Shape the Future of QuickSpecs - Your Input Matters

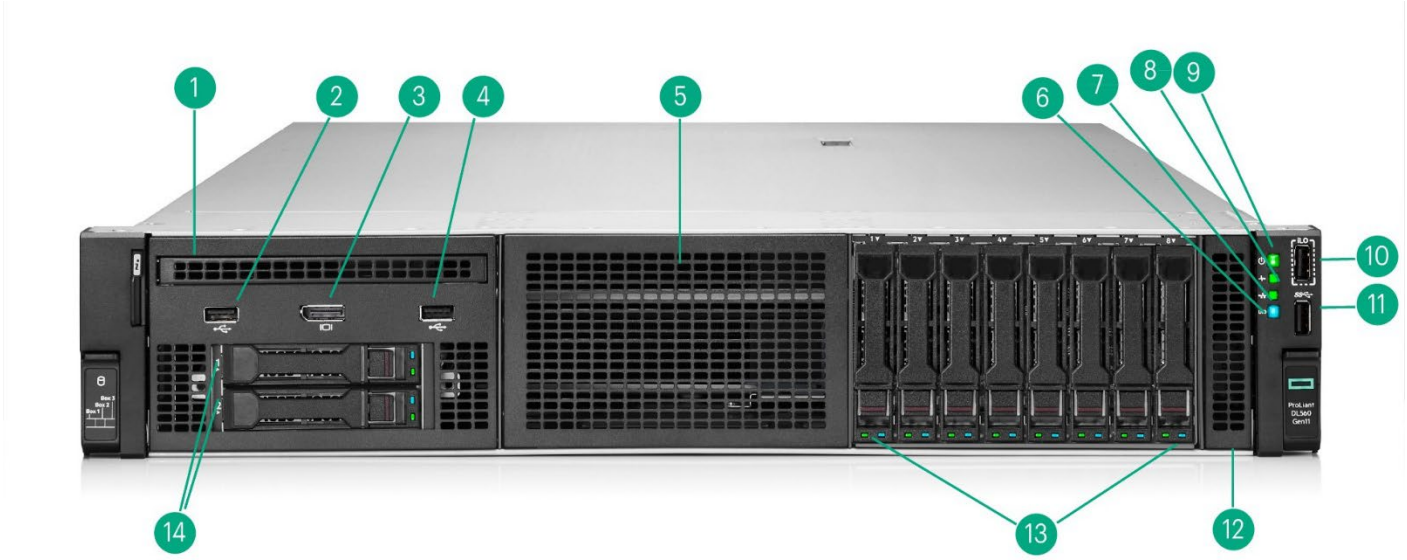
# HPE ProLiant DL560 Gen11 QuickSpecs

## The HPE ProLiant DL560 Gen11 Server is a high-density, four-socket (4S) server with high performance, scalability, and reliability, all in a 2U chassis.

Supporting the latest 4th generation Intel® Xeon® Scalable processors, the HPE ProLiant DL560 Gen11 Server offers greater processing power, up to 16 TB of DDR5 memory, I/O up to six PCIe Gen 5 slots, 2 OCP slots, plus the intelligence and simplicity of automated management with HPE OneView and HPE iLO 6.

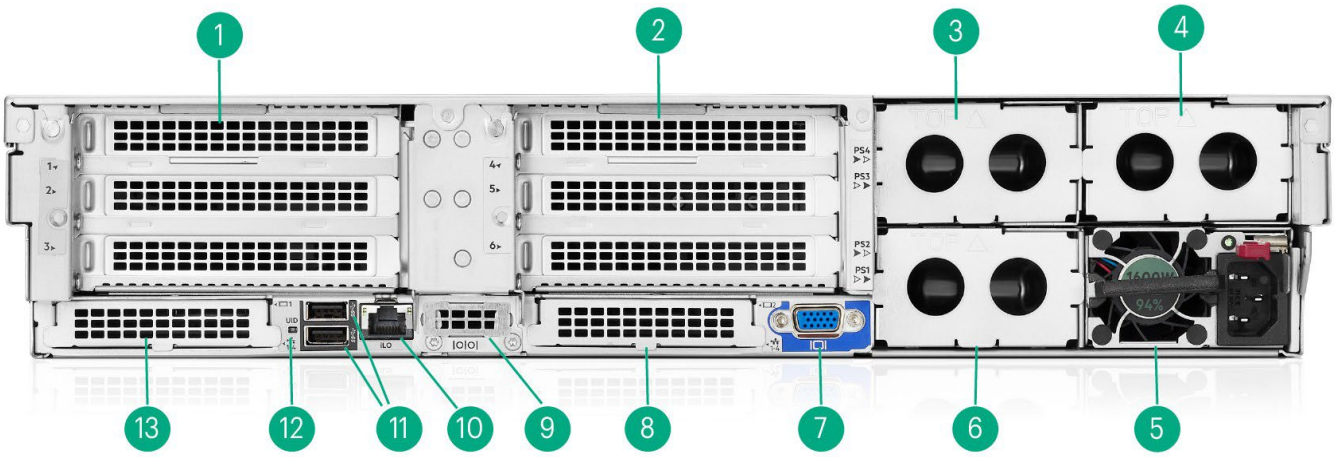
# HPE ProLiant DL560 Gen11

The HPE ProLiant DL560 Gen11 Server is the ideal server for business-critical workloads, in-memory databases, data analytics, virtualization, server consolidation, business processing, and general 4S data-intensive applications where data center space and the right performance are paramount.



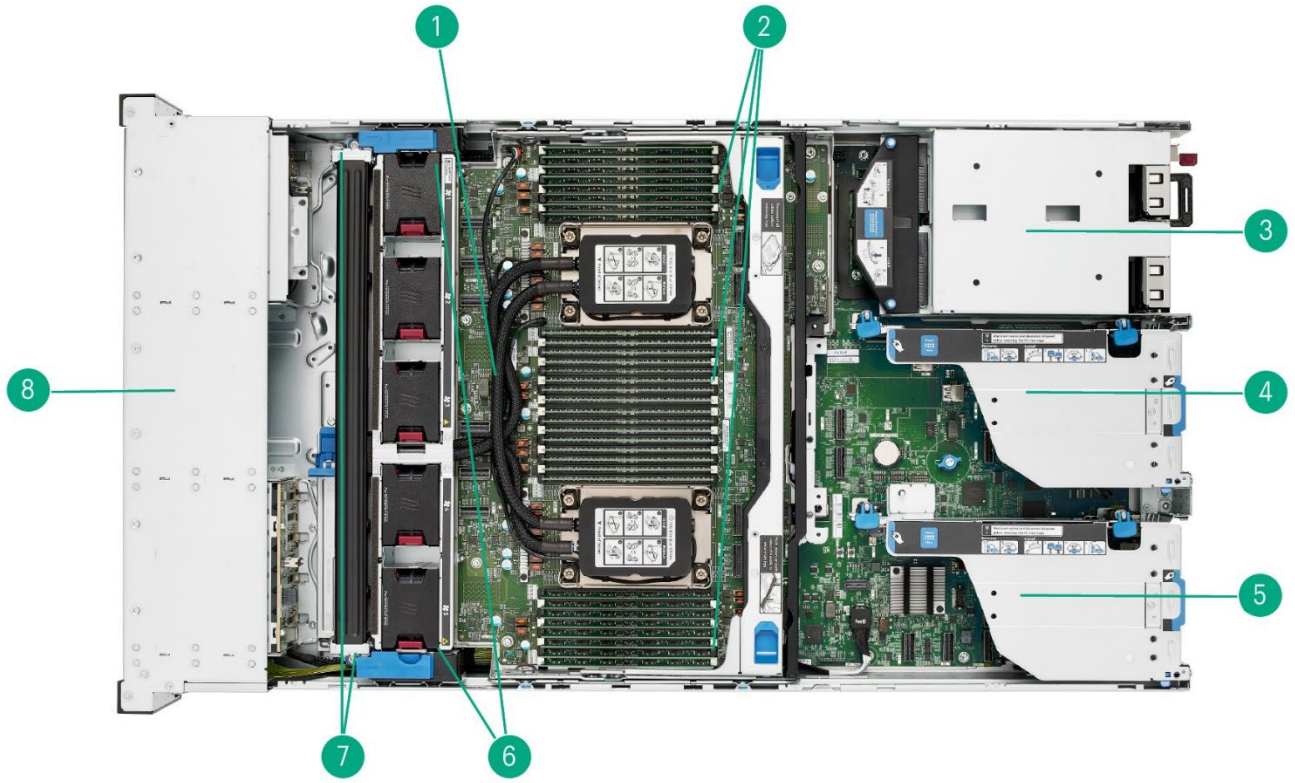

**Front View – SFF chassis with optional Universal Media bay shown**

| Item | Description | Item | Description |
|---|---|---|---|
| 1. | DVD-ROM (Optional) (or Box 1 can switch to 8SFF cage) | 8. | Health LED |
| 2. | USB 2.0 port | 9. | Power On/Standby button/LED |
| 3. | DisplayPort | 10. | iLO Service Port |
| 4. | USB 2.0 port | 11. | USB 3.2 port |
| 5. | 8 SFF HDD/SSD/NVMe | 12. | SID (Optional) |
| 6. | UID button LED | 13. | 8 SFF HDD/SSD/NVMe |
| 7. | NIC status LED | 14. | 2 SFF HDD/SSD/NVMe |




**Rear View – Standard for all DL560 Gen11**

| Item | Description | Item | Description |
|---|---|---|---|
| 1. | 3 PCIe slots (Primary riser) (Slot 1-3) | 8. | OCP 2 (Slot 15) |
| 2. | 3 PCIe slots (Secondary riser) (Slot 4-6) | 9. | Serial port (optional) |
| 3. | Power supply 4 | 10. | iLO Management Port |
| 4. | Power supply 3 | 11. | USB 3.2 ports (2) |
| 5. | Power supply 1 | 12. | UID |
| 6. | Power supply 2 | 13. | OCP 1 (Slot 14) |
| 7. | Video (VGA) port | | |




**Internal View Liquid Cooling Chassis**

| Item | Description | Item | Description |
|---|---|---|---|
| 1. | Liquid cooling tube | 5. | 3 PCIe slots (Primary riser) |
| 2. | DDR5 DIMMs | 6. | Redundant Fans |
| 3. | Power supplies | 7. | Liquid Cooling Radiator |
| 4. | 3 PCIe slots (Secondary riser) | 8. | Drive cages |

## What's New

- All-new DL560 Gen11
- Smart Closed-loop Liquid Cooling system design
- New 4th Generation Intel® Scalable Processors
- New PCIe 5.0 support
- New DDR5 Smart Memory – 4800MT/s
- New Storage Controllers
- New NS204i-u Boot Device
- New SSDs and HDDs

# Platform Information

### Form Factor

- 2U rack

### Chassis Types

- 8SFF (SAS/SATA/NVMe) option up to 24 SFF (SAS/SATA/NVMe) with optional SFF Universal Media Bay.
- EDSFF (direct attach) support, up to 16 (2P) or 24 (4P)

**Notes:**

- The 8SFF chassis can be upgraded to up to 24SFF (front) with a variety of 8SFF Drive Cages to select from, including
- 8SFF U.3 x1 and x4 SAS/SATA/NVMe or EDSFF (x4 Direct Attach). See “Drive Cages” section within this document for options.
- The Universal Media Bay is only available as an option and can only be populated in Box 1.
- Refer to CPU/Memory/Storage support matrix for validated system configuration

### System Fans

- High Performance Fan Kit

**Notes:**

- On 8SFF air-cooled CTO server model ships with 6 high-performance fan kit.
- On 8SFF liquid-cooled CTO server model ships with 5 performance fan kit.

## Processors – Up to 4 of the following depending on model.

The 2nd digit of the processor model number "x4xx" is used to denote the processor generation (i.e. 4=4th generation Intel® Scalable Series Processors)

For more information regarding Intel® Xeon processors, refer to the following http://www.intel.com/xeon.

