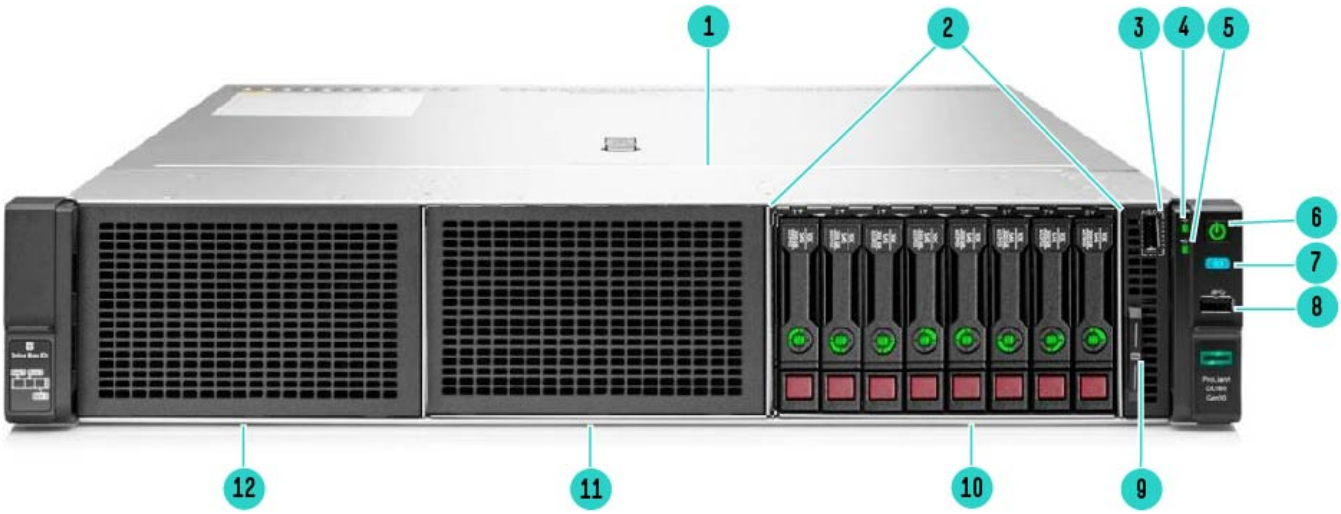
## Overview

### HPE ProLiant DL180 Gen10 Server

**NOTE:** The Proliant DL180 Gen10 is a limited edition server targeted for specific regions.
Please contact your local sales representative for additional information

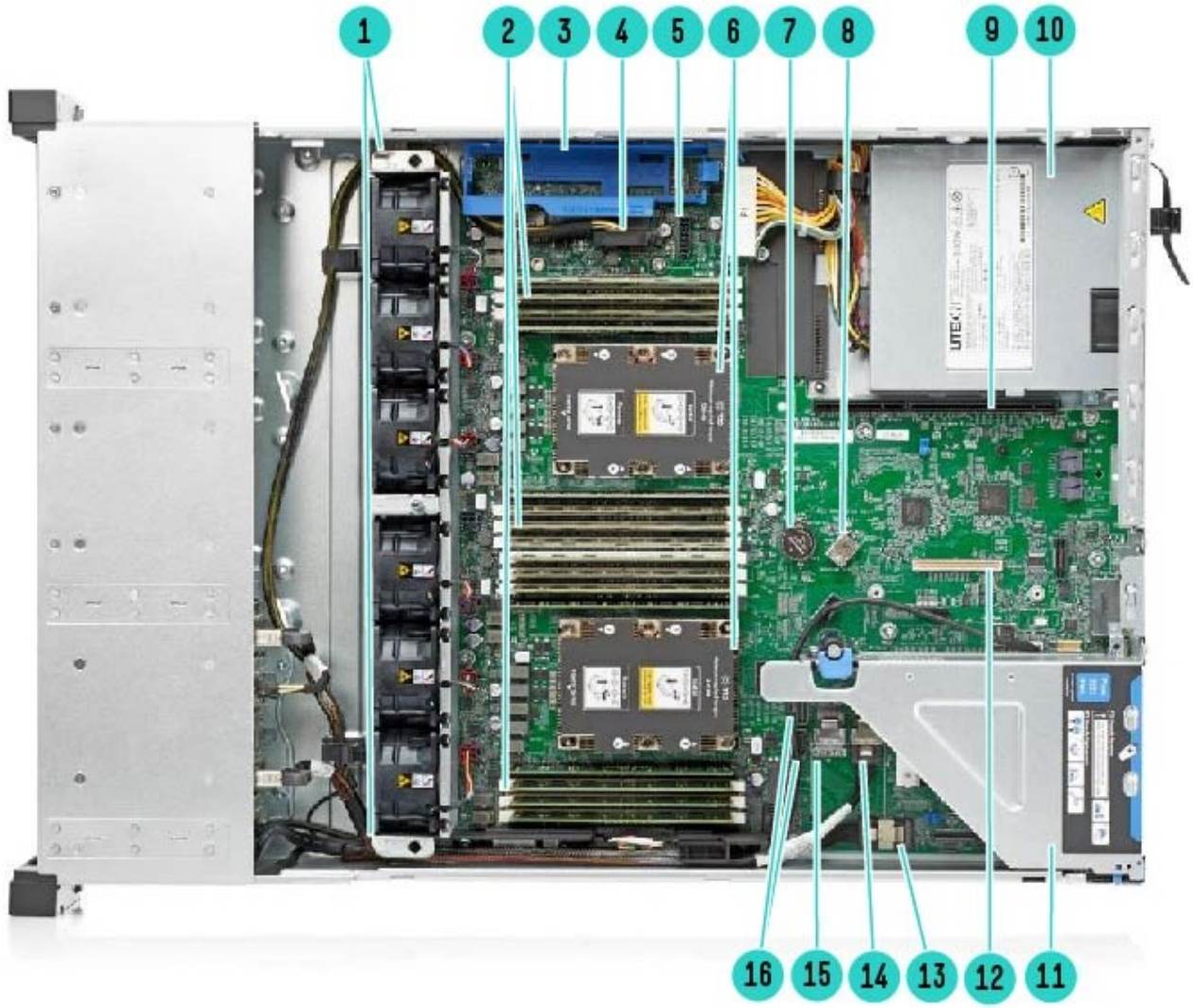
Adaptable for diverse workloads and environments, the secure 2P 2U HPE ProLiant DL180 Gen10 delivers world-class compelling performance with the right balance of expandability and scalability. Designed for supreme versatility and resiliency with the right balance of reliability, manageability and performance, while being backed by a comprehensive warranty make it ideal for multiple environments from Containers to Cloud to Big Data. Standardize on the industry's most trusted compute platform. SMBs and enterprises running application.




