

### Overview

### HPE ProLiant DL560 Gen10 Server

The HPE ProLiant DL560 Gen10 Server is a high-density, four-socket (4S) server with high performance, scalability and reliability, all in a 2U chassis. Supporting the latest 2<sup>nd</sup> generation Intel® Xeon® Scalable processors, the HPE ProLiant DL560 Gen10 Server offers greater processing power, up to 6 TB of faster memory, IO of up to eight PCIe 3.0 slots, up to 12 TB of HPE Persistent Memory plus the intelligence and simplicity of automated management with HPE OneView and HPE iLO 5.

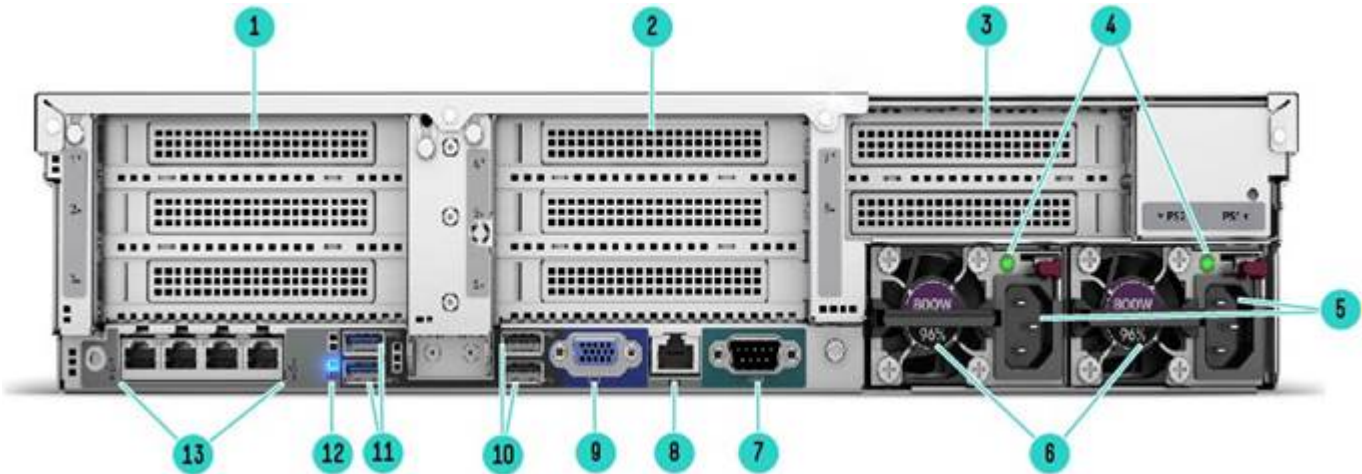
The HPE ProLiant DL560 Gen10 Server is the ideal server for business critical workloads, virtualization, server consolidation, database, business processing, and general 4P data-intensive applications where data center space and the right performance are paramount.



**HPE ProLiant DL560 Gen10 Server - Front View**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Optional Optical drive. Requires Universal Media bay</li> <li>2. Quick removal access panel</li> <li>3. Power On/Standby button and system power LED button</li> <li>4. Health LED</li> <li>5. NIC status</li> <li>6. UID button</li> <li>7. iLO Front Service Port</li> <li>8. USB 3.0</li> </ol> | <ol style="list-style-type: none"> <li>9. Serial label pull tag</li> <li>10. Drive Box 3. (8 SFF or 6SFF+2NVMe optional)</li> <li>11. Drive Box 2. (8 SFF or 6SFF+2NVMe or 8 NVMe SSD optional)</li> <li>12. Drive Box 1.(Optional Universal Media bay or 8 SFF bay or 6 SFF+2NVMe optional)</li> <li>13. Optional front Display Port(via Universal Media Bay)</li> <li>14. Optional 2 SFF HDD, requires optional Universal Media bay</li> <li>15. Optional USB 2.0 (via Universal Media Bay)</li> </ol> |
|--|--|

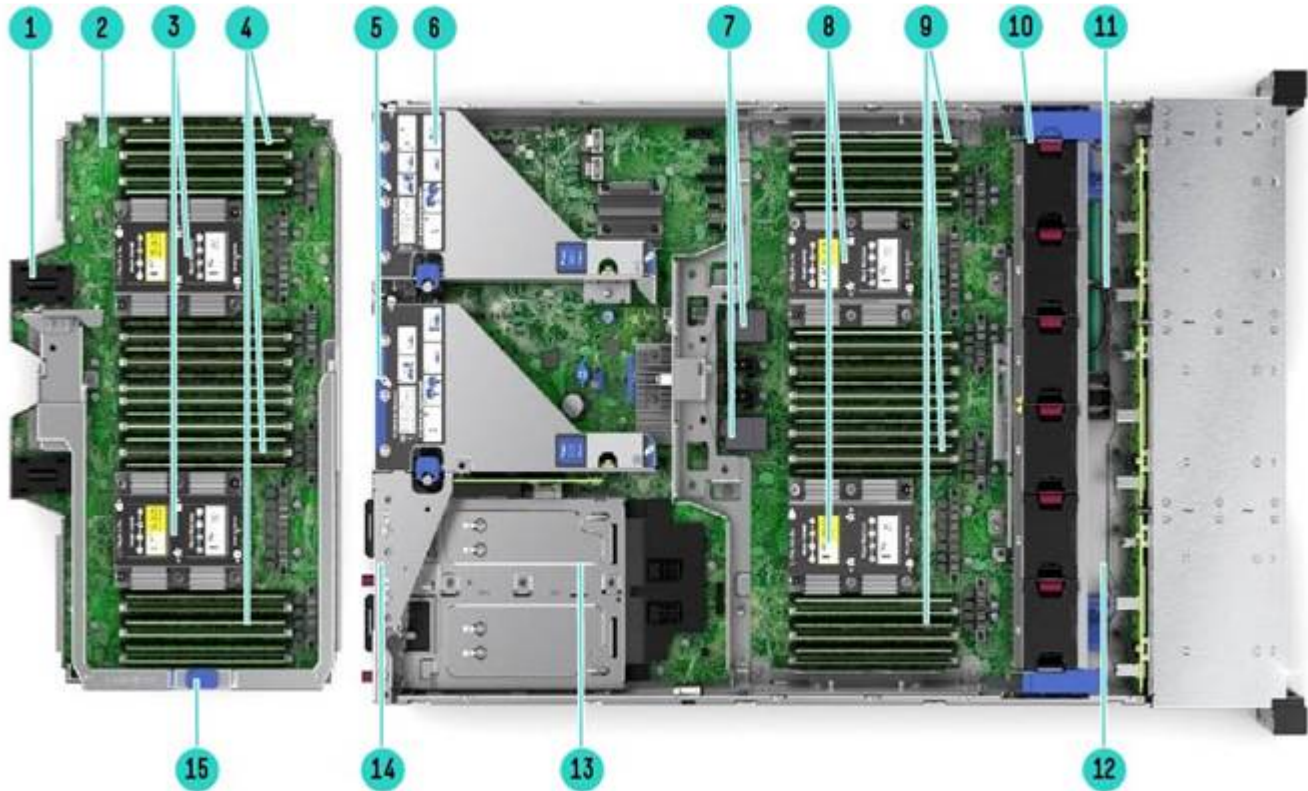
### Overview



### Rear View - DL560 Gen10

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|--|--|
| 1. PCIe Slots (Slots 1-3 top to bottom, riser shipped standard)  | 8. Dedicated iLO connector                   |
| 2. PCIe Slots (Slots 4-6 top to bottom, requires second riser card and second processor)   | 9. VGA (video) connector                     |
| 3. PCIe Slots (Slots 7-8 top to bottom), requires tertiary riser card and second processor, Not available with 4x Flex Slot power supplies | 10. USB connectors 2.0 (2)                   |
| 4. Power supply power LEDs   | 11. USB connectors 3.0 (2)                   |
| 5. Power supply power connections  | 12. Unit ID LED                              |
| 6. HPE Flexible Slot Power Supply bay 1 and 2 (800W PS shown)  | 13. FlexibleLOM ports (Port 1 on right side) |
| 7. Serial connector  |  |

### Overview



**Internal View: DL560 Gen10 with upper CPU mezzanine tray**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Left connector used for DL560 4-port NVMe Mezzanine card (Daughter card)</li> <li>2. Upper CPU Mezzanine Board Kit</li> <li>3. 2 Processors, heatsink showing on upper CPU mezzanine board kit</li> <li>4. DDR4 DIMM slots on upper CPU mezzanine board kit. Shown fully populated in 24 slots (12 per processor)</li> <li>5. Optional secondary PCIe riser</li> <li>6. Default primary PCIe riser</li> <li>7. UPI connectors for upper CPU mezzanine board kit</li> <li>8. 2 Processors, heatsink showing</li> </ol> | <ol style="list-style-type: none"> <li>9. DDR4 DIMM slots. Shown fully populated in 24 slots (12 per processor)</li> <li>10. Fan cage shown with 6 standard Hot-plug fans</li> <li>11. HPE Smart Storage Battery 1 or HPE Smart Storage Hybrid Capacitor</li> <li>12. HPE Smart Storage Battery 2</li> <li>13. (Under) Hot Plug redundant HPE Flexible Slot Power supplies</li> <li>14. Optional Tertiary riser</li> <li>15. Handle for removing upper CPU Mezzanine Board Kit</li> </ol> |
|---|---|

### What's New

- New HPE 32GB 1Rx4 PC4-2933Y-R Memory Kit
- New 960GB/1.92TB/3.84TB Mixed Use SSDs

### Overview

#### Platform Information

##### Form Factor

- 2U Rack Form Factor

**Notes:** Entry, Base and Performance pre-configured models ship with Gen10 Easy Install Rail Kits and Cable Management Assembly

##### Chassis Types

- 24 SFF with optional Universal Media Bay

##### Notes:

- The Universal Media Bay (872267-B21) is not available with the 24 SFF front end, and can only be populated in Box 1.
- The 8 SFF can be upgraded with a drive cage to 16 or 24 SFF with field upgrades. For optimal upgrade Box 2 should be populated second, with Box 1 the last to be populated for a field upgrade to 24 SFF.
- All pre-configured models come with embedded software RAID support for 10 SATA drives. Optional HPE Smart Array Controllers can be added.

##### System Fans

- 6 Hot Plug Fans (with N+1 redundancy)

**Notes:** 6 hot plug fans are shipped as standard.

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### Standard Features

#### Processors

One, two or four of the following depending on model.

##### Notes:

- The 2nd digit of the processor model number "x1xx" and "x2xx" is used to denote the processor generation (i.e. 1=1st generation and 2=2nd generation)
- This table covers the public Intel offering only.
- For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>.

| Processor Suffix | Description          | Offering   |
|------------------|----------------------|--|
| <b>L</b>         | Large memory tier    | Up to 4.5 TB addressable memory per socket   |
| <b>M</b>         | Medium memory tier   | Up to 2.0 TB addressable memory per socket   |
| <b>N</b>         | NFV Optimized        | Targeted at Network Function Virtualization (NFV) workloads. Intel® Speed Select Technology-Base Frequency improves performance by directing base frequency to high priority/bottleneck cores. |
| <b>S</b>         | Search Optimized     | Optimized base frequency to address 'search' workloads.  |
| <b>V</b>         | VM Density Optimized | Fosters enhanced VM density, allowing to support more/larger virtual machines per host.  |
| <b>Y</b>         | Speed Select         | Intel® Speed Select Technology -Performance Profile increases base frequency when less cores are enabled. Allows greater flexibility, deployment options and platform longevity.               |

#### Platinum Processors - 2nd Generation Intel® Xeon® Scalable Processor Family

| Intel Xeon Models        | CPU Frequency | Cores | L3 Cache (MB) | Power | UPI           | DDR4      | Memory per socket |
|--------------------------|---------------|-------|---------------|-------|---------------|-----------|-------------------|
| Platinum 8280L Processor | 2.7GHz        | 28    | 38.5          | 205W  | 3 @ 10.4 GT/s | 2933 MT/s | 4.5TB             |
| Platinum 8280M Processor | 2.7GHz        | 28    | 38.5          | 205W  | 3 @ 10.4 GT/s | 2933 MT/s | 2TB               |
| Platinum 8280 Processor  | 2.7GHz        | 28    | 38.5          | 205W  | 3 @ 10.4 GT/s | 2933 MT/s | 1TB               |
| Platinum 8276M Processor | 2.2GHz        | 28    | 38.5          | 165W  | 3 @ 10.4 GT/s | 2933 MT/s | 2TB               |
| Platinum 8276L Processor | 2.2GHz        | 28    | 38.5          | 165W  | 3 @ 10.4 GT/s | 2933 MT/s | 4.5TB             |
| Platinum 8276 Processor  | 2.2GHz        | 28    | 38.5          | 165W  | 3 @ 10.4 GT/s | 2933 MT/s | 1TB               |
| Platinum 8270 Processor  | 2.7GHz        | 26    | 35.75         | 205W  | 3 @ 10.4 GT/s | 2933 MT/s | 1TB               |
| Platinum 8268 Processor  | 2.9GHz        | 24    | 35.75         | 205W  | 3 @ 10.4 GT/s | 2933 MT/s | 1TB               |
| Platinum 8260M Processor | 2.4GHz        | 24    | 35.75         | 165W  | 3 @ 10.4 GT/s | 2933 MT/s | 2TB               |

### Standard Features

|                          |        |          |       |      |               |           |       |
|--------------------------|--------|----------|-------|------|---------------|-----------|-------|
| Platinum 8260L Processor | 2.4GHz | 24       | 35.75 | 165W | 3 @ 10.4 GT/s | 2933 MT/s | 4.5TB |
| Platinum 8260Y Processor | 2.4GHz | 24/20/16 | 35.75 | 165W | 3 @ 10.4 GT/s | 2933 MT/s | 1TB   |
| Platinum 8260 Processor  | 2.4GHz | 24       | 35.75 | 165W | 3 @ 10.4 GT/s | 2933 MT/s | 1TB   |
| Platinum 8256 Processor  | 3.8GHz | 4        | 16.5  | 105W | 3 @ 10.4 GT/s | 2933 MT/s | 1TB   |
| Platinum 8253 Processor  | 2.2GHz | 16       | 22    | 125W | 3 @ 10.4 GT/s | 2933 MT/s | 1TB   |

### Gold Processors - 2nd Generation Intel® Xeon® Scalable Processor Family

| Intel Xeon Models    | CPU Frequency | Cores    | L3 Cache (MB) | Power | UPI           | DDR4     | Memory per socket |
|----------------------|---------------|----------|---------------|-------|---------------|----------|-------------------|
| Gold 6256 Processor  | 3.6GHz        | 12       | 33            | 205 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6254 Processor  | 3.1GHz        | 18       | 24.75         | 200 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6252 Processor  | 2.1GHz        | 24       | 35.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6252N Processor | 2.3GHz        | 24/20/16 | 35.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6248 Processor  | 2.5GHz        | 20       | 27.5          | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6246 Processor  | 3.3GHz        | 12       | 24.75         | 165 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6244 Processor  | 3.6GHz        | 8        | 24.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6242 Processor  | 2.8GHz        | 16       | 22            | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6240L Processor | 2.6GHz        | 18       | 24.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 4.5TB             |
| Gold 6240M Processor | 2.6GHz        | 18       | 24.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 2TB               |
| Gold 6240 Processor  | 2.6GHz        | 18       | 24.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6240Y Processor | 2.6GHz        | 18/14/8  | 24.75         | 150 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6238L Processor | 2.1GHz        | 22       | 30.25         | 140 W | 3 @ 10.4 GT/s | 2933MT/s | 4.5TB             |
| Gold 6238M Processor | 2.1GHz        | 22       | 30.25         | 140 W | 3 @ 10.4 GT/s | 2933MT/s | 2TB               |
| Gold 6238 Processor  | 2.1GHz        | 22       | 30.25         | 140 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |
| Gold 6234 Processor  | 3.3GHz        | 8        | 24.75         | 130 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB               |

### Standard Features

|                      |        |    |       |       |               |          |       |
|----------------------|--------|----|-------|-------|---------------|----------|-------|
| Gold 6230 Processor  | 2.1GHz | 20 | 27.5  | 125 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB   |
| Gold 6230N Processor | 2.3GHz | 20 | 27.5  | 125 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB   |
| Gold 6226 Processor  | 2.7GHz | 12 | 19.25 | 125 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB   |
| Gold 6262V Processor | 1.9GHz | 24 | 33    | 135 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB   |
| Gold 6222V Processor | 1.8GHz | 20 | 27.5  | 115 W | 3 @ 10.4 GT/s | 2933MT/s | 1TB   |
| Gold 5222Processor   | 3.8GHz | 4  | 16.5  | 105 W | 2 @ 10.4 GT/s | 2933MT/s | 1TB   |
| Gold 5220 Processor  | 2.2GHz | 18 | 24.75 | 125 W | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |
| Gold 5220S Processor | 2.7GHz | 18 | 24.75 | 125 W | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |
| Gold 5218B Processor | 2.3GHz | 16 | 22    | 125 W | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |
| Gold 5218N Processor | 2.3GHz | 16 | 22    | 110 W | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |
| Gold 5218 Processor  | 2.3GHz | 16 | 22    | 125 W | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |
| Gold 5217 Processor  | 3.0GHz | 8  | 11    | 115 W | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |
| Gold 5215L Processor | 2.5GHz | 10 | 13.75 | 85W   | 2 @ 10.4 GT/s | 2666MT/s | 4.5TB |
| Gold 5215M Processor | 2.5GHz | 10 | 13.75 | 85W   | 2 @ 10.4 GT/s | 2666MT/s | 2TB   |
| Gold 5215 Processor  | 2.5GHz | 10 | 13.75 | 85W   | 2 @ 10.4 GT/s | 2666MT/s | 1TB   |

