------------------------------------------------------------------|------------|

|                                                                                              |            |
|----------------------------------------------------------------------------------------------|------------|
| HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive | 764927-B21 |
|----------------------------------------------------------------------------------------------|------------|

|                                                                                              |            |
|----------------------------------------------------------------------------------------------|------------|
| HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive | 764925-B21 |
|----------------------------------------------------------------------------------------------|------------|

|                                                                                              |            |
|----------------------------------------------------------------------------------------------|------------|
| HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive | 764923-B21 |
|----------------------------------------------------------------------------------------------|------------|

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

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691868-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691866-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691864-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691862-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

#### **6G SATA Mainstream Endurance Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives**

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691860-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691856-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691854-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

|                                                                                                     |            |
|-----------------------------------------------------------------------------------------------------|------------|
| HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive | 691852-B21 |
|-----------------------------------------------------------------------------------------------------|------------|

#### **6G SATA Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives**

|                                                                         |            |
|-------------------------------------------------------------------------|------------|
| HP 960GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive | 789155-B21 |
|-------------------------------------------------------------------------|------------|

|                                                                         |            |
|-------------------------------------------------------------------------|------------|
| HP 480GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive | 789145-B21 |
|-------------------------------------------------------------------------|------------|

|                                                                         |            |
|-------------------------------------------------------------------------|------------|
| HP 240GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive | 789135-B21 |
|-------------------------------------------------------------------------|------------|

#### **6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives**

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 960GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive | 789157-B21 |
|-----------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 480GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive | 789147-B21 |
|-----------------------------------------------------------------------------------|------------|

|                                                                                   |            |
|-----------------------------------------------------------------------------------|------------|
| HP 240GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive | 789137-B21 |
|-----------------------------------------------------------------------------------|------------|

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

[http://h18000.www1.hp.com/products/quickspecs/14038\\_na/14038\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html)  
(Worldwide)

#### **Hard Drive Kits**

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

### Core Options

|                                                         |            |
|---------------------------------------------------------|------------|
| HP 2nd Media Bay Cage Kit                               | 661618-B21 |
| HP 5U 6 Large Form Factor (LFF) Hot Plug Drive Cage Kit | 659485-B21 |
| HP 5U 8 Small Form Factor (SFF) Hot Plug Drive Cage Kit | 659484-B21 |
| HP 5U 6 LFF Expander Hard Drive Cage Kit                | 661717-B21 |
| HP 5U 8 SFF Expander Hard Drive Cage Kit                | 661714-B21 |
| HP Small Form Factor Hard Drive Blank Kit               | 666987-B21 |
| HP Large Form Factor Hard Drive Blank Kit               | 666986-B21 |

**NOTE:** Mixing of SFF and LFF drive cages is not allowed.

**NOTE:** Additional Hot Plug Drive Cages require a separate Smart Array controller for each drive cage. HP recommends the HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller (P/N 631670-B21).

**NOTE:** Expander HDD Cage Kit allows up to 18 LFF / 24 SFF HDDs managed under one single controller. The controller must have a minimum of 512MB FBWC module installed.

### HP Networking

#### Gigabit Ethernet adapters

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

#### 10 Gigabit Ethernet adapters

|                                                 |            |
|-------------------------------------------------|------------|
| HP NC523SFP 10Gb 2-port Server Adapter          | 593717-B21 |
| HP Ethernet 10Gb 2-port 530SFP Adapter          | 652503-B21 |
| HP Ethernet 10Gb 2-port 530T Adapter            | 656596-B21 |
| HP NC552SFP 10Gb 2-port Ethernet Server Adapter | 614203-B21 |
| HP Ethernet 10Gb 2-port 560SFP+ Adapter         | 665249-B21 |
| HP Ethernet 10Gb 2-port 561T Adapter            | 716591-B21 |

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

### HP InfiniBand

|                                                 |            |
|-------------------------------------------------|------------|
| QLogic InfiniBand 4X QDR PCI-E G2 Dual Port HCA | 583211-B21 |
| HP InfiniBand FDR 2-port 545QSFP Adapter        | 702211-B21 |

**NOTE:** Please see the QuickSpecs for additional information: [http://h18000.www1.hp.com/products/quickspecs/13078\\_na/13078\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13078_na/13078_na.html)

### HP Power Supplies

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

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

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

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

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

### Core Options

HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit 656364-B21

#### **HP Common Slot Gold Power Supplies**

**NOTE:** The following Power Supplies offer up to 92% efficiency.

HP 460W CS Gold Ht Plg Power Supply Kit 503296-B21

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

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

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

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

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

**NOTE:** Power Specification and Technical Content for supported power supplies can be found at:

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

### HP Cooling Options

HP Hot Plug Redundant Fan Kit 659486-B21

### Additional Options

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

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>HP Insight Software</b>        | <b>HP Insight Control</b>                                                                                                                                                                                                                                                                                                                                                                                                                          |            |
|                                   | HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License                                                                                                                                                                                                                                                                                                                                                          | C6N27A     |
|                                   | HP Insight Control Environment No Media 1 Server incl 1 year 24x7 Supp License/S-Buy                                                                                                                                                                                                                                                                                                                                                               | C6N27S     |
|                                   | HP Insight w/Microsoft System Center Essentials 2010 ROK w/1yr Physical 1 Server SW                                                                                                                                                                                                                                                                                                                                                                | C6N28ASE   |
|                                   | HP Insight Control Server Provisioning Media Kit                                                                                                                                                                                                                                                                                                                                                                                                   | BD883A     |
|                                   | HP 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 24 x 7 HP Software Technical Support and Update Service.                                                                                                                                                                       |            |
|                                   | <b>NOTE:</b> Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <a href="http://www.hp.com/go/insightupdates">http://www.hp.com/go/insightupdates</a> .                                                                                                                                                                                                                             |            |
|                                   | <b>NOTE:</b> For additional license options please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html">http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html</a>                                                                                                                                                                                                                  |            |
|                                   | <b>HP Integrated Lights-Out (iLO) Advanced for ProLiant</b>                                                                                                                                                                                                                                                                                                                                                                                        |            |
|                                   | HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License                                                                                                                                                                                                                                                                                                                                                             | 512485-B21 |
|                                   | HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates                                                                                                                                                                                                                                                                                                                                                                            | BD505A     |
|                                   | <b>NOTE:</b> For additional license options please see the QuickSpecs at: <a href="http://h18004.www1.hp.com/products/quickspecs/14276_na/14276_na.html">http://h18004.www1.hp.com/products/quickspecs/14276_na/14276_na.html</a>                                                                                                                                                                                                                  |            |
|                                   | <b>NOTE:</b> For more information, visit: <a href="http://www.hp.com/go/ilo">http://www.hp.com/go/ilo</a>                                                                                                                                                                                                                                                                                                                                          |            |
| <b>High Performance Clusters</b>  | <b>HP Insight Cluster Management Utility</b>                                                                                                                                                                                                                                                                                                                                                                                                       |            |
|                                   | HP Insight Cluster Management Utility 1yr 24x7 Flexible License                                                                                                                                                                                                                                                                                                                                                                                    | QL803B     |
|                                   | HP Insight Cluster Management Utility 3yr 24x7 Flexible License                                                                                                                                                                                                                                                                                                                                                                                    | BD476A     |
|                                   | <b>NOTE:</b> These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement. |            |
|                                   | HP Insight Cluster Management Utility Media                                                                                                                                                                                                                                                                                                                                                                                                        | BD477A     |
| <b>HP I/O Accelerator Options</b> | <b>Second Generation Accelerators</b>                                                                                                                                                                                                                                                                                                                                                                                                              |            |
|                                   | HP 365GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers                                                                                                                                                                                                                                                                                                                                                                                    | 673642-B21 |
|                                   | HP 785GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers                                                                                                                                                                                                                                                                                                                                                                                    | 673644-B21 |
|                                   | HP 1205GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers                                                                                                                                                                                                                                                                                                                                                                                   | 673646-B21 |
|                                   | HP 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo for ProLiant Servers                                                                                                                                                                                                                                                                                                                                                                               | 673648-B21 |
|                                   | HP 3TB G2 FH/HL PCIe ioDrive2 IO Accelerator for ProLiant Servers                                                                                                                                                                                                                                                                                                                                                                                  | 721458-B21 |

### Additional Options

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:  
[http://h18000.www1.hp.com/products/quickspecs/13587\\_na/13587\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13587_na/13587_na.html)

#### HP PCIe Workload Accelerator Options

##### Mainstream Endurance (ME) PCIe Workload Accelerators

|                                                                    |            |
|--------------------------------------------------------------------|------------|
| HP 1.4TB HH/HL Mainstream Endurance (ME) PCIe Workload Accelerator | 729307-B21 |
| HP 700GB HH/HL Mainstream Endurance (ME) PCIe Workload Accelerator | 729305-B21 |

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

|                                                              |            |
|--------------------------------------------------------------|------------|
| HP 700GB HH/HL High Endurance (HE) PCIe Workload Accelerator | 708090-B21 |
| HP 350GB HH/HL High Endurance (HE) PCIe Workload Accelerator | 708088-B21 |

##### Light Endurance (LE) PCIe Workload Accelerators

|                                                               |            |
|---------------------------------------------------------------|------------|
| HP 5.2TB FH/HL Light Endurance (LE) PCIe Workload Accelerator | 775672-B21 |
| HP 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator | 775670-B21 |
| HP 1.3TB HH/HL Light Endurance (LE) PCIe Workload Accelerator | 775668-B21 |
| HP 1.0TB HH/HL Light Endurance (LE) PCIe Workload Accelerator | 775666-B21 |

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

#### HP Computation and Graphics Accelerators

**NOTE:** Only the below listed Graphics cards are HP standard supported options in this server.

**NOTE:** The ML350p Gen8 supports up to 3 graphic cards. HP Graphic Card Support Kit (660582-B21) will be required per Graphic Card.