**8SFF Chassis - Front View**

1. Quick removal access panel
2. 8 SFF Drive Cage
3. iLO Front Service Port
4. Health LED
5. NIC status
6. Power On/Standby button and system power LED button
7. UID button
8. USB 3.0
9. Serial label pull tag
10 Box 1
11. Box 2
12 Box 3

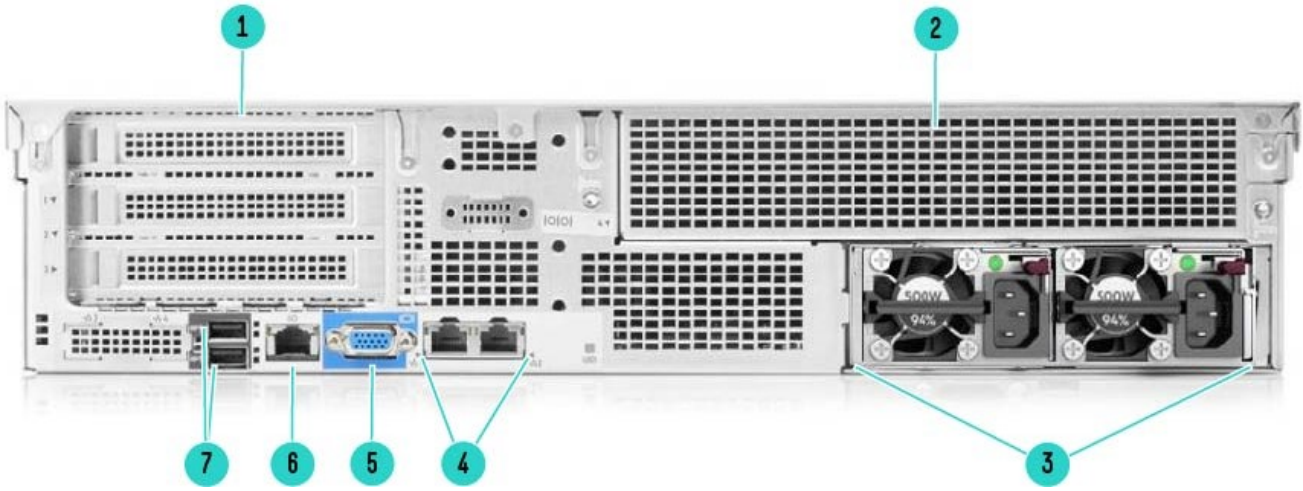
## Overview




**8SFF Chassis – with optional 2nd CPU - Internal View**

1. Fan cage shown with 6 Hot-swap fans
2. DDR4 DIMM slots. Shown fully populated in 16 slots (8 per processor)
3. **Optional** HPE Smart Storage Battery (Battery not shown)
4. Drive Backplane Connector
5. GPU Power Connector
6. 2 Processors, heatsink showing
7. System Battery
8. Internal USB 3.0 port
9. Connection for second (optional) riser (Requires second CPU)
10. Power Supply(Non hot-plug power supply shown)
11. Primary PCIe riser, standard
12. Flexible Smart Array Connector
13. Mini-SAS port 2
14. Mini-SAS port 1
15. Mini-SAS port 3
16. SATA Ports

## Overview




**Rear View**

1. Primary Riser. PCI Slots (Slots 1-3 top to bottom, riser shipped standard, not shown)
2. Secondary Riser. PCI Slots (Slots 4-6top, not shown, requires second riser card, and second processor).
3. Power Supply (Redundant Hot plug shown)
4. Embedded 2 x 1GbE Network Adapter
5. VGA Port
6. Dedicated iLO management port
7. USB connectors 3.0 (2)

### Platform Information

**Form Factor**

2U rack

### Chassis Types

8 SFF

**NOTE:** All models come with the S100i Smart Array Controller with embedded software RAID support for 14 drives. However this needs to be enabled using Enable SW RAID option (784308-B21) while configuring.