### Notes:

- Platinum - 82xx series - 2 and 4 socket capable, 3UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2933 MT/s 1DPC, 1 TB memory capacity (up to 2 TB on 'M' SKUs and up to 4.5 TB on 'L' SKUs), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512 (2x 512-bit FMA), 48 lanes PCIe 3.0, advanced RAS.
- Gold - 62xx and 52xx series - 2 and 4 socket capable, 3UPI @ 10.4 GT/s on 62xx processors, 2UPI @ 10.4 GT/s on 52xx processors, 6 Channel DDR4 @ 2933 MT/s 1DPC on 62xx and 5222 processors , 6-Channel DDR4 @ 2666 MT/s on 52xx processors, 1 TB memory capacity (up to 2 TB on 'M' SKUs and up to 4.5 TB on 'L' SKUs), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA) (SKU 5222 supports 2x 512 bit FMA), 48 lanes PCIe 3.0, advanced RAS.
- With the current HPE DDR4 Smart Memory maximum offering (128GB LRDIMMs), the 'L' SKUs and 'M' SKUs can support up to 1.5TB per socket.
- More than 1.5TB per socket requires the use of HPE Persistent Memory kits : available in 512GB, 256GB and 128GB
- Platinum 8260Y and Gold 6240Y processors support Intel® Speed Select Technology -Performance Profile
- Gold 5218B processor and Gold 5218 processor have the same specifications and cannot be mixed within a server
- Gold 6252N, 6230N and 5218N processors are optimized for NFV (Network Function Virtualization) workloads and support Intel® Speed Select Technology -Base Frequency
- Gold 6262V and 6222V are VM density optimized, Gold 5220S is search-optimized

### Standard Features

–82xx, 62xx and 52xx processors offer VNNI (vector neural network instruction) instruction set.

| Platinum Processors - 1st Generation Intel® Xeon® Scalable Processor Family |               |       |               |       |               |           |                   |
|---|---------------|-------|---------------|-------|---------------|-----------|-------------------|
| Intel Xeon Models   | CPU Frequency | Cores | L3 Cache (MB) | Power | UPI           | DDR4      | Memory per socket |
| Platinum 8180M Processor  | 2.5 GHz       | 28    | 38.50         | 205W  | 3 @ 10.4 GT/s | 2666 MT/s | 1.5TB             |
| Platinum 8180 Processor   | 2.5 GHz       | 28    | 38.50         | 205W  | 3 @ 10.4 GT/s | 2666 MT/s | 768GB             |
| Platinum 8176 Processor   | 2.1 GHz       | 28    | 38.50         | 165W  | 3 @ 10.4 GT/s | 2666 MT/s | 768GB             |
| Platinum 8170 Processor   | 2.1 GHz       | 26    | 35.75         | 165W  | 3 @ 10.4 GT/s | 2666 MT/s | 768GB             |
| Platinum 8168 Processor   | 2.7 GHz       | 24    | 33.00         | 205W  | 3 @ 10.4 GT/s | 2666 MT/s | 768GB             |
| Platinum 8164 Processor   | 2.0 GHz       | 26    | 35.75         | 150W  | 3 @ 10.4 GT/s | 2666 MT/s | 768GB             |
| Platinum 8160 Processor   | 2.1 GHz       | 24    | 33.00         | 150W  | 3 @ 10.4 GT/s | 2666 MT/s | 768GB             |

| Gold Processors - 1st Generation Intel® Xeon® Scalable Processor Family |         |    |       |      |               |           |       |
|---|---------|----|-------|------|---------------|-----------|-------|
| Gold 6154 Processor   | 3.0 GHz | 18 | 24.75 | 200W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6152 Processor   | 2.1 GHz | 22 | 30.25 | 140W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6150 Processor   | 2.7 GHz | 18 | 24.75 | 165W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6148 Processor   | 2.4 GHz | 20 | 27.50 | 150W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6142 Processor   | 2.6 GHz | 16 | 22.00 | 150W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6140 Processor   | 2.3 GHz | 18 | 24.75 | 140W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6137 Processor   | 3.9 GHz | 8  | 24.75 | 205W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6136 Processor   | 3.0 GHz | 12 | 24.75 | 150W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6134M Processor  | 3.2 GHz | 8  | 24.75 | 130W | 3 @ 10.4 GT/s | 2666 MT/s | 1.5TB |
| Gold 6134 Processor   | 3.2 GHz | 8  | 24.75 | 130W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6132 Processor   | 2.6 GHz | 14 | 19.25 | 140W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6130 Processor   | 2.1 GHz | 16 | 22.00 | 125W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 6126 Processor   | 2.6 GHz | 12 | 19.25 | 125W | 3 @ 10.4 GT/s | 2666 MT/s | 768GB |
| Gold 5120 Processor   | 2.2 GHz | 14 | 19.25 | 105W | 2 @ 10.4 GT/s | 2400 MT/s | 768GB |



### Standard Features

|                     |         |    |       |      |               |           |       |
|---------------------|---------|----|-------|------|---------------|-----------|-------|
| Gold 5118 Processor | 2.3 GHz | 12 | 16.50 | 105W | 2 @ 10.4 GT/s | 2400 MT/s | 768GB |
| Gold 5117 processor | 2.0 GHz | 14 | 19.25 | 105W | 2 @ 10.4 GT/s | 2400 MT/s | 768GB |
| Gold 5115 Processor | 2.4 GHz | 10 | 13.75 | 85W  | 2 @ 10.4 GT/s | 2400 MT/s | 768GB |

#### Notes:

- Platinum 81xx series - 2 and 4 socket capable, 3UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2666 MT/s, 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512 (2x 512-bit FMA), 48 lanes PCIe 3.0, advanced RAS.
- Gold 61xx and 51xx series - 2 and 4 socket capable, 3UPI @ 10.4 GT/s on 61xx processors, 2UPI @ 10.4 GT/s on 51xx processors, 6-Channel DDR4 @ 2400 MHz (SKU 5122=supports 2666), 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA) (SKU 5122 supports 2x 512 bit FMA), 48 lanes PCIe 3.0, advanced RAS.
- All processors ship with a normal or a high performance heatsink.
- 82xx, 81xx, 62xx and 61xx processors support 3 UPI links and all processors are connected in a cross bar configuration with each processor connected to another directly in a four processor system. 52xx and 51xx processors support 2 UPI links only and all processors are connected in a ring configuration with processors 1, 3 and 2, 4 not connected directly in a four processor system.

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### Chipset

- Intel C621 Chipset

**Notes:** For more information regarding Intel® chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

#### On System Management Chipset

- HPE iLO 5 ASIC

**Notes:** Read and learn more in the [iLO QuickSpecs](#).

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### Standard Features

#### Memory

One of the following depending on model

|  |  |  |
|--|--|--|
| <b>Type</b>                                      | Smart Memory Registered (RDIMM), Load Reduced (LRDIMM) |  |
| <b>DIMM Slots Available</b>                      | 48   | 12 DIMM slots per processor, 6 channels per processor, 2 DIMMs per channel |
| <b>With 2<sup>nd</sup> generation processors</b> |  |  |
| <b>Maximum capacity (LRDIMM)</b>                 | 6 TB   | 48 x 128 GB LRDIMM @2933 MT/s 2 DPC  |
| <b>Maximum capacity (RDIMM)</b>                  | 1.5 TB   | 24 x 64 GB RDIMM @ 2933 MT/s 1 DPC   |
|  | 3 TB   | 48 x 64 GB RDIMM @ 2666 MT/s 2 DPC   |
| <b>Maximum capacity (HPE Persistent Memory)</b>  | 12 TB  | 24 x 512 GB Persistent Memory Kit @2666 MT/s                               |
| <b>With 1<sup>st</sup> generation processors</b> |  |  |
| <b>Maximum capacity (LRDIMM)</b>                 | 6 TB   | 48 x 128 GB LRDIMM @ 2666 MT/s   |
| <b>Maximum capacity (RDIMM)</b>                  | 1.5 TB   | 48 x 32 GB RDIMM @ 2666 MT/s   |
| <b>Maximum capacity (NVDIMM)</b>                 | 384 GB   | 24 x 16 GB NVDIMM @ 2666 MT/s  |

#### Notes:

- The 2666 MT/s DIMMs are only supported with the 1<sup>st</sup> generation Intel® Xeon® Scalable processors (81xx,61xx and 51xx)
- HPE Persistent Memory is only supported on the 2<sup>nd</sup> generation processors
- HPE Persistent Memory operates in two modes - memory mode and app direct mode.
- In memory mode, DRAM acts as a cache while HPE Persistent Memory provides large memory capacity which is volatile. DRAM installed does not count towards total memory capacity.
- In app direct mode, data that needs to be made persistent can be routed to HPE Persistent Memory. Both DRAM and HPE Persistent Memory count towards total memory capacity.
- Mixing of RDIMM and LRDIMM memory is not supported.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- Intel memory processors (with suffix M) are needed for supporting 1.5 TB memory per socket on 1<sup>st</sup> generation processors.
- Intel memory processors (with suffix M or suffix L) are needed for supporting more than 1 TB memory per socket on 2<sup>nd</sup> generation processors
- Maximum of 6 NVDIMMs are supported per processor on the 1<sup>st</sup> generation processors
- NVDIMMs are not supported on the 2<sup>nd</sup> generation processors

#### Memory Protection

For details on the HPE Server Memory Options RAS feature, visit: <http://www.hpe.com/docs/memory-ras-feature>.

### Standard Features

| Primary Riser (Standard)-Default |            |                     |                       |         |
|----------------------------------|------------|---------------------|-----------------------|---------|
| Expansion Slots #                | Technology | Bus/Connector Width | Form Factor/Connector | Notes   |
| 1                                | PCIe 3.0   | x8                  | ¾ length/full height  | Proc 1  |
| 2                                | PCIe 3.0   | X16                 | ¾ length/full height  | Proc 1  |
| 3                                | PCIe 3.0   | x8                  | ¾ length/full height  | Proc 1  |
| None                             | 2 x M.2    | SATA lanes          | M.2                   | Chipset |

| Secondary Riser (Optional) 826704-B21 HPE DL Gen10 x16/x16 GPU Riser Kit |            |                     |                                 |                                   |                           |
|--|------------|---------------------|---------------------------------|-----------------------------------|---------------------------|
| Expansion Slots (Primary/Secondary) #                                    | Technology | Bus/Connector Width | Form Factor/Connector (Primary) | Form Factor/Connector (Secondary) | Notes (Primary/secondary) |
| 2/5  | PCIe 3.0   | x16                 | ¾ length/full height            | Half length/full height           | Proc 1/2                  |
| 3/6  | PCIe 3.0   | x16                 | ¾ length/full height            | Half length/full height           | Proc 1/2                  |

**Notes:** Can also be installed as primary but the default (standard) primary cage will need to be removed.

| Secondary Riser (Optional) 873418-B21 HPE DL560 Gen10 4-port 8 NVMe Slimline Riser Kit |            |                     |                        |                           |
|--|------------|---------------------|------------------------|---------------------------|
| Expansion Slots (Primary/Secondary) #  | Technology | Bus/Connector Width | Form Factor /Connector | Notes (Primary/secondary) |
| None   | NVMe       | x8                  | Slimline               | Proc 1/2                  |
| None   | NVMe       | x8                  | Slimline               | Proc 1/2                  |
| None   | NVMe       | x8                  | Slimline               | Proc 1/2                  |
| None   | NVMe       | x8                  | Slimline               | Proc 1/2                  |

**Notes:** Can also be installed as primary but the default (standard) primary cage will need to be removed.

| Secondary Riser (Optional) 873420-B21 HPE DL560 Gen10 x8/x8/x8 1-port 2 NVMe Slimline Riser Kit |            |                     |                                 |                                   |                           |
|---|------------|---------------------|---------------------------------|-----------------------------------|---------------------------|
| Expansion Slots (Primary/Secondary)#  | Technology | Bus/Connector Width | Form Factor/Connector (Primary) | Form Factor/Connector (Secondary) | Notes (Primary/Secondary) |
| 1/4   | PCIe 3.0   | x8                  | ¾ length/full height            | Half length/full height           | Proc 1/2                  |
| 2/5   | PCIe 3.0   | x8                  | ¾ length/full height            | Half length/full height           | Proc 1/2                  |
| 3/6   | PCIe 3.0   | x8                  | ¾ length/full height            | Half length/full height           | Proc 1/2                  |
| None  | NVMe       | x8                  | Slimline                        | Slimline                          | Proc 1/2                  |

**Notes:** Can also be installed as primary but the default (standard) primary cage will need to be removed.

| Secondary Riser (Optional) 870548-B21 HPE DL Gen10 x8/x16/x8 Riser Kit |            |           |                         |        |
|--|------------|-----------|-------------------------|--------|
| Expansion Slots #  | Technology | Bus Width | Form Factor             | Notes  |
| 4  | PCIe 3.0   | x8        | Half length/full height | Proc 2 |
| 5  | PCIe 3.0   | x16       | Half length/full height | Proc 2 |
| 6  | PCIe 3.0   | x8        | Half length/full height | Proc 2 |

| Tertiary butterfly riser (Optional) 872253-B21 HPE DL560 Gen10 x8/x8 Tertiary Riser Kit |            |           |                         |        |
|---|------------|-----------|-------------------------|--------|
| Expansion Slots #   | Technology | Bus Width | Form Factor             | Notes  |
| 7   | PCIe 3.0   | x8        | Half length/full height | Proc 2 |
| 8   | PCIe 3.0   | x8        | Half length/full height | Proc 2 |

### Standard Features

**Notes:** the Tertiary is a butterfly riser kit supports both secondary and tertiary. The secondary kit needs to be removed if the tertiary kit is installed.

| <b>Tertiary riser (Optional) 872255-B21 HPE DL560 Gen10 x8 1-port 2 NVMe Slimline Riser Kit</b> |            |           |                         |        |
|---|------------|-----------|-------------------------|--------|
| Expansion Slots #   | Technology | Bus Width | Form Factor/Connector   | Notes  |
| 7   | PCIe 3.0   | x8        | Half length/full height | Proc 2 |
| None  | NVMe       | x8        | Slimline                | Proc 2 |

**Notes:** the Tertiary is a butterfly riser kit supports both secondary and tertiary. The secondary kit needs to be removed if the tertiary kit is installed.

| <b>Tertiary riser (Optional) 872257-B21 HPE DL560 Gen10 2-port 4 NVMe Slimline Tertiary Riser Kit</b> |            |           |                       |        |
|---|------------|-----------|-----------------------|--------|
| Expansion Slots #   | Technology | Bus Width | Form Factor/Connector | Notes  |
| None  | NVMe       | x8        | Slimline              | Proc 2 |
| None  | NVMe       | x8        | Slimline              | Proc 2 |

**Notes:** the Tertiary is a butterfly riser kit supports both secondary and tertiary. The secondary kit needs to be removed if the tertiary kit is installed.

| <b>4-port NVMe Mezzanine card (Optional) 874633-B21</b> |            |           |                       |        |
|---|------------|-----------|-----------------------|--------|
| Expansion Slots #                                       | Technology | Bus Width | Form Factor/Connector | Notes  |
| None  | NVMe       | x8        | Slimline              | Proc 3 |
| None  | NVMe       | x8        | Slimline              | Proc 3 |
| None  | NVMe       | x8        | Slimline              | Proc 3 |
| None  | NVMe       | x8        | Slimline              | Proc 3 |

**Notes:**

- The secondary and tertiary risers need the 2<sup>nd</sup> processor to be installed.
- The expansion slots at the back are numbered in ascending order from top to bottom and from left to right.
- Some riser kits (826704-B21, 873418-B21, 873420-B21) have FIO options with separate numbers and they do not ship with riser cages. Please review the FIO section for details.
- For additional details on ProLiant DL Gen10 server risers please visit: <https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00043229enw>
- The optional 4-port NVMe Mezzanine card 874633-B21 supports a maximum of 8 NVMe drives and does not consume a PCIe slot. It goes on top of the HPE DL5x0 Gen10 CPU Mezzanine Board Kit (872222-B21) or HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21) and requires a four processor configuration.
- The tertiary risers can only be installed when using two PSUs. There is no space for tertiary risers when the four PSU's are installed. If a secondary riser is required it needs to be ordered separately. Please refer section HPE I/O Expansion Options.
- A maximum of 1 primary, 1 secondary and 1 tertiary riser can be installed in one server.
- Slimline riser kit (873418-B21) does not contain any additional PCIe slots.

### Network Controller

The HPE ProLiant DL560 Gen10 servers offer a flexible network technology - FlexibleLOMs, which offers customers a choice of 1 Gb, 10 Gb, 25 Gb or 10 Gb and 100 Gb base-T Ethernet or converged networking in

### Standard Features

their embedded adapter. A range of NIC cards are also available to enhance networking capabilities.