This table covers the public Intel® offering only.

| Processor Suffix | Description | Offering |
|---|---|---|
| **H** | DB and Analytics | Highest core counts. Database and Analytics usages benefit from DSA and IAA accelerators. |
| **M** | Media Transcode | Optimized around AVX frequencies to deliver better performance/watt around Media, AI, and HPC workloads. |
| **N** | Network/5G/Edge (High TPT / Low Latency) | Designed for NFV and networking workloads, such as: L3 forwarding, 5G UPF, OVS DPDK, VPP FIB router, VPP IPsec, web server/NGINX, vEPC, vBNG, and vCMTS. |
| **S** | Storage and HCI | Optimized for Storage UMA use cases with increased UPI Bandwidth for vs Mainline SKUs. |
| **P** | Cloud - IAAS | Designed for cloud IaaS environments to deliver higher frequencies at constrained TDPs. |
| **Q** | Liquid Cooling | Liquid cooled processors with higher frequency and performance at same TDP. |
| **U** | 1 Socket Optimized | Optimized for targeted platforms adequately served by the cores, memory bandwidth and IO capacity available from a single processor |
| **V** | Cloud - SAAS | Optimized for orchestration efficiency that delivers higher core counts and VMs per rack. |
| **Y** | Speed Select | Intel® SST-PP increases base frequency when fewer cores are enabled. Allows greater flexibility, deployment options and platform longevity. |

| 4th Generation Intel® Xeon® Scalable Processor Family (Platinum) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Intel® Xeon® Models** | **CPU Frequency** | **Cores** | **L3 Cache (MB)** | **Power** | **UPI Links (2P/4P)** | **DDR5** | **SGX Enclave size (GB)** |
| Platinum 8490H Processor | 1.9 GHz | 60 | 112.5 | 350 W | 4/3 | 4800 MT/s | 512 |
| Platinum 8468H Processor | 2.1 GHz | 48 | 105 | 330 W | 4/3 | 4800 MT/s | 512 |
| Platinum 8460H Processor | 2.2 GHz | 40 | 105 | 330 W | 4/3 | 4800 MT/s | 512 |
| Platinum 8450H Processor | 2.0 GHz | 28 | 75 | 250 W | 4/3 | 4800 MT/s | 512 |
| Platinum 8444H Processor | 2.9 GHz | 16 | 45 | 270 W | 4/3 | 4800 MT/s | 512 |

Standard Features

| 4th Generation Intel® Xeon® Scalable Processor Family (Gold) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Intel® Xeon® Models** | **CPU Frequency** | **Cores** | **L3 Cache (MB)** | **Power** | **UPI Links (2P/4P)** | **DDR4** | **SGX Enclave size** |
| Gold 6448H Processor | 2.4 GHz | 32 | 60 | 250 W | 4/3 | 4800 MT/s | 512 |
| Gold 6434H Processor | 3.7 GHz | 8 | 22.5 | 195 W | 4/3 | 4800 MT/s | 512 |
| Gold 6418H Processor | 2.1 GHz | 24 | 60 | 185 W | 4/3 | 4800 MT/s | 512 |
| Gold 6416H Processor[1] | 2.2 GHz | 18 | 45 | 165 W | 4/3 | 4800 MT/s | 512 |

**Notes:**

- 8-Channel DDR5 @ 1DPC 4800 MT/s/ 2DPC 4400 MT/s
- 2 socket capable, 4 UPI @ 16 GT/s.
- 4 socket capable, 3 UPI @ 16 GT/s

| Model | HPE Option Kit | Long Name | TDP | Die | Socket | Thermal solution | |
|---|---|---|---|---|---|---|---|
| | | | | | | 2 Processor SKU | 4 Processor SKU |
| **6416H** | P49620-B21 | Intel® Xeon®-G 6416H 2.2 GHz 18-core 165W | 165 | MCC | 4S | AC | AC |
| **6418H** | P49621-B21 | Intel® Xeon®-G 6418H 2.1 GHz 24-core 185W | 185 | MCC | 4S | AC | AC |
| **6448H** | P49622-B21 | Intel® Xeon®-G 6448H 2.4 GHz 32-core 250W | 250 | MCC | 4S | AC | AC |
| **6434H** | P49623-B21 | Intel® Xeon®-G 6434H 3.7 GHz 8-core 195W | 195 | MCC | 4S | AC | LC |
| **8444H** | P49625-B21 | Intel® Xeon®-P 8444H 2.9 GHz 16-core 270W | 270 | XCC | 4S | AC | LC |
| **8450H** | P49626-B21 | Intel® Xeon®-P 8450H 2.0 GHz 28-core 250W | 250 | XCC | 4S | AC | AC |
| **8460H** | P49628-B21 | Intel® Xeon®-P 8460H 2.2 GHz 40-core 330W | 330 | XCC | 4S | AC | LC |
| **8468H** | P49629-B21 | Intel® Xeon®-P 8468H 2.1 GHz 48-core 330W | 330 | XCC | 4S | AC | LC |
| **8490H** | P49630-B21 | Intel® Xeon®-P 8490H 1.9 GHz 60-core 350W | 350 | XCC | 4S | AC | LC |

**Notes:**

- AC: Air cooling solution CTO
- LC: Liquid cooling solution CTO
- MCC: Xeon® Gold
- XCC: Xeon® Platinum
- Air cooling cannot be upgraded to Liquid cooling, please choose Liquid cooling CTO at step 1 as needed.

## Chipset

Intel® C741 Chipset

**Notes:** For more information regarding Intel® chipsets, refer to the following URL:
https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html

## On System Management Chipset

HPE iLO 6 ASIC

Read and learn more in the iLO QuickSpecs.

| Memory | |
|---|---|
| **Type** | HPE DDR5 Smart Memory,<br>Registered (RDIMM) |
| **DIMM Slots Available** | 64<br>16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel |
| **Maximum capacity** | 16.0 TB<br>64 x 256 GB RDIMM @ 4800 MT/s<br>**Notes:** Total capacity, refer to CPU/Storage/Memory support matrix. |

**Notes:** The maximum memory speed is limited by the processor selection. Total memory capacity support is CPU/Storage/Memory configuration dependent. Please refer to CPU/Storage/Memory support matrix.

## Expansion Slots

**Notes:**

- There are 2 expansion slot riser cards, both can be used as primary or secondary.
- When 1 riser is selected, factory will install in primary slot.
- When 2 risers are selected, factory will install 3x16 risers in primary slot.

| Primary/Secondary Riser1 (P54779-B21 HPE ProLiant DL560 Gen11 x8/x16/x8 Riser Kit) | | | | | |
|---|---|---|---|---|---|
| **Slots #** | **Technology** | **Bus Width** | **Connector Width** | **Slot Form Factor** | **Notes (primary/second riser)** |
| 1 | PCIe 5.0 | X8 | X16 | Full-height, 3/4-length slot | Proc 1/2 |
| 2 | PCIe 5.0 | X16 | X16 | Full-height, 3/4-length slot | Proc 1/2 |
| 3 | PCIe 5.0 | X8 | X16 | Full-height, 3/4-length slot | Proc 1/2 |

| Primary/Secondary Riser2 (P54780-B21 HPE ProLiant DL560 Gen11 x16/x16/x16 Riser Kit) | | | | | |
|---|---|---|---|---|---|
| **Slots #** | **Technology** | **Bus Width** | **Connector Width** | **Slot Form Factor** | **Notes (primary/second riser)** |
| 1 | PCIe 5.0 | X16 | X16 | Full-height, 3/4-length slot | By cable routing<br>2P: Proc 1/2<br>4P: Proc 3/4 |
| 2 | PCIe 5.0 | X16 | X16 | Full-height, 3/4-length slot | Proc 1/2 |
| 3 | PCIe 5.0 | X16 | X16 | Full-height, 3/4-length slot | Proc 1/2 |

**Notes:**

- When 3x16 riser is selected, cable kit to connect with motherboard (for 2P) or mezzanine card (for 4P) must be selected.
- For DW GPU accelerator cards can only be populated in primary riser (slot 2) and secondary riser (slot 5).
- For GPU installation, must select the enable kit (P54816-B21)
- GPU Supports up to 10.5" length in slot 2 and 5.

## Graphics

### Integrated Video Standard

- Video modes up to 1920 x 1200 @ 60Hz (32 bpp)
- 16MB Video Memory

## Maximum Internal Storage

| Drive | Capacity | Configuration |
|---|---|---|
| Hot Plug SFF SAS HDD | 57.6 TB | 24 x 2.4 TB |
| Hot Plug SFF SAS SSD | 368.64 TB | 24 x15.36 TB |
| Hot Plug SFF SATA HDD | 48 TB | 24 x 2 TB |
| Hot Plug SFF SATA SSD | 184.32 TB | 24 x 7.68 TB |
| Hot Plug SFF NVMe PCIe SSD | 368.64 TB | 24 x 15.36TB |

**Notes:** Storage capacity please refer to CPU/Storage/Memory support matrix

## Internal Storage Devices

- **Optical Drive**
  Optional: DVD-ROM, DVD-RW
- **Hard Drives**
  None shipped as standard

## Power Supply

- HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit
  **Notes:** available in 96% efficiency.
  **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 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  **Notes:** available in 94% efficiency.
- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  **Notes:** available in 96% efficiency.
- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  **Notes:** available in 94% efficiency.
- HPE 1600W FS 48VDC Hot Plug LH Power Supply Kit
  **Notes:** 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 Gen11 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.

The standard 6-foot IEC C-13/C-14 jumper cord (A0K02A) is 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.

### 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, Ireland, Switzerland or Turkey, 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 fulfill 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.

## Storage Controllers

The available Gen11 controllers are depicted below.

### Essential RAID Controller

HPE Smart Array E208e-p SR Gen10 Controller

### Tri-Mode Controller

- HPE MR216i-p Gen11 Controller
- HPE MR216i-o Gen11 Controller
- HPE MR408i-o Gen11 Controller
- HPE MR416i-p Gen11 Controller
- HPE MR416i-o Gen11 Controller
- HPE SR932i-p Gen11 Controller[1,]

**Notes:**

- PE80xx NVMe drives are not supported.
- [1]Requires x16 physical and electrical riser slot
- Controllers with cache require either HPE 96W Smart Storage Battery 260mm Cable (P01367-B21) or HPE Smart Hybrid Capacitor w/ 260mm Cable (P02381-B21)

### Hybrid RAID

- Intel® Virtual RAID on CPU (Intel® VROC) Premium FIO Software for HPE
- Intel® Virtual RAID on CPU (Intel® VROC) Standard Software FIO for HPE

**Notes:** In HPE ProLiant Gen11 servers, when secure boot is enabled, Intel® Virtual RAID on CPU (Intel® VROC) 8.0 Out-of-Band (OOB) management does not function with Linux kernel version 5.4 (or later). Intel® VROC OOB will not respond to any PLDM (over-MCTP-over-PCIe) requests from iLO (BMC). Intel® VROC Redfish resources will not function (e.g., Redfish actions); therefore, Intel® VROC over Redfish management is not available. This is due to a new security feature in Linux kernel version 5.4 (or later).
For more information, please visit Customer Advisory Document ID: a00128934en_us, at HPE Support Center.

| Interfaces | |
|---|---|
| **Serial** | Optional, rear |
| **DisplayPort** | 1 optional front DisplayPort via Universal Media Bay |
| **VGA Port** | 1 standard, rear for all chassis.<br>1 Optional front DisplayPort (Via Universal Media Bay)<br>**Notes:** Both ports are not active simultaneously. |
| **Network Ports** | None standard. Choice of OCP networking card or stand-up networking card required. BTO models will come pre-selected with a primary networking card. |
| **HPE iLO Remote Management Network Port** | 1 Gb Dedicated, rear |
| **Front iLO Service Port** | 1 standard (Not available when System Insight Display Kit is ordered) |
| **USB** | Up to 7 total:<br>Front 1 USB 3.2 2 optional USB 2.0 via Universal Media Bay;<br>Rear: 2 USB 3.2<br>Internal 1 USB 3.2; 1 USB 2.0 |
| **Systems Insight Display (SID)** | Optional<br>**Notes:** None shipping as standard. Available as a CTO option or as a field upgrade |

## Operating Systems and Virtualization Software Support for HPE Servers

HPE servers are designed for seamless integration with partner Operating Systems and Virtualization Software. By collaborating closely with our partners, we ensure that their products are optimized, certified, and fully supported within your HPE server environment.

Access the certified and supported servers for each of the OS and Virtualization software: HPE Servers Support & Certification Matrices

## HPE Server UEFI

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 Gen11 servers have a UEFI Class 3 implementation to support UEFI Mode.

**Notes:** 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
- Embedded UEFI Shell
- Operating system specific functionality
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant
- Support for > 2.2 TB (using GPT) boot drives
- PXE boot support for IPv6 networks
- USB 3.2 Stack
- Workload Profiles for simple performance optimization

**UEFI Boot Mode only**

- TPM 2.0 Support
- iSCSI Software Initiator Support.
- NVMe Boot Support
- HTTP/HTTPs Boot support as a PXE alternative.
- Platform Trust Technology (PTT) can be enabled.
- 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.
- Enabling TPM 2.0 no longer requires TPM module option kit for Gen11 is an embedded feature.