### System Fans

Standard – fan types

| | Non-Redundant | Redundant |
|---|---|---|
| 1P Model | 3 fans | 4 fans |

## Standard Features

### Standard Features

Processors – Up to 2 of the following depending on model.

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

| Intel Xeon Models | CPU Frequency | Cores | L3 Cache | Power | UPI | DDR4 | Memory per socket |
|---|---|---|---|---|---|---|---|
| **Silver Processors** | | | | | | | |
| Silver 4110 Processor | 2.1 GHz | 8 | 11.00 MB | 85W | 2 @ 9.6 GT/s | 2400 MT/s | 768 GB |
| | | | | | | | |
| **Bronze Processors** | | | | | | | |
| Bronze 3106 Processor | 1.7 GHz | 8 | 11.00 MB | 85W | 2 @ 9.6 GT/s | 2133 MT/s | 768 GB |

**NOTE:** Silver – 4100 Series - 2 Socket supports 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2400 MHz providing up to 768 GB memory capacity. Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS supported.

**NOTE:** Bronze – 3100 Series - 2 Socket supports 2UPI @ 9.6 GT/s, supports 6-Channel DDR4 @ 2133 MHz providing up to 768GB memory capacity. Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS supported.

### Chipset

Intel C622 Chipset

**NOTE:** 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

**NOTE:** Read and learn more in the **iLO QuickSpecs**.

### Memory

One of the following depending on model

| | | |
|---|---|---|
| **Type:** | | HPE DDR4 SmartMemory, Registered (RDIMM), HPE DDR4 Standard Memory, Registered (RDIMM) |
| **DIMM Slots Available** | 16 | 8 DIMM slots per processor, 6 channels per processor, 2 channels @ 2 DIMMs per channel, 4 channels @ 1 DIMM per channel |
| **Maximum capacity (RDIMM)** | 256 GB | 16 x 16 GB RDIMM @ 2666 MHz |

**NOTE:** The maximum memory by socket is limited by the processor selection.

### Memory Protection

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

## Standard Features

### Expansion Slots

**CPU1 x8x8x8 riser**

| Slots # | Technology | Bus Width | Connector Width | Slot Form Factor | Notes |
|---|---|---|---|---|---|
| 1 | PCIe 3.0 | X8 | X8 | Full-height, full-length slot | Proc 1 |
| 2 | PCIe 3.0 | X8 | X8 | Full-height, half-length slot | Proc 1 |
| 3 | PCIe 3.0 | X8 | X8 | Full-height, half-length slot | Proc 1 |

**NOTE:** Bus Width Indicates the number of physical electrical lanes running to the connector.

**FlexibleLOM**

| Slots # | Technology | Bus Width | Connector Width | Slot Form Factor | Notes |
|---|---|---|---|---|---|
| 1 | PCIe 3.0 | X8 | X8 | Full-height, full-length slot | Proc 1 |
| 2 | PCIe 3.0 | X8 | X8 | Full-height, half-length slot | Proc 1 |
| 3 | PCIe 3.0 | X8 | X8 | FlexibleLOM | Proc 1 |

**NOTE:** Bus Width Indicates the number of physical electrical lanes running to the connector.
**NOTE:** This riser is necessary to install FlexibleLOM adapters

**CPU1 x16x8 riser**

| Slots # | Technology | Bus Width | Connector Width | Slot Form Factor | Notes |
|---|---|---|---|---|---|
| 1 | PCIe 3.0 | X16 | X16 | Full-height, full-length slot | Proc 1 |
| 2 | PCIe 3.0 | X8 | X8 | Full-height, half-length slot | Proc 1 |

**NOTE:** Bus Width Indicates the number of physical electrical lanes running to the connector.

**CPU2 x8x8x8 riser**

| Slots # | Technology | Bus Width | Connector Width | Slot Form Factor | Notes |
|---|---|---|---|---|---|
| 1 | PCIe 3.0 | X8 | X8 | Full-height, full-length slot | Proc 2 |
| 2 | PCIe 3.0 | X8 | X8 | Full-height, half-length slot | Proc 2 |
| 3 | PCIe 3.0 | X8 | X8 | Low profile | Proc 2 |

**NOTE:** Bus Width Indicates the number of physical electrical lanes running to the connector.
**NOTE:** When populating the second optional riser slot, the second processor must be installed.