**Notes:** For additional details see the [Networking Section](#) of this document.

| BTO Model         | Adapter   |
|-------------------|---|
| Entry Model       | HPE Ethernet 1Gb 4-port FLR-T I350-T4V2 Adapter   |
| Base Model        | HPE FlexFabric 10Gb 2-port FLR-SFP+ 57810S Adapter10GbE or HPE Ethernet 10Gb 2-port FLR-T BCM57416 Adapter            |
| Performance Model | HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter or HPE Ethernet 10/25Gb 2-port FLR-SFP28 BCM57414 Adapter |

### Storage Controllers

The Gen10 controller naming framework has been updated to simplify identification as depicted below. For a more detailed breakout of the available Gen10 Smart Array controllers visit the [HPE Smart Array Gen10 Controllers Data Sheet](#).

#### Software RAID

- HPE Smart Array S100i SR Gen10 SW RAID

#### Notes:

- HPE Smart Array S100i SR Gen10 SW RAID will operate in UEFI mode only. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22.
- HPE Smart Array S100i SR Gen10 SW RAID is off by default and must be enabled. For enabling, please select HPE FIO Enable Smart Array SW RAID (784308-B21).

#### Essential RAID

- HPE Smart Array E208i-a SR G10 LH Controller
- HPE Smart Array E208i-p SR Gen10 Controller
- HPE Smart Array E208e-p SR Gen10 Controller

#### Performance RAID

- HPE Smart Array P408i-a SR G10 LH Controller
- HPE Smart Array P408i-p SR Gen10 Controller
- HPE Smart Array P408e-p SR Gen10 Controller
- HPE Smart Array P816i-a SR G10 LH Controller
- HPE Smart Array P824i-p MR Gen10 Controller

### Internal Storage Devices

One of the following depending on model

#### Optical Drive

- Optional: DVD-ROM, DVD-RW

#### Hard Drives

- None ship standard

#### Hard Drive Bays

### Standard Features

- 8 hot plug SFF SAS/SATA HDD Bays in Entry and Base Models
- 16 hot plug SFF SAS/SATA HDD Bays in Performance Models

#### Notes:

- Box 3 is populated by 8 SFF SAS/SATA bay and shipped as default.
- The 8 NVMe drive option can only be placed in Bay 2.
- The Universal Media Bay (872267-B21) not available with the 24 SFF front end, and can only be populated in Box 1.
- The 8 SFF can be upgraded with a drive cage to 16 or 24 SFF with field upgrades. For optimal upgrade Box 2 should be populated second, with Box 1 the last to be populated for a field upgrade to 24 SFF.
- A maximum of 12 NVMe drives can be supported with 2 NVMe drives in Bay 1, 8 NVMe drives in Bay 2 and 2 NVMe drives in Bay 3.
- All pre-configured models come with embedded software RAID support for 10 SATA drives. Optional HPE Smart Array Controllers can be added.

### Maximum Internal Storage

| Drive                 | Capacity | Configuration |
|-----------------------|----------|---------------|
| Hot Plug SFF SATA HDD | 48 TB    | 24 x 2 TB     |
| Hot Plug SFF SAS HDD  | 58 TB    | 24 x 2.4 TB   |
| Hot Plug SFF SATA SSD | 184 TB   | 24 x 7.68 TB  |
| Hot Plug SFF SAS SSD  | 367 TB   | 24 x 15.3 TB  |
| SFF NVMe SSD          | 184 TB   | 12 x 15.36TB  |

### Power Supply

One of the following depending on model

- HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit
- Notes: Output capped at 1600W maximum on Gen10 & Gen10 Plus servers, greater than 1600W only feasible on Gen11." Similar to the one currently stated on FlexSlot PSUs
- HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

#### Notes:

- Available in 94% and 96% efficiency.
- Also available in -48VDC and 227VAC/380VDC power inputs.
- Must order 4x800W Flex Slot PSU.

- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

#### Notes:

- Available in 94% efficiency.
- 1600W Power supplies only support high line voltage (200VAC to 240VAC).

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen10 Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (416151-B21). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

To review the power requirements for your selected system, please use the [HPE Power Advisor Tool](#).

### Standard Features

For information on power specifications and technical content visit [HPE Server power supplies](#)

#### **European Union Erp Lot 9 Regulation**

Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements.

HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.

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

With 1<sup>st</sup> generation processors Intel® Xeon® Scalable Processor Family

- **Windows Server 2012 R2**
- **Windows Server 2016**
- Windows Server 2019
- VMware ESXi
- **Red Hat Enterprise Linux (RHEL)**
- **SUSE Linux Enterprise Server (SLES)**
- CentOS

**Notes:** Not directly supported / Community Supported (Based on RHEL so RHEL testing and enablement applicable to Cent OS) CentOS 6.9 / CentOS 7.3.

With 2<sup>nd</sup> generation processors Intel® Xeon® Scalable Processor Family

- **Windows Server 2012 R2**
- **Windows Server 2016**
- Windows Server 2019
- VMware ESXi
- Red Hat Enterprise Linux (RHEL)
- **SUSE Linux Enterprise Server (SLES)**
- CentOS

#### **Notes:**

– Not directly supported / Community Supported (Based on RHEL so RHEL testing and enablement applicable to Cent OS) CentOS 6.9 / CentOS 7.3.

– For more information on Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server.

<http://www.hpe.com/info/ossupport>.

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### Interfaces

## Standard Features

|   |   |
|---|---|
| <b>Serial</b>   | 1 rear  |
| <b>Video</b>  | 1 front (optional with Universal Media Bay), 1 rear |
| <b>HPE iLO Remote Management Network Port</b>   | 1   |
| <b>HPE iLO Front Service Port</b>   | 1   |
| <b>Micro SD Slot</b>  | 1 (Internal), 2 (optional, internal)                |
| <b>Notes:</b> Requires the optional HPE Dual Micro SD 8GB USB kit.  |   |
| <b>USB 2.0 Ports</b>  | 4 total: 2 front (optional); 2 rear                 |
| <b>USB 3.0 Ports</b>  | 5 total: 1 front; 2 rear, 2 internal                |
| <b>Notes:</b> 2 front (optional) USB 2.0 ports need the HPE DL560 Gen10 Universal Media Bay Kit (872267-B21). |   |

## Graphics

- Integrated Video Standard
- Video modes up to 1920 x 1200@60Hz (32 bpp)
- 16MB Video Memory
- HPE iLO 5 on system management memory
- 32 MB Flash
- 4 Gbit DDR 3 with ECC protection

## Industry Standard Compliance

- ACPI 6.1 Compliant
- PCIe 3.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- USB 3.0 Compliant (internal); USB 2.0 Compliant (external ports via SUV)
- SMBIOS 3.1
- UEFI 2.6
- Redfish API

European Union (EU) eco-design regulations for server and storage products, known as Lot 9, go into effect on March 1st, 2020. Among other requirements, for servers this directive establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLiant Gen10 servers are compliant with Lot9 requirements.

For more information regarding HPE Lot 9 conformance, please visit:

<https://www.hpe.com/us/en/about/environment/msds-specs-more.html>

**Notes:** For additional technical thermal details regarding ambient temperatures, humidity and features support please visit:

[https://support.hpe.com/hpesc/public/docDisplay?docId=a00026969en\\_us&page=index.html](https://support.hpe.com/hpesc/public/docDisplay?docId=a00026969en_us&page=index.html).

## HPE Server UEFI/Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE



### Standard Features

ProLiant Gen10 servers have a UEFI Class 2 implementation and support both UEFI Mode (default) and Legacy BIOS Mode.

**Notes:** The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS.

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

- Secure Boot and Secure Start enable for enhanced security
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant
- PXE boot support for IPv6 networks
- Workload profiles for simple performance optimization

**UEFI Boot Mode only:**

- TPM 2.0 support
- NVMe Boot Support
- Platform Trust Technology (PTT) can be enabled
- iSCSI Software Initiator Support
- HTTP/HTTPs Boot support as a PXE alternative
- Boot support for option cards that only support a UEFI option ROM

**Notes:**

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

–UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant Gen10 Server.

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### Embedded Management

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

Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO.

Learn more at <http://www.hpe.com/info/ilo>.

#### UEFI

Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI)

#### Intelligent Provisioning

Hassle free server and OS provisioning for one or more servers with Intelligent Provisioning.

#### iLO RESTful API

iLO RESTful API is Redfish API conformance and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at

<http://www.hpe.com/info/restfulapi>.

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### Server Utilities

#### Active Health System

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### Standard Features

The HPE Active Health System (AHS) is an essential component of the iLO management portfolio that provides continuous, proactive health monitoring of HPE servers. Learn more at <http://www.hpe.com/servers/ahs>.

#### **Active Health System Viewer**

Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem resolution with HPE self-repair recommendations, to learn more visit: <http://www.hpe.com/servers/ahsv>.

#### **Smart Update**

Keep your servers up to date with the HPE Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP). Learn more at <https://www.hpe.com/us/en/servers/smart-update>.

#### **iLO Amplifier Pack**

Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9 and Gen10 HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities.

Learn more at <http://www.hpe.com/servers/iLOamplifierpack>.

#### **HPE iLO Mobile Application**

Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit:

<http://www.hpe.com/info/ilo/mobileapp>.

#### **RESTful Interface Tool**

RESTful Interface tool (iLOREST) is a single scripting tool to provision using iLO RESTful API to discover and deploy servers at scale. Learn more at <http://www.hpe.com/info/resttool>.

#### **Scripting Tools**

Provision one to many servers using your own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at

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

#### **HPE OneView Standard**

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. It can monitor multiple HPE server generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available. Learn more at

<http://www.hpe.com/info/oneview>.

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

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

<http://www.hpe.com/info/hpesim>.

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### About Trusted Platform Module

Trusted Platform Module (TPM) is a separate processor that monitors the system state. TPM is a passive

### Standard Features

component needing to be updated and not able to lock down any component in the system except access to its own memory. It also provides some cryptographic operations - among them: creating RSA key pairs, and working with them.

The first verification of signatures happens by code on the CPU, which can be intercepted and replaced. Emulating a "properly" booted system is possible by sending the right values to the TPM. HPE supports two version of TPM, the 1.2 device and the 2.0 device. The TPM 2.0 device works with Gen10 servers that are using a Linux operating system or Microsoft Windows Server 2016. Both TPM 1.2 and 2.0 are compatible with HPE ProLiant Gen9 and Gen10 servers. These TPM modules are not compatible with server generations prior to Gen9. Once the TPM module is installed, it locks into place and cannot be removed, nor can it be replaced with a different TPM device.

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### Security

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- FIPS 140-2 validation (iLO 5 certification in progress)
- Common Criteria certification (iLO 5 certification in progress)
- Configurable for PCI DSS compliance
- Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser
- Support for Commercial National Security Algorithms (CNSA)
- Granular control over iLO interfaces
- Smart card (PIV/CAC) and Kerberos based 2-factor Authentication
- Tamper-free updates - components digitally signed and verified
- Secure Recovery - recover critical firmware to known good state on detection of compromised firmware
- Ability to rollback firmware. Secure erase of NAND/User data
- TPM (Trusted Platform Module) 1.2 option. TPM (Trusted Platform Module) 2.0 option Bezel Locking Kit
- Chassis Intrusion detection option

#### Notes:

- HPE Trusted Platform Module 2.0 Option (864279-B21) works with Gen10 servers with UEFI Mode and not Legacy Mode. The Trusted Platform Module 2.0 Option can be configured to the 1.2 version through the UEFI BIOS to support TPM 1.2 functionality.
  - HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.
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### Standard Features

#### HPE Silicon Root of Trust

The HPE Silicon Root of Trust provides protection because as soon as the server is powered on and the iLO firmware comes alive, it looks into the silicon for the immutable fingerprint that verifies all the firmware code is valid and uncompromised. Over a million lines of firmware code run, before the operating system starts, making it essential to confirm that all server essential firmware is free from malware or compromised code.

Silicon Root of Trust is included with iLO5 Standard with all platforms that contain the iLO5 chip. That includes ML, DL, Apollo, C-Class Blades, and Synergy Compute Modules. HPE Cloudline and the HPE Microserver do not have silicon root of trust, since they do not contain an iLO5 silicon chip. This technology is NOT available on any previous version of HPE ProLiant like the Gen9, Gen8, or Gen 7 servers, nor can those previous generations be retrofitted to accommodate the silicon root of trust.

The silicon validates the iLO 5 firmware code before it is fetched and executed. If any malware or compromised code has been inserted in the iLO 5 firmware, the silicon will detect that, because any infected firmware code will not match-up with the hash burned into the silicon. From there, the iLO 5 firmware validates the rest of the server firmware, namely the UEFI, CPLD, IE, and ME. The UEFI then validates the connection to the operating system, thus completing a complete root, or chain, that is anchored into the silicon.

During operation of the server, HPE has a new technology that conducts run-time firmware validation that checks the firmware stored in the server. At any point, if compromised code or malware is inserted in any of the critical firmware, an iLO audit log alert is created to notify the customer that a compromised has occurred.

In the unlikely event of a breach into the HPE server firmware, after detection has been completed, the customer may then securely recover the firmware automatically to a previous known good state. HPE provides this function through HPE iLO Advanced license.

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#### Warranty

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

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 Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:

<http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/>.

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### Optional Features

#### Server Management

##### HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

##### HPE GreenLake for Compute Ops Management

HPE is intelligently transforming compute management with an intuitive cloud operating experience through HPE GreenLake cloud platform to streamline and secure operations from edge-to-cloud. Automated key lifecycle tasks, for onboarding, updating, managing, and monitoring HPE servers, brings agility and greater efficiencies to wherever compute devices reside via a unified single browser-based interface. Manage single locations or multiple, distributed sites. Keep tens to thousands of servers secure with batch policy controls and automated updates.

Compute Ops Management is cloud-native software that is continually updated with new services, features, patches, and fixes. The management application resides in the HPE GreenLake cloud platform (access via <https://console.greenlake.hpe.com>) and leverages the HPE GreenLake architecture, security, and unified operations.

For a complete list of software as-a-service subscription SKUs and more information, visit the HPE GreenLake for Compute Ops Management QuickSpecs:

<https://www.hpe.com/psnow/doc/a50004263enw>

For information on supported HPE servers, the complete list can be found here:

<https://www.hpe.com/info/com-supported-servers>

##### HPE OneView Advanced

HPE OneView brings a new level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It provides full-featured licenses which can be purchased for managing Gen8, Gen9 and Gen10 servers. To learn more visit <http://www.hpe.com/info/oneview>.

##### HPE InfoSight for Servers

HPE InfoSight for Servers combines the cloud-based machine learning of InfoSight with the health and performance monitoring of Active Health System (AHS) and iLO to optimize performance and predict and prevent problems. The end result is an intelligent environment that modernizes IT operations and enhances the support experience by predicting and preventing the infrastructure issues that lead to application disruptions, wasted IT staff time and missed business opportunities.

Learn more at <https://www.hpe.com/servers/infosight>

##### HPE Insight Cluster Management Utility (CMU)

HPE Insight Cluster Management Utility is a HyperScale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. Learn more at <http://www.hpe.com/info/cmu>.

### Optional Features

#### GPGPU Information

- HPE NVIDIA Quadro P2200 Graphics Accelerator
- HPE NVIDIA Tesla T4 Graphics Accelerator

#### One Config Simple (SCE)

SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance. <https://h22174.www2.hpe.com/SimplifiedConfig/Welcome#>

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#### Rack and Power Infrastructure

The story may end with servers, but it starts with the foundation that makes compute go - and business grow. We have reinvented our entire portfolio of rack and power products to make IT infrastructure more secure, more practical, and more efficient. In other words, we've created a stronger, smarter, and simpler infrastructure to help you get the most out of your IT equipment. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management and system access.

HPE G2 Advanced and Enterprise Racks are perfect for the server room or today's modern data center with enhanced airflow and thermal management, flexible cable management, and a 10 year Warranty to support higher density computing.

HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°, include color-coded outlets and load segments and a low-profile design for optimal access to the rack and support for dense rack environments.

HPE Uninterruptible Power Systems are cost-effective power protection for any type workload. Some UPSs include options for remote management and extended runtime modules so your critical dense data center is covered in power outages.

HPE KVM Solutions include a console and switches designed to work with your server and IT equipment reliably. We have got a cost-effective KVM switch for your first rack and multiple connection IP switches with remote management and security capabilities to keep your data center rack up and running.

Learn more about HPE Racks, KVM, PDUs and UPSs at [HPE Rack and Power Infrastructure](#).

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### Service and Support

#### HPE Pointnext - Service and Support

**Get the most from your HPE Products.** Get the expertise you need at every step of your IT journey with **HPE Pointnext Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **Advisory Services**, focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

#### Consume IT on your terms

**HPE GreenLake** brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

#### Managed services to run your IT operations

**HPE GreenLake Management Services** provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

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#### Recommended Services

##### HPE Pointnext Tech Care.

HPE Pointnext Tech Care is the new operational service experience for HPE products. Tech Care goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Pointnext Tech Care has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2 hour response time. Essential which provides a 15 minute response time 24x7 for most enterprise level customers, and Critical which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>

##### HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/completecure>

### Service and Support

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#### Other related Services

##### **HPE Server Hardware Installation**

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

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw>

##### **HPE Installation and Startup Service**

Provides for the installation of your HPE hardware according to product specifications including options. The HPE service delivery technician will connect the product to a LAN as appropriate and enable remote support to allow for automatic case creation for hardware failures. Installation and start up services also includes the installation of one supported operating system type (Windows® or Linux).