**NOTE:** Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.

|                                                  |            |
|--------------------------------------------------|------------|
| HP Graphic Card Support Kit                      | 660582-B21 |
| NVIDIA Quadro K2000 PCIe Graphics Adapter        | 753959-B21 |
| NVIDIA Quadro K4000 PCI-E Graphics Adapter       | 730870-B21 |
| NVIDIA Quadro K5000 PCI-E Graphics Adapter       | 730872-B21 |
| NVIDIA Quadro K6000 PCI-E Graphics Adapter       | 730874-B21 |
| NVIDIA Tesla K40C 12GB Computational Accelerator | 753960-B21 |

**NOTE:** Min/Max rule does not apply to this option. However maximum of Three HP Graphic Card Support Kit can be selected. This Graphic Card Support Kit must be selected along with Graphic cards only.

**NOTE:** For all NVIDIA cards, OS support is for 64-bit versions only; Red Hat Enterprise Linux Server Editions 5.x & 6.x, SUSE Linux Enterprise Server Edition SLES11 SPx, Windows Server 2012 R2

#### HP Security

|                                   |            |
|-----------------------------------|------------|
| HP Trusted Platform Module Option | 488069-B21 |
|-----------------------------------|------------|

**NOTE:** The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: [www.hp.com/go/TPM](http://www.hp.com/go/TPM).

**NOTE:** ProLiant OS pre-installed units will come with the partition required for TPM deployment.

### Additional Options

**NOTE:** The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

HP Security Bezel Kit

660584-B21

**NOTE:** For restricting access to a rack model

#### HP Secure Encryption

HP Secure Encryption No Media E-LTU per Drive

D8S85AAE

**NOTE:** Global except China.

HP Secure Encryption No Media Flexible License per Drive

D8S84A

**NOTE:** China Only.

**NOTE:** For more information about HP Secure Encryption, please visit:

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

#### HP Storage Controllers

##### SAS Controllers

##### HP Smart Array P420 Controller

HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller

631671-B21

HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller

631670-B21

**NOTE:** The HP Smart Array P420 controllers are not supported in Slots 3 and 4.

##### HP Smart Array P421 Controller

HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller

631674-B21

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

631673-B21

##### Smart Array P430 Controller

HP Smart Array P430/2GB FBWC 12Gb 1-port Int SAS Controller

698529-B21

HP Smart Array P430/4GB FBWC 12Gb 1-port Int SAS Controller

698530-B21

**NOTE:** The HP Smart Array P430 controller is not supported in Slots 3 and 4.

##### Smart Array P431 Controller

HP Smart Array P431/2GB FBWC 12Gb 2-ports Ext SAS Controller

698531-B21

HP Smart Array P431/4GB FBWC 12Gb 2-ports Ext SAS Controller

698532-B21

**NOTE:** The HP Smart Array P431 controller is not supported in Slot 2.

##### HP Smart Array P822 Controller

HP Smart Array P822/2GB FBWC 6Gb 2-ports-Int/4-ports Ext SAS Controller

615418-B21

**NOTE:** The HP Smart Array P822 controller is not supported in Slots 1,2,5,6,7,8 or 9. The controller also is not supported in Slot 3 if Slot 4 is populated with a controller.

##### HP Smart Array P830 Controller

HP Smart Array P830/4GB FBWC 12Gb 2-ports Int SAS Controller

698533-B21

##### Optional Upgrades

HP 1GB P-series Smart Array Flash Backed Write Cache

631679-B21

HP 2GB P-series Smart Array Flash Backed Write Cache

631681-B21

HP 512MB P-series Smart Array Flash Backed Write Cache

661069-B21

HP SmartCache No Media 24x7 Technical Support 1 Svr License

D7S26A

HP SmartCache No Media 24x7 Technical Support Flexible License

D7S27A

HP SmartCache No Media 24x7 Technical Support Electronic License

D7S27AAE

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

[http://h18000.www1.hp.com/products/quickspecs/14228\\_na/14228\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14228_na/14228_na.html)  
(Smart Array P420 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14229\\_na/14229\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14229_na/14229_na.html)  
(Smart Array P421 Controller)

[http://h18000.www1.hp.com/products/quickspecs/14624\\_na/14624\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14624_na/14624_na.html)

### Additional Options

(Smart Array P430 Controller)  
[http://h18000.www1.hp.com/products/quickspecs/14625\\_na/14625\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14625_na/14625_na.html)  
 (Smart Array P431 Controller)  
[http://h18000.www1.hp.com/products/quickspecs/14341\\_na/14341\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14341_na/14341_na.html)  
 (Smart Array P822 Controller)  
[http://h18000.www1.hp.com/products/quickspecs/14744\\_na/14744\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14744_na/14744_na.html)  
 (Smart Array P830 Controller)  
[http://h18000.www1.hp.com/products/quickspecs/14532\\_na/14532\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14532_na/14532_na.html)  
 (SmartCache)

#### HP Host Bus Adapters

|                                       |            |
|---------------------------------------|------------|
| HP H220 Host Bus Adapter              | 650933-B21 |
| HP H221 PCIe 3.0 SAS Host Bus Adapter | 729552-B21 |
| HP H222 Host Bus Adapter              | 650926-B21 |

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

[http://h18004.www1.hp.com/products/quickspecs/14336\\_na/14336\\_na.html](http://h18004.www1.hp.com/products/quickspecs/14336_na/14336_na.html)  
 (HBA 220)  
[http://h18004.www1.hp.com/products/quickspecs/14222\\_na/14222\\_na.html](http://h18004.www1.hp.com/products/quickspecs/14222_na/14222_na.html)  
 (HBA 221)  
[http://h18004.www1.hp.com/products/quickspecs/14337\\_na/14337\\_na.html](http://h18004.www1.hp.com/products/quickspecs/14337_na/14337_na.html)  
 (HBA 222)

#### SCSI HBA

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

**NOTE:** Supports external drive attach

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

[http://h18000.www1.hp.com/products/quickspecs/12566\\_na/12566\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html)

### HP Tape Backup

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP tape backup products see: <http://www.hp.com/storage/SPOCK> and <http://www.hp.com/go/ebs>.

**NOTE:** Installation of tape drive requires ordering of 2nd Media Bay Cage, Part Number 661618-B21.

|                                                                 |        |
|-----------------------------------------------------------------|--------|
| HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit | COL99A |
| HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive         | EH963A |
| HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive         | EH964A |
| HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive             | EH969A |
| HP StoreEver LTO-6 Ultrium 6250 External Tape Drive             | EH970A |
| HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader       | COH19A |

### HP Tape Storage Systems

#### HP StoreEver MSL6480

|                                           |        |
|-------------------------------------------|--------|
| HP StoreEver MSL6480 Scalable Base Module | QU625A |
|-------------------------------------------|--------|

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

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

### HP Disk Backup

**NOTE:** For the complete range of RDX drives and media see:

<http://www.hp.com/go/rdx>. For hardware and software compatibility of HP disk backup products see: <http://www.hp.com/storage/SPOCK>.

#### HP RDX Removable Disk Backup Systems USB



### Additional Options

|                                                |        |
|------------------------------------------------|--------|
| HP RDX320 USB3.0 External Disk Backup System   | B7B63A |
| HP RDX500 USB3.0 Internal Disk Backup System   | B7B64A |
| HP RDX500 USB 3.0 External Disk Backup System  | B7B66A |
| HP RDX1000 USB3.0 Internal Disk Backup System  | B7B67A |
| HP RDX1000 USB 3.0 External Disk Backup System | B7B69A |

**NOTE:** Please see the following QuickSpecs for additional models and information:  
[http://h18000.www1.hp.com/products/quickspecs/13036\\_na/13036\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13036_na/13036_na.html)

### HP Disk Storage Systems Disk Enclosures

|                                                                                                                                                                                                                                                                                                                                    |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>HP D3600 Enclosure</b>                                                                                                                                                                                                                                                                                                          | QW968A |
| <b>NOTE:</b> See the D3000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at:<br><a href="http://h18000.www1.hp.com/products/quickspecs/14866_na/14866_na.html">http://h18000.www1.hp.com/products/quickspecs/14866_na/14866_na.html</a> |        |
| <b>HP D3700 Enclosure</b>                                                                                                                                                                                                                                                                                                          | QW967A |
| <b>NOTE:</b> See the D3000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at:<br><a href="http://h18000.www1.hp.com/products/quickspecs/14866_na/14866_na.html">http://h18000.www1.hp.com/products/quickspecs/14866_na/14866_na.html</a> |        |
| <b>HP D2600 Disk Enclosure</b>                                                                                                                                                                                                                                                                                                     | AJ940A |
| <b>NOTE:</b> See the D2000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at:<br><a href="http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html">http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html</a> |        |
| <b>HP D2700 Disk Enclosure</b>                                                                                                                                                                                                                                                                                                     | AJ941A |
| <b>NOTE:</b> See the D2000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at:<br><a href="http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html">http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html</a> |        |
| <b>HP D6000 Dual I/O Module Disk Enclosure</b>                                                                                                                                                                                                                                                                                     | QQ695A |
| <b>NOTE:</b> See the D6000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at:<br><a href="http://h18000.www1.hp.com/products/quickspecs/14419_na/14419_na.html">http://h18000.www1.hp.com/products/quickspecs/14419_na/14419_na.html</a> |        |