## Standard Features

### 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**.
One of the following depending on model

**Software RAID**
HPE Smart Array S100i SR Gen10 SW RAID
**NOTE:** 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.
**NOTE:** HPE Smart Array S100i SR Gen10 SW RAID is off by default and must be enabled.
**NOTE:** The S100i uses 14 embedded SATA ports
**NOTE:** HPE Smart Array S100i SR Gen10 SW RAID only supports Windows and does not support Linux. For Linux users, HPE offers a solution that uses in-distro open-source software to create a two-disk RAID 1 boot volume. For more information visit: **https://downloads.linux.hpe.com/SDR/project/lsrrb/**

**Essential RAID Controller**
HPE Smart Array E208i-p SR Gen10 Controller
HPE Smart Array E208e-p SR Gen10 Controller

**NOTE:** Performance RAID Controllers require the HPE Smart Storage Battery (P01366-B21) which is sold separately.

**Internal Storage Devices**
One of the following depending on model
**Optical Drive**
Optional: DVD-ROM, DVD-RW
**Hard Drives**
None ship standard

**Maximum Internal Storage**

| | Capacity | Configuration |
|---|---|---|
| Hot Plug SFF SAS | 9.6 TB | 8X1.2 TB |
| Hot Plug SFF SAS SSD | 3.2 TB | 8X400 Gb |
| Hot Plug SFF SATA SSD | 3.8 TB | 8X480 Gb |

## Standard Features

**Power Supply**
HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
**NOTE:** Available in 94% efficiency.

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 Performance 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 (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the **ProLiant Power Cables** web page.

To review the power requirements for your selected system, please use the **HPE Power Advisor Tool**.
For information on power specifications and technical content visit **HPE Server power supplies**.

| | |
|---|---|
| **Interfaces** | |
| **Video** | 1 rear – VGA Port (standard ) |
| **Network Ports** | 2 x 1 Gb ports shipping standard with optional Media Module, FlexibleLOM or stand up card |
| **Management Network Port** | 1 Gb Dedicated |
| **Front iLO Service Port** | 1 standard |
| **Micro SD Slot** | 1 Micro SD |

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

| | |
|---|---|
| **USB 3.0** | Up to 4 total: 1 front, 2 rear, 1 internal (secure), |

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

- **Windows Server 2019 (Tested Only)**
- **Windows Server 2016**
- **VMware vSphere 6.0 U3**
- **VMware vSphere 6.5 U2**
- **VMware vSphere 6.7 U1**
- **Red Hat Enterprise Linux (RHEL) 6.9,**
- **Red Hat Enterprise Linux (RHEL) 7.6 (with Kbase)**
- **SUSE Linux Enterprise Server 12 SP4**
- **SUSE Linux Enterprise Server 15**

## Standard Features

**Industry Standard Compliance**
ACPI 6.1 Compliant
PCIe 3.0 Compliant
WOL Support
Microsoft® Logo certifications
PXE Support
USB 3.0 Compliant (internal)
SMBIOS 3.1
UEFI 2.6
Redfish API
IPMI 2.0
Secure Digital 2.0
Advanced Encryption Standard (AES)
Triple Data Encrytion Standard (3DES)
SNMP v3
TLS 1.2
DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP)
Active Directory v1.0
ASHRAE A3/A4
**NOTE:** For additional technical thermal details regarding ambient temperatures, humidity and features support please visit: **http://www.hpe.com/servers/ashrae**.
**DL160/DL180 info not published.**
UEFI (Unified Extensible Firmware Interface Forum)

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**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

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**HPE Server UEFI/Legacy ROM**

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen10 servers have a UEFI Class 2 implementation and support both UEFI Mode (default) and Legacy BIOS Mode.

**NOTE:** The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hpe.com/servers/uefi**.

UEFI enables numerous new capabilities specific to HPE ProLiant servers such as:
- Secure Boot 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

## Standard Features

UEFI Boot Mode only:

- TPM 2.0 Support
- NVMe Boot Support
- iSCSI Software Initiator Support.
- HTTP/HTTPs Boot support as a PXE alternative.

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

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

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

**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). Learn more at **http://www.hpe.com/servers/uefi**.

**Intelligent Provisioning**

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

**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**.

**Server Utilities**

**Active Health System**

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 **http://www.hpe.com/info/smartupdate.**

**Service Pack for ProLiant**

The Service Pack for ProLiant (SPP) is a comprehensive collection of server firmware, drivers, and system software tested as a single solution stack, which is delivered as a single ISO image. Learn more at **http://www.hpe.com/servers/spp**

**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**.

## Standard Features

**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/stk** or **http://www.hpe.com/servers/powershell**.

**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**.

**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)
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

**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.

**NOTE:** Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have 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/**.

## Optional Features

**Server Management**

**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**.

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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've 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 you're 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've 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**

**Achieve maximum return from your IT investment**

Get the expertise you need at every step of the IT journey with HPE Pointnext services and support. We help you lower your risks and costs using proven best practices, automation and methodologies that have been tested and refined by HPE experts through thousands of implementations and deployments globally.

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. We collaborate with your IT team from technical design to implementation, build to migration, distribution, and finally to operational consulting and service.

- Integration and performance services provide resources to help you get your systems up and running quickly and augment your IT staff for projects.
- HPE Foundation Care provides fast problem resolution with comprehensive coverage and access to experts.
- HPE Proactive Care provides proactive problem prevention and an enhanced support experience for your systems.
- HPE Datacenter Care helps businesses run their IT operations by optimizing day-to-day tasks, integrating technology management and streamlining to a more agile cloud-like model.