##### **DC for Hyperscale**

Complete Care for Hyperscale is available for Service Providers and HPC customers who use a scale out approach to computing with a high volume homogenous infrastructure and resilient architecture can take advantage of this environment support tailored to their operating model.

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

HPE Factory Express offers configuration, customization, integration and deployment services for HPE 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. HPE products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAXxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

##### **HPE Service Credits**

HPE Service Credits offers flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

##### **HPE Education Services**

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment.

<http://www.hpe.com/ww/learn>

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### Service and Support

#### HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers.

Learn more <http://www.hpe.com/support/hpesc>.

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

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

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

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

**Notes:** HPE ProLiant DL385 Gen10 Plus Server is covered under the HPE Service Contract applied to the HPE ProLiant Server. No separate HPE support services need to be purchased.

Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS batteries over 12KVA. See the specific high value options that require additional support [here](#).

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#### Parts and Materials

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

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

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

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### Pre-configured Models

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

- Pre-configured models ship with configurations below. Options can be selected from Core or Additional options section of this QuickSpecs.
- Hewlett Packard Enterprise does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
- If a custom configuration is desired, please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
- European Union (EU) eco-design regulations for server and storage products, known as Lot 9, go into effect on March 1st, 2020. Among other requirements, for servers this directive establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLiant Gen10 servers are compliant with Lot9 requirements. For more information regarding HPE Lot 9 conformance, please visit:

<https://www.hpe.com/us/en/about/environment/msds-specs-more.html>

| Entry Models                |  |
|-----------------------------|--|
| <b>SKU Number</b>           | P21271-B21 (WW)<br>P21271-291 (JPN)<br>P21271-AA1 (PRC)  |
| <b>Model Name</b>           | HPE ProLiant DL560 Gen10 5220 2.2GHz 18-core 2P 64GB-R P408i-a 8SFF 1600W RPS Server   |
| <b>Processor</b>            | Intel® Xeon® 5220<br>(18-Core, 2.2GHz, 125W )  |
| <b>Number of Processors</b> | 2  |
| <b>Memory</b>               | 64 GB<br>(2x32GB Registered DIMMs, 2933 MT/s)<br><b>Notes:</b> 24 DIMM slots available with Entry Model; 2 more processor slots and 24 more DIMMs available via optional HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21)  |
| <b>Network Controller</b>   | HPE Ethernet 1Gb 4-port FLR-T I350-T4V2 Adapter  |
| <b>Storage Controller</b>   | HPE Smart Array P408i-a  |
| <b>Power Supply</b>         | 2x 1600W<br><b>Notes:</b> 1600W Power supplies only support high line voltage (200VAC to 240VAC).<br><b>Notes:</b> Non Lot 9 compliant PSU   |
| <b>PCI-Express Slots</b>    | 3 PCIe 3.0 slots available<br><b>Notes:</b> 8 PCIe 3.0 slots available with the secondary and tertiary riser installed.  |
| <b>Hard drive</b>           | None shipped as Standard   |
| <b>Internal Storage</b>     | 8 SFF Drive Bays<br><b>Notes:</b><br>– Can be expanded up to a max of 24 SFF drives, with optional HPE DL560 Gen10 8SFF HDD Bay2 Kit (872235-B21) and HPE DL560 Gen10 8 SFF HDD Bay1 Kit (872231-B21).<br>– Optionally NVMe SSD drives can be added with HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8 SFF Bay1 Kit (872227-B21) or HPE DL560 Gen10 Prem 6 SFF+2 NVMe Bay2 Kit(872229-B21) or HPE DL560 Gen10 Premium 6 SFF and 2 NVMe or 8 SFF Bay3 Kit (872231-B21) or HPE DL560 NVMe 8 |

### Pre-configured Models

|                          |   |
|--------------------------|---|
|                          | <a href="#">SSD Express Bay Enablement Kit (872225-B21)</a> .<br>– <a href="#">Alternatively, optional HPE DL560 Gen10 Universal Media Bay Kit</a> .              |
| <b>Optical Drive Bay</b> | Optional via Universal Media Bay  |
| <b>Optical Drive</b>     | Optional via Universal Media Bay  |
| <b>Fans</b>              | 6 hot plug fans, redundant  |
| <b>Management</b>        | HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download); HPE iLO Advanced and HPE OneView Advanced (require licenses) |
| <b>Form Factor</b>       | RACK (2U), HPE Easy Install Rails with CMA  |
| <b>Warranty</b>          | 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response   |

### Base Models

|                             |   |   |
|-----------------------------|---|---|
| <b>SKU Number</b>           | P02873-B21 (WW)<br>P02873-291 (JPN)<br>P02873-AA1 (PRC)   | P40455-B21 (WW)<br>P40455-291 (JPN)<br>P40455-AA1 (PRC) |
| <b>Model Name</b>           | HPE ProLiant DL560 Gen10 6230 2.1GHz 20-core 2P 128GB-R P408i-a 8SFF 2x1600W RPS Server Server  |   |
| <b>Processor</b>            | Intel® Xeon® 6230<br>(20-Core, 2.1GHz, 125W)  |   |
| <b>Number of Processors</b> | 2   |   |
| <b>Memory</b>               | 128 GB<br>(4x32GB Registered DIMMs, 2933 MT/s)<br><b>Notes:</b> 24 DIMM slots available with Entry Model; 2 more processor slots and 24 more DIMMs available via optional HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21)  |   |
| <b>Network Controller</b>   | HPE FlexFabric 10Gb 2-port FLR-SFP+ 57810S Adapter  | HPE Ethernet 10Gb 2-port FLR-T BCM57416 Adapter         |
| <b>Storage Controller</b>   | HPE Smart Array P408i-a   |   |
| <b>Power Supply</b>         | 2x 1600W<br><b>Notes:</b> 1600W Power supplies only support high line voltage (200VAC to 240VAC).<br><b>Notes:</b> Non Lot 9 compliant PSU  |   |
| <b>PCI-Express Slots</b>    | 3 PCIe 3.0 slots available<br><b>Notes:</b> 8 PCIe 3.0 slots available with the secondary and tertiary riser installed.   |   |
| <b>Hard drive</b>           | None shipped as Standard  |   |
| <b>Internal Storage</b>     | 8 SFF Drive Bays<br><b>Notes:</b><br>– Can be expanded up to a max of 24 SFF drives, with optional HPE DL560 Gen10 8SFF HDD Bay2 Kit (872235-B21) and HPE DL560 Gen10 8 SFF HDD Bay1 Kit (872231-B21).<br>– Optionally NVMe SSD drives can be added with HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8 SFF Bay1 Kit (872227-B21) or HPE DL560 Gen10 Prem 6 SFF+2 NVMe Bay2 Kit(872229-B21) or HPE DL560 Gen10 Premium 6 SFF and 2 NVMe or 8 SFF Bay3 Kit (872231-B21) or HPE DL560 NVMe 8 SSD Express Bay Enablement Kit (872225-B21). |   |

### Pre-configured Models

|                          |   |
|--------------------------|---|
|                          | – Alternatively, optional <a href="#">HPE DL560 Gen10 Universal Media Bay Kit</a> .   |
| <b>Optical Drive Bay</b> | Optional via Universal Media Bay  |
| <b>Optical Drive</b>     | Optional via Universal Media Bay  |
| <b>Fans</b>              | 6 hot plug fans, redundant  |
| <b>Management</b>        | HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download); HPE iLO Advanced and HPE OneView Advanced (require licenses) |
| <b>Form Factor</b>       | RACK (2U), HPE Easy Install Rails with CMA  |
| <b>Warranty</b>          | 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response   |

| Base Models                 |   |   |
|-----------------------------|---|---|
| <b>SKU Number</b>           | P02874-B21 (WW)<br>P02874-291 (JPN)<br>P20874-AA1 (PRC)   | P40456-B21 (WW)<br>P40456-291 (JPN)<br>P40456-AA1 (PRC) |
| <b>Model Name</b>           | HPE ProLiant DL560 Gen10 6254 3.1GHz 18-core 4P 256GB-R P408i-a 8SFF 2x1600W RPS Server   |   |
| <b>Processor</b>            | Intel® Xeon® 6254<br>(18-Core, 3.1GHz, 200W)  |   |
| <b>Number of Processors</b> | 4   |   |
| <b>Memory</b>               | 256 GB<br>(8x32GB Registered DIMMs, 2933 MT/s )   |   |
| <b>Network Controller</b>   | HPE FlexFabric 10Gb 2-port FLR-SFP+ 57810S Adapter  | HPE Ethernet 10Gb 2-port FLR-T BCM57416 Adapter         |
| <b>Storage Controller</b>   | HPE Smart Array P408i-a   |   |
| <b>Power Supply</b>         | 2x 1600W<br><b>Notes:</b> 1600W Power supplies only support high line voltage (200VAC to 240VAC).<br><b>Notes:</b> Non Lot 9 compliant PSU                        |   |
| <b>PCI-Express Slots</b>    | 6 PCIe 3.0 slots available<br><b>Notes:</b> 8 PCIe 3.0 slots available with the tertiary riser installed.   |   |
| <b>Hard Drive</b>           | None ship standard  |   |
| <b>Internal Storage</b>     | 8 SFF Drive Bays  |   |
| <b>Optical Drive Bay</b>    | Optional via Universal Media Bay  |   |
| <b>Optical Drive</b>        | Optional via Universal Media Bay  |   |
| <b>Fans</b>                 | 6 hot plug fans, redundant  |   |
| <b>Management</b>           | HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download); HPE iLO Advanced and HPE OneView Advanced (require licenses) |   |
| <b>Form Factor</b>          | Rack (2U), HPE Easy Install Rails with CMA  |   |
| <b>Warranty</b>             | 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response   |   |

### Pre-configured Models

| Performance Models          |  |   |
|-----------------------------|--|---|
| <b>SKU Number</b>           | P02875-B21 (WW)<br>P02875-291 (JPN)<br>P20875-AA1 (PRC)  | P40457-B21 (WW)<br>P40457-291 (JPN)<br>P40457-AA1 (PRC) |
| <b>Model Name</b>           | HPE ProLiant DL560 Gen10 8268 2.9GHz 24-core 4P 512GB-R P816i-a 16SFF 2x1600W RPS Server   |   |
| <b>Processor</b>            | Intel® Xeon® 8268<br>(24-Core, 2.9GHz, 205W)   |   |
| <b>Number of Processors</b> | 4  |   |
| <b>Memory</b>               | 512 GB<br>(16x32GB Registered DIMMs, 2933 MT/s )   |   |
| <b>Network Controller</b>   | HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter Adapter  | HPE Ethernet 10/25Gb 2-port FLR-SFP28 BCM57414 Adapter  |
| <b>Storage Controller</b>   | Smart Array P816i-a  |   |
| <b>PCI-Express Slots</b>    | 8 PCIe 3.0 slots available   |   |
| <b>Power Supply</b>         | 2x 1600W<br><b>Notes:</b> 1600W Power supplies only support high line voltage (200VAC to 240VAC).<br><b>Notes:</b> Non Lot 9 compliant PSU                           |   |
| <b>Hard Drive</b>           | None ship standard   |   |
| <b>Internal Storage</b>     | 16 SFF Drive Bays  |   |
| <b>Optical Drive Bay</b>    | None ship standard. optional via Universal Media Bay   |   |
| <b>Optical Drive</b>        | None ship standard. optional via Universal Media Bay   |   |
| <b>Fans</b>                 | 6 hot plug fans, redundant   |   |
| <b>Management</b>           | HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download); HPE iLO Advanced (included) and HPE OneView Advanced (included) |   |
| <b>Form Factor</b>          | Rack (2U), HPE Easy Install Rails with CMA   |   |
| <b>Warranty</b>             | 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response  |   |

**Notes:** UEFI is the standard default for all pre-defined models.

#### Country Code Key

xx1 = B21 Worldwide (exclude Japan and PRC)

xx1 = 291 Japan

xx1 = AA1 PRC

**Notes:** The -B21 WW SKU is to be ordered in all countries other than Japan or PRC.

### Configuration Information

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

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

For more information about riser configuration, please visit:

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=a00043229enw>

- European Union (EU) eco-design regulations for server and storage products, known as LOT 9, go into effect on March 1st, 2020. Among other requirements, for servers this directive establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations.
- HPE ProLiant Gen10 servers are compliant with LOT9 requirements. For more information regarding HPE LOT 9 conformance, please visit: <https://www.hpe.com/us/en/about/environment/msds-specs-more.html>
- DL500 family is identified as Resilient Server category under LOT 9 regulation, system minimum configuration with 2 Memory DIMMs and 2 PSU for CE Market.

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

|                           |  |            |
|---------------------------|--|------------|
| <b>SKU Number</b>         | HPE ProLiant DL560 Gen10 8SFF Configure-to-order Server  | 841730-B21 |
| <b>TAA SKU</b>            | HPE ProLiant DL560 Gen10 TAA-compliant 8SFF Configure-to-order Server  | 875797-B21 |
| <b>Chipset</b>            | Intel® C621 Chipset  |            |
| <b>Processor</b>          | 2U Server Chassis with 2 processor slots available; 3 or 4 processors configuration would require<br>HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21)  |            |
| <b>DIMM Slots</b>         | 24 DIMM slots for RDIMM, LRDIMM DDR4 Memory; (6 DIMM slots per processor can be used for NVDIMMs or can be used for HPE Persistent Memory)<br>48 DIMM configuration would require optional HPE ProLiant HPE DL5x0 Gen10 CPU Mezzanine Board Kit (872222-B21) and 4 processors<br><b>Notes:</b> If 2 <sup>nd</sup> generation Intel® Xeon® Scalable processors are being used (82xx, 62xx or 52xx series) the 48 DIMM configuration would require optional HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21) |            |
| <b>Network Controller</b> | None. FlexibleLOM slot (various options can be chosen for networking; NIC cards also available via expansion slots)  |            |
| <b>Storage Controller</b> | HPE Smart Array S100i<br><b>Notes:</b> HPE Smart Array S100i SR Gen10 SW RAID is off by default and must be enabled. For enabling, please select HPE FIO Enable Smart Array SW RAID (784308-B21).  |            |
| <b>PCIe</b>               | 3 PCIe 3.0 slots (8 PCIe 3.0 slots are available if second processor is chosen and a Secondary and Tertiary Riser Kits has been installed)   |            |

### Configuration Information

|                              |  |
|------------------------------|--|
| <b>Drive Cage - included</b> | 8 SFF, no drives   |
| <b>Fans</b>                  | 6 hot plug fans, redundant   |
| <b>Management</b>            | HPE iLO Standard with Intelligent Provisioning and (Standard); HPE OneView Standard (requires download) and HPE iLO Advanced, HPE OneView Advanced (require additional licenses) |
| <b>microSD Slots</b>         | 1 microSD card slot (internal)   |
| <b>TPM Connector</b>         | 1 Trusted Platform Module (TPM) connector  |
| <b>UEFI</b>                  | BIOS Legacy mode (field configurable) or Unified Extensible Firmware Interface (UEFI) mode (default)   |
| <b>USB</b>                   | 7 USB ports (2 USB 2.0 and 5 USB 3.0)  |
| <b>Video Ports</b>           | 2 video ports (1 front optional via the Universal Media Kit upgrade option, 1 rear)  |
| <b>Rails</b>                 | Easy install rails and cable management arm are optional   |

#### Notes:

- Trade Agreement Act (TAA) and means that these SKUs are manufactured in countries that are part of the global trade act. This provides greater security assurance that these servers come from countries that signed the agreement act.  
This is particularly important to HPE customers in our federal sector and other verticals that have concerns about the country of origin for our solutions.
- TAA servers are only orderable in North America and Canada.
- PCIe slot availability is dependent on the number of processors and riser kits installed. Please refer to the "Expansion slots" section for more details.
- For the DL560 Gen10, the number of processors can be one, two or four installed.
- For four processors, the HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21) is required if 2nd generation Intel® Xeon® Scalable processors are being used.
- This applies to CTO configurations, field upgrades may differ depending on field configuration.
- For more detail riser configuration, please see <https://h20195.www2.hp.com/v2/Getdocument.aspx?docname=a00043229enw>

### Step 2: Choose Required Options

Please select one -L21 processor required below.