## Industry Standard Compliance

- ACPI 6.3 Compliant
- PCIe 5.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- VGA
- DisplayPort
  **Notes:** This support is on the optional Universal Media Bay.
- USB 3.2 Compliant
- USB 2.0 Compliant (via Universal Media Bay)
  **Notes:** This support is on the optional Universal Media Bay.
- ENERGY STAR® 4.0
- SMBIOS 3.2
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- TPM 1.2 and 2.0 Support
  **Notes:** Enabling TPM 2.0 no longer requires TPM module option kit for Gen11 is an embedded feature.
- Advanced Encryption Standard (AES)
- Triple Data Encryption 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
  **Notes:** For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please visit http://www.hpe.com/servers/ashrae
- EU Lot9
  **Notes:** Please visit: https://www.hpe.com/us/en/about/environment/msds-specs-more.html for more information regarding HPE Lot 9 conformance.
  UEFI (Unified Extensible Firmware Interface Forum) 2.7

# 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 1 or more servers with Intelligent Provisioning.

Learn more at https://support.hpe.com/hpesc/public/docDisplay?docId=c04465280&docLocale=en_US

### iLO RESTful API

iLO RESTful API is DMTF Redfish API implementation 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.

### 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.

### 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).

### 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. Use with an iLO Advanced License to unlock full capabilities.

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

### 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 is an on premise, multi-generational server monitoring and management solution. HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. Customers can upgrade their management experience with an HPE OneView Advanced license all provided by the same tool. Learn more at http://www.hpe.com/info/oneview.

### HPE Compute Ops Management

Transform compute lifecycle management with a cloud experience that delivers greater simplicity, agility, and speed across your entire server environment, wherever it lives. This software-as-a-service tool provides a dashboard with global visibility and intuitive management of server health, security and compliance status to help you easily identify areas that need immediate attention. Users can update tens to thousands of servers faster through intelligent delta-based firmware downloads and on-demand HPE iLO firmware updates.

HPE Compute Ops Management is cloud-native software that is continually updated with new services, features, patches, and firmware packs. The management application resides in GreenLake cloud (access via https://common.cloud.hpe.com) and leverages the GreenLake architecture, security, and unified operations.
A 3-year subscription to HPE Compute Ops Management is added by default when ordering an HPE ProLiant Gen11 rack, tower, or micro server.
For more information, visit the HPE Compute Ops Management QuickSpecs:
https://www.hpe.com/psnow/doc/a50004263enw

## Security

- UEFI Secure Boot and Secure Start support
- Tamper-free updates – components digitally signed and verified
- Immutable Silicon Root of Trust
- Ability to rollback firmware
- FIPS 140-2 validation
- Secure erase of NAND/User data
- Common Criteria certification
- TPM (Trusted Platform Module) 1.2 option
- Configurable for PCI DSS compliance
- TPM (Trusted Platform Module) 2.0 option
  **Notes:** Enabling TPM 2.0 no longer requires TPM module option kit for Gen11 is an embedded feature.
- Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser
- Bezel Locking Kit option
- Support for Commercial National Security Algorithms (CNSA)
- Chassis Intrusion detection option
- Secure Recovery – recover critical firmware to known good state on detection of compromised firmware

## 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 Services 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.

**Notes:** Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be completed 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:
https://www.hpe.com/support/ProLiantServers-Warranties

## 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 OneView Advanced

HPE OneView Advanced offers a sophisticated level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It builds upon the base features of HPE OpenView Standard, provides full-featured licenses which can be purchased for managing multiple HPE server generations.
To learn more visit http://www.hpe.com/info/oneview.

## One Config Simple (OCS/SCE)

OCS/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://ocs.ext.hpe.com/SimplifiedConfig/Welcome

## 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°C, 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 of 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'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.

## HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where, and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.
https://www.hpe.com/services

## Consulting Services

No matter where you are on your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.
https://www.hpe.com/services/consulting

## HPE Managed Services

HPE runs your IT operations, providing 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.
HPE Managed Services | HPE

## Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.
https://www.hpe.com/services/operational

## HPE Complete Care Service

HPE Complete Care Service is a modular, IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach
- 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/completecare

## HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service 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 Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available on 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 Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

**Notes:** To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle

For a list of the most frequently purchased services using service credits, see the HPE Service Credits Menu

## Other Related Services from HPE Services

### HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.
https://www.hpe.com/services/training

### Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and service options.

### Parts and Materials

HPE 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.

### How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at https://ssc.hpe.com/portal/site/ssc/

### AI Powered and Digitally Enabled Support Experience

Achieve faster resolution times with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

## Consume IT On Your Terms

GreenLake is the cloud delivering a unified platform experience that allows enterprises to simplify IT, reduce costs, and transform faster.

- 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

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE" https://www.hpe.com/us/en/contact-hpe.html

For more information, refer to: http://www.hpe.com/services

## Smart Templates from HPE

HPE is releasing new Smart Template technology in the One Config Advanced (OCA) configurator. These Templates represent the CTO equivalents of the top-selling BTO configurations. They are intended to provide simple starting points to assist you in easily creating and customizing your desired Server solutions. HPE Servers that have Platform Templates, developed by HPE Product Managers, will have a separate tab in the HPE OCA configurator.

### Workload Solutions Templates from HPE

The Workload Solutions Templates are built on the Smart Templates technology to easily develop working configurations of the most compelling Workload Solutions. The templates complement the Reference Builds developed by HPE. Workload Solutions templates preconfigure some of the key architecture decisions and make it easier for Sellers to get started and complete a differentiated server solution for your customer's specific workload.

### Mainstream SKUs

HPE launched the Mainstream SKU initiative as a market-driven approach to Demand Steering. It is a simplified portfolio of our top selling options that meet the current and future market trends. HPE has committed to providing a more predictable and faster experience for these options. Mainstream SKUs enjoy higher safety stock levels and have higher fulfillment service levels than non-Mainstream SKUs. Mainstream orders are fulfilled up to 30% faster than non-Mainstream orders, have fewer shortages and better recovery dates. This platform has Mainstream SKUs in the options portfolio, and is eligible for the improved Mainstream experience. Mainstream SKUs are designated with a Mainstream symbol in our configurators.

### Mainstream Configurations

HPE is using the new Smart Templates technology to present Mainstream configurations. All the options in a Mainstream configuration are pre-selected Mainstream SKUs to optimize the performance, predictability and fulfillment experience. Check the Template section in our configurators for eligible Mainstream configurations.

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## 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

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## Step 1: Base Configuration (choose one (1) of the following configurable server models from the tables below)

The below (2) CTO server models provide flexibility in the networking choice and require a network adapter from the "HPE Networking" section be selected.

| Networking Choice CTO Server Models | HPE ProLiant DL560 Gen11 Air Cooling Configure-to-order Server | HPE ProLiant DL560 Gen11 Liquid Cooling Configure-to-order Server |
|---|---|---|
| **SKU Number** | P55181-B21 | P55182-B21 |
| **TAA SKU*** | P55181-B21#GTA | P55182-B21#GTA |
| **Processor** | Not included as standard | Not included as standard |
| **DIMM Slots** | 64-DIMM slots<br>(16 DIMMs per processor) | 64-DIMM slots<br>(16 DIMMs per processor) |
| **Storage Controller** | Embedded Hybrid RAID with 8 SATA ports, choice of HPE modular Smart Array and PCIe/OCP plug-in controller. | |
| **PCIe** | No riser included | |
| **Drive Cage** | None<br>Optional x1/x4 cage | None<br>Optional x1/x4 cage |
| **Network Controller** | Choice of either OCP 3.0 or select stand-up network adapters for primary networking selection plus additional/optional stand-up network adapters<br>**Notes:** No embedded networking | |
| **Fans** | 6-high performance hot plug | 5-Performance hot plug |
| **Management** | HPE iLO with Intelligent Provisioning (standard), Advanced iLO and OneView (optional) | |
| **USB** | 3x 3.2 standard plus iLO front service port | 3x 3.0 standard plus iLO front service port |

**Notes:**

- Air cooling CTO cannot be upgraded to Liquid cooling CTO. Please choose Liquid cooling from step 1.
- For 2P configuration, HPE ProLiant DL560 Gen11 2P FIO Air Baffle Kit (P55550-B21) and HPE ProLiant DL560 Gen11 2P UPI Pass-Through FIO Enablement Kit (P54806-B21 must be selected.
- For 4P liquid cool configuration, HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit (P54791-B21) must be selected.
- HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed into a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).
- All CTO servers are ENERGY STAR® 3.0 or later compliant.
- If need to configure the system without any drives, a x4 cage kit and a Direct attach cable must be selected. This will not require any controller selection.

## Step 2: Choose Required Options

Please select up to four processors required below.

**Notes:**

- Maximum memory capacity per processor is dependent on processor models and storage configuration.
- Mixing of 2 different processors models are NOT allowed.
- DDR5 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

### Step 2a: Choose Processors

**Processor Option Kits** (Required Processor)

**4th Generation Intel® Xeon®-Platinum**

**Notes:** All SKUs below ship with processor only. Adequate heatsinks must be selected.

Intel® Xeon®-Platinum 8490H 1.9GHz 60-core 350W Processor for HPE P49630-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit (P54791-B21) for Liquid-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Platinum 8468H 2.1GHz 48-core 330W Processor for HPE P49629-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit (P54791-B21) for Liquid-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Platinum 8460H 2.2GHz 40-core 330W Processor for HPE P49628-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit (P54791-B21) for Liquid-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Platinum 8450H 2.0GHz 28-core 250W Processor for HPE P49626-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit (P48905-B21 for Air-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Platinum 8444H 2.9GHz 16-core 270W Processor for HPE P49625-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit (P54791-B21) for Liquid-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Configuration Information

**4th Generation Intel® Xeon®-Gold**

Intel® Xeon®-Gold 6448H 2.4GHz 32-core 250W Processor for HPE P49622-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit (P48905-B21 for Air-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Gold 6434H 3.7GHz 8-core 195W Processor for HPE P49623-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit (P54791-B21) for Liquid-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Gold 6418H 2.1GHz 24-core 185W Processor for HPE P49621-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit (P48905-B21 for Air-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

Intel® Xeon®-Gold 6416H 2.2GHz 18-core 165W Processor for HPE P49620-B21

**Notes:**

- 4P configuration requires HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit (P48905-B21 for Air-cooling CTO
- 2P configuration requires HPE ProLiant DL380/DL560 Gen11 2U High Performance Heat Sink Kit (P48818-B21) for Air-cooling CTO

HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit P54791-B21

**Notes:**

- For 4P Liquid cooling configuration
- The HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit is subject to a Maximum Usage Limitation of not exceeding five (5) years of operation and is required to be replaced when reaching limitation. Parts and components that Hewlett Packard Enterprise determines have reached or exceeded their Maximum Usage limitations will not be provided, repaired, or replaced under warranty or service contract. Contact your local sales representative for additional information

HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit P48818-B21

**Notes:** For 2P Air cooling configuration

HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit P48905-B21

**Notes:**

- For 4P Air cooling configuration:
- Air cooling cannot be upgraded to Liquid cooling, please choose Liquid cooling CTO at step 1 as needed.

### Step 2b: Choose Memory Options

Please select one or more memory from below.

For new Gen11 memory population rule whitepaper and optimal memory performance guidelines, please go to:

HPE Memory Population Rules

For details on the HPE Server Memory Options Population Rules, please go to:

Memory population rules for HPE Gen11 servers with 4th Generation Intel Scalable Processors

**Notes:**

- HPE Server Memory compatibility for a specific server platform may vary or be limited within a server platform depending upon the specific configuration being requested. Because each server environment and requirements can vary, memory compatibility is based not only upon the server family, but may also be affected by the amount and type of additional hardware options installed within a specific server configuration. For this reason, some HPE memory DIMMs may be qualified for an HPE server model or family and yet occasionally not be supported with some configurations within that server family.
- Memory should be installed in even quantity of DIMMs.
- The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model.
- DDR5-4800 Memory Kits are only supported with 4th Generation Intel® Xeon® Scalable Series Processors.
- Memory compatibility may vary or be limited within a specific server family depending upon the specific configuration being requested. Because each server environment and requirements can vary, memory compatibility is based not only upon the server family, but may also be affected by the amount and type of additional hardware options installed within a specific server configuration. For this reason, some HPE memory DIMMs may be qualified for a server model or family and yet occasionally not be supported with limited configurations within that server family.
- Please consult with the HPE server QuickSpecs or your HPE representative if you have any questions regarding memory compatibility with a specific HPE server configuration.