### HP Storage Options

**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:  
<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

#### Brocade Fibre Channel HBAs

**NOTE:** HP ProLiant ML350p Gen8 Server series limited support for Red Hat Enterprise Linux 5.7 (x86 and x86\_64) when installing with Brocade HBAs.

|                                                       |        |
|-------------------------------------------------------|--------|
| HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter | AP769B |
| HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter | AP770B |

#### Emulex Fibre Channel HBAs

|                                                                        |        |
|------------------------------------------------------------------------|--------|
| HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter                  | AJ762B |
| HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter                  | AJ763B |
| HP StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter | C8R38A |
| HP StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter   | C8R39A |

#### QLogic Fibre Channel HBAs

|                                                                        |        |
|------------------------------------------------------------------------|--------|
| HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter                  | AK344A |
| HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter                  | AJ764A |
| HP StoreFabric SN1000Q 16GB 1-port PCIe Fibre Channel Host Bus Adapter | QW971A |
| HP StoreFabric SN1000Q 16GB 2-port PCIe Fibre Channel Host Bus Adapter | QW972A |

### Additional Options

#### Converged Network Adapter

|                                                            |        |
|------------------------------------------------------------|--------|
| HP CN1000Q Dual Port Converged Network Adapter             | BS668A |
| HP CN1100E Dual Port Converged Network Adapter             | BK835A |
| HP StoreFabric CN1100R Dual Port Converged Network Adapter | QW990A |

#### HP Uninterruptible Power Systems

#### HP DirectFlow Three Phase UPS

##### Power Unit (1U UPS)

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

|                                                                      |        |
|----------------------------------------------------------------------|--------|
| HP R12000 DirectFlow - 1U Rackmount Uninterruptible Power System     | G9Y75A |
| HP R12000 DirectFlow - POD 1U Rackmount Uninterruptible Power System | AF478A |

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

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

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

|                                                                                     |        |
|-------------------------------------------------------------------------------------|--------|
| HP 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module | AF489A |
| HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS L22-30 Input/Output Module     | AF491A |
| HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module     | AF492A |
| HP 30A 400-415 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module | G9Y76A |

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

#### HP Tower UPS

##### HP T750 G4 UPS Models

|                                               |        |
|-----------------------------------------------|--------|
| HP T750 G4 NA/JP Uninterruptible Power System | J2P85A |
|-----------------------------------------------|--------|

##### HP T1000 G4 UPS Models

|                                                |        |
|------------------------------------------------|--------|
| HP T1000 G4 NA/JP Uninterruptible Power System | J2P86A |
|------------------------------------------------|--------|

##### HP T1500 G4 UPS Models

|                                                |        |
|------------------------------------------------|--------|
| HP T1500 G4 NA/JP Uninterruptible Power System | J2P87A |
|------------------------------------------------|--------|

#### HP Rack/Tower UPS

##### HP R/T2200 G4 UPS Models

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

##### HP R/T3000 G4 UPS Models

|                                                               |        |
|---------------------------------------------------------------|--------|
| HP R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System  | J2R01A |
| HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System | J2R02A |

##### HP R1500 G4 Uninterruptible Power Supply (UPS)

|                                             |        |
|---------------------------------------------|--------|
| HP R1500 G4 NA Uninterruptible Power System | J2Q99A |
|---------------------------------------------|--------|

##### R5000 Uninterruptible Power System (UPS)

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

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

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

##### R7000 Uninterruptible Power System (UPS)

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

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

### Additional Options

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

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

<http://www.upssizer.com>

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

**NOTE:** For additional information on HP Uninterruptible Power Systems please go to: [www.hp.com/servers/rackups](http://www.hp.com/servers/rackups).

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

##### HP Basic Power Distribution Unit: 1U/0U Version

HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU H5M54A

HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU H5M56A

##### HP Basic Power Distribution Unit: Half Height Version

HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU H5M55A

HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU H5M57A

HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU H5M58A

HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU H5M61A

##### HP Basic Power Distribution Unit: Mid Height Version

HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU H5M59A

HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU H5M60A

HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU H5M75A

HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU H5M63A

HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU H5M64A

HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU H5M62A

##### HP Basic Power Distribution Unit: Full Height Version

HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU H5M67A

##### HP Basic Power Distribution Unit: 480/277 Volt Version

HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU H3X08A

HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer H3X09A

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

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

**NOTE:** Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit

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

#### HP Remote Monitored Power Distribution Units (mPDU)

##### HP Remote Monitored Power Distribution Unit: 1U Version

HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU D9N43A

HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU D9N46A

HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU D9N44A

##### HP Remote Monitored Power Distribution Unit: Half Height Version

HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU D9N45A

HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU G9Z05A

HP 7.3kVA 230 Volt IEC309 32A Input (12xC13) INTL Monitored PDU G9Z06A

##### HP Remote Monitored Power Distribution Unit: Mid Height Version

### Additional Options

|                                                                                             |        |
|---------------------------------------------------------------------------------------------|--------|
| HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU                           | D9N47A |
| HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU                  | D9N51A |
| HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU           | D9N52A |
| HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU     | D9N53A |
| <b>HP Remote Monitored Power Distribution Unit: Full Height Version</b>                     |        |
| HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU                            | D9N49A |
| HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19) NA Monitored PDU                  | D9N58A |
| HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU                | D9N61A |
| HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU               | D9N62A |
| HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU             | D9N54A |
| HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU            | D9N59A |
| HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU | G9Z07A |
| HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU                                    | D9N63A |
| <b>HP Environmental Sensor for Remote Monitored PDUs</b>                                    |        |
| HP Environmental Sensor for Remote Monitored and Managed PDUs                               | E2D53A |

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

[http://h18000.www1.hp.com/products/quickspecs/14669\\_na/14669\\_na.html](http://h18000.www1.hp.com/products/quickspecs/14669_na/14669_na.html)

### HP Intelligent Power Distribution Units (iPDU)

#### iPDU Core Units

|                                                                                          |        |
|------------------------------------------------------------------------------------------|--------|
| HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit        | AF520A |
| HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit        | AF521A |
| HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit         | AF522A |
| HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit             | AF533A |
| HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit        | AF523A |
| HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit | AF535A |
| HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit | AF537A |

#### iPDU Kits with Standard Extension Bars

|                                                                             |        |
|-----------------------------------------------------------------------------|--------|
| HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit | AF531A |
| HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit  | AF532A |

#### iPDU Extension Bars

|                                                                 |        |
|-----------------------------------------------------------------|--------|
| HP 5xC13 Intelligent PDU Extension Bar G2 Kit                   | AF547A |
| HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar | AF528A |

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

[http://h18000.www1.hp.com/products/quickspecs/13650\\_na/13650\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13650_na/13650_na.html) (Worldwide)

**NOTE:** Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit:

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

### HP Managed Power

### Half Height Models



### Additional Options

|                                                                                                                                                                                                                                                         |                                                                                              |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------|
| <b>Distribution Units (maPDU)</b>                                                                                                                                                                                                                       | HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU                     | H8B49A |
|                                                                                                                                                                                                                                                         | <b>Full Height Models</b>                                                                    |        |
|                                                                                                                                                                                                                                                         | HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU                             | H8B48A |
|                                                                                                                                                                                                                                                         | HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Managed PDU                              | H8B50A |
|                                                                                                                                                                                                                                                         | HP 7.3kVA 200-240 Volt IEC309 32A Input (20xC13/4xC19) INTL Managed PDU                      | H8B51A |
|                                                                                                                                                                                                                                                         | HP 8.6kVA 208 Volt L15-30 3 Phase Input (18xC13/6xC19) NA/JP Managed PDU                     | H8B52A |
|                                                                                                                                                                                                                                                         | <b>HP 8.6kVA 208 Volt L21-30 3 Phase Input (20xC13/3xC19/1x NEMA 5-20) NA/JP Managed PDU</b> | H8B53A |
|                                                                                                                                                                                                                                                         | HP 11kVA 400 Volt IEC309 16A 3 Phase Input (21xC13/3xC19) INTL Managed PDU                   | H8B54A |
|                                                                                                                                                                                                                                                         | HP 14.4kVA 208V CS8365C 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU                      | H8B55A |
|                                                                                                                                                                                                                                                         | HP 17.3kVA 208V IEC309 60A 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU                   | H8B56A |
| <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:<br><a href="http://www8.hp.com/h20195/v2/GetHtml.aspx?docname=c04376673">http://www8.hp.com/h20195/v2/GetHtml.aspx?docname=c04376673</a><br>(Worldwide) |                                                                                              |        |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>HP Rack Series</b> | <b>HP Intelligent Series Rack</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |
|                       | HP 636 1075mm Pallet Intelligent Rack                                                                                                                                                                                                                                                                                                                                                                                                                                 | BW895A |
|                       | HP 636 1075mm Shock Intelligent Rack                                                                                                                                                                                                                                                                                                                                                                                                                                  | BW896A |
|                       | HP 642 1075mm Pallet Intelligent Rack                                                                                                                                                                                                                                                                                                                                                                                                                                 | BW903A |
|                       | HP 642 1075mm Shock Intelligent Rack                                                                                                                                                                                                                                                                                                                                                                                                                                  | BW904A |
|                       | HP 647 1075mm Pallet Intelligent Rack                                                                                                                                                                                                                                                                                                                                                                                                                                 | BW911A |
|                       | HP 647 1075mm Shock Intelligent Rack                                                                                                                                                                                                                                                                                                                                                                                                                                  | BW912A |
|                       | <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:<br><a href="http://h18000.www1.hp.com/products/quickspecs/14223_na/14223_na.html">http://h18000.www1.hp.com/products/quickspecs/14223_na/14223_na.html</a><br><b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> . |        |