#### Step 2a: Choose Processor Options

##### Processor Option Kits

##### Intel Xeon-Platinum

Intel Xeon-Platinum 8280L (2.7GHz/28-core/205W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P07154-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Platinum 8280 (2.7GHz/28-core/205W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02984-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Platinum 8276 (2.2GHz/28-core/165W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02958-L21

**Notes:** Ships with Performance Heatsink.

### Configuration Information

Intel Xeon-Platinum 8270 (2.7GHz/26-core/205W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02979-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Platinum 8268 (2.9GHz/24-core/205W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02985-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Platinum 8260L (2.4GHz/24-core/165W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P07152-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Platinum 8260 (2.4GHz/24-core/165W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02959-L21

**Notes:** Ships with Performance Heatsink.

#### Intel Xeon-Gold

Intel Xeon-Gold 6256 (3.6GHz/12-core/205W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P24434-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6254 (3.1GHz/18-core/200W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02986-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02962-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6252N (2.3GHz/24-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02960-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02961-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6246 (3.3GHz/12-core/165W) Processor Kit for HPE ProLiant DL560 Gen10 P15170-B21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6244 (3.6GHz/8-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02988-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02989-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6240L (2.6GHz/18-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P11949-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02963-L21

**Notes:** Ships with Performance Heatsink.



### Configuration Information

Intel Xeon-Gold 6238 (2.1GHz/22-core/140W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P03005-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P03006-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02965-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6230N (2.3GHz/20-core/125W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02987-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02981-L21

Intel Xeon-Gold 5222 (3.8GHz/4-core/105W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02982-L21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02983-L21

Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02978-L21

Intel Xeon-Gold 5218N (2.3GHz/16-core/110W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P02964-L21

Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P07147-L21

Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) FIO Processor Kit for HPE ProLiant DL560 Gen10 P03024-L21

**Notes:**

– If more than one processor is desired select one xxxxxx-L21 and one or three corresponding xxxxxx-B21 processors. Mixing different processor models is not supported.

– Mixing of 1<sup>st</sup> and 2<sup>nd</sup> generation Intel® Xeon® Scalable processors - (8/6/5)1xx and (8/6/5)2xx models - is not supported

### Step 2b: Choose Memory Options

Only one of the following from each list unless otherwise noted

#### Registered DIMMs (RDIMMs)

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00918-B21

HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00920-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00922-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit 835955-B21

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00924-B21

### Configuration Information

|   |            |
|---|------------|
| HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit | 815100-B21 |
| HPE 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit | P00930-B21 |

### Load Reduced DIMMs (LRDIMMs)

|   |            |
|---|------------|
| HPE 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit | P11040-B21 |
|---|------------|

### HPE Persistent Memory

|   |            |
|---|------------|
| Intel Optane 128GB persistent memory 100 Series for HPE | 835804-B21 |
| Intel Optane 512GB persistent memory 100 Series for HPE | 835810-B21 |

### Notes:

- LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
- The 2933 MT/s DIMMs are only supported with the 2<sup>nd</sup> generation Intel® Xeon® Scalable processors (82xx,62xx and 52xx)
- The 2666 MT/s DIMMs are only supported with the 1<sup>st</sup> generation Intel® Xeon® Scalable processors (81xx,61xx and 51xx)
- The HPE Persistent Memory Kits are only supported with the 2<sup>nd</sup> generation Intel® Xeon® Scalable processors
- The HPE Persistent Memory Kits are required to support up to 2 TB on 'M' processors and up to 4.5TB on 'L' processors
- The HPE Persistent Memory Kits cannot be selected with NVDIMMs or with any single rank x8 DDR4 2933 memory kit
- The HPE Persistent Memory Kits cannot be selected with HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit (865434-B21)
- Persistent Memory kits of different capacities cannot be mixed within a server
- For General Server Memory , HPE Persistent Memory and NVDIMM Population Rules and Guidelines for Gen10 see details here: <http://www.hpe.com/docs/memory-population-rules>

### Step 2c: Choose Power Supplies

Only one or more of the following from each list unless otherwise noted

#### HPE Flex Slot Power Supplies

|  |            |
|--|------------|
| HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit  | 865438-B21 |
| HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit  | 865414-B21 |
| HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit    | 865434-B21 |
| HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit | 865428-B21 |
| HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit | 830272-B21 |
| HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit       | P44712-B21 |

**Notes:** Output capped at 1600W maximum on Gen10 & Gen10 Plus servers, greater than 1600W only feasible on Gen11." Similar to the one currently stated on FlexSlot PSUs

### Notes:

- Select one or more power supplies. For 800W, 4 power supplies need to be selected.
- 1600W Power supplies only support high line voltage (200VAC to 240VAC).
- 800W Titanium power supplies support high line voltage (200VAC to 240VAC)
- Prior to making a power supply selection it is highly recommended that the HPE Power Advisor is run to

## Configuration Information

determine the right size power supply for your server configuration. The HPE Power Advisor is located at:

<http://www.hpe.com/info/hppoweradvisor>.

- All power supplies in a server should match. Mixing Power Supplies is not supported.
- HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). Visit [HPE power cords](#) for a full list of optional power cords.
- DL500 family is identified as Resilient Server category under LOT 9 regulation, system minimum configuration with 2 Memory DIMMs and 2 PSU for CE Market.
- Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements. HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.

### Step 2d: Choose network adapters

Only one of the following from each list unless otherwise noted

#### Network Adapters

|   |            |
|---|------------|
| HPE Ethernet 1Gb 4-port FLR-T BCM5719 Adapter                               | 629135-B22 |
| HPE Ethernet 1Gb 4-port FLR-T I350-T4V2 Adapter                             | 665240-B21 |
| HPE FlexFabric 10Gb 4-port FLR-T 57840S Adapter                             | 764302-B21 |
| HPE FlexFabric 10Gb 2-port FLR-SFP+ 57810S Adapter                          | 700751-B21 |
| HPE Ethernet 10Gb 2-port FLR-T BCM57416 Adapter                             | 817721-B21 |
| HPE FlexFabric 10Gb 2-port FLR-T 57810S Adapter                             | 700759-B21 |
| HPE Ethernet 10Gb 2-port FLR-SFP+ X710-DA2 Adapter                          | 727054-B21 |
| HPE Ethernet 10Gb 2-port FLR-T X550-AT2 Adapter                             | 817745-B21 |
| HPE Ethernet 10/25Gb 2-port FLR-SFP28 QL41401-A2G Converged Network Adapter | 867334-B21 |
| HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter                 | 817749-B21 |
| HPE Ethernet 10/25Gb 2-port FLR-SFP28 BCM57414 Adapter                      | 817709-B21 |

### Step 3: Choose Additional Factory Integratable Options

Only one of the following from each list unless otherwise noted

#### Risers

|   |            |
|---|------------|
| HPE DL560 Gen10 4-port 8 NVMe Slimline FIO Riser Kit          | 876242-B21 |
| HPE DL560 Gen10 x8/x8/x8 1-port 2 NVMe Slimline FIO Riser Kit | 876245-B21 |
| HPE DL38X Gen10 x16/x16 GPU Slot2/3 FIO Riser Kit             | 871676-B21 |

**Notes:** For additional details on ProLiant DL Gen10 server risers please visit:

<https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00043229enw>

#### HPE OneView

|  |        |
|--|--------|
| HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU                                | P8B31A |
| HPE OneView for ProLiant DL Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU | E5Y43A |

#### BIOS Mode

### Configuration Information

HPE Legacy FIO Mode Setting

758959-B22

**Notes:** Selecting this option will change the UEFI BIOS setting into Legacy BIOS Setting.

#### Controller State

HPE FIO Enable Smart Array SW RAID

784308-B21

**Notes:** If not selecting an HPE Storage Controller, this option may be selected to support RAID and Hot-plug capabilities for SATA hard drives. The S100i does not support SAS hard drives.

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

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## Core Options

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

**HPE Unique Options**

|  |            |
|--|------------|
| HPE DL5x0 Gen10 12Gb SAS Expander Card Kit with Cables   | 873444-B21 |
| HPE DL560 Gen10 2SFF Premium HDD Front NVMe/SAS/SATA Kit | 872223-B21 |

**Notes:** Needs to be ordered with the HPE DL560 Gen10 Uni Media Bay Kit (872267-B21).

|  |            |
|--|------------|
| HPE DL560 NVMe 8 SSD Express Bay Enablement Kit          | 872225-B21 |
| HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8SFF Bay1 Kit | 872227-B21 |
| HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8SFF Bay2 Kit | 872229-B21 |
| HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8SFF Bay3 Kit | 872231-B21 |
| HPE DL560 Gen10 4-port NVMe Mezzanine Card               | 874633-B21 |
| HPE DL560 Gen10 8SFF HDD Bay1 Kit                        | 872233-B21 |
| HPE DL560 Gen10 8SFF HDD Bay2 Kit                        | 872235-B21 |
| HPE DL560 Gen10 8SFF HDD Bay3 Kit                        | 872237-B21 |
| HPE DL560 Gen10 Universal Media Bay Kit                  | 872267-B21 |

**Notes:** An optional Optical Disk Drive can be added, either DVD-ROM (726536-B21) or DVD-RW (726537-B21).

|  |            |
|--|------------|
| HPE DL5x0 Gen10 System Insight Display Kit     | 872261-B21 |
| HPE DL560 Gen10 4x Power Supply Enablement Kit | 875675-B21 |

**Notes:** Must be ordered when selecting 4 power supplies.

|   |            |
|---|------------|
| HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit | P07991-B21 |
| HPE DL5x0 Gen10 CPU Mezzanine UPI Performance Kit | 875608-B21 |

**Notes:**

- The HPE DL5x0 Gen10 CPU Version 2 Mezzanine Board Kit (P07991-B21) is needed for three or four processor configurations using 1<sup>st</sup> and 2<sup>nd</sup> generation Intel® Xeon® Scalable processors (all listed in this Quick spec. document)
- The HPE DL560 Gen10 8 SFF Bay 3 Cage/Backplane Kit (872237-B21) is shipped default with the server. The priority order of drive box population is Box 3, followed by Box 2 and then Box 1.

**HPE Processors****Intel Xeon-Platinum**

|  |            |
|--|------------|
| Intel Xeon-Platinum 8280L (2.7GHz/28-core/205W) Processor Kit for HPE ProLiant DL560 Gen10 | P07154-B21 |
|--|------------|

**Notes:** Ships with Performance Heatsink

|   |            |
|---|------------|
| Intel Xeon-Platinum 8280 (2.7GHz/28-core/205W) Processor Kit for HPE ProLiant DL560 Gen10 | P02984-B21 |
|---|------------|

**Notes:** Ships with Performance Heatsink.

## Core Options

|   |            |
|---|------------|
| Intel Xeon-Platinum 8276 (2.2GHz/28-core/165W) Processor Kit for HPE ProLiant DL560 Gen10 | P02958-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Platinum 8270 (2.7GHz/26-core/205W) Processor Kit for HPE ProLiant DL560 Gen10 | P02979-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Platinum 8268 (2.9GHz/24-core/205W) Processor Kit for HPE ProLiant DL560 Gen10 | P02985-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Platinum 8260 (2.4GHz/24-core/165W) Processor Kit for HPE ProLiant DL560 Gen10 | P02959-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| <b>Intel Xeon-Gold</b>  |            |
| Intel Xeon-Gold 6256 (3.6GHz/12-core/205W) Processor Kit for HPE ProLiant DL560 Gen10     | P24434-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6254 (3.1GHz/18-core/200W) Processor Kit for HPE ProLiant DL560 Gen10     | P02986-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) Processor Kit for HPE ProLiant DL560 Gen10     | P02962-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6252N (2.3GHz/24-core/150W) Processor Kit for HPE ProLiant DL560 Gen10    | P02960-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) Processor Kit for HPE ProLiant DL560 Gen10     | P02961-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6246 (3.3GHz/12-core/165W) Processor Kit for HPE ProLiant DL560 Gen10     | P15170-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6244 (3.6GHz/8-core/150W) Processor Kit for HPE ProLiant DL560 Gen10      | P02988-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) Processor Kit for HPE ProLiant DL560 Gen10     | P02989-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6240L (2.6GHz/18-core/150W) Processor Kit for HPE ProLiant DL560 Gen10    | P11949-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) Processor Kit for HPE ProLiant DL560 Gen10     | P02963-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6238 (2.1GHz/22-core/140W) Processor Kit for HPE ProLiant DL560 Gen10     | P03005-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) Processor Kit for HPE ProLiant DL560 Gen10      | P03006-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) Processor Kit for HPE ProLiant DL560 Gen10     | P02965-B21 |
| <b>Notes:</b> Ships with Performance Heatsink.  |            |
| Intel Xeon-Gold 6230N (2.3GHz/20-core/125W) Processor Kit for HPE ProLiant DL560 Gen10    | P02987-B21 |

### Core Options

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) Processor Kit for HPE ProLiant DL560 Gen10 P02981-B21

Intel Xeon-Gold 5222 (3.8GHz/4-core/105W) Processor Kit for HPE ProLiant DL560 Gen10 P02982-B21

**Notes:** Ships with Performance Heatsink.

Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) Processor Kit for HPE ProLiant DL560 Gen10 P02983-B21

Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) Processor Kit for HPE ProLiant DL560 Gen10 P02978-B21

Intel Xeon-Gold 5218N (2.3GHz/16-core/110W) Processor Kit for HPE ProLiant DL560 Gen10 P02964-B21

Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) Processor Kit for HPE ProLiant DL560 Gen10 P07147-B21

Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) Processor Kit for HPE ProLiant DL560 Gen10 P03024-B21

**Notes:**

–If more than one processor is desired select one xxxxxx-L21 and one or three corresponding xxxxxx-B21 processors. Mixing different processor models is not supported.

–Mixing of 1<sup>st</sup> and 2<sup>nd</sup> generation Intel® Xeon® Scalable processors - (8/6/5)1xx and (8/6/5)2xx models -is not supported

### Memory Selection

To streamline the configuration process for HPE ProLiant Gen10 servers and to provide the best product availability, HPE recommends memory from the list located here:

<http://www.hpe.com/products/recommend>.

Best product availability is limited to US, Canada, and Latin America at this time.

#### HPE Memory

Hewlett Packard Enterprise memory from previous generation servers is not qualified or warranted with this HPE ProLiant Server. HPE Smart Memory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen10. For additional information, please see the [HPE](#)

#### [Smart Memory QuickSpecs](#).

LRDIMM and RDIMM are all distinct memory technologies and cannot be mixed within a server.

#### Registered DIMMs (RDIMMs)

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00918-B21

HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00920-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00922-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit 835955-B21

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00924-B21

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit 815100-B21

HPE 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00930-B21

#### Load Reduced DIMMs (LRDIMMs)

HPE 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit P11040-B21

#### HPE Persistent Memory

Intel Optane 128GB persistent memory 100 Series for HPE 835804-B21

Intel Optane 256GB persistent memory 100 Series for HPE 835807-B21

Intel Optane 512GB persistent memory 100 Series for HPE 835810-B21

**Notes:**

### Core Options

- A maximum of 6 HPE Persistent Memory Kits per processor and a maximum of 24 kits are supported on the DL560
- The HPE Persistent Memory Kits are only supported with the 2<sup>nd</sup> generation Intel® Xeon® Scalable processors
- The HPE Persistent Memory Kits are required to support up to 2 TB on 'M' processors and up to 4.5TB on 'L' processors
- The HPE Persistent Memory Kits cannot be selected with NVDIMMs or with any single rank x8 DDR4 2933 memory kit
- The HPE Persistent Memory Kits cannot be selected with HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit (865434-B21)
- Persistent memory kits of different capacities cannot be mixed within a server

| Configuration | HPE Persistent Memory kits | Number of RDIMMs or LRDIMMs required |
|---------------|----------------------------|--------------------------------------|
| <b>1P</b>     | 1                          | 6                                    |
|               | 2                          | 4,6 or 8                             |
|               | 4                          | 6                                    |
|               | 6                          | 6                                    |
| <b>2P</b>     | 2                          | 12                                   |
|               | 4                          | 8,12 or 16                           |
|               | 8                          | 12                                   |
|               | 12                         | 12                                   |
| <b>4P</b>     | 4                          | 24                                   |
|               | 8                          | 16,24 or 32                          |
|               | 16                         | 24                                   |
|               | 24                         | 24                                   |

**Notes:** Please refer to <http://www.hpe.com/info/persistentmemory> for HPE Persistent Memory population rules and guidelines.

### HPE Optical Drives

HPE 9.5mm SATA DVD-ROM Optical Drive 726536-B21

**Notes:** The optional Universal Media Bay Kits are required for this option. (HPE ProLiant DL560 Gen10 Universal Media Bay kit (872267-B21).

HPE 9.5mm SATA DVD-RW Optical Drive 726537-B21

**Notes:** The optional Universal Media Bay Kits are required for this option. (HPE ProLiant DL560 Gen10 Universal Media Bay kit - 872267-B21).

HPE Mobile USB DVD-RW Optical Drive 701498-B21

**Notes:** External

### HPE Drives

#### Notes:

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



## Core Options

**Enterprise - 12G SAS - SFF Drives**

|   |            |
|---|------------|
| HPE 300GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD      | 870753-B21 |
| HPE 300GB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD      | 872475-B21 |
| HPE 600GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD      | 870757-B21 |
| HPE 600GB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD      | 872477-B21 |
| HPE 900GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD      | 870759-B21 |
| HPE 1.2TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD      | 872479-B21 |
| HPE 1.8TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD | 872481-B21 |
| HPE 2.4TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD | 881457-B21 |

**Midline - 12G SAS - SFF Drives**

|  |            |
|--|------------|
| HPE 1TB SAS 12G Business Critical 7.2K SFF SC 1-year Warranty HDD      | 832514-B21 |
| HPE 2TB SAS 12G Business Critical 7.2K SFF SC 1-year Warranty 512e HDD | 765466-B21 |

**Midline - 6G SATA - SFF Drives**

|  |            |
|--|------------|
| HPE 1TB SATA 6G Business Critical 7.2K SFF SC 1-year Warranty HDD      | 655710-B21 |
| HPE 2TB SATA 6G Business Critical 7.2K SFF SC 1-year Warranty 512e HDD | 765455-B21 |

**SSD Selection**

To streamline the configuration process for HPE ProLiant Gen10 servers and to provide the best product availability,

HPE recommends SSDs from the list located here: <http://www.hpe.com/products/recommend>.