**Registered DIMMs DDR5 (RDIMMs)**

| | |
|---|---|
| HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit | P43322-B21 |
| HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit | P43328-B21 |
| HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit | P43331-B21 |
| HPE 96GB (1x96GB) Dual Rank x4 DDR5-4800 CAS-46-45-45 EC8 Registered Smart Memory Kit | P66675-B21 |
| HPE 128GB (1x128GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit | P69974-B21 |
| HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit | P43337-B21 |

**Notes:**

- 4800 MT/s memory SKUs offer a transfer rate of 4800 MT/s at 1 DIMM per channel and 4400 MT/s at 2 DIMMs per channel.
- Mixing of 3DS memory and non-3DS memory is not supported.
- Please refer to CPU/Storage/Memory support matrix for memory support capacity
- If 128GB is desired, the 128GB (1x128GB) Quad Rank x4 DDR5-4800 (P63345-B21) must be selected for configuring Liquid Cooling CTO Server
- For 96 GB Smart Kit, it must be populated in half quantity or full quantity each CPU. (each CPU needs memory populated)
- 96GB Smart kit cannot be mixed up with any other capacity memory module.

## CPU/Storage/Memory Support Matrix

## DIMM Support Matrix

| SKU | CPU | | HDD configuration | | | | Maximum Support Ambient Temperature | | |
|---|---|---|---|---|---|---|---|---|---|
| | CPU TDP | CPU list | Storage configuration | Box 1 | Box 2 | Box 3 | 64GB and Lower Capacity DDR5 DIMM | 96GB P66675-B21 128GB DDR5 DIMM (P69974-B21 P43334-B21) | 256GB DDR5 DIMM (P43337-B21) |
| **Air cooling 2 processor SKU** | Up to 350W | 6416H(165W)<br>6418H(185W)<br>6448H(250W)<br>6434H(195W)<br>8444H(270W)<br>8450H(250W)<br>8460H(330W)<br>8468H(330W)<br>8490H(350W) | 8 SFF | Venting blank | Venting blank | 8 SFF | 35°C | 35°C | 25°C |
| | | | 12 EDSFF | Venting blank | 12 EDSFF | Venting blank | 35°C | 35°C | |
| | | | Media bay + 8 SFF | Media BAY | Venting blank | 8 SFF | 35°C | 35°C | |
| | | | Media bay + 12 EDSFF | Media BAY | 12 EDSFF | Venting blank | 35°C | 35°C | |
| | | | 8 SFF x2 | 8 SFF | Venting blank | 8 SFF | 35°C | 30°C | |
| | | | 8 SFF x2 (Direct Attach) | Venting blank | 8 SFF | 8 SFF | 35°C | 30°C | |
| | | | 12 EDSFF x2 | Venting blank | 12 EDSFF | 12 EDSFF | 35°C | 25°C | |
| | | | Media bay + 8 SFF x2 | Media BAY | 8 SFF | 8 SFF | 35°C | 30°C | |
| | | | Media bay + 12 EDSFF x2 | Media BAY | 12 EDSFF | 12 EDSFF | 35°C | 30°C | |
| | | | 8 SFF x3 | 8 SFF | 8 SFF | 8 SFF | 35°C | 25°C | |

**Notes:** It is the responsibility of customers to ensure the datacenter inlet temperature meets the requirements above.

Configuration Information

| SKU | CPU | | HDD configuration | | | | Maximum Support Ambient Temperature | | |
|---|---|---|---|---|---|---|---|---|---|
| | CPU TDP | CPU list | Storage configuration | Box 1 | Box 2 | Box 3 | 64GB and Lower Capacity DDR5 DIMM | 96GB P66675-B21 128GB DDR5 DIMM (P43334-B21 P69974-B21) | 256GB DDR5 DIMM (P43337-B21) |
| Air cooling 4 processor SKU | Up to 185W | 6416H(165W) 6418H(185W) | 8 SFF | Venting Blank | 8 SFF | Venting Blank | 35°C | 35°C | 25°C |
| | | | 12 EDSFF | Venting Blank | 12 EDSFF | Venting Blank | 35°C | 30°C | 25°C |
| | | | Media bay + 8 SFF | Media BAY | 8 SFF | Venting Blank | 35°C | 30°C | 20°C |
| | | | Media bay + 12 EDSFF | Media BAY | 12 EDSFF | Venting Blank | 35°C | 30°C | 20°C |
| | | | 8 SFF x2 | 8 SFF | Venting Blank | 8 SFF | 35°C | 25°C | 20°C |
| | | | 12 EDSFF x2 | Venting Blank | 12 EDSFF | 12 EDSFF | 30°C | 20°C | |
| | | | Media bay + 8 SFF x2 | Media BAY | 8 SFF | 8 SFF | 35°C | 20°C | |
| | | | Media bay + 12 EDSFF x2 | Media BAY | 12 EDSFF | 12 EDSFF | 30°C | 20°C | |
| | | | 8 SFF x3 | 8 SFF | 8 SFF | 8 SFF | 35°C | | |

**Notes:** It is the responsibility of customers to ensure the datacenter inlet temperature meets the requirements above.

Configuration Information

| SKU | CPU | | HDD configuration | | | | Maximum Support Ambient Temperature | | |
|---|---|---|---|---|---|---|---|---|---|
| | CPU TDP | CPU list | Storage configuration | Box 1 | Box 2 | Box 3 | 64GB and Lower Capacity DDR5 DIMM | 96GB P66675-B21 128GB DDR5 DIMM (P43334-B21 P69974-B21) | 256GB DDR5 DIMM (P43337-B21) |
| Air cooling 4 processor SKU | Up to 250W | 6448H(250W) 8450H(250W) | 8 SFF | Venting blank | 8 SFF | Venting blank | 35°C | 35°C | 25°C |
| | | | 12 EDSFF | Venting blank | 12 EDSFF | Venting blank | 35°C | 30°C | 25°C |
| | | | Media bay + 8 SFF | Media BAY | 8 SFF | Venting blank | 35°C | 30°C | 20°C |
| | | | Media bay + 12 EDSFF | Media BAY | 12 EDSFF | Venting blank | 35°C | 30°C | 20°C |
| | | | 8 SFF x2 | 8 SFF | Venting blank | 8 SFF | 30°C | 25°C | 20°C |
| | | | 12 EDSFF x2 | Venting blank | 12 EDSFF | 12 EDSFF | 30°C | 20°C | |
| | | | Media bay + 8 SFF x2 | Media BAY | 8 SFF | 8 SFF | 30°C | 20°C | |
| | | | Media bay + 12 EDSFF x2 | Media BAY | 12 EDSFF | 12 EDSFF | 25°C | 20°C | |
| | | | 8 SFF x3 | 8 SFF | 8 SFF | 8 SFF | 20°C | | |

**Notes:**

- For listed as 'not supported' configuration, please check with Sales representative for special support if needed except 8SFFx3 configuration.
- It is the responsibility of customers to ensure the datacenter inlet temperature meets the requirements above.

Configuration Information

| SKU | CPU | | HDD configuration | | | | Maximum Support Ambient Temperature | | |
|---|---|---|---|---|---|---|---|---|---|
| | CPU TDP | CPU list | Storage configuration | Box 1 | Box 2 | Box 3 | 64GB and Lower Capacity DDR5 DIMM | 96GB P66675-B21 128GB DDR5 DIMM (P63345-B21) | 256GB DDR5 DIMM (P43337-B21) |
| Liquid cooling 4 processor SKU | Up to 350W | 6434H(195W)<br>8444H(270W)<br>8460H(330W)<br>8468H(330W)<br>8490H(350W) | 8 SFF | Venting blank | 8 SFF | Venting blank | 35°C | 30°C | 20°C |
| | | | 12 EDSFF | Venting blank | 12 EDSFF | Venting blank | 30°C | 30°C | 20°C |
| | | | Media bay + 8 SFF | Media BAY | 8 SFF | Venting blank | 30°C | 30°C | 20°C |
| | | | Media bay + 12 EDSFF | Media BAY | 12 EDSFF | Venting blank | 25°C-30°C* | 25°C | 20°C |
| | | | 8 SFF x2 | 8 SFF | Venting blank | 8 SFF | 25°C-30°C* | 25°C | 20°C |
| | | | 12 EDSFF x2 | Venting blank | 12 EDSFF | 12 EDSFF | 25°C-30°C* | 25°C | Contact local Sales Representative |
| | | | Media bay + 8 SFF x2 | Media BAY | 8 SFF | 8 SFF | 25°C 30°C* | 25°C | |
| | | | Media bay + 12 EDSFF x2 | Media BAY | 12 EDSFF | 12 EDSFF | 20°C | 20°C | |
| | | | 8 SFF x3 | 8 SFF | 8 SFF | 8 SFF | | | |

**Notes:**

- For Liquid cooling CTO server, if 128GB Memory module is required, the P63345-B21 must be selected.
- * CPU dependency
- It is the responsibility of customers to ensure the datacenter inlet temperature meets the requirements above.

**Memory Blank Kit**

HPE DDR4 DIMM Blank Kit P07818-B21

### Step 2c: Choose Power Supplies

Select two or four power supplies from below.

**HPE Flex Slot Power Supplies**

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

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38997-B21

HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit P03178-B21

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38995-B21

HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit P17023-B21

**Notes:**

- Select a minimum (2), maximum (4) power supplies.
- Support Redundancy 1+1, 2+2, 3+1
- 1600W Power supplies only 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 determine the right size power supply for your server configuration. The HPE Power Advisor is located at: https://poweradvisorext.it.hpe.com/?Page=Index.
- 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.
- Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, Ireland, Switzerland or Turkey, 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 fulfill 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 3: Choose Additional Factory Integratable Options

One of the following from each list may be selected if desired at time of factory integration

**HPE Security Options**

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 Bezel Lock Kit 875519-B21

**Notes:** This option can be selected only if HPE Gen11 2U Bezel Kit (P50400-B21) is selected.

HPE ProLiant DL3XX Gen11 Intrusion Cable Kit P48922-B21

HPE Gen11 2U Bezel Kit P50400-B21

## Factory Instructions and Server Settings

HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit P54791-B21

**Notes:**

- Required for 4P Liquid cooling configuration
- The HPE DL560 Gen11 Closed-loop Liquid Cooling Heat Sink kit is designed as Factory Installation only & is not designated as a Customer Self-Repair (CSR) part to prevent damage to CPUs when customer is conducting the field upgrade on the Liquid Cooling modular itself or CPUs.
- The cooling liquid used in the liquid cooling heatsink is a mixture of purified water and ethylene with additional additives for corrosion resistance. The cooling liquid is not corrosive to the human body, but to avoid the risk of connection or damages in a longer term, it is recommended to use hand protection in the form of chemically resistant gloves and to wash hands with plenty of water after contact. Be sure to avoid any eye contact. If eye contact occurs accidentally, immediately flush eye with plenty of water or seek medical attention of any discomfort persists.
- There is no leak detection capability, yet the pumps inside of the system are redundant. If a pump or any of the components inside the solution fail, the CPU temperature or internal server temperature may increase leading to an iLO alert message.
- The HPE DL560 Gen11 Closed-loop Liquid Cooling Heat Sink FIO kit is offered with Standard (3/3/3) Warranty support along with the server. Customers can purchase extended support for years (4) and (5).
- This Closed-loop Liquid Cooling Solution is subject to a maximum usage (operational) limitation not to exceed (5) years and required to be replaced when this time limit has been reached. Parts and components that Hewlett Packard Enterprise determines have surpassed the standard (3) years warranty* will not be provided, repaired, or replaced under warranty coverage. Contact your local HPE sales representative for additional information. In addition:
- *Or to the extended (4) or (5) years of warranty contract purchased, and subject to the maximum usage (operation) limitation of (5) years. For more details, please refer to the warranty terms for other options available from Hewlett Packard Enterprise.

HPE ProLiant DL560 Gen11 2P FIO Air Baffle Kit P55550-B21

**Notes:** Required for 2P Air cooling configuration

HPE ProLiant DL560 Gen11 2P UPI Pass-Through FIO Enablement Kit P54806-B21

HPE ProLiant DL560 Gen11 2SFF Removal Trigger FIO Direct Attach Cable Kit P63143-B21

**Notes:** Required when configure 2SFF to connect with Tri-mode controller

HPE iLO Common Password FIO Setting P08040-B21

**Notes:** Sets common iLO password, instead of randomly generated password for each server during Factory Diagnostics.

HPE ProLiant Platform Certificate and IDevID iLO FIO Setting P42104-B21

**Notes:**

- Initial Device Identity (IDevID) certificates are part of a Zero Trust Architecture. This SKU instructs factory to provision IdevID on HPE iLO.
- Directs HPE manufacturing site to create, digitally sign and store a platform certificate on the server.
- Requires HPE Trusted Platform Module (TPM).

**HPE Converged Infrastructure Management Software**

| | |
|---|---|
| HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU | P8B26AAE |
| HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU | E5Y35AAE |

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

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.