|                        |                                                                                                                                                                                                                                                            |            |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>HP Rack Options</b> | <b>HP LCD8500 1U Rackmount Console Kit Models</b>                                                                                                                                                                                                          |            |
|                        | HP LCD8500 1U US Rackmount Console Kit                                                                                                                                                                                                                     | AF630A     |
|                        | HP LCD8500 1U US TAA Rackmount Console Kit                                                                                                                                                                                                                 | AF645A     |
|                        | <b>HP Location Discovery Services</b>                                                                                                                                                                                                                      |            |
|                        | HP 36U Location Discovery Kit                                                                                                                                                                                                                              | BW945A     |
|                        | HP 42U Location Discovery Kit                                                                                                                                                                                                                              | BW946A     |
|                        | HP 47U Location Discovery Kit                                                                                                                                                                                                                              | BW947A     |
|                        | <b>HP LCD8500 1U Rackmount Console Kit Options</b>                                                                                                                                                                                                         |            |
|                        | HP Kit LCD 1.83m Latch Display Port Cable                                                                                                                                                                                                                  | G7T29A     |
|                        | HP Location Discovery Services LCD8500 Kit                                                                                                                                                                                                                 | TL052A     |
|                        | HP Rack LED Light Kit                                                                                                                                                                                                                                      | BW939A     |
|                        | <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:<br><a href="http://h18000.www1.hp.com/products/quickspecs/14429_na/14429_na.html">http://h18000.www1.hp.com/products/quickspecs/14429_na/14429_na.html</a> |            |
|                        | <b>HP USB Keyboard and Mouse</b>                                                                                                                                                                                                                           |            |
|                        | HP USB BFR with PVC Free US Keyboard/Mouse Kit                                                                                                                                                                                                             | 631341-B21 |
|                        | <b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:                                                                                                                                                            |            |

### Additional Options

[http://h18000.www1.hp.com/products/quickspecs/13792\\_na/13792\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13792_na/13792_na.html)

#### HP Server Console Switches

|                                                      |        |
|------------------------------------------------------|--------|
| HP 0x1x8 G3 KVM Console Switch                       | AF651A |
| HP 0x2x16 G3 KVM Console Switch                      | AF652A |
| HP TAA 0x2x16 G3 KVM Console Switch                  | AF653A |
| HP USB Remote Access Key for G3 KVM Console Switches | AF650A |

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

[http://h18000.www1.hp.com/products/quickspecs/11834\\_na/11834\\_na.html](http://h18000.www1.hp.com/products/quickspecs/11834_na/11834_na.html)

#### HP Server Console Switch G2 with Virtual Media & CAC

|                                                                        |            |
|------------------------------------------------------------------------|------------|
| HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software | AF618A     |
| HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software | AF619A     |
| KVM USB Cnsl Itfc Adapter 1PK ALL                                      | 336047-B21 |

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

[http://h18000.www1.hp.com/products/quickspecs/13475\\_na/13475\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13475_na/13475_na.html)

#### HP IP Console Switch G2 with Virtual Media & CAC

|                                                                     |        |
|---------------------------------------------------------------------|--------|
| HP 1x4 USB/PS2 KVM Console Switch                                   | AF611A |
| HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software  | AF620A |
| HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software | AF621A |
| HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software | AF622A |

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

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

#### Rack Kits

|                                      |            |
|--------------------------------------|------------|
| HP Tower to Rack Conversion Tray Kit | 659488-B21 |
|--------------------------------------|------------|

### HP USB and SD Options

#### HP Flash Media Kits for USB Drives

**NOTE:** HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions

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

#### HP Enterprise Performance Flash Media Kits for Memory Cards

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

#### HP Enterprise Mainstream Flash Media Kits for Memory Cards

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

**NOTE:** Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at:

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

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

[http://h18000.www1.hp.com/products/quickspecs/13971\\_na/13971\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13971_na/13971_na.html)

### HP Care Pack Services

#### Proactive Care

**NOTE:** Collaborative Support plus Proactive services delivered by the onshore, local language Advanced Solution Center (ASC), end-to-end case ownership from a Technical Solution Specialists and Technical Account Manager who remotely



### Additional Options

delivers firmware/software revision management, proactive scans and incident trend reports. Recommended for customers running a virtualized infrastructure and/or customers who desire an enhanced call support experience.

|                                                                                                      |        |
|------------------------------------------------------------------------------------------------------|--------|
| HP 3 year 4 hour 24x7 ProLiant ML350(p) Proactive Care Service                                       | U3A78E |
| HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant ML350(p) Proactive Care Service        | U3A81E |
| HP 3year 4-Hour 24x7 with Comprehensive Defective Material Retention ML350(p) ProactiveCare Service  | U9E67E |
| HP 3 year 6 hour Call To Repair 24x7 ProLiant ML350(p) Proactive Care Service                        | U3A84E |
| HP 3 year 6 hourCallToRepair 24x7 withDefective Media Retention ProLiant ML350(p) Proactive Care SVC | U3A87E |
| HP 3year 24x7 6-HourCall-to-repair ComprehensiveDefectiveMaterialRetention ML350(p) ProactiveCareSVC | U9E70E |
| HP 3 year 4 hour 24x7 ProLiant ML350(p) with Insight Control Proactive Care Service                  | U3N77E |
| HP 3 year 4hr 24x7 with Defective Media Retention ML350(p) with Insight Control Proactive Care SVC   | U3N80E |
| HP 3year 4-Hour 24x7 Comprehensive Defective Material Retention ML350(p) w/IC ProactiveCare Service  | U9E85E |
| HP 3 year 6 hour Call To Repair 24x7 ProLiant ML350(p) with Insight Control Proactive Care Service   | U3N83E |
| HP 3yr 6hrCallToRepair 24x7w/Defective Media Retention ML350(p) w/Insight Control Proactive Care SVC | U3N86E |
| HP 3year 24x7 6-HourCalltorepair ComprehensiveDefectiveMaterialRetention ML350(p)IC ProactiveCareSVC | U9E88E |

#### Installation Services

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

|                                      |        |
|--------------------------------------|--------|
| HP Install ProLiant ML350(p) Service | U4522E |
| HP Startup ProLiant ML350(p) Service | U4523E |

**NOTE:** For more information, customer/resellers can contact:  
<http://www.hp.com/services/carepack>



### Memory

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

#### DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:

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

#### General Guidelines:

- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, balance the total memory capacity between all installed processors
  - Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
  - Heaviest load (DIMM with most ranks) within a channel goes furthest from the processor
- Do not mix UDIMMs, RDIMMs or LRDIMMs
- Quad rank LR DIMMs are supported at 3 DIMMs per channel.
- DIMMs of different voltages (1.35V & 1.5V) may be mixed in any order
  - The system will power them at the higher voltage
- DIMMs of different speed grades may be mixed in any order
  - The system will select a common optimal speed
- Memory speed is a function of the processor QPI bus speed.