**Read Intensive - 6G SATA - SFF - Solid State Drives**

|  |            |
|--|------------|
| HPE 240GB SATA 6G Read Intensive SFF SC Multi Vendor SSD | P18420-B21 |
| HPE 480GB SATA 6G Read Intensive SFF SC Multi Vendor SSD | P18422-B21 |

**Read Intensive - 6G SATA - SFF - Solid State Drives**

|   |            |
|---|------------|
| HPE 960GB SATA 6G Read Intensive SFF SC Multi Vendor SSD  | P18424-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF SC Multi Vendor SSD | P18426-B21 |
| HPE 3.84TB SATA 6G Read Intensive SFF SC Multi Vendor SSD | P18428-B21 |
| HPE 7.68TB SATA 6G Read Intensive SFF SC Multi Vendor SSD | P18430-B21 |

**Notes:** Multi-vendor SKUs are composed of numerous supplier manufactured SSDs within a given SATA capacity SKU. When ordering a particular SKU-B21 number the customer will receive a homogenous set of vendor manufactured SSDs in that capacity that has meet or exceeded the HPE qualification standards published above.

**Read Intensive - 6G SATA - M.2 - Solid State Drives**

|   |            |
|---|------------|
| HPE 240GB SATA 6G Read Intensive M.2 Multi Vendor SSD                 | P47817-B21 |
| HPE Dual 480GB SATA 6G Read Intensive M.2 to SFF SCM Multi Vendor SSD | P47819-B21 |
| HPE 480GB SATA 6G Read Intensive M.2 Multi Vendor SSD                 | P47818-B21 |

**Read Intensive - 12G SAS - SFF - Solid State Drives**

|  |            |
|--|------------|
| HPE 480GB SATA 6G Read Intensive SFF SC PM893 SSD  | P47810-B21 |
| HPE 960GB SATA 6G Read Intensive SFF SC PM893 SSD  | P47811-B21 |
| HPE 1.9TB SATA 6G Read Intensive SFF SC PM893 SSD  | P47812-B21 |
| HPE 3.84TB SATA 6G Read Intensive SFF SC PM893 SSD | P47813-B21 |

### Core Options

#### Read Intensive - 12G SAS - SFF - Solid State Drives

|   |            |
|---|------------|
| HPE 960GB SAS 12G Read Intensive SFF SC Multi Vendor SSD            | P49028-B21 |
| HPE 960GB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD  | P36997-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF SC Multi Vendor SSD           | P49030-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD | P36999-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF SC Multi Vendor SSD           | P49034-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD | P37001-B21 |
| HPE 7.68TB SAS 12G Read Intensive SFF SC Multi Vendor SSD           | P49039-B21 |
| HPE 7.68TB SAS 12G Read Intensive SFF SC Value SAS Multi Vendor SSD | P37003-B21 |
| HPE 15.36TB SAS 12G Read Intensive SFF SC Multi Vendor SSD          | P49044-B21 |

#### Read Intensive- NVMe -SFF- U.3 - Solid State Drives

|   |            |
|---|------------|
| HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF SCN U.3 PM1733a SSD                  | P50214-B21 |
| HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF SCN Self-encrypting FIPS U.3 CM6 SSD | P44572-B21 |
| HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF SCN U.3 PM1733a SSD                  | P50217-B21 |
| HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF SCN Self-encrypting FIPS U.3 CM6 SSD | P44580-B21 |
| HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF SCN U.3 PM1733a SSD                  | P50220-B21 |

#### Notes:

- **Warning:** In order to have SED feature on NVMe SED drives connected via direct attach,
- Local Key Management requires TPM2.0
- Remote Key Management requires iLO Adv
- Requirements for Direct Attach SED support:
  - TPM2.0 is required for Local Key Management. Keys will be encrypted locally by TPM and stored locally.
  - iLO Adv is required for Remote Key Management. Key is stored in remote key manager(Ex.ESKM)
- Requirements for MR controller(BRCM) SED support
  - TPM is not required for Local Key Management as Key is stored in controller
  - iLO Adv is required for Remote Key Management. Key is stored in remote key manager(Ex.ESKM)

## Core Options

**Read/Write Intensive - NVMe - SFF - U.2 - Solid State Drives**

|  |            |
|--|------------|
| HPE 750GB NVMe Gen3 High Performance Low Latency Write Intensive SFF SCN U.2 P4800X SSD    | P06952-B21 |
| HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF SCN U.2 P5520 SSD                 | P51452-B21 |
| HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF SCN U.2 Multi Vendor SSD    | P47823-B21 |
| HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF SCN U.2 V2 Multi Vendor SSD | P64874-B21 |
| HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF SCN U.2 P5520 SSD                 | P51454-B21 |
| HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF SCN U.2 Multi Vendor SSD    | P47824-B21 |
| HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF SCN U.2 V2 Multi Vendor SSD | P64882-B21 |
| HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF SCN U.2 P5520 SSD                 | P51456-B21 |
| HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF SCN U.2 Multi Vendor SSD    | P47825-B21 |
| HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF SCN U.2 V2 Multi Vendor SSD | P64890-B21 |

**Notes:**

- A NVMe (872225-B21 or 872227-B21 or 872229-B21, 872231-B21) or Premium (872223-B21) drive cage are required to support these drives in conjunction with a NVMe riser kit or 4-port NVMe Mezzanine card.
- Not supported by HPE Smart Array controllers.

**Mixed Use - 12G SAS - SFF - Solid State Drives**

|  |            |
|--|------------|
| HPE 800GB SAS 12G Mixed Use SFF SC Multi Vendor SSD            | P49046-B21 |
| HPE 960GB SAS 12G Mixed Use SFF SC Value SAS Multi Vendor SSD  | P37005-B21 |
| HPE 1.6TB SAS 12G Mixed Use SFF SC Multi Vendor SSD            | P49048-B21 |
| HPE 1.92TB SAS 12G Mixed Use SFF SC Value SAS Multi Vendor SSD | P37011-B21 |
| HPE 3.2TB SAS 12G Mixed Use SFF SC Multi Vendor SSD            | P49052-B21 |
| HPE 3.84TB SAS 12G Mixed Use SFF SC Value SAS Multi Vendor SSD | P37017-B21 |
| HPE 6.4TB SAS 12G Mixed Use SFF SC Multi Vendor SSD            | P49056-B21 |

**Mixed Use - 6G SATA - SFF - Solid State Drives**

|  |            |
|--|------------|
| HPE 480GB SATA 6G Mixed Use SFF SC PM897 SSD         | P47814-B21 |
| HPE 480GB SATA 6G Mixed Use SFF SC Multi Vendor SSD  | P18432-B21 |
| HPE 960GB SATA 6G Mixed Use SFF SC PM897 SSD         | P47815-B21 |
| HPE 960GB SATA 6G Mixed Use SFF SC Multi Vendor SSD  | P18434-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF SC PM897 SSD        | P47816-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF SC Multi Vendor SSD | P18436-B21 |
| HPE 3.84TB SATA 6G Mixed Use SFF SC Multi Vendor SSD | P18438-B21 |

**Notes:** Multi-vendor SKUs are composed of numerous supplier manufactured SSDs within a given SATA capacity SKU. When ordering a particular SKU-B21 number the customer will receive a homogenous set of vendor manufactured SSDs in that capacity that has meet or exceeded the HPE qualification standards published above.

### Core Options

#### Mixed Use - NVMe - U.3 - Solid State Drives

|   |            |
|---|------------|
| HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF SCN U.3 PM1735a SSD                  | P50225-B21 |
| HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF SCN Self-encrypting FIPS U.3 CM6 SSD | P44588-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF SCN U.3 PM1735a SSD                  | P50228-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF SCN Self-encrypting FIPS U.3 CM6 SSD | P44596-B21 |
| HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF SCN U.3 PM1735a SSD                  | P50231-B21 |

#### Notes:

- **Warning:** In order to have SED feature on NVMe SED drives connected via direct attach,
- Local Key Management requires TPM2.0
- Remote Key Management requires iLO Adv
- Requirements for Direct Attach SED support:
  - TPM2.0 is required for Local Key Management. Keys will be encrypted locally by TPM and stored locally.
  - iLO Adv is required for Remote Key Management. Key is stored in remote key manager(Ex.ESKM)
- Requirements for MR controller(BRCM) SED support
  - TPM is not required for Local Key Management as Key is stored in controller
  - iLO Adv is required for Remote Key Management. Key is stored in remote key manager(Ex.ESKM)

#### Mixed Use - NVMe - SFF - U.2 - Solid State Drives

|  |            |
|--|------------|
| HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF SCN U.2 P5620 SSD                 | P51458-B21 |
| HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF SCN U.2 Multi Vendor SSD    | P47820-B21 |
| HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF SCN U.2 V2 Multi Vendor SSD | P64870-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF SCN U.2 P5620 SSD                 | P51460-B21 |
| HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF SCN U.2 Multi Vendor SSD    | P47821-B21 |
| HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF SCN U.2 V2 Multi Vendor SSD | P64878-B21 |
| HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF SCN U.2 P5620 SSD                 | P51462-B21 |
| HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF SCN U.2 Multi Vendor SSD    | P47822-B21 |
| HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF SCN U.2 V2 Multi Vendor SSD | P64886-B21 |

#### Notes:

- A NVMe (872225-B21 or 872227-B21 or 872229-B21, 872231-B21) or Premium (872223-B21) drive cage are required to support these drives in conjunction with a NVMe riser kit.
- Not supported by HPE Smart Array controllers.

#### Hard Drive Blank Kits

|  |            |
|--|------------|
| HPE Small Form Factor Hard Drive Blank Kit | 666987-B21 |
|--|------------|

#### Hard Drive Kits

|   |            |
|---|------------|
| HPE Universal SATA 6G AIC HHHL M.2 SSD Enablement Kit | 878783-B21 |
|---|------------|

## Core Options

**Notes:** This is a M.2 enablement standup card.

|                                   |            |
|-----------------------------------|------------|
| HPE DL560 Gen10 8SFF HDD Bay1 Kit | 872233-B21 |
| HPE DL560 Gen10 8SFF HDD Bay2 Kit | 872235-B21 |
| HPE DL560 Gen10 8SFF HDD Bay3 Kit | 872237-B21 |

**NVMe Kit**

|  |            |
|--|------------|
| HPE NS204i-p x2 Lanes NVMe PCIe3 x8 OS Boot Device       | P12965-B21 |
| HPE DL560 NVMe 8 SSD Express Bay Enablement Kit          | 872225-B21 |
| HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8SFF Bay1 Kit | 872227-B21 |
| HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8SFF Bay2 Kit | 872229-B21 |
| HPE DL560 Gen10 Premium 6SFF and 2 NVMe or 8SFF Bay3 Kit | 872231-B21 |

**Media Bay Kits**

|  |            |
|--|------------|
| HPE DL560 Gen10 Universal Media Bay Kit                  | 872267-B21 |
| HPE DL560 Gen10 2SFF Premium HDD Front NVMe/SAS/SATA Kit | 872223-B21 |

**Notes:** This kit can only be used with the HPE DL560 Gen10 Universal Media kit.

**HPE Networking****25 Gigabit Ethernet adapters**

|   |            |
|---|------------|
| HPE Ethernet 10/25Gb 2-port SFP28 QL41401-A2G Adapter           | 867328-B21 |
| HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 Adapter              | 817718-B21 |
| HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter         | 817753-B21 |
| Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE | P08458-B21 |
| Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE | P08443-B21 |

**10 Gigabit Ethernet adapters**

|   |            |
|---|------------|
| HPE Ethernet 10Gb 2-port SFP+ QL41401-A2G Adapter | P08446-B21 |
| HPE Ethernet 10Gb 2-port SFP+ 57810S Adapter      | 652503-B21 |

**10 Gigabit Ethernet adapters**

|   |            |
|---|------------|
| HPE Ethernet 10Gb 2-port BASE-T BCM57416 Adapter    | 813661-B21 |
| HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter      | 727055-B21 |
| HPE Ethernet 10Gb 2-port BASE-T X550-AT2 Adapter    | 817738-B21 |
| HPE Ethernet 10Gb 2-port BASE-T QL41401-A2G Adapter | 867707-B21 |

**Notes:**

- A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. Please see the related NIC QuickSpecs for Technical Specifications and additional information:

<https://www.hpe.com/us/en/product-catalog/servers/server-adapters.hits-12.html>

**1 Gigabit Ethernet adapters**

|  |            |
|--|------------|
| HPE Ethernet 1Gb 4-port BASE-T BCM5719 Adapter   | 647594-B21 |
| HPE Ethernet 1Gb 4-port BASE-T I350-T4V2 Adapter | 811546-B21 |

## Core Options

|   |            |
|---|------------|
| HPE Ethernet 1Gb 2-port BASE-T BCM5720 Adapter  | 615732-B21 |
| <b>100 Gigabit Ethernet adapters</b>  |            |
| HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter   | 874253-B21 |
| <b>FlexibleLOM Adapters</b>   |            |
| HPE Ethernet 1Gb 4-port FLR-T BCM5719 Adapter   | 629135-B22 |
| HPE Ethernet 1Gb 4-port FLR-T I350-T4V2 Adapter   | 665240-B21 |
| HPE FlexFabric 10Gb 2-port FLR-T 57810S Adapter   | 700759-B21 |
| HPE FlexFabric 10Gb 2-port FLR-SFP+ 57810S Adapter  | 700751-B21 |
| HPE Ethernet 10Gb 2-port FLR-T BCM57416 Adapter   | 817721-B21 |
| HPE FlexFabric 10Gb 4-port FLR-T 57840S Adapter   | 764302-B21 |
| HPE Ethernet 10Gb 2-port FLR-SFP+ X710-DA2 Adapter  | 727054-B21 |
| HPE Ethernet 10Gb 2-port FLR-T X550-AT2 Adapter   | 817745-B21 |
| HPE Ethernet 10/25Gb 2-port FLR-SFP28 QL41401-A2G Converged Network Adapter   | 867334-B21 |
| HPE Ethernet 10/25Gb 2-port FLR-SFP28 BCM57414 Adapter  | 817709-B21 |
| HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter   | 817749-B21 |
| <b>Notes:</b> Please see the NIC QuickSpecs for Technical Specifications and additional information:<br><a href="https://www.hpe.com/us/en/product-catalog/servers/server-adapters.hits-12.html">https://www.hpe.com/us/en/product-catalog/servers/server-adapters.hits-12.html</a> |            |

## HPE InfiniBand

|   |            |
|---|------------|
| HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter  | 879482-B21 |
| HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter  | 872726-B21 |
| <b>Notes:</b> Not supported on DL560 Gen10 24SFF chassis when System Inlet Temperature higher than 25°C.  |            |
| HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter   | 829335-B21 |
| HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe3 x16 MCX653105A-ECAT Adapter  | P06250-B21 |
| HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe3 x16 MCX653106A-ECAT Adapter  | P06251-B21 |
| <b>Notes:</b> Not supported on DL560 Gen10 24SFF chassis when System Inlet Temperature higher than 25°C.  |            |
| HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe3 x16 MCX653105A-HDAT Adapter   | P06154-B21 |
| <b>Notes:</b> Not supported on DL560 Gen10 24SFF chassis when System Inlet Temperature higher than 25°C.  |            |
| HPE InfiniBand HDR PCIe3 Auxiliary Card with 350mm Cable Kit  | P06154-B23 |
| <b>Notes:</b> For additional InfiniBand information:<br><a href="https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440">https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440</a> |            |

## HPE I/O Expansion Options

|   |            |
|---|------------|
| HPE DL560 Gen10 x8/x8/x8 1-port 2 NVMe Slimline Riser Kit | 873420-B21 |
| HPE DL560 Gen10 4-port 8 NVMe Slimline Riser Kit          | 873418-B21 |
| HPE DL560 Gen10 x8/x8 Tertiary Riser Kit                  | 872253-B21 |

### Core Options

|   |            |
|---|------------|
| HPE DL Gen10 x16/x16 GPU Riser Kit                        | 826704-B21 |
| HPE DL Gen10 x8/x16/x8 Riser Kit                          | 870548-B21 |
| HPE DL560 Gen10 x8 1-port 2 NVMe Slimline Riser Kit       | 872255-B21 |
| HPE DL560 Gen10 2-port 4 NVMe Slimline Tertiary Riser Kit | 872257-B21 |

#### Notes:

- Secondary and Tertiary risers are optional kits which can be utilized when system is populated with at least two (2) processors. Refer to "Expansion Slots" section for additional details on risers.
- For additional details on ProLiant DL Gen10 server risers please visit: <https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00043229enw>