## Software as a Service Management

### HPE Compute Ops Management

**Base SKU**

| | |
|---|---|
| HPE Compute Ops Management Standard 3-year Upfront ProLiant SaaS | R7A11AAE |

**Upgrade SKUS**

| | |
|---|---|
| HPE Compute Ops Management Advanced Flex with ProLiant Enablement | S6C28AAE |
| HPE Compute Ops Management Standard 1-year Upfront ProLiant SaaS | R7A10AAE |
| HPE Compute Ops Management Standard 5-year Upfront ProLiant SaaS | R7A12AAE |
| HPE Compute Ops Management Advanced 1-year Upfront ProLiant SaaS | S5E58AAE |
| HPE Compute Ops Management Advanced 3-year Upfront ProLiant SaaS | S5E59AAE |
| HPE Compute Ops Management Advanced 5-year Upfront ProLiant SaaS | S5E60AAE |
| HPE Compute Ops Management Advanced 7-year Upfront ProLiant SaaS | S5E61AAE |

**HPE OneView**

| | |
|---|---|
| HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU | E5Y35AAE |
| HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU | P8B26AAE |

**Notes:** For customers purchasing HPE Compute Ops Management, without a hardware purchase or a BTO purchase, use this base SKU within ASQ order:

| | |
|---|---|
| HPE Compute Ops Management Base SaaS | R6Z73AAE |

For more information, visit the HPE Compute Ops Management QuickSpecs:
https://www.hpe.com/psnow/doc/a50004263enw
Supported Servers – CTO only. No OEM. – Complete list can be found here: Latest Supported Server List:
https://www.hpe.com/info/com-supported-servers

## Cage kit Options

| | |
|---|---|
| HPE ProLiant DL560 Gen11 8SFF x1 Tri-Mode U.3 Drive Cage Kit | P54798-B21 |

**Notes:** Mix of x1 cage kit and x4 cage kit is not supported -

| | |
|---|---|
| HPE ProLiant DL560 Gen11 8SFF x4 U.3 NVMe Drive Cage Kit | P54799-B21 |

**Notes:** Mix of x1 cage kit and x4 cage kit is not supported

| | |
|---|---|
| HPE ProLiant DL560 Gen11 2SFF U.3 Drive Cage Kit | P54801-B21 |
| HPE ProLiant DL560 Gen11 12EDSFF Drive Cage Kit | P54802-B21 |

**Notes:** Mix of x1, x4Trimode or EDSFF drive cage kit is not supported

**Cage Cable Kit Options**

| | |
|---|---|
| HPE ProLiant DL560 Gen11 Tri-Mode Box 1/2 Cable Kit | P55320-B21 |

**Notes:** 4P system storage configurations start with box 2. Upgradable to box 3 and then box 1.

| | |
|---|---|
| HPE ProLiant DL560 Gen11 Tri-Mode Box 3 Cable Kit | P59144-B21 |

**Notes:** 2P system storage configurations start with Box3, upgradable to box 2 and then box 1.

## Direct Attach Cable Kit Options

**Notes:** Mix up with direct attach drives and Trimode storage controller drives is not supported.

| | |
|---|---|
| HPE ProLiant DL560 Gen11 Air Cooling 8SFF x4 NVMe Box 1 for 4P Direct Attach Cable Kit | P55321-B21 |
| HPE ProLiant DL560 Gen11 Liquid Cooling 8SFF x4 NVMe Box 1 for 4P Direct Attach Cable Kit | P61767-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 8SFF x4 NVMe Box 2 for 2P Direct Attach Cable Kit | P60005-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 8SFF x4 NVMe Box 2 for 4P Direct Attach Cable Kit | P55316-B21 |
| HPE ProLiant DL560 Gen11 Liquid Cooling 8SFF x4 NVMe Box 2 for 4P Direct Attach Cable Kit | P61770-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 8SFF x4 NVMe Box 2 for 4P 24SFF Direct Attach Cable Kit | P58338-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 8SFF x4 NVMe Box 3 for 2P Direct Attach Cable Kit | P60007-B21 |
| HPE ProLiant DL560 Gen11 Air/Liquid Cooling 8SFF x4 NVMe Box 3 for 4P Direct Attach Cable Kit | P58339-B21 |
| HPE ProLiant DL560 Gen11 Air/Liquid Cooling 8SFF SATA Box 3 SFF Direct Attach Cable Kit | P59141-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 12EDSFF x4 Box 2 for 4P Direct Attach Cable Kit | P55325-B21 |
| HPE ProLiant DL560 Gen11 Liquid Cooling 12EDSFF x4 Box 2 for 4P Direct Attach Cable Kit | P55328-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 12EDSFF x4 Box 2 for 2P Direct Attach Cable Kit | P60011-B21 |
| **Notes:** 2P configurations support up to total 16 EDSFF | |
| HPE ProLiant DL560 Gen11 Air/Liquid Cooling 12EDSFF x4 Box 3 for 4P Direct Attach Cable Kit | P55326-B21 |
| HPE ProLiant DL560 Gen11 Air Cooling 12EDSFF x4 Box 3 for 2P Direct Attach Cable Kit | P60013-B21 |
| **Notes:** 2P configurations support up to total 16 EDSFF | |

## OCP Cable Kit Options

| | |
|---|---|
| HPE ProLiant DL560 Gen11 OCP1/2 to Box 2/1 x1 Backplane Cable Kit | P60009-B21 |
| HPE ProLiant DL560 Gen11 OCP2 to Box 1/2 x2 Backplane Cable Kit | P61602-B21 |
| **Notes:** Required x4 Tri-Mode U.3 Drive Cage Kit | |
| HPE ProLiant DL560 Gen11 OCP1 to Box 3 x2 Backplane Cable Kit | P61603-B21 |
| **Notes:** Required x4 Tri-Mode U.3 Drive Cage Kit, support also OCP1 to Box3 x1 configuration | |
| HPE ProLiant DL560 Gen11 OCP2 to Box 2 x4 Backplane Cable Kit | P59142-B21 |
| HPE ProLiant DL560 Gen11 OCP1 to Box 3 x1/x4 Backplane Cable Kit | P55318-B21 |
| HPE ProLiant DL560 Gen11 OCP x16 to Motherboard Enablement Kit | P55322-B21 |
| **Notes:** Required for 2P configuration | |
| HPE ProLiant DL560 Gen11 OCP x16 to Mezzanine Board Enablement Kit | P55324-B21 |
| **Notes:** Required for 4P configuration | |

## Other Key Options:

| | |
|---|---|
| HPE ProLiant DL560 Gen11 4P CPU Mezzanine Kit | P54803-B21 |
| HPE ProLiant DL560 Gen11 4x Power Supply Enablement Kit | P54812-B21 |
| HPE ProLiant DL380/DL560 Gen11 2U Rear Serial Port Cable Kit | P48824-B21 |
| **Notes:** Required for serial port support on the rear side | |
| HPE ProLiant DL560 Gen11 Ball Bearing Rail 8 Kit | P61501-B21 |
| HPE ProLiant DL560 Gen11 System Insight Display Kit | P54810-B21 |
| HPE ProLiant DL560 Gen11 NS204i-u Front Enablement Kit | P55549-B21 |
| HPE ProLiant DL380a/DL560 Gen11 NS204i-u Rear Enablement Kit | P55710-B21 |
| HPE Apollo 4200 Gen10 Plus Cable Management Arm | P28726-B21 |

# HPE Processors

## Processor Option Kits

**4th Generation Intel® Xeon®-Platinum**

**Notes:** All SKUs below ship with processor only. Adequate fans and heatsinks must be selected.

| | |
|---|---|
| Intel® Xeon®-Platinum 8490H 1.9GHz 60-core 350W Processor for HPE | P49630-B21 |
| Intel® Xeon®-Platinum 8468H 2.1GHz 48-core 330W Processor for HPE | P49629-B21 |
| Intel® Xeon®-Platinum 8460H 2.2GHz 40-core 330W Processor for HPE | P49628-B21 |
| Intel® Xeon®-Platinum 8450H 2.0GHz 28-core 250W Processor for HPE | P49626-B21 |
| Intel® Xeon®-Platinum 8444H 2.9GHz 16-core 270W Processor for HPE | P49625-B21 |

**4thGeneration Intel® Xeon®-Gold**

**Notes:** All SKUs below ship with processor only. Adequate fans and heatsinks must be selected.

| | |
|---|---|
| Intel® Xeon®-Gold 6448H 2.4GHz 32-core 250W Processor for HPE | P49622-B21 |
| Intel® Xeon®-Gold 6434H 3.7GHz 8-core 195W Processor for HPE | P49623-B21 |
| Intel® Xeon®-Gold 6418H 2.1GHz 24-core 185W Processor for HPE | P49621-B21 |
| Intel® Xeon®-Gold 6416H 2.2GHz 18-core 165W Processor for HPE | P49620-B21 |

**Heat Sink Kit**

| | |
|---|---|
| HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit | P54791-B21 |

**Notes:**

- For 4P Liquid cooling configuration
- The HPE DL560 Gen11 Closed-loop Liquid Cooling Heat Sink kit is designed as Factory Installation only & is not designated as a Customer Self-Repair (CSR) part to prevent damage to CPUs when customer is conducting the field upgrade on the Liquid Cooling modular itself or CPUs.
- The cooling liquid used in the liquid cooling heatsink is a mixture of purified water and ethylene with additional additives for corrosion resistance. The cooling liquid is not corrosive to the human body, but to avoid the risk of connection or damages in a longer term, it is recommended to use hand protection in the form of chemically resistant gloves and to wash hands with plenty of water after contact. Be sure to avoid any eye contact. If eye contact occurs accidentally, immediately flush eye with plenty of water or seek medical attention of any discomfort persists.
- There is no leak detection capability, yet the pumps inside of the system are redundant. If a pump or any of the components inside the solution fail, the CPU temperature or internal server temperature may increase leading to an iLO alert message.
- The HPE DL560 Gen11 Closed-loop Liquid Cooling Heat Sink FIO kit is offered with Standard (3/3/3) Warranty support along with the server. Customers are able to purchase extended support for years (4) and (5).
- This Closed-loop Liquid Cooling Solution is subject to a maximum usage (operational) limitation not to exceed (5) years and required to be replaced when this time limit has been reached. Parts and components that Hewlett Packard Enterprise determines have surpassed the standard (3) years warranty* will not be provided, repaired, or replaced under warranty coverage. Contact your local HPE sales representative for additional information. In addition:

*Or to the extended (4) or (5) years of warranty contract purchased, and subject to the maximum usage (operation) limitation of (5) years. For more details, please refer to the warranty terms for other options available from Hewlett Packard Enterprise.

HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit P48818-B21

**Notes:** For 2P Air Cooling CTO

HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit P48905-B21

**Notes:** For 4P Air Cooling CTO

## Memory Selection

To streamline the configuration process for HPE ProLiant Gen11 servers and to provide the best product availability, HPE recommends memory from the list located here:

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

**Notes:**

- HPE Server Memory compatibility for a specific server platform may vary or be limited within a server platform depending upon the specific configuration being requested. Because each server environment and requirements can vary, memory compatibility is based not only upon the server family, but may also be affected by the amount and type of additional hardware options installed within a specific server configuration. For this reason, some HPE memory DIMMs may be qualified for an HPE server model or family and yet occasionally not be supported with some configurations within that server family
- Maximum memory capacity and speed per processor is dependent on processor model selection or limitation.

### HPE DDR5 Memory

### Registered DIMMs (RDIMMs)

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P43322-B21

HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P43328-B21

HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit P43331-B21

HPE 96GB (1x96GB) Dual Rank x4 DDR5-4800 CAS-46-45-45 EC8 Registered Smart Memory Kit P66675-B21

HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit P43337-B21

**Notes:**

- Memory should be installed in even quantity of DIMMs
- 4800 MT/s memory SKUs offer a transfer rate of 4800 MT/s at 1 DIMM per channel and 4400 MT/s at 2 DIMMs per channel
- Mixing of 3DS memory and non-3DS memory is not supported
- Memory capacity please refer to CPU/Memory/Storage support matrix
- If 128GB memory module is desired, in a Liquid cooling CTO server, 128GB (1x128GB) Quad Rank x4 DDR5-4800 (P63345-B21) must be selected

### HPE DDR Blank Kit

HPE DDR4 DIMM Blank Kit P07818-B21

## HPE Optical Drives

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

**Notes:** HPE ProLiant DL560 Gen11 SFF Universal Media Bay Kit (P60500-B21) is required for this option on a SFF model. No support in 12 LFF or 24 SFF models.