#### Population Guidelines:

- There are four (4) channels per processor; eight (8) channels per server
- There are three (3) DIMM slots for each memory channel; twenty-four (24) total slots
- Memory channels 1 and 3 consists of the three (3) DIMMs that are furthest from the processor
- Memory channel 2 and 4 consists of the three (3) DIMMs that are closest to the processor

| ML350p Gen8-IVB Supported Memory Bandwidth and Capacity -- Treaty |                           |      |      |      |                |      |      |      |                        |                                    |      |                |      |      |      |
|-------------------------------------------------------------------|---------------------------|------|------|------|----------------|------|------|------|------------------------|------------------------------------|------|----------------|------|------|------|
| DIMM Type                                                         | Registered DIMMs (RDIMMs) |      |      |      |                |      |      |      | Load Reduced (LRDIMMs) | Unbuffered with ECC DIMMs (UDIMMs) |      |                |      |      |      |
| DIMM Rank                                                         | Single Rank (1R)          |      |      |      | Dual Rank (2R) |      |      |      | Quad Rank (4R)         | Single Rank (1R)                   |      | Dual Rank (2R) |      |      |      |
| DIMM Capacity                                                     | 4GB                       | 4GB  | 8GB  | 8GB  | 8GB            | 8GB  | 16GB | 16GB | 32GB                   | 2GB                                | 2GB  | 4GB            | 4GB  | 8GB  | 8GB  |
| DIMM Native Speed (MHz)                                           | 1600                      | 1866 | 1600 | 1866 | 1600           | 1866 | 1600 | 1866 | 1866                   | 1600                               | 1866 | 1600           | 1866 | 1600 | 1866 |
| Voltage                                                           | LV                        | Std  | LV   | Std  | LV             | Std  | LV   | Std  | Std                    | LV                                 | Std  | LV             | Std  | LV   | Std  |
| SLOTS THAT CAN BE POPULATED                                       |                           |      |      |      |                |      |      |      |                        |                                    |      |                |      |      |      |
| 24 slot servers                                                   | 24                        | 24   | 24   | 24   | 24             | 24   | 24   | 24   | 24                     | 16                                 | 16   | 16             | 16   | 16   | 16   |
| MAXIMUM CAPACITY (GB)*                                            |                           |      |      |      |                |      |      |      |                        |                                    |      |                |      |      |      |
| 24 slot servers                                                   | 96                        | 96   | 192  | 192  | 192            | 192  | 384  | 384  | 768                    | 32                                 | 32   | 64             | 64   | 128  | 128  |

### Memory

| POPULATED DIMM SPEED (MHz) |      |      |      |      |      |      |      |      |         |      |          |      |          |      |          |
|----------------------------|------|------|------|------|------|------|------|------|---------|------|----------|------|----------|------|----------|
| 1 DIMM Per Channel         | 1600 | 1866 | 1600 | 1866 | 1600 | 1866 | 1600 | 1866 | 1866**  | 1600 | 1866     | 1600 | 1866     | 1600 | 1866     |
| 2 DIMM Per Channel         | 1600 | 1866 | 1600 | 1866 | 1600 | 1866 | 1600 | 1866 | 1866**  | 1600 | 1866**** | 1600 | 1866**** | 1600 | 1866**** |
| 3 DIMM Per Channel         | 800  | 1333 | 800  | 1333 | 800  | 1333 | 800  | 1333 | 1333*** | n/a  | n/a      | n/a  | n/a      | n/a  | n/a      |

#### NOTES:

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

To realize the performance memory capabilities listed above HP SmartMemory is required.

\* Maximum capacity will vary based on individual server platform qualification schedule

\*\* For HP SmartMemory RDIMM supports up to 3DPC@1066 at 1.35V. Third party memory may only support up to 3DPC@1066 at 1.5V.

\*\*\* LRDIMM enables 3 DIMMs per channel. HP SmartMemory will supports up to 3DPC@DDR3-1066 at 1.35V. Third party memory may only support 3DPC @DDR3-1066 at 1.5V.

\*\*\*\* For HP SmartMemory, UDIMM is, supported at 2DPC@1333. Third party memory may only support up to 2DPC@1066.

## RBSU setting required

| ML350p Gen8- Xeon® E5-2XXX Supported Memory Bandwidth and Capacity |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
|--------------------------------------------------------------------|---------------------------|--------|--------|----------------|--------|--------|--------|------------------------|------------------------------------|------|----------------|------|---------|------|--|
| DIMM Type                                                          | Registered DIMMS (RDIMMs) |        |        |                |        |        |        | Load Reduced (LRDIMMs) | Unbuffered with ECC DIMMs (UDIMMs) |      |                |      |         |      |  |
| DIMM Rank                                                          | Single Rank (1R)          |        |        | Dual Rank (2R) |        |        |        | Quad Rank (4R)         | Single Rank (1R)                   |      | Dual Rank (2R) |      |         |      |  |
| DIMM Capacity                                                      | 4GB                       | 4GB    | 8GB    | 8GB            | 8GB    | 16GB   | 16GB   | 32GB                   | 2GB                                | 2GB  | 4GB            | 4GB  | 8GB     | 8GB  |  |
| DIMM Native Speed (MHz)                                            | 1333                      | 1600   | 1600   | 1333           | 1600   | 1333   | 1600   | 1333                   | 1333                               | 1600 | 1333           | 1600 | 1333    | 1600 |  |
| Voltage                                                            | LV                        | Std    | Std    | LV             | Std    | LV     | Std    | LV                     | LV                                 | Std  | LV             | Std  | LV      | Std  |  |
|                                                                    |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
| SLOTS THAT CAN BE POPULATED                                        |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
| 24 slot servers                                                    | 24                        | 24     | 24     | 24             | 24     | 24     | 24     | 24                     | 16                                 | 16   | 16             | 16   | 16      | 16   |  |
|                                                                    |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
| MAXIMUM CAPACITY (GB)*                                             |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
| 24 slot servers                                                    | 96                        | 96     | 192    | 192            | 192    | 384    | 384    | 768                    | 32                                 | 32   | 64             | 64   | 128     | 128  |  |
|                                                                    |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
| POPULATED DIMM SPEED (MHz)                                         |                           |        |        |                |        |        |        |                        |                                    |      |                |      |         |      |  |
| 1 DIMM Per Channel                                                 | 1333                      | 1600   | 1600   | 1333           | 1600   | 1333   | 1600   | 1333**                 | 1333                               | 1600 | 1333           | 1600 | 1333    | 1600 |  |
| 2 DIMM Per Channel                                                 | 1333                      | 1600   | 1600   | 1333           | 1600   | 1333   | 1600   | 1333**                 | 1333***                            | 1600 | 1333***        | 1600 | 1333*** | 1600 |  |
| 3 DIMM Per                                                         | 1066**                    | 1333## | 1333## | 1066**         | 1333## | 1066** | 1333## | 1066                   | n/a                                | n/a  | n/a            | n/a  | n/a     | n/a  |  |

|         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

**NOTES:**

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

To realize the performance memory capabilities listed above HP SmartMemory is required.

\* Maximum capacity will vary based on individual server platform qualification schedule

\*\* LRDIMM enables 3 DIMMs per channel. HP SmartMemory will supports up to 3DPC@DDR3-1066 at 1.35V. Third party memory may only support 3DPC @DDR3-1066 at 1.5V.

\*\*\* For HP SmartMemory, UDIMM is, supported at 2DPC@1333. Third party memory may only support up to 2DPC@1066.

| <u>Processor Models</u>                                                            | <u>Supported Memory Speeds</u> |
|------------------------------------------------------------------------------------|--------------------------------|
| E5-2680, E5-2670, E5-2667, E5-2665, E5-2660, E5-2650, E5-2650L, E5-2637            | 1600/1333/1066MHz              |
| E5-2640, E5-2630, E5-2630L, E5-2620                                                | 1333/1066MHz                   |
| E5-2609, E5-2603                                                                   | 1066MHz                        |
| E5-2697 v2, E5-2690 v2, E5-2670 v2, E5-2667 v2, E5-2650 v2, E5-2643 v2, E5-2637 v2 | 1866/1600/1333/1066MHz         |
| E5-2640 v2, E5-2630 v2, E5-2630L v2, E5-2620 v2                                    | 1600/1333/1066MHz              |
| E5-2609 v2, E5-2603 v2                                                             | 1333/1066MHz                   |

| Pre Configured Models | Standard Memory | Maximum Memory Plus<br>Optional Memory | Standard Memory Replaced with<br>Optional Memory |
|-----------------------|-----------------|----------------------------------------|--------------------------------------------------|
| Intel Xeon E5-2640    | 16GB (4x 4GB)   | 336GB (20x16GB, 4x4GB)                 | 768GB (24 x 32GB)                                |
| Intel Xeon E5-2620    | 8GB (2x 4GB)    | 360GB (22x16GB, 2x4GB)                 | 768GB (24 x 32GB)                                |
| Intel Xeon E5-2603    | 4GB (1x 4GB)    | 372GB (23x16GB, 1x4GB)                 | 768GB (24 x 32GB)                                |
| Intel Xeon E5-2640 v2 | 16GB (2x 8GB)   | 336GB (20x16GB, 4x4GB)                 | 768GB (24 x 32GB)                                |
| Intel Xeon E5-2620 v2 | 8GB (1x 8GB)    | 360GB (22x16GB, 2x4GB)                 | 768GB (24 x 32GB)                                |
| Intel Xeon E5-2609 v2 | 4GB (1x 4GB)    | 372GB (23x16GB, 1x4GB)                 | 768GB (24 x 32GB)                                |

### Basic memory slot & population diagram

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

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

### Memory

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

- 16GB, consisting of two (2) 8GB dual-rank PC3L-10600R-9 RDIMMs (Base Model)

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

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

- 48GB, consisting of two (2) 4GB RDIMMs plus ten (10) 4GB RDIMMs (Base Model)
  - 12x 4GB dual-rank PC3L-10600R-9 RDIMMs