### HPE Smart I/O Options

|  |            |
|--|------------|
| Pensando Distributed Services Platform DSC-25 Enterprise 10/25Gb 2-port SFP28 Card                   | P26966-B21 |
| Pensando Distributed Services Platform for HPE iLO Sideband Management Adaptive LOM Module           | P26969-B21 |
| Pensando Distributed Services Platform Enterprise 1-year Renewal Subscription 24x7 Support E-RTU     | R6A06AAE   |
| Pensando Distributed Services Platform Enterprise 3-year Subscription 24x7 Support E-RTU             | R6A07AAE   |
| Pensando Distributed Services Platform Enterprise 4-year Subscription 24x7 Support E-RTU             | R6F68AAE   |
| Pensando Distributed Services Platform Enterprise 5-year Subscription 24x7 Support E-RTU             | R6A08AAE   |
| Pensando Distributed Services Platform Enterprise Pro 1-year Renewal Subscription 24x7 Support E-RTU | R6A09AAE   |
| Pensando Distributed Services Platform Enterprise Pro 3-year Subscription 24x7 Support E-RTU         | R6A10AAE   |
| Pensando Distributed Services Platform Enterprise Pro 4-year Subscription 24x7 Support E-RTU         | R6F69AAE   |
| Pensando Distributed Services Platform Enterprise Pro 5-year Subscription 24x7 Support E-RTU         | R6A11AAE   |

### HPE Power Supplies

|   |            |
|---|------------|
| HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit  | P44712-B21 |
| <b>Notes:</b> Output capped at 1600W maximum on Gen10 & Gen10 Plus servers, greater than 1600W only feasible on Gen11." Similar to the one currently stated on FlexSlot PSUs            |            |
| HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit  | 830272-B21 |
| <b>Notes:</b>   |            |
| – Flex Slot Platinum Plus power supplies support power efficiency of up to 94% and include a C-14 power inlet connector that can support HPE Power Discovery Services (blue connector). |            |
| – 1600W Power supplies only support high line voltage (200VAC to 240VAC).   |            |
| HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit   | 865434-B21 |
| <b>Notes:</b> Flex Slot -48VDC power supplies support power efficiency of up to 94%.  |            |
| HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit   | 865414-B21 |
| <b>Notes:</b> Flex Slot Platinum power supplies support power efficiency of up to 94% and include a standard C-14 power inlet connector.  |            |
| HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit   | 865438-B21 |

### Core Options

#### Notes:

- 800W Titanium power supplies support high line voltage (200VAC to 240VAC).
- Flex Slot Titanium power supplies support power efficiency of up to 96% and include a standard C-14 power inlet connector

HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit

865428-B21

#### Notes:

- Flex Slot universal power supplies support power efficiency of up to 94% and support both 277VAC/380VDC power inputs.
- Prior to making a power supply selection it is highly recommended that the HPE Power Advisor is run to determine the right size power supply for your server configuration. The HPE Power Advisor is located at: <http://www.hpe.com/info/hppoweradvisor>.
- All power supplies in a server should match. Mixing Power Supplies is not supported.
- Option kits contain the specified power supply and a PDU IEC cable.
- 1600W power supplies only support high line voltage.
- HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). Visit [HPE power cords](#) for a full list of optional HPE power cords.
- DL500 family is identified as Resilient Server category under LOT 9 regulation, system minimum configuration with 2 Memory DIMMs and 2 PSU for CE Market.
- Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements. HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.

| GPGPU information |                                |               |                    |            |             |             |                     |
|-------------------|--------------------------------|---------------|--------------------|------------|-------------|-------------|---------------------|
| Part number       | Card                           | Qty supported | Process or support | PCIe speed | 8/16/24 SFF | Max. 8 NVMe | Greater than 8 NVMe |
| Q0V77A            | NVIDIA Quadro P2000 GPU Module | 2             | All                | Gen3       | 35C         | 35C         | 30C                 |
| R2U55C            | NVIDIA Quadro P2200 GPU Module | 2             | All                | Gen3       | 35C         | 35C         | 35C                 |
| R0W29C            | NVIDIA Tesla T4 16GB Module    | 2             | All                | Gen3       | 35C*        | 35C**       | No Support          |

#### Notes:

- Check the power usage via the HPE Power Advisor Tool located at <http://www.hpe.com/info/hppoweradvisor>.
- A maximum of 2 GPU cards can be supported, 1 in primary riser expansion slot 2 and another in secondary riser expansion slot 5. Refer Expansion Slots sections for additional details on risers.
- \*24 SFF not supported
- \*\*only support 8 SFF+8 NVMe configuration



### Additional Options

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

#### iLO Advanced

|  |            |
|--|------------|
| HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features        | E6U59ABE   |
| HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features        | E6U64ABE   |
| HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features          | BD505A     |
| HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features | BD506A     |
| HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features      | BD507A     |
| HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features          | 512485-B21 |
| HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features | 512486-B21 |
| HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features      | 512487-B21 |
| HPE iLO Common Password FIO Setting  | P08040-B21 |

#### Notes:

- Replaces iLO default randomized password by an HPE defined common password. HPE highly recommends changing this password immediately after the initial onboarding process.
- Customers who want to choose their own custom iLO default password should use the HPE Factory Express Integration Services

#### HPE OneView Advanced (with HPE iLO Advanced)

|  |          |
|--|----------|
| HPE OneView including 3yr 24x7 Support Physical 1-server LTU                                   | E5Y34A   |
| HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU                                 | E5Y35AAE |
| HPE OneView for ProLiant DL Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU | E5Y43A   |

#### HPE OneView Advanced (without HPE iLO Advanced)

|  |          |
|--|----------|
| HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU            | P8B24A   |
| HPE OneView w/o iLO including 3yr 24x7 Support Track 1-server LTU      | P8B25A   |
| HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU | P8B26AAE |
| HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU        | P8B31A   |

#### Notes:

- Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded at: <https://www.hpe.com/us/en/integrated-systems/software.html>.
- Electronic and flexible-quantity licenses can be used to purchase multiple licenses with a single activation key.
- Please see the [HPE OneView QuickSpecs](#) for technical specifications and additional information.

### Software as a Service Management

#### HPE GreenLake for Compute Ops Management

|  |          |
|--|----------|
| HPE GreenLake for Compute Ops Management Enhanced 3-year Upfront ProLiant SaaS | R7A11AAE |
|--|----------|

### Additional Options

#### Additional Options

|   |          |
|---|----------|
| HPE GreenLake for Compute Ops Management Enhanced 1-year Upfront ProLiant SaaS  | R7A10AAE |
| HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS  | R7A12AAE |
| <b>Notes:</b> For customers purchasing HPE GreenLake for Compute Ops Management, without a hardware purchase or a BTO purchase, use this base SKU within ASQ order: |          |
| HPE GreenLake for Compute Ops Management Base SaaS  | R6Z73AAE |

### HPE PCIe Workload Accelerator Options

#### HPE Security

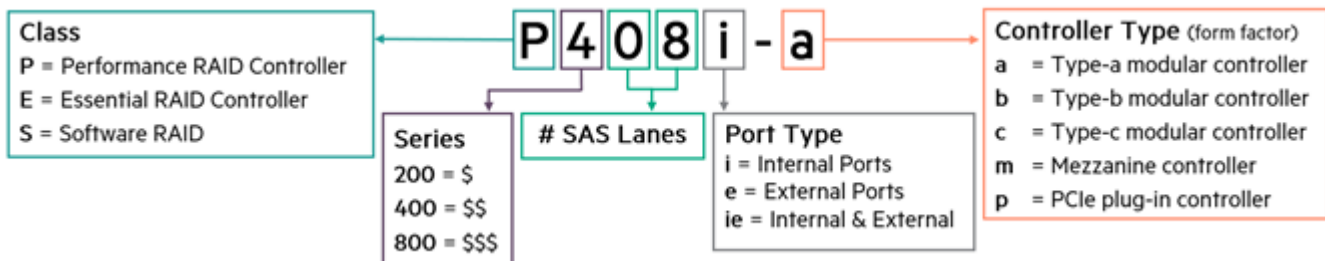
|  |            |
|--|------------|
| HPE Trusted Platform Module 2.0 Gen10 Option | 864279-B21 |
| HPE OEM 2U Non-Brand Gen10 Bezel FIO Kit     | 872212-B21 |
| HPE OEM 2U Non-Brand Gen10 Bezel Kit         | 872214-B21 |
| HPE Gen10 Chassis Intrusion Detection Kit    | 867824-B21 |

#### Notes:

- This provides a physical connection from the chassis board and hood and detects any physical intrusion into the chassis, providing security during the entire supply chain process of shipping, receiving, distribution, and operation.
- HPE Trusted Platform Module 2.0 Option (864279-B21) works with Gen10 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen9 servers or earlier generation variants. HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

### HPE Smart Array Controllers

The Gen10 controller naming framework has been updated to simplify identification as depicted below. For a more detailed breakout of the available Gen10 Smart Array controllers visit the [HPE Smart Array Gen10 Controllers Data Sheet](#).



#### Performance RAID Controllers

**Notes:** All performance RAID controllers are supported by either the HPE Smart Storage Battery (P01366-B21) or the HPE Smart Storage Hybrid Capacitor (P02377-B21), which support multiple devices and are sold separately.

|  |            |
|--|------------|
| HPE Smart Array P816i-a SR Gen10 (16 Int Lanes/4GB Cache/SmartCache) 12G SAS Modular LH Controller | 869083-B21 |
|--|------------|

**Notes:** Does not occupy a PCIe expansion slot.

### Additional Options

HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular LH Controller 869081-B21

**Notes:** Does not occupy a PCIe expansion slot.

HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller 830824-B21

HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller 804405-B21

#### Essential RAID Controllers

HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller 869079-B21

**Notes:** Does not occupy a PCIe expansion slot.

HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller 804394-B21

HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller 804398-B21

### Optional Software

HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU D7S27A

HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU D7S27AAE

**Notes:** SmartCache is offered on HPE Smart Array performance RAID controllers and comes standard (no licensing is required) if the HPE Smart Array P816i-a SR Gen10 LH Controller is installed in the server.

### Optional Upgrades

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit P01366-B21

**Notes:** Provides backup power for multiple HPE Smart Array controllers or other devices. Is required with performance RAID controllers and NVDIMMs.

HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit P02377-B21

#### Notes:

– Supports up to 3 performance RAID controllers. If 4 or more performance RAID controllers are selected, HPE 96W Smart Storage Battery (P01366-B21) is required

– Only one of either HPE Smart Storage Hybrid Capacitor (P02377-B21) or the HPE 96W Smart Storage Battery (P01366-B21) can be configured in a server

– HPE Smart Storage Hybrid Capacitor cannot be used with NVDIMMs

HPE DL38X/560/580/ML350 Gen10 P824i-p Cable Kit P00614-B21

**Notes:** Needs to be ordered with the HPE SmartArray P824i-p MR Gen10 controller.

### HPE Tape Backup

For the complete range of tape drives, autoloaders, libraries and media see:

<https://www.hpe.com/us/en/storage/storeever-tape-storage.html>. For hardware and software compatibility of Hewlett Packard Enterprise tape backup products <http://www.hpe.com/storage/BURCompatibility>.

### Additional Options

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#### HPE Storage Options

##### Emulex Fibre Channel HBAs

|   |        |
|---|--------|
| HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter | Q0L13A |
| HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter   | Q0L14A |
| HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter | Q0L11A |
| HPE SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter   | Q0L12A |

##### QLogic Fibre Channel HBAs

|   |        |
|---|--------|
| HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter      | R2J62A |
| HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter      | R2J63A |
| HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter      | R2E08A |
| HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter      | R2E09A |
| HPE SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter | P9D93A |
| HPE SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter   | P9D94A |
| HPE SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter | P9M75A |
| HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter   | P9M76A |

##### Converged Network Adapter

|   |        |
|---|--------|
| HPE CN1200R 10GBASE-T Converged Network Adapter         | Q0F26A |
| HPE CN1300R 10/25Gb Dual Port Converged Network Adapter | Q0F09A |

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#### HPE Racks

- Please see the [HPE Advanced Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.
  - Please see the [HPE Enterprise Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.
  - Please see the [HPE Standard Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.
- 

#### HPE Uninterruptible Power Systems (UPS)

- To learn more, please visit the [HPE Uninterruptible Power Systems \(UPS\) web page](#).
- Please see the [HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs](#) for information on these products and their specifications.
- Please see the [HPE Line Interactive Single Phase UPS QuickSpecs](#) for information on these products and their specifications.

#### HPE Power Distribution Units (PDUs)

- Please see the [HPE Basic Power Distribution Units \(PDU\) QuickSpecs](#) for information on these products and their specifications.
  - Please see the [HPE Metered Power Distribution Units \(PDU\) QuickSpecs](#) for information on these products and their specifications.
-

### Additional Options

- Please see the [HPE Intelligent Power Distribution Unit \(PDU\) QuickSpecs](#) for information on these products and their specifications.
- Please see the [HPE Metered and Switched Power Distribution Units \(PDU\) QuickSpecs](#) for information on these products and their specifications.

### HPE Rack Options

- Please see the [HPE KVM Switches web page](#) for information on these products and their specifications.

### Rail Kits

HPE 2U Large Form Factor Easy Install Rail Kit 733662-B21

**Notes:** Does not include CMA (733664-B21).

HPE 2U Cable Management Arm for Easy Install Rail Kit 733664-B21

HPE 2U Large Form Factor Ball Bearing Rail Kit 720864-B21

**Notes:** Does not include CMA (720865-B21).

HPE 2U Cable Management Arm for Ball Bearing Rail Kit 720865-B21

#### Notes:

- Rail kits are optional for DL560 Gen10 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.
- Ball bearing and Easy Install rail kits contain telescoping rails which allow for in-rack serviceability.
- Hewlett Packard Enterprise recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

### HPE USB and SD Options

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

HPE 32GB microSD RAID 1 USB Boot Drive P21868-B21

HPE 32GB microSD Flash Memory Card 700139-B21

**Notes:** Please see the [HPE Flash Media Kits QuickSpecs](#) for additional information.

**Notes:** In vSphere 7.0, VMware made changes that impact the use of an SD Card/USB media as a standalone boot device and will be removing support for them after version 7.x. SD Card/USB media can still be used as a standalone boot option through all 7.x releases via published Customer Advisory [Usage of SD Card/USB Devices As Standalone Boot Devices Has Changed Due to System Storage Changes For VMware ESXi 7.0 \(Or Later\)](#).

For any major release beyond VMware ESXi 7.x, VMware will require M.2 or another local persistent device as the standalone boot option.

### HPE Support Services

### Additional Options

#### Installation & Start-up Services

HPE Install ProLiant DL560 Service U6H58E

HPE Startup ProLiant DL560 Service U6H60E

#### Tech Care

HPE 5 Year Tech Care Essential DL560 Gen10 Service HS8J8E

HPE 5 Year Tech Care Essential wDMR DL560 Gen10 Service HS8K3E

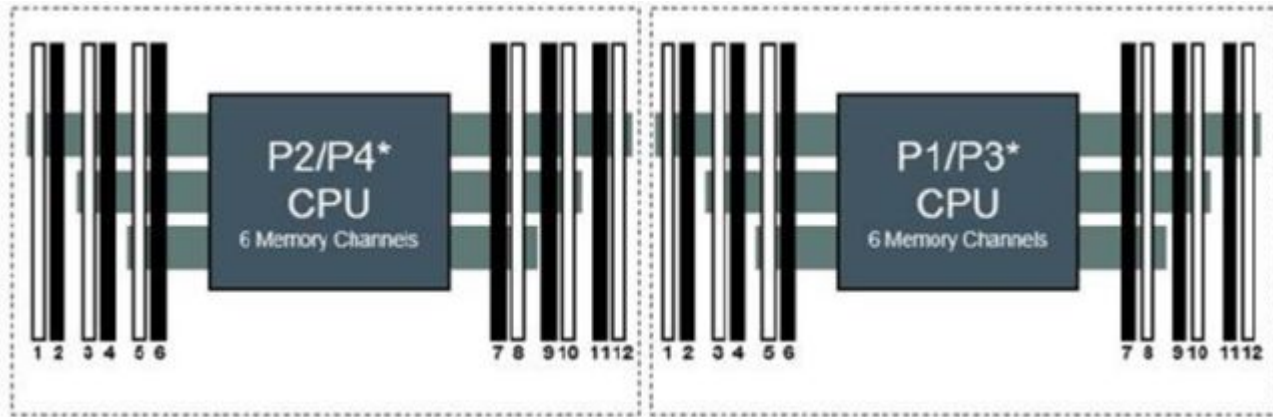
HPE 3 Year Tech Care Essential DL560 Gen10 Service HS8J6E

HPE 3 Year Tech Care Essential wDMR DL560 Gen10 Service HS8K1E

**Notes:** For a full listing of support services available for this server, please visit <http://www.hpe.com/services>.

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### Memory



#### HPE ProLiant Gen10 DL360/ DL380/ DL560\* Servers

2 Slots per Channel

Notes: \*HPE ProLiant DL560 is a 4 socket server (uses P3, P4)

|            |   |   |   |   |   |   |   |   |   |    |    |    |
|------------|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 DIMM     |   |   |   |   |   |   |   | 8 |   |    |    |    |
| 2 DIMM s   |   |   |   |   |   |   |   | 8 |   | 10 |    |    |
| 3 DIMM s   |   |   |   |   |   |   |   | 8 |   | 10 |    | 12 |
| 4 DIMM s   |   |   | 3 |   | 5 |   |   | 8 |   | 10 |    |    |
| 5 DIMM s*  |   |   | 3 |   | 5 |   |   | 8 |   | 10 |    | 12 |
| 6 DIMM s   | 1 |   | 3 |   | 5 |   |   | 8 |   | 10 |    | 12 |
| 7 DIMM s*  | 1 |   | 3 |   | 5 |   | 7 | 8 |   | 10 |    | 12 |
| 8 DIMM s   |   |   | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |    |    |
| 9 DIMM s*  | 1 |   | 3 |   | 5 |   | 7 | 8 | 9 | 10 | 11 | 12 |
| 10 DIMM s* | 1 |   | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |    | 12 |
| 11 DIMM s* | 1 |   | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 12 DIMM s  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

#### HPE ProLiant Gen10 12 slot per CPU

DIMM population order

Memory Population guidelines

Notes: \*Unbalanced, not recommended

### General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, the number and model of installed processors qualified on the platform.