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

**Notes:** HPE ProLiant DL560 Gen11 SFF Universal Media Bay Kit (P60500-B21) is required for this option on a SFF model.

| | |
|---|---|
| HPE Mobile USB DVD-RW Optical Drive | 701498-B21 |

## Media Bay Kits

| | |
|---|---|
| HPE ProLiant DL560 Gen11 SFF Universal Media Bay Kit | P60500-B21 |

**Notes:**

- The Universal Media bay provides front DisplayPort and 2xUSB 2.0; plus 2x SFF front drives or 2 NVME front drives and ODD support (not included); and can only be located in Box1 with either an 8 SFF or 8+8 SFF model. Please refer to CPU/Memory/Storage matrix.
- This is a SFF model option only.

## HPE Hard Disk Drives

**Notes:** If need to configure the system without any drives, a x4 cage kit and a Direct attach cable must be selected. This will not require any controller selection.

### Mission Critical – 12G SAS – SFF Drives

| | |
|---|---|
| HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Warranty 512e FIPS 140-2 TAA-compliant HDD | P28618-B21 |
| HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Warranty FIPS 140-2 TAA-compliant HDD | P28622-B21 |

### Enterprise – 12G SAS – SFF Drives

| | |
|---|---|
| HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD | P28352-B21 |
| HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD | P53562-B21 |
| HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD | P28586-B21 |
| HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD | P53561-B21 |
| HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD | P40430-B21 |

## SSD Selection

For SSD selection guidance, please visit https://ssd.hpe.com/

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

| | |
|---|---|
| HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD | P49045-B21 |
| HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD | P40509-B21 |
| HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD | P49041-B21 |
| HPE 3.84TB SAS Read Intensive SFF BC Self-encrypting FIPS 140-2 PM7 SSD | P63875-B21 |
| HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD | P40508-B21 |
| HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD | P49035-B21 |
| HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD | P40507-B21 |
| HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD | P49031-B21 |
| HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD | P40506-B21 |

| | |
|---|---|
| HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD | P49029-B21 |
| **Mixed Use – 12G SAS – SFF – Solid State Drives** | |
| HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD | P49057-B21 |
| HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD | P40512-B21 |
| HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD | P49053-B21 |
| HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD | P40511-B21 |
| HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD | P49049-B21 |
| HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-2 PM7 SSD | P63871-B21 |
| HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD | P40510-B21 |
| HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD | P49047-B21 |
| **Read Intensive – 6G SATA – SFF – Solid State Drives** | |
| HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD | P40501-B21 |
| HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD | P40500-B21 |
| HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD | P40499-B21 |
| HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD | P40497-B21 |
| HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD | P40498-B21 |
| HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD | P40496-B21 |
| HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD | P58236-B21 |
| **Mixed Use – 6G SATA – SFF – Solid State Drives** | |
| HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD | P40505-B21 |
| HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD | P40504-B21 |
| HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD | P40503-B21 |
| HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD | P40502-B21 |
| HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD | P58244-B21 |
| **Read Intensive – NVMe – SFF – Solid State Drives** | |
| HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD | P70436-B21 |
| HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD | P50224-B21 |
| HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD | P63841-B21 |
| HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD | P70434-B21 |
| HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD | P50222-B21 |
| HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD | P63837-B21 |
| HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD | P50219-B21 |
| HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD | P63833-B21 |
| HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD | P50216-B21 |
| HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD | P63829-B21 |
| HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD | P61019-B21 |
| HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD | P61027-B21 |
| HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD | P61035-B21 |
| HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD | P64842-B21 |
| HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD | P64844-B21 |
| HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD | P64846-B21 |
| HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD | P64848-B21 |
| **Mixed Use – NVMe – SFF – Solid State Drives** | |
| HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD | P70428-B21 |
| HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD | P50233-B21 |

| | |
|---|---|
| HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD | P63853-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD | P70426-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD | P50230-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD | P63849-B21 |
| HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD | P61043-B21 |
| HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD | P61051-B21 |
| HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD | P61059-B21 |
| HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD | P50227-B21 |
| HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD | P63845-B21 |
| HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD | P64999-B21 |
| HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD | P65007-B21 |
| HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD | P65015-B21 |
| HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD | P65023-B21 |

## EDSFF Selection NVMe

For EDSFF selection guidance, please visit https://ssd.hpe.com/

### NVMe Read Intensive – EDSFF E3.S - –Solid State Drives

| | |
|---|---|
| HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD | P69546-B21 |
| HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD | P70397-B21 |
| HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD | P57807-B21 |
| HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD | P69239-B21 |
| HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD | P70395-B21 |
| HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD | P69237-B21 |
| HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD | P70392-B21 |
| HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD | P57799-B21 |
| HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD | P61179-B21 |
| HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD | P69234-B21 |
| HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD | P61183-B21 |
| HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD | P70674-B21 |
| HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD | P61187-B21 |
| HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD | P79122-B21 |
| HPE 3.84TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD | P63930-B21 |
| HPE 7.68TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD | P63934-B21 |
| HPE 15.36TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD | P63938-B21 |
| HPE 30.72TB NVMe Gen4 Mainstream Performance Very Read Optimized E3S EC1 EDSFF P5430 SSD | P79065-B21 |
| HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD | P77269-B21 |
| HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD | P77271-B21 |
| HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD | P77273-B21 |
| HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD | P77275-B21 |

### NVMe Mixed Use – EDSFF E3.S - –Solid State Drives

| | |
|---|---|
| HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD | P69241-B21 |
| HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD | P69243-B21 |
| HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD | P61191-B21 |
| HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD | P70669-B21 |

| | |
|---|---|
| HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-3 CM7 SSD | P70672-B21 |
| HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD | P69245-B21 |
| HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD | P61195-B21 |
| HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD | P77262-B21 |
| HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD | P77265-B21 |
| HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD | P77267-B21 |
| HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD | P70399-B21 |
| HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD | P70401-B21 |
| HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD | P70403-B21 |

**Notes:**

- For 2P configuration: support max. 8 EDSFF per box (only box 2 and 3 supported)
- For 4P configuration: support max. 12 EDSFF per fox (only box 2 and 3 supported)

### Hard Drive Blank Kits

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

## HPE Networking

### 1 Gigabit Ethernet adapters

| | |
|---|---|
| Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE | P51178-B21 |
| Intel® I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE | P21106-B21 |

### 10 Gigabit Ethernet adapters

**Notes:** Unless otherwise noted, one of the below 10Gb networking adapters below can be selected as the primary networking choice.

| | |
|---|---|
| Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE | P26253-B21 |
| Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE | P26259-B21 |

### 25 Gigabit Ethernet adapters

| | |
|---|---|
| NVIDIA Ethernet 10/25Gb 2-port SFP28 NVMe-oF Crypto Adapter for HPE | S2A69A |
| Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE | P26264-B21 |
| Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE | P26262-B21 |
| Intel® E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE | P08443-B21 |
| Intel® E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE | P08458-B21 |
| Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE | P42044-B21 |

### 100 Gigabit Ethernet Adapters

| | |
|---|---|
| Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 Adapter for HPE | P73111-B21 |
| Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE | P25960-B21 |
| NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE | R8M41A |
| Intel® E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE | P21112-B21 |

- Broadcom 5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE
- Intel® I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 Processor Air Cooling SKU** | **4 Processor Air Cooling SKU** | **4 Processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 30 °C |
| 12EDSFF | 35 °C | 35 °C | 30 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 25 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | Not Supported |
| 24SFF | 35 °C | 25 °C* | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU

- Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE
- Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 Processor Air Cooling SKU** | **4 Processor Air Cooling SKU** | **4 Processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 30 °C |
| 12EDSFF | 35 °C | 35 °C | 30 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 25 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | Not Supported |
| 24SFF | 35 °C | 25 °C* | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU

– Broadcom 57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 35 °C |
| 12EDSFF | 35 °C | 35 °C | 35 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | Not Supported |
| 24SFF | 35 °C | 25 °C* | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU

- Broadcom 57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE
- Intel® E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
- Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
- S2A69A NVIDIA Ethernet 10/25Gb 2-port SFP28 NVMe-oF Crypto Adapter for HPE

**Maximum System Ambient Temperature**

| Storage Config | 2 processor Air Cooling SKU | 4 processor Air Cooling SKU | 4 processor Liquid Cooling SKU |
|---|---|---|---|
| 8 SFF | 35 °C | 35 °C | 35 °C* |
| 12 EDSFF | 35 °C | 35 °C | 30 °C* |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C* |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C* |
| 8 SFF x2 | 35 °C | 35 °C | 30 °C* |
| 12 EDSFF x2 | 30 °C | 30 °C | 25 °C* |
| Media bay + 8 SFF x2 | 30 °C | 30 °C | 25 °C* |
| Media bay + 12 EDSFF x2 | 30 °C | 30 °C | 20 °C |
| 8 SFF x3 | 30 °C | 30 °C** | Not Supported |

**Notes:**

- *Is required to be installed in riser 1.
- ** Only can be supported with 6416H(165W) or 6418H(185W) CPU.

– Intel® E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 30 °C | 30 °C* |
| 12 EDSFF | 35 °C | 30 °C | 30 °C* |
| Media bay + 8 SFF | 35 °C | 30 °C | 30 °C* |
| Media bay + 12 EDSFF | 35 °C | 30 °C | 25 °C* |
| 8 SFF x2 | 35 °C* | 25 °C* | 25 °C* |
| 12 EDSFF x2 | 35 °C* | 30 °C* | 25 °C* |
| Media bay + 8 SFF x2 | 35 °C* | 30 °C* | 25 °C* |
| Media bay + 12 EDSFF x2 | 30 °C* | 25 °C* | Not Supported |
| 8 SFF x3 | 35 °C* | 25 °C** | Not Supported |

**Notes:**

– * It is required to install the card on PCI-E riser 1

– ** Only can be supported with 6416H(165W) or 6418H(185W) CPU

– INT E810 100GbE 2p QSFP28 Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 35 °C | 25 °C |
| 12 EDSFF | 35 °C | 35 °C | 25 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C* |
| 8 SFF x2 | 35 °C | 35 °C | 25 °C |
| 12 EDSFF x2 | 35 °C | 30 °C | 25 °C* |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 30 °C* |
| Media bay + 12 EDSFF x2 | 35 °C | 25 °C | 20 ˚C |
| 8 SFF x3 | 35 °C | 25 °C** | Not Supported |

**Notes:**

– *It is required to be installed in riser 1.

– **Only can be supported with 6416H(165W) or 6418H(185W) CPU

– HPE 100GbE 1p QSFP28 MCX515A-CCAT Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 30 °C |
| 12EDSFF | 35 °C | 35 °C | 30 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 25 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | 20 °C |
| 24SFF | 35 °C | 20 °C | Not Supported |

- Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE
- NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE
- Mellanox MCX623105AS VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 30 °C | 25 °C* |
| 12 EDSFF | 35 °C | 30 °C | 25 °C* |
| Media bay + 8 SFF | 35 °C | 30 °C | 25 °C* |
| Media bay + 12 EDSFF | 35 °C | 30 °C | 25 °C* |
| 8 SFF x2 | 35 °C* | Not Supported | 30 °C* |
| 12 EDSFF x2 | 35 °C* | 30 °C* | Not Supported |
| Media bay + 8 SFF x2 | 35 °C* | 30 °C* | Not Supported |
| Media bay + 12 EDSFF x2 | 30 °C* | 25 °C* | Not Supported |
| 8 SFF x3 | 35 °C* | Not Supported | Not Supported |

**Notes:** *. It is required to install the card on PCI-E riser 1

### OCP 3.0 Adapters

| | |
|---|---|
| Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE | P51181-B21 |
| Intel® I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE | P08449-B21 |
| Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE | P10097-B21 |
| Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE | P26256-B21 |
| Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE | P26269-B21 |
| Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE | P10115-B21 |
| Intel® E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE | P10106-B21 |
| Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE | P42041-B21 |
| Intel® E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE | P22767-B21 |
| Broadcom BCM57608 Ethernet 100Gb 2-port QSFP112 OCP3 Adapter for HPE | P73114-B21 |

- Broadcom 57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE
- Broadcom 5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
- Intel® I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
- Broadcom 57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
- Broadcom 57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE
- INT X710 10GbE 4p BASE-T OCP3 Special Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 35 °C |
| 12EDSFF | 35 °C | 35 °C | 35 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | 20 ˚C |
| Media bay + 12 EDSFFx2 | 35 ˚C | 25 ˚C | 20 ˚C |
| 24SFF | 35 °C | 25 °C* | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU

– Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 35 °C |
| 12EDSFF | 35 °C | 35 °C | 35 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 20 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 20 °C |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | 20 °C |
| 24SFF | 35 °C | 25 °C* | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU

- Intel® E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
- Intel® E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 35 °C | 35 °C |
| 12EDSFF | 35 °C | 35 °C | 35 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 16SFF | 35 °C | 35 °C | 30 °C |
| 24EDSFF | 35 °C | 30 °C | 20 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 20 °C |
| Media bay + 12EDSFFx2 | 35 °C | 25 °C | 20 °C |
| 24SFF | 35 °C | 20 °C | Not Supported |