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

#### Standard memory replaced with optional memory (1 CPU model)

#### RDIMM maximum configuration (1 CPU model)

### Memory

- 192GB, consisting of twelve (12) 16GB dual-rank PC3L-10600R-9 RDIMMs

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

### UDIMM maximum configuration (1 CPU model)

- 64GB, consisting of eight (8) 8GB dual-rank PC3L-10600E-9 UDIMMs

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

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

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

- 768GB, consisting of twenty four (24) 32GB quad-rank PC3L-10600LR-9 RDIMMs

|        | slot # | population order | slot # | population order |        |
|--------|--------|------------------|--------|------------------|--------|
| Chnl 1 | 1      | A; 32GB RDIMM    | 1      | A; 32GB RDIMM    | Chnl 1 |
|        | 2      | E; 32GB RDIMM    | 2      | E; 32GB RDIMM    |        |

### Memory

|        |                    |               |                    |               |        |
|--------|--------------------|---------------|--------------------|---------------|--------|
|        | 3                  | I; 32GB RDIMM | 3                  | I; 32GB RDIMM |        |
| Chnl 2 | 4                  | B; 32GB RDIMM | 4                  | B; 32GB RDIMM | Chnl 2 |
|        | 5                  | F; 32GB RDIMM | 5                  | F; 32GB RDIMM |        |
|        | 6                  | J; 32GB RDIMM | 6                  | J; 32GB RDIMM |        |
|        | <b>Processor 1</b> |               | <b>Processor 2</b> |               |        |
| Chnl 4 | 7                  | L; 32GB RDIMM | 7                  | L; 32GB RDIMM | Chnl 4 |
|        | 8                  | H; 32GB RDIMM | 8                  | H; 32GB RDIMM |        |
|        | 9                  | D; 32GB RDIMM | 9                  | D; 32GB RDIMM |        |
| Chnl 3 | 10                 | K; 32GB DIMM  | 10                 | K; 32GB DIMM  | Chnl 3 |
|        | 11                 | G; 32GB DIMM  | 11                 | G; 32GB DIMM  |        |
|        | 12                 | C; 32GB DIMM  | 12                 | C; 32GB DIMM  |        |

### UDIMM maximum configuration (2 CPU model)

- 128GB, consisting of sixteen (16) 8GB dual-rank PC3L-10600E-9 UDIMMs

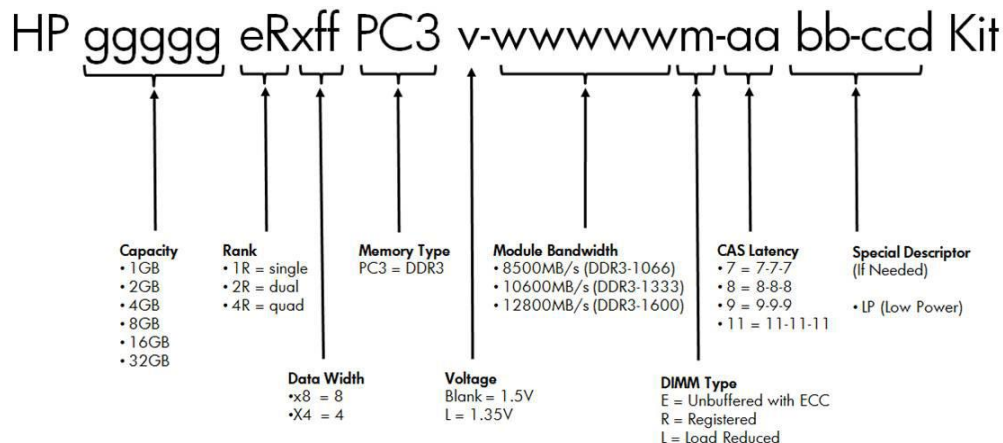
|        | <b>CPU1</b>        |                  | <b>CPU2</b>        |                  |        |
|--------|--------------------|------------------|--------------------|------------------|--------|
|        | slot #             | population order | slot #             | population order |        |
| Chnl 1 | 1                  | A; 8GB UDIMM     | 1                  | A; 8GB UDIMM     | Chnl 1 |
|        | 2                  | E; 8GB UDIMM     | 2                  | E; 8GB UDIMM     |        |
|        | 3                  | I; empty         | 3                  | I; empty         |        |
| Chnl 2 | 4                  | B; 8GB UDIMM     | 4                  | B; 8GB UDIMM     | Chnl 2 |
|        | 5                  | F; 8GB UDIMM     | 5                  | F; 8GB UDIMM     |        |
|        | 6                  | J; empty         | 6                  | J; empty         |        |
|        | <b>Processor 1</b> |                  | <b>Processor 2</b> |                  |        |
| Chnl 4 | 7                  | L; empty         | 7                  | L; empty         | Chnl 4 |
|        | 8                  | H; 8GB UDIMM     | 8                  | H; 8GB UDIMM     |        |
|        | 9                  | D; 8GB UDIMM     | 9                  | D; 8GB UDIMM     |        |
| Chnl 3 | 10                 | K; empty         | 10                 | K; empty         | Chnl 3 |
|        | 11                 | G; 8GB UDIMM     | 11                 | G; 8GB UDIMM     |        |
|        | 12                 | C; 8GB UDIMM     | 12                 | C; 8GB UDIMM     |        |

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

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

### DDR3 memory options part number decoder

### Memory



### Following are memory options available from HP:

#### HP Memory

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

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

#### Registered DIMMs (RDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 713981-B21 |
| HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit              | 708637-B21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit   | 713983-B21 |
| HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 731765-B21 |
| HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit                | 708639-B21 |
| HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit              | 731761-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit | 713985-B21 |
| HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit              | 708641-B21 |

#### Registered DIMMs (RDIMMs)

**NOTE:** The following memory is supported by the E5-2600 series Processors.

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



### Memory

#### Memory Kit

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

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit | 713975-B21 |
| HP 2GB (1x2GB) Single Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit              | 708631-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit   | 713977-B21 |
| HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit                | 708633-B21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit   | 713979-B21 |
| HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit                | 708635-B21 |

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** The following memory is supported by the E5-2600 series Processors.

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

#### Load Reduced DIMMs (LRDIMMs)

**NOTE:** The following memory is supported by the E5-2600 v2 series Processors.

|                                                                                     |            |
|-------------------------------------------------------------------------------------|------------|
| HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit | 708643-B21 |
|-------------------------------------------------------------------------------------|------------|

#### Load Reduced DIMMs (LRDIMMs)

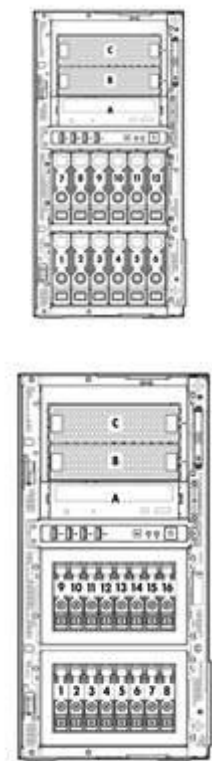
**NOTE:** The following memory is supported by the E5-2600 series Processors.

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

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

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

### Storage



1 - 12      12 x 3.5" (LFF) Hot-Plug SAS/SATA hard drive bays  
**NOTE:** Optional 2nd hard drive cage shown in configuration.

A      Optical Drive  
B-C      Available half height media bays, for up to two half height optical/tape drives or a single full height tape drive, or both can be populated with a third hard drive cage

1-16      16 x 2.5" (SFF) Hot-Plug SAS/SATA hard drive bays  
**NOTE:** Optional 2nd hard drive cage shown in configuration

A      Optical Drive  
B-C      Available half height media bays, for up to two half height optical/tape drives or a single, full height tape drives, or both can be populated with a third hard drive cage

### Technical Specifications

|                    |                                                             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------|-------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>System Unit</b> | <b>Tower Dimensions</b><br>(H x W x D)<br>(with feet/bezel) | 18.19 x 8.58 x 29.13 in (46.2 x 21.8 x 74.0 cm)                              |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                    | <b>Rack Dimensions</b><br>(H x W x D)<br>(with feet/bezel)  | 8.58 x 19.0 x 28.83 in. (21.8 x 48.26 x 73.22cm)                             |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                    | <b>Tower Weight</b><br>(approximate)                        | Maximum<br>(all hard drives, power<br>supplies, and processors<br>installed) | 114.84 lb (52.09 kg)                                                                                                                                                                                                                                                                                                                                                                                                      |
|                    |                                                             | Minimum<br>(one hard drive, power<br>supply, and processor<br>installed)     | 70.33 lb (31.9 kg)                                                                                                                                                                                                                                                                                                                                                                                                        |
|                    | <b>Rack Weight</b><br>(approximate)                         | Maximum<br>(all hard drives, power<br>supplies, and processors<br>installed) | 110.36 lb (50.06 kg)                                                                                                                                                                                                                                                                                                                                                                                                      |
|                    |                                                             | Minimum<br>(one hard drive, power<br>supply, and processor<br>installed)     | 60.91 lb (27.63 kg)                                                                                                                                                                                                                                                                                                                                                                                                       |
|                    | <b>Input Requirements</b><br>(per power supply)             | Rated Line Voltage                                                           | 100 to 240 VAC                                                                                                                                                                                                                                                                                                                                                                                                            |
|                    |                                                             | Rated Input Current                                                          | 7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)                                                                                                                                                                                                                                                                                                                                                                             |
|                    |                                                             | Rated Input Frequency                                                        | 50 to 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                               |
|                    |                                                             | Rated Input Power                                                            | 852 W                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                    | <b>BTU Rating</b>                                           | Maximum                                                                      | 460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)<br>750W - 2892 BTU / hr (at 120 VAC), 2797 (at 240 VAC)<br>1200W - 3530 BTU / hr (at 120 VAC), 4600 (at 240 VAC)                                                                                                                                                                                                                                                     |
|                    | <b>Power Supply Output</b><br>(per power supply)            | Rated Steady-State Power                                                     | 460(750) W (at 100 VAC),<br>460(750) W (at 200 VAC)                                                                                                                                                                                                                                                                                                                                                                       |
|                    |                                                             | Maximum Peak Power                                                           | 460(750) W (at 100 VAC),<br>460(750) W (at 200 VAC)                                                                                                                                                                                                                                                                                                                                                                       |
|                    | <b>System Inlet Temperature</b>                             | Operating                                                                    | 10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed.<br>System performance may be reduced if operating with a fan fault or above 30°C (86°F). |
|                    |                                                             | Non-operating                                                                | -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).                                                                                                                                                                                                                                                                                                                                                |
|                    | <b>Relative Humidity</b><br>(non-condensing)                | Operating                                                                    | 10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.                                                                                                                                                                                                                                                                                                                             |