Consume IT services on your terms, getting the specific value that you need for your business. HPE GreenLake Flex Capacity enables you to scale easily by adding capacity in minutes, not months. You pay only for what you actually need, creating true pay-per-use outcomes. Simplify your IT planning, capacity forecasting, and cost allocation with HPE GreenLake.

Learn more about HPE Pointnext services and solutions for your business.

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**Connect your devices:**
Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Reduce down time and improve diagnostic accuracy with a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support.
Learn more about getting connected at **http://www.hpe.com/services/getconnected**

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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://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf**

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**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 Hewlett Packard Enterprise 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.

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

For more information: **http://www.hpe.com/services**

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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 quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

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

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## Configuration Information

**SMB offering - Base Configuration (choose one of the following)**

**These SKUs are not currently available in all countries.** Please contact your local sales representative for additional information

| | SMB Models | |
|---|---|---|
| **SKU Number** | 879513-B21 | 879514-B21 |
| **Model Name** | HPE DL180 Gen10 Intel® Xeon-Bronze 3106 (1.7GHz/8-core/85W) Processor Kit | HPE DL180 Gen10 Intel® Xeon-Silver 4110 (2.1GHz/8-core/85W) Processor Kit |
| **Chassis** | 8SFF | |
| **Processor** | 3106 (1.7GHz/8-core/85W) | 4110 (2.1GHz/8-core/85W) |
| **Number of Processors** | One processor with Standard heatsink | One processor with Standard heatsink |
| **Memory** | HPE 16GB 1Rx4 PC4-2666V-R Smart Kit | HPE 16GB 1Rx4 PC4-2666V-R Smart Kit |
| **Network Controller** | Embedded 2-Port 1GbE | Embedded 2-Port 1GbE |
| **Storage Controller** | Embedded 14Port S100i<br>**NOTE:** SATA only | Embedded 14Port S100i<br>**NOTE:** SATA only |
| **Hard Drive** | None included | None included |
| **Optical Drive** | None included | None included |
| **PCIe Slots** | 3 Standard in Primary Riser | |
| **Power Supply** | 1X500 Redundant Hot Plug | 1X500 Redundant Hot Plug |
| **Fans** | 4 Fans | 4 Fans |
| **Management** | HPE iLO5 | HPE iLO5 |
| **Rail Kit** | SFF Easy Install | SFF Easy Install |
| **Form Factor** | 2U Rack | |
| **Warranty** | 3-year parts, 3-year labor, 3-year onsite support with next business day response | |
| **NOTE:** UEFI is the standard default for all SMB models | | |

## Additional Options

**HPE Processors**

**Processor Option Kits**

| | |
|---|---|
| HPE DL180 Gen10 Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) Processor Kit | 879731-B21 |
| HPE DL180 Gen10 Intel Xeon-Bronze 3106 (1.7GHz/8-core/85W) Processor Kit | 879729-B21 |

**NOTE:** Up to two processors supported. Performance Models include two processors.

**NOTE:** Turbo2: Intel® Turbo Boost Technology 2.0 provides more computing power when you need it with performance that adapts to spikes in your workload and delivers more performance upside than then previous generation turbo technology.

**NOTE:** DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

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**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 SmartMemory**

| | |
|---|---|
| HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit | 815098-B21 |

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**HPE Drives**

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

| | |
|---|---|
| HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 872475-B21 |
| HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 872477-B21 |
| HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD | 872479-B21 |

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

To further assist with configuration, HPE also offers an SSD Selector Tool located here: **http://ssd.hpe.com**.

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

| | |
|---|---|
| HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | P04525-B21 |

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

| | |
|---|---|
| HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD | P07922-B21 |

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**FlexibleLOM adapters**

| | |
|---|---|
| HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter | 817749-B21 |

**NOTE:** The DL180 Gen10 chassis ships with 2x 1 Gb embedded.

**NOTE:** Only one FlexibleLOM can be added to the server. These options are upgradeable and can be changed from the original configuration after the server is shipped.

**NOTE:** FlexibleLOM Enablement Kit (866941-B21) is required to install these adapters

**NOTE:** 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/adapters/pip.models.hpe-storefabric-converged-network-adapters.4118472.html**

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**HPE I/O Expansion Options**

| | |
|---|---|
| HPE DL180 Gen10 CPU1 x8x8x8 PCIe Riser Kit default | 878484-B21 |
| HPE DL180 Gen10 CPU2 x8/x8/x8 PCIe Riser Kit | 866945-B21 |

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## Additional Options

### HPE Power Supplies

| | |
|---|---|
| HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit | 865408-B21 |
| HPE C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord | AF556A |