– Broadcom 57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8SFF | 35 °C | 25 °C | 25 °C |
| 12EDSFF | 35 °C | 25 °C | 25 °C |
| Media bay + 8 SFF | 35 °C | 25 °C | 20 ˚C |
| Media bay + 12 EDSFF | 35 °C | 25 °C | 20 ˚C |
| 16SFF | 35 °C | 25 °C | Not Supported |
| 24EDSFF | 35 °C | 25 °C | Not Supported |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | Not Supported |
| Media bay + 8 SFF x2 | 35 °C | 25 °C | Not Supported |
| 24SFF | 35 °C | 20 ˚C | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU

## HPE InfiniBand

| | |
|---|---|
| HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter | 829335-B21 |
| HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter | P45642-H23 |
| HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter | R7N86A |
| HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter | R7N87A |

**Notes:** Must be populated in x16 physical and electrical slot.

| | |
|---|---|
| HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter | P45641-B23 |

- HPE InfiniBand NDR 1-port OSFP PCIe5 x16 MCX75310AAS NEAT Adapter
- HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter

**Maximum System Ambient Temperature**

| Storage Config | 2 processor Air Cooling SKU | 4 processor Air Cooling SKU | 4 processor Liquid Cooling SKU |
|---|---|---|---|
| 8 SFF | 35 °C | 30 °C | 30 °C* |
| 12 EDSFF | 35 °C | 30 °C | 30 °C* |
| Media bay + 8 SFF | 35 °C | 30 °C | 30 °C* |
| Media bay + 12 EDSFF | 35 °C | 30 °C | 25 °C* |
| 8 SFF x2 | 35 °C* | 35 °C* | 30 °C* |
| 12 EDSFF x2 | 35 °C* | 30 °C* | 25 °C* |
| Media bay + 8 SFF x2 | 35 °C* | 30 °C* | 25 °C* |
| Media bay + 12 EDSFF x2 | 35 °C* | 25 °C* | 20 ˚C |
| 8 SFF x3 | 35 °C* | 20 ˚C | Not Supported |

**Notes:** *. It is required to install the card on PCI-E riser 1

– HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel® Omni-Path Architecture Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 35 °C | 30 °C |
| 12 EDSFF | 35 °C | 35 °C | 30 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 25 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 8 SFF x2 | 35 °C | 35 °C | 30 °C |
| 12 EDSFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 12 EDSFF x2 | 35 °C | 25 °C | 20 °C |
| 8 SFF x3 | 35 °C | Not Supported | Not Supported |

– HPE InfiniBand NDR200 1p OSFP MCX75310AAS Adapter
– HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 35 °C | 35 °C* |
| 12 EDSFF | 35 °C | 35 °C | 30 °C* |
| Media bay + 8 SFF | 35 °C | 35 °C | 30 °C* |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C* |
| 8 SFF x2 | 35 °C | 35 °C | 30 °C* |
| 12 EDSFF x2 | 35 °C | 30 °C | 25 °C* |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C* |
| Media bay + 12 EDSFF x2 | 35 °C | 25 °C | 20 °C |
| 8 SFF x3 | 35 °C | Not Supported | Not Supported |

**Notes:** *It is required to install the card on PCI-E riser 1.

- HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter
- HPE IB HDR/EN 200Gb 1p QSFP56 Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 30 °C | 30 °C* |
| 12 EDSFF | 35 °C | 30 °C | 30 °C* |
| Media bay + 8 SFF | 35 °C | 30 °C | 30 °C* |
| Media bay + 12 EDSFF | 35 °C | 30 °C | 25 °C* |
| 8 SFF x2 | 35 °C | 35 °C* | 25 °C* |
| 12 EDSFF x2 | 35 °C | 30 °C | 25 °C* |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C* |
| Media bay + 12 EDSFF x2 | 30 °C | 25 °C | 20 °C |
| 8 SFF x3 | 25 °C | 20 °C | Not Supported |

**Notes:** *. It is required to install the card on PCI-E riser 1

- HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter
- HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 processor Air Cooling SKU** | **4 processor Air Cooling SKU** | **4 processor Liquid Cooling SKU** |
| 8 SFF | 30 °C | 25 °C | 25 °C* |
| 12 EDSFF | 30 °C | 20 °C | 20 °C |
| Media bay + 8 SFF | 30 °C | 20 °C | 25 °C* |
| Media bay + 12 EDSFF | 30 °C | 20 °C | 20 °C |
| 8 SFF x2 | 25 °C | 20 °C | 20 °C |
| 12 EDSFF x2 | 20 °C | Not Supported | Not Supported |
| Media bay + 8 SFF x2 | 20 °C | Not Supported | Not Supported |
| Media bay + 12 EDSFF x2 | 20 °C | Not Supported | Not Supported |
| 8 SFF x3 | Not Supported | Not Supported | Not Supported |

**Notes:** * The card is required to be installed on OCP2. The OCP card can only be supported with TDP 270W or lower power processor at the same time.

## HPE I/O Expansion Options

**Notes:** x16 cards installed on x8 slots could observe sub-optimal performance.

HPE ProLiant DL560 Gen11 x8/x16/x8 Riser Kit P54779-B21

**Notes:**

- Slot 1 - –PCIe 5.0 x8 Full height and ¾ length
- Slot 2 - –PCIe 5.0 x16 Full Height and ¾ length
- Slot 3 - –PCIe 5.0 x8 Full Height and ¾ length

HPE ProLiant DL560 Gen11 x16/x16/x16 Riser Kit P54780-B21

**Notes:**

- Slot 1 - –PCIe 5.0 x16 Full Height and ¾ length
- Slot 2 - –PCIe 5.0 x16 Full Height and ¾ length
- Slot 3 - –PCIe 5.0 x16 Full Height and ¾ length
- When 3x16 riser is selected, required to have either cable (P55315-B21 or P55319-B21) to connect with Motherboard (for 2P) or Mezzanine board (for 4P)

HPE ProLiant DL560 Gen11 3x16 Riser to Motherboard Cable Kit P55315-B21

**Notes:** Required when configure 2P system to connect to motherboard with HPE ProLiant DL560 Gen11 x16/x16/x16 Riser Kit (P54780-B21)

HPE ProLiant DL560 Gen11 3x16 Riser to Mezzanine Board Cable Kit P55319-B21

**Notes:** Required when configure 4P system to connect to Mezzanine board with HPE ProLiant DL560 Gen11 x16/x16/x16 Riser Kit (P54780-B21)

### HPE Power Supplies

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38995-B21

**Notes:** Flex Slot Platinum power supplies support power efficiency of up to 94% and include a standard C-14 power inlet connector.

HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit P03178-B21

**Notes:** Flex Slot Titanium power supplies support power efficiency of up to 96% and include a standard C-14 power inlet connector.

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38997-B21

**Notes:** Flex Slot Platinum Plus power supplies support power efficiency of up to 94% and include a C-14 power inlet connector.

HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit P17023-B21

HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit P44712-B21

**Notes:**

- Flex Slot Titanium power supplies support power efficiency of up to 96% and include a standard C-14 power inlet connector
- 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

– Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, Ireland, Switzerland or Turkey, 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 fulfill 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.

## HPE Cooling Options

HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit P54791-B21

**Notes:**

– For 4P Liquid cooling system configuration

– The HPE ProLiant DL560 Gen11 Liquid Cooling FIO Heat Sink Kit is subject to a Maximum Usage Limitation of not exceeding five (5) years of operation and is required to be replaced when reaching limitation. Parts and components that Hewlett Packard Enterprise determines have reached or exceeded their Maximum Usage limitations will not be provided, repaired, or replaced under warranty or service contract. Contact your local sales representative for additional information.

HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit P48818-B21

**Notes:** For 2P Air Cooling system configuration

HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit P48905-B21

**Notes:** For 4P Air Cooling system configuration

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.

## Embedded Management

### HPE iLO Common Password FIO Setting

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 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 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 AKA Tracking License with 3yr Support on iLO Licensed Features BD507A

### HPE Converged Infrastructure Management Software

HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU E5Y35AAE

HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU P8B26AAE

**Notes:** Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded.

HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device P48183-B21

**Notes:**

- Max = 1
- When NS204i-u is selected, a second riser card must be selected to locate in secondary riser slot for rear side.
- NS204i-u Boot device can only be installed in the 1st slot of secondary riser kit (slot 4) in for rear side.
- For liquid cooling solution, with NS204i-u in front location, system does not support Media Bay.

HPE ProLiant DL560 Gen11 NS204i-u Front Enablement Kit P55549-B21

HPE ProLiant DL380a/DL560 Gen11 NS204i-u Rear Enablement Kit P55710-B21

HPE NS204i-u Gen11 Hot Plug Boot Option Dev (Installation location: Front: Between Fan cage and storage box)
**Notes:** Not hot-pluggable

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 Processor Air Cooling SKU** | **4 Processor Air Cooling SKU** | **4 Processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 35 °C | 35 °C |
| 12 EDSFF | 35 °C | 35 °C | 35 °C * |
| Media bay + 8 SFF | 35 °C | 35 °C | Not Supported |
| Media bay + 12 EDSFF | 35 °C | 35 °C | Not Supported |
| 8 SFF x2 | 35 °C | 35 °C | 35 °C |
| 12 EDSFF x2 | 35 °C | 30 °C | Not Supported |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | Not Supported |
| Media bay + 12 EDSFF x2 | 35 °C | 25 °C | Not Supported |
| 8 SFF x3 | 35 °C | Not Supported | Not Supported |

**Notes:** * One 12 EDSFF box has to be located in Box 3

HPE NS204i-u Gen11 Hot Plug Boot Opt Dev (Installation location: Rear: PCI-E Riser 2 slot 4)
**Notes:** Hot pluggable

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **Storage Config** | **2 Processor Air Cooling SKU** | **4 Processor Air Cooling SKU** | **4 Processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 35 °C | 25 °C* |
| 12 EDSFF | 35 °C | 35 °C | 25 °C* |
| Media bay + 8 SFF | 35 °C | 35 °C | 25 °C* |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C* |
| 8 SFF x2 | 35 °C | 35 °C | 25 °C* |
| 12 EDSFF x2 | 35 °C | 30 °C | 20 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 20 °C |
| Media bay + 12 EDSFF x2 | 35 °C | 25 °C | 20 °C |
| 8 SFF x3 | 35 °C | 25 °C** | Not Supported |

**Notes:** * The boot device is required on slot4, the slot 5 must be kept empty
** Only can be supported with 6416H(165W) or 6418H(185W) CPU simultaneously

## HPE Storage Controllers

The Gen11 storage controller portfolio has been updated to include new technology like OCP3.0 as well as PCIe adapters. For a more detailed breakout of the available Gen11 controllers visit the storage controllers QuickSpecs site

### HPE Tri-Mode Controllers

| | |
|---|---|
| HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller | P47785-B21 |
| HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller | P47789-B21 |
| HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller | P58335-B21 |
| HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller | P47777-B21 |
| HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller | P47781-B21 |
| HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller | P47184-B21 |

**Notes:** Requires x16 riser slot

### Essential RAID Controllers

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

## Optional Upgrades

HPE Smart Storage Hybrid Capacitor with 260mm Cable Kit P02381-B21

HPE 96W Smart Storage Lithium-ion Battery with 260mm Cable Kit P01367-B21

**Notes:** Provides backup power for multiple HPE storage controllers or other devices.

## Hybrid RAID

Intel® Virtual RAID on CPU Premium FIO Software for HPE R7J57A

**Notes:**

- Requires UEFI, not supported on Legacy Mode.
- For NVMe SSDs only, there is no PCIe card support.
- Supports RAID 0/1/5/10

Intel® Virtual RAID on CPU Premium E-RTU for HPE R7J59AAE

**Notes:**

- Requires UEFI, not supported on Legacy Mode.
- For NVMe SSDs only, there is no PCIe card support.
- Supports RAID 0/1/5/10
- For Pre-configured SKU (BTO) upgrade

Intel® Virtual RAID on CPU Standard E-RTU for HPE S0E38AAE

**Notes:**

- Requires UEFI, not supported on Legacy Mode.
- For NVMe SSDs only, there is no PCIe card support.
- Supports RAID 0/1/10
- For Pre-configured SKU (BTO) upgrade