### Technical Specifications

|                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 457 m/min (1500 ft/min). |
|                                                                                                                                                                                                                                        | Non-operating                                                                                                                                                                                                                                                                                                                      | 9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).                                                                        |
| <b>Acoustic Noise</b>                                                                                                                                                                                                                  | Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). |                                                                                                                                                               |
|                                                                                                                                                                                                                                        | Idle                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                               |
|                                                                                                                                                                                                                                        | L WAd                                                                                                                                                                                                                                                                                                                              | 3.9 Bels (1P Non-Redundant)<br>4.2 Bels (2P Redundant)                                                                                                        |
|                                                                                                                                                                                                                                        | L pAm                                                                                                                                                                                                                                                                                                                              | 22 dBA (1P Non-Redundant)<br>24 dBA (2P Redundant)                                                                                                            |
|                                                                                                                                                                                                                                        | Operating                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                               |
|                                                                                                                                                                                                                                        | L WAd                                                                                                                                                                                                                                                                                                                              | 4.0 Bels (1P Non-Redundant)<br>4.8 Bels (2P Redundant)                                                                                                        |
|                                                                                                                                                                                                                                        | L pAm                                                                                                                                                                                                                                                                                                                              | 22 dBA (1P Non-Redundant)<br>30 dBA (2P Redundant)                                                                                                            |
| <b>Emissions Classification (EMC)</b>                                                                                                                                                                                                  | <b>NOTE:</b> The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.                                                                                                                                                                                           |                                                                                                                                                               |
|                                                                                                                                                                                                                                        | <b>FCC Rating</b>                                                                                                                                                                                                                                                                                                                  | Class B                                                                                                                                                       |
|                                                                                                                                                                                                                                        | <b>Normative Standards</b>                                                                                                                                                                                                                                                                                                         | 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. |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                               |

### HP Smart Array P420i Controller

|                                                           |                                                                                                                                             |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dimensions</b>                                         | Embedded                                                                                                                                    |
| <b>Disk Drive and Enclosure Interface - Transfer rate</b> | 6Gb/s SAS (Serial Attached SCSI)<br>3Gb/s SATA (Serial ATA)                                                                                 |
| <b>SAS Connectors</b>                                     | 2 internal 4X connectors                                                                                                                    |
| <b>Cache Memory Speed</b>                                 | DDR3-1333MHz with 40 or 72-bit wide bus                                                                                                     |
| <b>Server Interface</b>                                   | x8 PCIe 3.0 provides 32.0GB/s maximum bandwidth                                                                                             |
| <b>SAS Speed</b>                                          | 8 6Gb/s SAS links provide 4.8GB/s maximum bandwidth                                                                                         |
| <b>Cache Memory</b>                                       | Zero Memory RAID has no cache memory<br>40-bit 512MB ECC protected Flash Backed Write Cache (FBWC)<br>72-bit 1GB and 2GB ECC protected FBWC |
| <b>Logical Drives Supported</b>                           | Zero Memory, Up to 2 logical volumes (8 physical drives)<br>Up to 64 logical drives with cache                                              |
| <b>Host Memory Addressing</b>                             | 64-bit, supporting greater than 4GB server memory space                                                                                     |

### Technical Specifications

|                                                   |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|---------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>HP Ethernet 1Gb 4-port 331i Adapter</b>        | <b>RAID Support</b>                         | RAID 6, 60 (Advanced Data Guarding)<br>RAID 5, 50 (Distributed Data Guarding)<br><b>NOTE:</b> A minimum of 512 MB cache is required to enable RAID 5, 50, 6, 60.<br><b>NOTE:</b> HP Smart Array Advanced Pack (SAAP 2.0) is no longer required to enable RAID 6 & 60 (Advanced Data Guarding). However, controller must be in firmware version 4.68 (or later).<br>RAID 1+0 (Striping & Mirroring)<br>RAID 0 (Striping), RAID 1 (Mirroring)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                   | <b>Network Interface Compatibility</b>      | 10Base-T/100Base-TX/1000Base-TX<br>IEEE 802.3 10Base-T<br>IEEE 802.3ab 1000Base-T<br>IEEE 802.3u 100Base-TX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                   | <b>Data Transfer Method Controller</b>      | PCI Express, two lanes (x2)<br>BCM5719                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                   | <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) 1000Mb/s per port, 4000 Mb/s Combined<br>1000 Base-TX (Full-Duplex) 2000Mb/s per port, 8000 Mb/s Combined                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|                                                   | <b>Connector Cable Support</b>              | RJ-45<br>10Base-T Categories 3, 4 or 5 UTP; up to 328 ft (100 m)<br>10/100/1000Base-TX Category 5 or better; up to 328 ft (100 m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Environment-friendly Products and Approach</b> | <b>End-of-life Management and Recycling</b> | <p>Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.</p> |  |

### Summary of Changes

| Date        | Version History       | Action  | Description of Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|-----------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17-Aug-2015 | From Version 56 to 57 | Changed | Basic memory slot & population diagram was revised.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 01-Jun-2015 | From Version 55 to 56 | Added   | New Hard Drives were added to Core Options.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|             |                       | Removed | Obsolete SKUs were removed from Configuration Information - Factory Integrated Models, Core Options, and Additional Options.                                                                                                                                                                                                                                                                                                                                                          |
| 30-Mar-2015 | From Version 54 to 55 | Added   | New Hard Drives were added to Core Options.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 09-Feb-2015 | From Version 53 to 54 | Added   | New Hard Drives, DirectFlow UPS, Rack and Tower G4 Models, LCD8500 1U Rackmount Models and Options were added to the Additional Options section.                                                                                                                                                                                                                                                                                                                                      |
|             |                       | Changed | HP Uninterruptible Power Systems, HP Rack Options, and HP Care Pack Services in Additional Options section were revised.                                                                                                                                                                                                                                                                                                                                                              |
| 01-Dec-2014 | From Version 52 to 53 | Added   | HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive and HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive were added to HP Hard Drives.                                                                                                                                                                                                                                                       |
|             |                       | Removed | HP 3 year ISS ProactiveCare Personalized Support was removed from HP Care Pack Services.                                                                                                                                                                                                                                                                                                                                                                                              |
| 01-Nov-2014 | From Version 51 to 52 | Changed | Service and Support section was revised.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 29-Sep-2014 | From Version 50 to 51 | Added   | New Solid State Drives were added.<br>HP Managed Power Distribution Units (maPDU) was added to Additional Options.                                                                                                                                                                                                                                                                                                                                                                    |
|             |                       | Changed | Service and Support section was revised.<br>HP Hard Drives was revised in Core Options section.                                                                                                                                                                                                                                                                                                                                                                                       |
| 18-Aug-2014 | From Version 49 to 50 | Added   | New Hard Drives were added.<br>HP Remote mPDUs half height version were added.                                                                                                                                                                                                                                                                                                                                                                                                        |
|             |                       | Changed | Standard Features, Pre-configured Models, Configuration Information - Factory Integrated Models, Core Options, and Memory sections were revised.                                                                                                                                                                                                                                                                                                                                      |
|             |                       | Removed | HP StoreOnce Backup systems was removed from Additional Options section.                                                                                                                                                                                                                                                                                                                                                                                                              |
| 27-Jun-2014 | From Version 48 to 49 | Changed | Matching WW version with NA since changes were made in North America and Canada only                                                                                                                                                                                                                                                                                                                                                                                                  |
| 10-Jun-2014 | From Version 47 to 48 | Added   | Pre-Configured Models – Added Accessories to 736968-xx1 model.<br>Core Options – Added 6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives and 6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives.<br>Core Options – Added 12G SAS VE SFF (2.5-inch) SC EV Solid State Drives and 12G SAS VE LFF (3.5-inch) SCC EV Solid State Drives.<br>Additional Options – Added Light Endurance (LE) PCIe Workload Accelerators. |
|             |                       | Changed | Additional Options and Memory were revised.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|             |                       | Removed | Core Options – Removed 690829-B21, 690825-B21, 653082-B21 and 653078-B21 from Hard Drives.<br>Additional Options – T9082AAE and 452151-B21 removed from HP Insight Software.                                                                                                                                                                                                                                                                                                          |
| 09-May-2014 | From Version 46 to 47 | Changed | Memory, Hard Drives, Storage Controllers, and Basic and Remote Monitoring Power Distribution Units were revised.                                                                                                                                                                                                                                                                                                                                                                      |
| 11-Apr-2014 | From Version 45 to 46 | Changed | Changes were made in North and America and Canada only.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 31-Mar-2014 | From Version 43 to 45 | Changed | HP Computation and Graphics Accelerators were added<br>HP Hard Drives, HP InfiniBand, HP Insight Software, HP Secure Encryption, HP Storage Controllers, HP Tape Storage Systems, HP Disk Storage Systems, and HP USB and SD Options were revised                                                                                                                                                                                                                                     |
| 21-Feb-2014 | From Version 42 to 43 | Changed | Changes made in the North America and Canada versions only.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 18-Feb-2014 | From Version 41 to 42 | Changed | Hard Drives, HP InfiniBand, and Storage Controllers were revised                                                                                                                                                                                                                                                                                                                                                                                                                      |