For details on the HPE Server Memory Options Population Rules, visit:

### Memory

<http://www.hpe.com/docs/memory-population-rules>

To realize the performance memory capabilities listed in this document, HPE DDR4 Smart Memory is required.

For additional information, please see the [HPE DDR4 Smart Memory QuickSpecs](#).

### Memory Speed Table for HPE ProLiant DL560 Gen 10

For the HPE Server Memory speed table, please visit: <https://www.hpe.com/docs/memory-speed-table>

### Standard and Maximum Memory Capacity (Pre-configured Models)

| Pre Configured Models | Standard Memory     | Maximum Memory Plus Optional Memory | Standard Memory Replaced with Optional Memory |
|-----------------------|---------------------|-------------------------------------|---|
| 5120                  | 32 GB (2 x 16 GB)   | 384 GB (24 x 16 GB)                 | 6144GB (48 x 128 GB)                          |
| 6130                  | 64 GB (4 x 16 GB)   | 384 GB (24 x 16 GB)                 | 6144GB (48 x 128 GB)                          |
| 6148                  | 128 GB (8 x 16 GB)  | 768 GB (48 x 16 GB)                 | 6144GB (48 x 128 GB)                          |
| 8170                  | 256 GB (16 x 16 GB) | 768 GB (48 x 16 GB)                 | 6144GB (48 x 128 GB)                          |
| 5220                  | 64 GB (2 x 32 GB)   | 768 GB (24 x 32 GB)                 | 6144GB (48 x 128 GB)                          |
| 6230                  | 128 GB (4 x 32 GB)  | 768 GB (24 x 32 GB)                 | 6144GB (48 x 128 GB)                          |
| 6254                  | 256 GB (8 x 32 GB)  | 1536 GB (48 x 32 GB)                | 6144GB (48 x 128 GB)                          |
| 8268                  | 512 GB (16 x 32 GB) | 1536 GB (48 x 32 GB)                | 6144GB (48 x 128 GB)                          |

### DDR4 memory options part number decoder

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

- 4 GB = 4,096 MB
- 8 GB = 8,192 MB
- 16 GB = 16,384 MB
- 32 GB = 32,768 MB
- 64 GB = 65,536 MB
- 128 GB = 131,072 MB

For more information on memory, please see the Memory QuickSpecs: [HPE DDR4 Smart Memory](#)



### Storage



**8 SFF (+2 SFF) hot-plug drive model with Universal Media Bay**



**24 SFF (incl 12 NVMe SSDs) hot-plug drive model**

### Technical Specifications

#### System Unit

- **Dimensions**

**(H x W x D)** (with bezel)

– 8.75cm x 44.54cm x 75.47cm

– 3.44 x 17.54 x 29.71 in

- **Weight** (approximate)

– 34.12 kg

75.23 lb

o **Maximum:** (all hard drives, power supplies, DIMMs and processors installed)

18.45 kg

40.67 lb

o **Minimum:** (one processor, one standard heatsink, one air baffle, one hard drive, one power supply, one DIMM, one rail kit with CMA and one primary riser installed)

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#### Input Requirements (per power supply)

- **Rated Input Voltage**

– 100 - 127 VAC, 200 - 240 VAC, 240VDC for China Only (800W Platinum PS only)

– 200 - 240 VAC, 240VDC for China Only (800W Titanium PS only)

– 200 V to 277 VAC, 380 VDC (800W Universal PS only)

– -40 VDC to -72 VDC, -48 VDC nominal input (800W -48VDC PS only)

– 200 - 240 VAC, 240 VDC for China only (1600W PS Only)

- **Rated Input Current**

– 9.4 A (100 VAC), 4.5 A (200 VAC), 3.8 A at 240VDC for China Only (800W Platinum PS only)

– A at 200 VAC 3.62 A at

– 240 VAC, 3.62 A at 240 VDC for China

– Only (800W Titanium PS only)

– 4.5 A at 200 V AC, 3.2 A at 277 V AC, 2.3 A at 380 VDC - (800W Universal PS only)

– 26 A at -40 VDC input, 19 A at -48 VDC input, nominal input, 12.4 A at -72 VDC input - (800W -48VDC PS only)

– 8.7 A at 200 VAC, 7.2 A at 240 VAC - (1600W PS Only)

- **Rated Input Frequency**

– 50 to 60 Hz (Not applicable for VDC ranges)

- **Maximum Rated Input Power**

– 940 W (100 VAC), 900 W (200VAC), 912 W at 240 VDC for China Only - (800W Platinum PS only)

– 870 W at 200 VAC, 870 W at 240 VAC, 870 W at 240 VDC for China only - (800W Titanium PS only)

– 900 W at 200 VAC, 887 W at 277 VAC, 874 W at 380 VDC - (800W Universal PS only)

– 936 W at -40 VDC input 912 W at -48 VDC input, nominal input 900 W at -72 VDC input - (800W -48VDC PS only)

– 1734 W at 200 VAC 1720 W at 240 VAC - (1600W PS Only)

### Technical Specifications

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#### BTU Rating

##### Maximum

- 3207 BTU/hr at 100 VAC, 3071 BTU/hr at 200 VAC, 3112 BTU/hr at 240 for China only - (800W Platinum PS only)
  - 2969 BTU/hr at 200 VAC, 2969 BTU/hr at 240 VAC, 2969 BTU/hr at 240 VDC for China only - (800W Titanium PS only)
  - 3071 BTU/hr at 200 VAC, 3026 BTU/hr at 277 VAC, 2982 BTU/hr at 380 VDC - (800W Universal PS only)
  - 3194 BTU/hr at -40 VDC input, 3112 BTU/hr at -48 VDC input (nominal input), 3071 BTU/hr at -72 VDC input - (800W -48VDC PS only)
  - 5918 BTU/hr at 200 VAC, 5884 BTU/hr at 240 VAC - (1600W PS Only)
- 

#### Power Supply Output(per power supply)

- **Rated Steady-State Power**

- 800 W at 100 VAC to 127 VAC input, 800 W at 200 VAC to 240 VAC input, 800 W at 240 VDC input for China only - (800W Platinum PS only)
- 800 W at 200 VAC to 240 VAC input, 800 W at 240 VDC input for China only - (800W Titanium PS only)
- 800 W at 200 VAC to 277 VAC input, 800 W at 380 VDC input - (800W Universal PS only)
- 800 W at -40 VDC to -72 VDC - (800W -48VDC PS only)
- 1600 W at 200 VAC to 240 VAC input, 1600 W at 240 VDC input - (1600W PS Only)

- **Maximum Peak Power**

- 800 W at 100 VAC to 127 VAC input, 800 W at 200 VAC to 240 VAC input, 800 W at 240 VDC input for China only - (800W Platinum PS only)
- 800 W at 200 VAC to 240 VAC input, 800 W at 240 VDC input for China only - (800W Titanium PS only)
- 800 W at 200 VAC to 277 VAC input, 800 W at 380 VDC input- (800W Universal PS only)
- 800 W at -40 VDC to -72 VDC - (800W -48VDC PS only)
- 2200 W for 1ms (turbo mode) at 200 VAC to 240 VAC input - (1600W PS Only)

**Notes:** To review typical system power ratings use the HPE Power Advisor which is available online located at url: <http://www.hpe.com/info/hppoweradvisor>.

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#### System Inlet Temperature

- **Standard Operating Support**

10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).

### Technical Specifications

- **Extended Ambient Operating Support**

For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: [https://support.hpe.com/hpesc/public/docDisplay?docId=a00026969en\\_us&page=index.html](https://support.hpe.com/hpesc/public/docDisplay?docId=a00026969en_us&page=index.html)

For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: [https://support.hpe.com/hpesc/public/docDisplay?docId=a00026969en\\_us&page=index.html](https://support.hpe.com/hpesc/public/docDisplay?docId=a00026969en_us&page=index.html)

System performance may be reduced if operating in the extended ambient operating range or with a fan fault.

- **Non-operating**

-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).

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### Relative Humidity

- **Operating**

8% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.

- **Non-operating** (non-condensing)

5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

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### Altitude

- **Operating**

3050 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).

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### Acoustic Noise

Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information

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### Technical Specifications

from the HPE EMESC website for further technical details regarding the configurations listed below.

| Product Configuration | Entry  | Base   | Performance |
|-----------------------|--------|--------|-------------|
| Idle - LWAd           | 5.0 B  | 5.1 B  | 5.1 B       |
| Idle - LpAm           | 47 dBA | 48 dBA | 48 dBA      |
| Operating - LWAd      | 5.3 B  | 5.7 B  | 5.6 B       |
| Operating - LpAm      | 50 dBA | 54 dBA | 53 dBA      |

**Notes:** Acoustics levels presented here are generated by the test configuration only. Acoustics levels will vary depending on system configuration. Values are subject to change without notification and are for reference only.

### Regulatory Information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

<http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts>

### HPE Smart Array

For latest information on **HPE Smart Array Gen10 Controllers for HPE ProLiant DL, ML and Apollo Servers** please refer to their QuickSpecs. (E208i-a,E208i-p,E208e-p,P408i-a,P408i-p,P408e-p,P816i-a)

### Environment-friendly Products and Approach- End-of-life Management and Recycling

Hewlett Packard Enterprise offers **end-of-life product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

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

### Summary of Changes

| Date        | Version History | Action   | Description of Change   |
|-------------|-----------------|----------|---|
| 02-Oct-2023 | Version 44      | Change d | Standard Features, Configuration Information and Core Options sections were updated.<br>Obsolote SKUs were removed. |
| 05-Sep-2023 | Version 43      | Change d | Standard Features, Configuration Information and Core Options sections were updated.<br>Obsolote SKUs were removed. |
| 01-May-2023 | Version 42      | Change d | Optional Features and Additional Options sections were updated.<br>Obsolote SKUs were removed.                      |
| 12-Dec-2022 | Version 41      | Change d | Optional features and Additional options sections were updated.   |
| 01-Aug-2022 | Version 40      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 05-Jul-2022 | Version 39      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 07-Mar-2022 | Version 38      | Change d | Core Options section was updated.   |
| 07-Feb-2022 | Version 37      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 06-Dec-2021 | Version 36      | Change d | Additional Options and Core Options sections were updated.<br>Obsolote SKUs were removed.                           |
| 01-Nov-2021 | Version 35      | Change d | Core Options and Service and Support sections were updated.<br>Obsolote SKUs were removed.                          |
| 07-Sep-2021 | Version 34      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 02-Aug-2021 | Version 33      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 06-Apr-2021 | Version 32      | Change d | Service and Support and Additional Options sections were updated.   |
| 01-Feb-2021 | Version 31      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 07-Dec-2020 | Version 30      | Change d | Overview, Standard Features and Core Options sections were updated.<br>Obsolote SKUs were removed.                  |
| 02-Nov-2020 | Version 29      | Change d | Standard Features and Pre-configured Models sections were updated.<br>Obsolote SKUs were removed.                   |
| 05-Oct-2020 | Version 28      | Change d | Core Options section was updated.<br>Obsolote SKUs were removed.  |
| 03-Aug-2020 | Version 27      | Change d | Standard Features, Core Options and Additional Options sections were updated.                                       |
| 15-Jun-2020 | Version 26      | Change d | Overview, Pre-configured Models Core Options and Memory sections were updated.                                      |
| 01-Jun-2020 | Version 25      | Change d | Configuration Information and Core Options sections were updated.   |
| 06-Apr-2020 | Version 24      | Change d | Pre-configured Models, Configuration Information, Additional Options and Core Options sections were updated.        |

### Summary of Changes

|             |            |          |   |
|-------------|------------|----------|---|
| 24-Feb-2020 | Version 23 | Change d | Overview, Standard Features, Pre-configured Models, Configuration Information and Core Options sections were updated.<br>Obsolete SKUs were removed |
| 02-Dec-2019 | Version 22 | Change d | Core Options and Additional Options sections were updated<br>Obsolete SKUs were removed   |
| 07-Oct-2019 | Version 21 | Change d | Overview, Standard Features, Configuration Information, Core Options and Additional Options sections were updated.<br>Obsolete SKU was removed.     |

| Date        | Version History | Action   | Description of Change   |
|-------------|-----------------|----------|---|
| 05-Aug-2019 | Version 20      | Change d | Overview, Standard Features, Configuration Information - Factory Integrated Models, Core Options, Additional Options and SMB Models section sections were updated.<br>Obsolete SKU was removed.   |
| 01-Jul-2019 | Version 19      | Change d | The 5218N wattage has changed from 105 to 110W<br>The U.S. version of QuickSpecs is no longer being updated, please reference the Worldwide QuickSpecs for latest information.  |
| 03-Jun-2019 | Version 18      | Change d | Overview, Standard Features, Configuration Information and Core Options sections were updated.  |
| 18-Apr-2019 | Version 17      | Change d | Standard Features, Core Options and Configuration Information sections were updated.  |
| 02-Apr-2019 | Version 16      | Change d | Overview, Standard Features, Optional Features, Configuration Information, Pre-configured Models, Core Options and Memory sections were updated.  |
| 04-Feb-2019 | Version 15      | Change d | Optional Features, Pre-Configured Models, Core Options and Additional Options sections were updated.<br>SKU descriptions were updated and obsolete SKUs were removed.   |
| 03-Dec-2018 | Version 14      | Change d | SKUs were Added and deleted in Core Options   |
| 15-Oct-2018 | Version 13      | Change d | Overview, Standard Features, Configuration Information, Core Options and Additional Options sections were updated.<br>SKU descriptions were updated. and obsolete SKUs were removed.  |
| 01-Oct-2018 | Version 12      | Change d | Overview, Standard Features, Configuration Information, Core Options, Additional Options and Memory sections were updated.<br>SKU descriptions were updated and obsolete SKUs were removed.   |
| 06-Aug-2018 | Version 11      | Change d | New Solid State Drivers offering was added.<br>Configuration Information - Factory Integrated Models and Core Options, Core Options, and Additional Options were revised.<br>Obsolete SKUs were removed from the QuickSpecs.                |
| 04-Jun-2018 | Version 10      | Change d | Added new PCIe workload accelerator and additional options on drives and NICs.<br>Service and Support section was updated.<br>Core Options, Additional Options, and Memory were revised.<br>Obsolete SKUs were removed from the QuickSpecs. |

### Summary of Changes

|             |           |          |  |
|-------------|-----------|----------|--|
| 02-Apr-2018 | Version 9 | Change d | Configuration Information - Factory Integrated Models and Core Options were revised.<br>Obsolete SKUs were removed from the QuickSpecs.                                  |
| 05-Mar-2018 | Version 8 | Remov ed | Obsolete SKUs were removed from the QuickSpecs.  |
| 05-Feb-2018 | Version 7 | Change d | Added New SSD offering.<br>Maximum Internal Storage was revised.<br>Core Options and Additional Options were revised.<br>Obsolete SKUs were removed from the QuickSpecs. |
| 18-Dec-2017 | Version 6 | Change d | Configuration Information - Factory Integrated Models and Core Options were revised.   |
| 04-Dec-2017 | Version 5 | Change d | Added support for new core boosting Intel® Xeon® Processors 6143 and 8165 and support for up to 24 16GB NVDIMM.<br>Processors and Memory were revised.                   |
| 16-Oct-2017 | Version 4 | Change d | Added note - 1600W Power supplies only support high line voltage (200VAC to 240VAC) - to power supplies.<br>Memory section was revised.                                  |

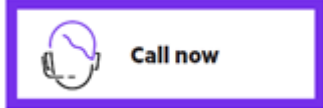
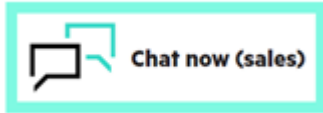
| Date        | Version History | Action   | Description of Change   |
|-------------|-----------------|----------|---|
| 25-Sep-2017 | Version 3       | Change d | Added support for new Intel® Xeon® Processors 6144 and 6146.<br>Added new 128 GB LRDIMM to support higher memory configurations to support 6 TB.<br>New SSD offering and NICs options were added.<br>Added HPE Support Services options.<br>Standard Features, Core Options, Additional Options, and Memory section were revised. |
| 07-Aug-2017 | Version 2       | Change d | Added new Solid State Drives offering to the HPE Drives.<br>Standard Features, Pre-configured Models, Configuration Information - Factory Integrated Models, Core Options, Additional Options, and Memory section were revised.<br>Updated notes.<br>Removed references to Insight Control.                                       |
| 11-Jul-2017 | Version 1       | New      | New QuickSpecs.   |



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

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