### Embedded Management

#### HPE iLO Advanced

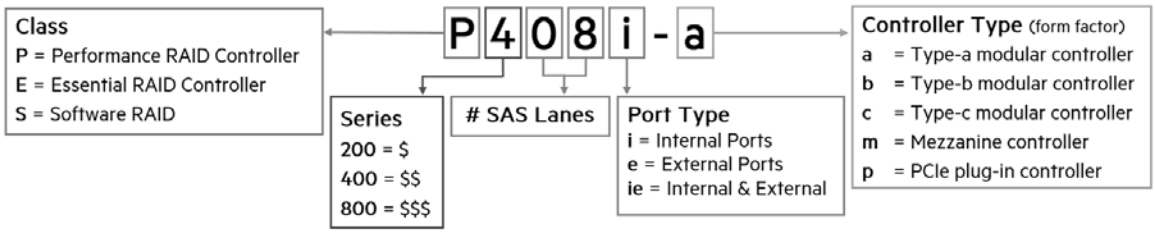
| | |
|---|---|
| HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features | E6U59ABE |
| HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features | 512485-B21 |
| HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features | 512486-B21 |
| HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features | 512487-B21 |
| HPE iLO 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 Security

| | |
|---|---|
| HPE iLO Advanced Premium Security Edition License with 1yr Support on Licensed Features | Q7E31A |
| HPE iLO Advanced Premium Security Flex Qty License with 1yr Support on Licensed Features | Q7E32A |
| HPE iLO Advanced Premium Security Edition Electronic License with 1yr Support on Licensed Features | Q7E32AAE |
| HPE iLO Advanced Premium Security AKA Tracking License with 1yr Support on Licensed Features | Q7E35A |
| HPE iLO Advanced Premium Security Upgrade Electronic License with 3yr Support on Licensed Features | Q7E12AAE |
| HPE iLO Advanced Premium Security Edition License with 3yr Support on Licensed Features | Q7E33A |
| HPE iLO Advanced Premium Security Flex Qty License with 3yr Support on Licensed Features | Q7E34A |
| HPE iLO Advanced Premium Security Edition Electronic License with 3yr Support on Licensed Features | Q7E34AAE |
| HPE iLO Advanced Premium Security AKA Tracking License with 3yr Support on Licensed Features | Q7E36A |

### 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**.




### Essential RAID Controllers

**NOTE:** 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 |

## Additional Options

**Optional Upgrades**

HPE 96W Smart Storage Battery (up to 20 Devices) with 145mm Cable Kit P01366-B21

**NOTE:** Provides backup power for multiple HPE Smart Array controllers or other devices.

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**HPE Tape Backup**

**NOTE:** 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/BURAcompatibility**.

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**HPE Racks**

**NOTE:** Please see the **HPE Advanced Series Racks QuickSpecs** for information on additional racks options and rack specifications.
**NOTE:** Please see the **HPE Enterprise Series Racks QuickSpecs** for information on additional racks options and rack specifications.

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**HPE Power Distribution Units (PDUs)**

**NOTE:** Please see the **HPE Basic Power Distribution Units (PDU) QuickSpecs** for information on these products and their specifications.
**NOTE:** Please see the **HPE Metered Power Distribution Units (PDU) QuickSpecs** for information on these products and their specifications.
**NOTE:** Please see the **HPE Intelligent Power Distribution Unit (PDU) QuickSpecs** for information on these products and their specifications.
**NOTE:** Please see the **HPE Metered and Switched Power Distribution Units (PDU) QuickSpecs** for information on these products and their specifications.

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**HPE Uninterruptible Power Systems (UPS)**

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

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**HPE Rack Options**

**NOTE:** Please see the **HPE KVM Switches web page** for information on these products and their specifications.

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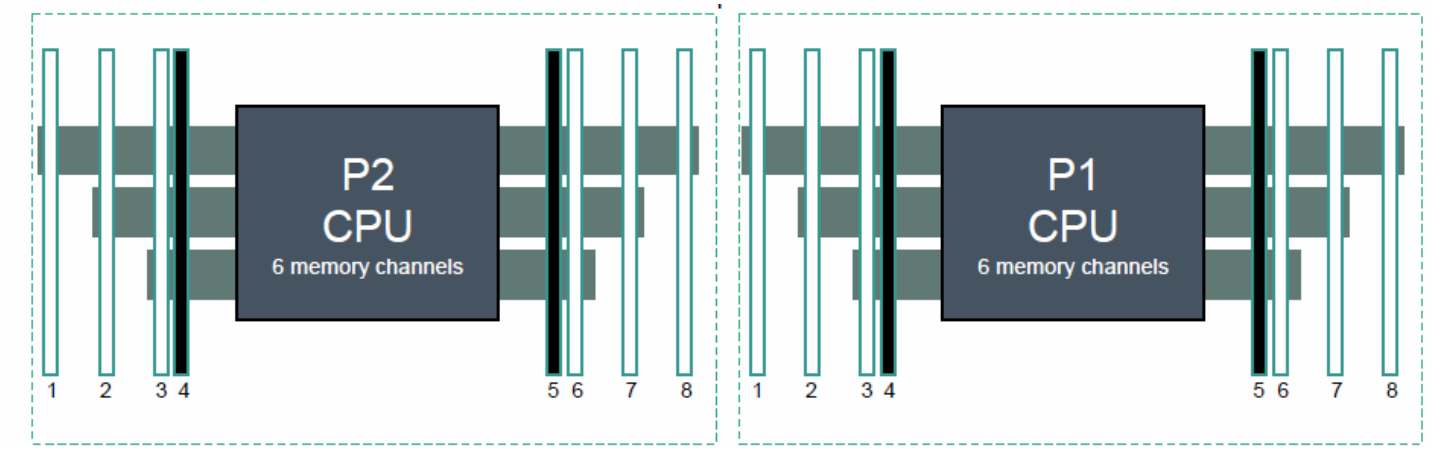
## Memory