### Summary of Changes

|             |                       |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                       |                 | HP Secure Encryption was added to Additional Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 09-Jan-2014 | From Version 40 to 41 | Added           | Added: Support E5-2680 v2 Intel IvyBridge processor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 09-Dec-2013 | From Version 39 to 40 | Changed         | HP StoreVirtual VSA was added to Standard Features<br>Processor Upgrade Kit was added to Processors<br>HP 1.2TB 6G SAS 10K rpm SFF SC Dual Port Enterprise 3yr Warranty Hard Drive was added to Hard Drives<br>HP Tape and Disk Storage Systems were added to Additional Options<br>HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA was removed from HP InfiniBand<br>First Generation Accelerators was removed from HP I/O Accelerator Options<br>NVIDIA Quadro 4000 2GB and 6000 6GB PCI-E Adapters was removed from Graphics Options<br>HP USB and SD Options were revised |
| 01-Nov-2013 | From Version 38 to 39 | Changed         | Changed a note in the Models section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 25-Oct-2013 | From Version 37 to 38 | Changed         | Change made in the Models section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 11-Oct-2013 | From Version 36 to 37 | Added           | HP 300 GB and 600 GB SATA Value Endurance SFF and LFF Enterprise Boot Solid State Drives were added to Hard Drives<br>Mainstream Endurance (ME) PCIe Workload Accelerators were added to HP PCIe Workload Accelerator Options<br>HP Remote Monitoring Power Distribution Units were added to Additional Options                                                                                                                                                                                                                                                                     |
| 03-Oct-2013 | From Version 35 to 36 | Changed         | Correction made in the Models section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 24-Sep-2013 | From Version 34 to 35 | Changed         | Changes were made in Configuration Information and Core Options Sections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12-Sep-2013 | From Version 33 to 34 | Changed         | Changes made in the North America and Canada versions only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 10-Sep-2013 | From Version 32 to 33 | Added           | E5-2600 v2 series Processors, Memory, Controllers, and NICs were added<br>Canonical Ubuntu was added to Operating Systems and Virtualization Software Support for ProLiant Servers<br>Smart Array P430 and P431 Controllers were added to Storage Controllers<br>HP StoreFabric SN1100E and CN1100R Fibre Channel Host Bus Adapters were added to HP Storage Options                                                                                                                                                                                                                |
| 15-Jul-2013 | From Version 31 to 32 | Changed         | HP Disk Backup was revised in Additional Options.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 14-Jun-2013 | From Version 30 to 31 | Changed         | Changes made in the North America and Canada versions only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 31-May-2013 | From Version 29 to 30 | Changed         | Changes made in the North America and Canada versions only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 23-May-2013 | From Version 28 to 29 | Changed         | Corrected a broken link in the Storage Controllers section of Additional Options.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 15-May-2013 | From Version 27 to 28 | Added           | Additional Options: Added HP PCIe Workload Accelerator Options and HP Basic Power Distribution Units section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|             |                       | Changed         | Standard Features: Updated Maximum Internal Storage section.<br>Core Options: Updated HP Hard Drives section.<br>Additional Options: Updated HP Graphics Options, HP Rack Options, HP USB and SD Options and HP Care Pack Services sections.                                                                                                                                                                                                                                                                                                                                        |
| 12-Apr-2013 | From Version 26 to 27 | Added           | Added to a Note in the Hard Drives section of Options.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 25-Mar-2013 | From Version 25 to 26 | Removed         | Additional Options: Removed 641027-B21, 600279-B21 and 600282-B21 from the Accelerator Options section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 26-Feb-2013 | From Version 24 to 25 | Changed / Added | Changes made in the following sections:<br>Optional Features - HP Insight Management, Added Storage Software,<br>Configuration Information - Step 3<br>Core Options - Hard Drives, HP Insight Software, HP I/O Accelerator Options, HP Tape Backup, HP Storage Options, HP Care Pack                                                                                                                                                                                                                                                                                                |



### Summary of Changes

|             |                       |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|-----------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                       |         | Services                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 25-Jan-2013 | From Version 23 to 24 | Changed | A correction was made to update a description in the Hard Drives section of Core Options.                                                                                                                                                                                                                                                                                                                                                              |
| 04-Jan-2013 | From Version 22 to 23 | Added   | Added a NOTE to the Hard Drives Kits section of Core Options.                                                                                                                                                                                                                                                                                                                                                                                          |
| 10-Dec-2012 | From Version 21 to 22 | Added   | HP Power Distribution Units and HP Intelligent Power Distribution Units (iPDU) sections                                                                                                                                                                                                                                                                                                                                                                |
|             |                       | Changed | Updated What's New<br>Updated HP Insight Management Software throughout the document.<br>Updated Hard Drives<br>Revised HP Tape Backup and HP Disk Backup<br>Revised HP Rack Options, specifically the Keyboards and Monitors section, USB Keyboard and Mouse section, HP Server Console Switch G2 with Virtual Media & CAC and HP IP Console Switch G2 with Virtual Media & CAC<br>In Storage/HP SCSI Tape Drives, updated the name of the controller |
|             |                       | Removed | Removed HP Performance Packs from Step 3 of Configuration Information.<br>Removed HP Backup & Recovery Software                                                                                                                                                                                                                                                                                                                                        |
| 26-Oct-2012 | From Version 20 to 21 | Changed | Changes were made in Standard Features and Models sections.                                                                                                                                                                                                                                                                                                                                                                                            |
| 24-Sep-2012 | From Version 19 to 20 | Changed | Changes were made in Standard Features, Optional Features and Technical Specifications sections.                                                                                                                                                                                                                                                                                                                                                       |
| 22-Aug-2012 | From Version 18 to 19 | Changed | Changes made in Standard Features, Core Options, Memory and Storage sections.                                                                                                                                                                                                                                                                                                                                                                          |
| 15-Aug-2012 | From Version 17 to 18 | Changed | Changes made in Standard Features, Core Options, Memory and Storage sections.                                                                                                                                                                                                                                                                                                                                                                          |
| 14-Aug-2012 | From Version 16 to 17 | Changed | Changes made to the North America and Canada versions only.                                                                                                                                                                                                                                                                                                                                                                                            |
| 13-Aug-2012 | From Version 14 to 16 | Changed | Changes made throughout the entire QuickSpecs.                                                                                                                                                                                                                                                                                                                                                                                                         |
| 10-Jul-2012 | From Version 13 to 14 | Changed | Change made within the Models section only.                                                                                                                                                                                                                                                                                                                                                                                                            |
| 15-Jun-2012 | From Version 11 to 12 | Added   | Added Notes to Standard Features, Configuration Information and Core Options sections.                                                                                                                                                                                                                                                                                                                                                                 |
| 05-Jun-2012 | From Version 10 to 11 | Changed | Changes made within the Models, Memory and Storage sections.                                                                                                                                                                                                                                                                                                                                                                                           |
| 04-Jun-2012 | From Version 9 to 10  | Changed | Changes made throughout the entire QuickSpecs.                                                                                                                                                                                                                                                                                                                                                                                                         |
| 18-May-2012 | From Version 8 to 9   | Changed | Changes made to the Processors section of Standard Features.                                                                                                                                                                                                                                                                                                                                                                                           |
| 14-May-2012 | From Version 7 to 8   | Changed | HP Insight Software was revised.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 06-Apr-2012 | From Version 6 to 7   | Changed | Changes made in the Additional Options and Memory sections only.                                                                                                                                                                                                                                                                                                                                                                                       |
| 30-Mar-2012 | From Version 5 to 6   | Changed | Changes made in the Models, Additional Options and Memory sections.                                                                                                                                                                                                                                                                                                                                                                                    |
| 26-Mar-2012 | From Version 4 to 5   | Changed | Changes made in the Additional Options section.                                                                                                                                                                                                                                                                                                                                                                                                        |
| 16-Mar-2012 | From Version 3 to 4   | Changed | Changes made in the Core Options section.                                                                                                                                                                                                                                                                                                                                                                                                              |
| 13-Mar-2012 | From Version 2 to 3   | Changed | Memory section was updated.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 07-Mar-2012 | From Version 1 to 2   | Changed | Changes made in the Additional Options and Storage sections.                                                                                                                                                                                                                                                                                                                                                                                           |

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### Summary of Changes

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