### Memory Population guidelines




**HPE DL160/DL180 Gen 10 Servers Front Server**
**(2+1+1 slots per channel)**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 DIMM | | | 3 | | | | | |
| 2 DIMMs | | 2 | 3 | | | | | |
| 3 DIMMs | 1 | 2 | 3 | | | | | |
| 4 DIMMs | | 2 | 3 | | | 6 | 7 | |
| 5 DIMMs* | 1 | 2 | 3 | | | 6 | 7 | |
| 6 DIMMs | 1 | 2 | 3 | | | 6 | 7 | 8 |
| 7 DIMMs* | 1 | 2 | 3 | 4 | | 6 | 7 | 8 |
| 8 DIMMs* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

**HPE ProLiant Gen10 8 slot per CPU DIMM population order**
***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.
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:

To realize the performance memory capabilities listed in this document, HPE DDR4 SmartMemory is required. For additional information, please see the **HPE DDR4 SmartMemory QuickSpecs**.

## Memory

**HPE DDR4 SmartMemory**

| DIMM Type | Register DIMM (RDIMM) | | | |
|---|---|---|---|---|
| HPE SKU P/N | | 815098-B21 | | |
| SKU Description | | HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit | | |
| DIMM Rank -> | | Single Rank (1R) | | |
| DIMM Capacity -> | | 16GB | | |
| Voltage | | 1.2V | | |
| DRAM depth [bit] | | 2G | | |
| DRAM Width [bit] | | x4 | | |
| DRAM Density | | 8Gb | | |
| CAS Latency | | 19-19-19 | | |
| DIMM Native Speed (MT/s) | | 2666 MT/s | | |
| **Intel Xeon®Platinum 81xx Processors Officially Supported Memory Speed (MT/s)** | | | | |
| 1 DIMM Per Channel | | 2666 MT/s | | |
| 2 DIMM Per Channel | | 2666 MT/s | | |
| **Intel Xeon®Platinum 41xx/51xx/61xx Processors Officially Supported Memory Speed (MT/s)** | | | | |
| 1 DIMM Per Channel | | 2400 MT/s | | |
| 2 DIMM Per Channel | | 2400 MT/s | | |
| **Intel Xeon®Platinum 31xx Processors Officially Supported Memory Speed (MT/s)** | | | | |
| 1 DIMM Per Channel | | 2133 MT/s | | |
| 2 DIMM Per Channel | | 2133 MT/s | | |
| **HPE Server Memory Speed (MT/s): Intel Xeon®Platinum 81xx Processors *** | | | | |
| 1 DIMM Per Channel | | 2666 MT/s | | |
| 2 DIMM Per Channel | | 2666 MT/s | | |
| **HPE Server Memory Speed (MT/s): Intel Xeon®Platinum 41xx/51xx/61xx Processors *** | | | | |
| 1 DIMM Per Channel | | 2400 MT/s | | |
| 2 DIMM Per Channel | | 2400 MT/s | | |
| **HPE Server Memory Speed (MT/s): Intel Xeon®Platinum 31xx Processors *** | | | | |
| 1 DIMM Per Channel | | 2133 MT/s | | |
| 2 DIMM Per Channel | | 2133 MT/s | | |
| **NOTE:** The maximum memory speed is a function of the memory type, memory configuration, and processor model. | | | | |

## Memory

| Pre Configured Models | Standard Memory | Maximum Memory Plus Optional Memory |
|---|---|---|
| 3106 | 16 GB (1x16 GB RDIMM DR) | 256 GB (16x 16 GB) |
| 4110 | 16 GB (1x16 GB RDIMM DR) | 256 GB (16x 16 GB) |

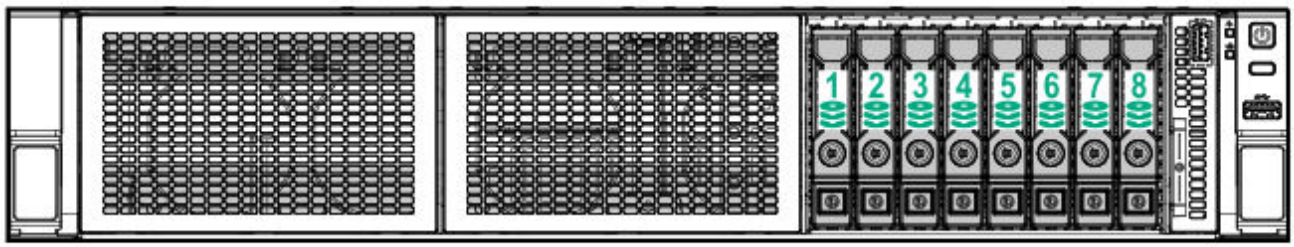
**DDR4 memory options part number decoder**

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

- 16GB = 16,384 MB

For more information on memory, please see the Memory Quickspecs: **HPE DDR4 SmartMemory**

## Storage




**8 SFF Drives**

## Technical Specifications

| | | |
|---|---|---|
| **System Unit** | | |
| **Dimensions** | 8.73 x 44.54 x 63.47 cm 3.44 x 17.54 x 24.99 in | |
| **Weight (approximate)** | 13.0 kg<br>28.0 lb | Minimum: 8 SFF chassis with 1x SFF HDD and 7 HDD blanks, 2x Drive Bay blanks, 1x processor including standard heatsink, 1x power supply (plus blank), 1x Smart Array, 1x Riser installed, cables for the above) |
| **Input Requirements** (per power supply) | Rated Line Voltage | 100 to 120 VAC<br>200 to 240 VAC |
| **BTU Rating** | Maximum | For 500W Power Supply: 1979 BTU/hr (at 100 VAC), 1911 BTU/hr (at 200 VAC), 1965 BTU/hr (at 240 VAC) for China Only |
| **Power Supply Output** (per power supply) | Rated Steady-State Power | For 500W Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VAC) input for China only |
| **System Inlet Temperature** | Standard Operating Temperature | 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.<br><br>System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F). |
| | Extended Ambient Operating Temperature | 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:<br>**http://www.hpe.com/servers/ashrae**<br><br>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:<br>**http://www.hpe.com/servers/ashrae**<br><br>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). |
| **Relative Humidity** | Operating | 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing. |
| (non-condensing) | Non-operating | 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.. |
| **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). |

# Technical Specifications

### Acoustic Noise

Listed are the declared A-Weighted sound power levels ($L_{WAd}$) and declared average bystander position A-Weighted sound pressure levels ($L_{pAm}$) 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 from the HPE EMESC website for further technical details regarding the configurations listed below.

| Configuration SKU | Entry(LFF) Entry(SFF) | Base(LFF) Base(SFF) | Performance(LFF) Performance(SFF) |
|---|---|---|---|
| Idle | | | |
| $L_{WAd}$ | 4.2 B | 4.3 B | 4.7 B |
| $L_{pAm}$ | 26.6 dBA | 27.0 dBA | 28.5 dBA |
| Operating | | | |
| $L_{WAd}$ | 5.2 B | 5.4 B | 5.7 B |
| $L_{pAm}$ | 35.4 dBA | 37.2 dBA | 39.7 dBA |

**NOTE:** Entry LFF configuration included one Intel SKL-SP Xeon-B 3104 processor, two HP 4TB SATA 7.2K LFF HDD, two 8GB PC4-2666V-R, thress system fans and one 500W 12V no AUX Pwr Sply.
**NOTE:** Entry SFF configuration included one Intel SKL-SP Xeon-B 3104 processor, two HP 500GB 6G SATA 7.2K SFF HDD, two 8GB PC4-2666V-R, thress system fans and one 500W 12V no AUX Pwr Sply.
**NOTE:** Base LFF configuration included one Intel SKL-SP Xeon-B 3106 processor, two HP 4TB SATA 7.2K LFF HDD, two 16GB PC4-2666V-R, thress system fans, one 1U 500W 12V HTPLG RED HE-P-A, Smart Array E208i-a SR Gen10 Ctrlr.
**NOTE:** Base SFF configuration included one Intel SKL-SP Xeon-B 3106 processor, two HP 500GB 6G SATA 7.2K SFF HDD, two 16GB PC4-2666V-R, thress system fans, one 500W 12V no AUX Pwr Sply, one Smart Array E208i-a SR Gen10 Ctrlr.
**NOTE:** Performance LFF configuration included two Intel SKL-SP Xeon-S 4114 processor, two HP 4TB SATA 7.2K LFF HDD, four 32GB PC4-2666V-R, five system fans, two 1U 800W 12V HTPLG RED, one Smart Array P408i-a SR Gen10 Ctrlr, BATT PACK, 96W Megacell.
**NOTE:** Performance SFF configuration included two Intel SKL-SP Xeon-S 4114 processor, two HP 300GB SAS 15K SFF HDD, four 32GB PC4-2666V-R, five system fans, two 1U 800W 12V HTPLG RED, one Smart Array P408i-a SR Gen10 Ctrlr, BATT PACK, 96W Megacell.
**NOTE:** 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.
**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.
**NOTE:** The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

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### Emissions Classification (EMC) – 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**

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## Technical Specifications

**HPE Smart Array**

For information on the HPE Smart Array E208i-p SR Gen10 Controller please refer to their **QuickSpecs.**

For information on the HPE Smart Array E208e-p SR Gen10 Controller please refer to their **QuickSpecs.**

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**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.

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## Summary of Changes

| Date | Version History | Action | Description of Change |
|---|---|---|---|
| 04-Feb-2019 | Version 1 | New | New QuickSpecs. |

**Sign up for updates**




a00021862enw – 16058 - Worldwide - V1 - 04-February-2019