## HPE Graphics Accelerators

HPE ProLiant DL560 Gen11 GPU Enablement Kit P54816-B21

NVIDIA L40 48GB PCIe Accelerator for HPE S0K90C

**Notes:** while selecting Accelerator card, the GPU enablement kit is required.

**H100 80GB Accelerator Card**

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **System Config** | 2 Processor Air Cooling SKU | 4 Processor Air Cooling SKU | 4 Processor Liquid Cooling SKU |
| **8 SFF** | 25 °C | 25 °C | Not Supported |
| **12 EDSFF** | 25 °C | 20 °C | Not Supported |
| **Media bay + 8 SFF** | 25 °C | 20 °C | Not Supported |
| **Media bay + 12 EDSFF** | 25 °C | 20 °C | Not Supported |
| **8 SFF x2** | 25 °C | Not Supported | Not Supported |
| **12 EDSFF x2** | Not Supported | Not Supported | Not Supported |
| **Media bay + 8 SFF x2** | Not Supported | Not Supported | Not Supported |
| **Media bay + 12 EDSFF x2** | Not Supported | Not Supported | Not Supported |
| **8 SFF x3** | Not Supported | Not Supported | Not Supported |

**L40 48GB Accelerator card**

| Maximum System Ambient Temperature | | | |
|---|---|---|---|
| **System Config** | 2 Processor Air Cooling SKU | 4 Processor Air Cooling SKU | 4 Processor Liquid Cooling SKU |
| **8 SFF** | 30 °C | 30 °C | Not Supported |
| **12 EDSFF** | 30 °C | 30 °C | Not Supported |
| **Media bay + 8 SFF** | 30 °C | 30 °C | Not Supported |
| **Media bay + 12 EDSFF** | 30 °C | 30 °C | Not Supported |
| **8 SFF x2** | 30 °C* | 25 °C | Not Supported |
| **12 EDSFF x2** | 25 °C | 20 °C | Not Supported |
| **Media bay + 8 SFF x2** | 25 °C | 20 °C | Not Supported |
| **Media bay + 12 EDSFF x2** | 25 °C | 20 °C | Not Supported |
| **8 SFF x3** | Not Supported | Not Supported | Not Supported |

**Notes:** (*) The maximum support ambient temperature is 25 °C when the 8SFF boxes are placed in box 2 and 3 (Direct Attach).

## 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 please visit the StoreEver Tape Solutions in SPOCK (requires registration/login) https://h20272.www2.hpe.com/SPOCK/default.aspx
Only external drives supported
All libraries and autoloaders supported via compatible FC or SAS controller. Refer to the StoreEver Tape Solutions Compatibility Matrix link above.

### Tape Drives

| | |
|---|---|
| HPE StoreEver LTO-8 Ultrium 30750 External Tape Drive | BC023A |
| HPE StoreEver MSL2024 0-drive Tape Library | AK379A |
| HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit | N7P36A |
| HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit | N7P37A |
| HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable | K2R09A |
| HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 4m Cable | K2R10A |
| HPE StoreEver MSL LTO-8 Ultrium 30750 FC Drive Upgrade Kit | Q6Q67A |
| HPE StoreEver MSL LTO-8 Ultrium 30750 SAS Drive Upgrade Kit | Q6Q68A |
| HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive | BB874A |
| HPE StoreEver LTO-9 Ultrium 45000 External Tape Drive | BC042A |
| HPE StoreEver MSL LTO-9 Ultrium 45000 Fibre Channel Drive Upgrade Kit | R6Q74A |
| HPE StoreEver MSL LTO-9 Ultrium 45000 SAS Drive Upgrade Kit | R6Q75A |

## HPE Storage Options

### Emulex Fiber 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 SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter | R7N77A |
| HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter | R7N78A |

### QLogic Fiber Channel HBAs

| | |
|---|---|
| HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter | R2E08A |
| HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter | R2E09A |

### HPE InfiniBand Adapter

| | |
|---|---|
| HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter | P45641-B23 |

## Fiber Channel HBAs

- HPE SN1200E 16Gb 2p FC HBA
- HPE SN1610E 32Gb 1p/2p FC HBA
- HPE SN1700E 64Gb 1p/2p FC HBA
- HPE SN1610Q 32Gb 1p/2p FC HBA

| Recommended System Ambient Temperature | | | |
|---|---|---|---|
| **System Config** | **2 Processor Air Cooling SKU** | **4 Processor Air Cooling SKU** | **4 Processor Liquid Cooling SKU** |
| 8 SFF | 35 °C | 35 °C | 30 °C |
| 12 EDSFF | 35 °C | 35 °C | 30 °C |
| Media bay + 8 SFF | 35 °C | 35 °C | 25 °C |
| Media bay + 12 EDSFF | 35 °C | 35 °C | 25 °C |
| 8 SFF x2 | 35 °C | 35 °C | 30 °C |
| 12 EDSFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 8 SFF x2 | 35 °C | 30 °C | 25 °C |
| Media bay + 12 EDSFF x2 | 35 °C | 25 °C | 20 °C |
| 8 SFF x3 | 35 °C | 25 °C (*) | Not Supported |

**Notes:** * Only can be supported with 6416H(165W) or 6418H(185W) CPU simultaneously.

## HPE Racks

- Refer to the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. HPE G2 Advanced Series Racks
- Refer to the HPE Enterprise Series Racks QuickSpecs for information on additional racks options and rack specifications. HPE G2 Enterprise Series Racks

## HPE Power Distribution Units (PDUs)

- Refer to the HPE Basic Power Distribution Units (PDU) QuickSpecs for information on these products and their specifications.
- Refer to the HPE Metered Power Distribution Units (PDU) QuickSpecs for information on these products and their specifications. Refer to the HPE Intelligent Power Distribution Unit (PDU) QuickSpecs for information on these products and their specifications.
- Refer to the HPE Metered and Switched Power Distribution Units (PDU) QuickSpecs for information on these products and their specifications.

## Rail Kits

The rail kits contain telescoping rails which allow for in-rack serviceability.
To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative.

**Notes:**

- 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 rail kits are designed to work with HPE racks in compliance with industry standard EIA-310-E. In the event a customer elects to purchase a third-party rack for use with an HPE rail kit, any such use is at customer's own risk. HPE makes no express or implied warranties with respect to such third-party racks and specifically disclaims any implied warranties of merchantability and fitness for a particular purpose. Furthermore, HPE has no obligation and assumes no liability for the materials, design, specifications, installation, safety, and compatibility of any such third-party racks with any rail kits, including HPE rail kits.

HPE ProLiant DL560 Gen11 Ball Bearing Rail 8 Kit P61501-B21

**Notes:** Does not include Cable Management Arm (CMA)

HPE Apollo 4200 Gen10 Plus Cable Management Arm P28726-B21

## HPE Support Services

### Tech Care Services

HPE 5 Year Tech Care Essential DL560 Gen11 HW Service H40KLE

HPE 5 Year Tech Care Essential wDMR DL560 Gen11 HW Service H40KME

HPE 5 Year Tech Care Critical for DL560 Gen11 HW Service H40KQE

HPE 5 Year Tech Care Critical wDMR DL560 Gen11 HW Service H40KRE

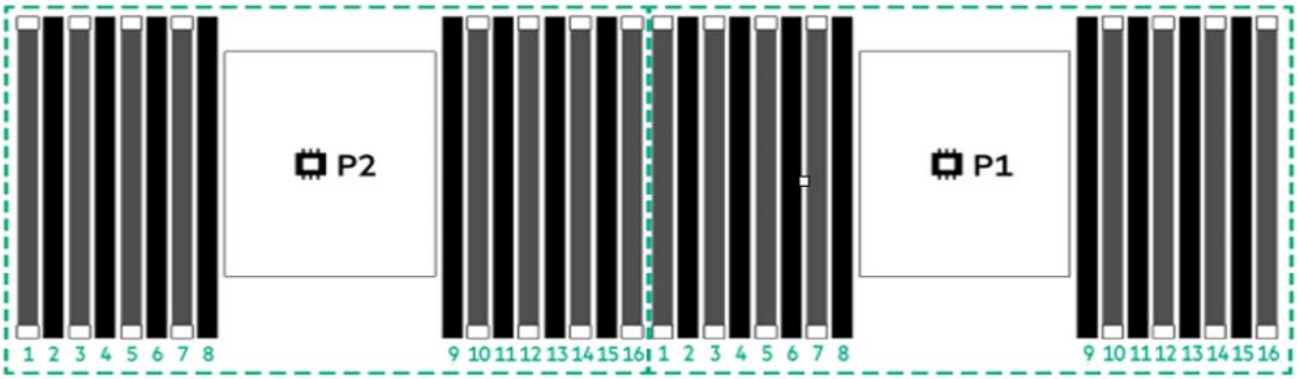
**Notes:** For a full listing of support services available for this server, please visit http://www.hpe.com/services

## HPE Installation & Startup Services

HPE ProLiant DL/ML Install Service U4554E

HPE ProLiant DL/ML Startup Service U4555E

## Memory Population guidelines




**HPE ProLiant DL560 Gen11**

| HPE ProLiant Gen11 16 slot per CPU DIMM population order | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DIMM population order** | | | | | | | | | | | | | | | | |
| **DIMM slot** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** |
| **1 DIMM** | | | | | | | | | | 10 | | | | | | |
| **2 DIMMs**[2] | | | 3 | | | | | | | 10 | | | | | | |
| **4 DIMMs**[2] | | | 3 | | | | 7 | | | 10 | | | | 14 | | |
| **6 DIMMs** | | | 3 | | 5 | | 7 | | | 10 | | | | 14 | | 16 |
| **8 DIMMs**[1,2] | 1 | | 3 | | 5 | | 7 | | | 10 | | 12 | | 14 | | 16 |
| **12 DIMMs** | 1 | 2 | 3 | | 5 | 6 | 7 | | | 10 | 11 | 12 | | 14 | 15 | 16 |
| **16 DIMMs**[1,2] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

**Notes:**

- Ommited DIMM counts/socket not qualified by Intel®.
- [1] Supports SGX (Software Guard Extensions)
- [2] Support Hemi (hemisphere mode).

### General Memory Population Rules and Guidelines:

- DIMMs should be installed in quantities of even numbers.
- 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, and the number and model of installed processors qualified on the platform.
- For details on the HPE Server Memory Options Population Rules, visit:

Server memory populations rules for HPE Gen11 servers with 4th Gen Intel Xeon Scalable processors

- To realize the performance memory capabilities listed in this document, HPE DDR4 Smart Memory is required.
- For additional information, refer to the HPE DDR5 Smart Memory QuickSpecs.

| HPE SKU P/N | P43322-B21 | P43328-B21 | P43331-B21 |
|---|---|---|---|
| **SKU Description** | HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit | HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit | HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit |
| **DIMM Capacity** | 16GB | 32GB | 64GB |
| **DIMM Rank** | Single Rank (1R) | Dual Rank (2R) | Dual Rank (2R) |
| **Voltage** | 1.1 V | 1.1 V | 1.1 V |
| **DRAM Depth [bit]** | 2G | 2G | 4G |
| **DRAM Width [bit]** | x8 | x8 | x4 |
| **DRAM Density** | 16Gb | 16Gb | 16Gb |
| **CAS Latency** | 40-39-39 | 40-39-39 | 40-39-39 |
| **DIMM Native Speed** | 4800 MT/s | 4800 MT/s | 4800 MT/s |

| HPE SKU P/N | P43337-B21 |
|---|---|
| **SKU Description** | HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit |
| **DIMM Capacity** | 256GB |
| **DIMM Rank** | Octal Rank (8R) |
| **Voltage** | 1.1 V |
| **DRAM Depth [bit]** | 4G |
| **DRAM Width [bit]** | x4 |
| **DRAM Density** | 16Gb |
| **CAS Latency** | 40-39-39 |
| **DIMM Native Speed** | 4800 MT/s |

**Notes:** The maximum memory speed is a function of the memory type, memory configuration, and processor model.

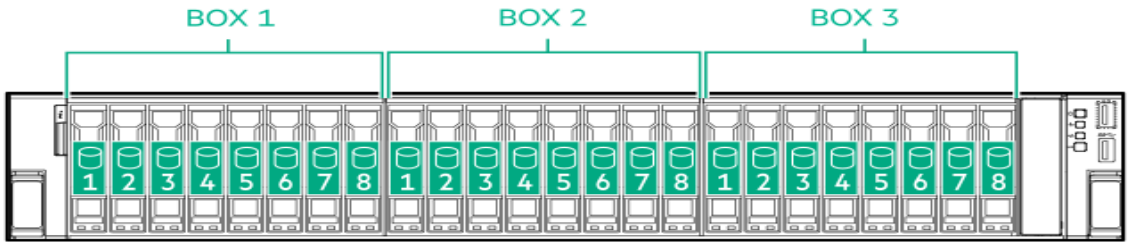
For details on the HPE Server Memory speed, visit: https://www.hpe.com/docs/server-memory

## DDR5 memory options part number decoder

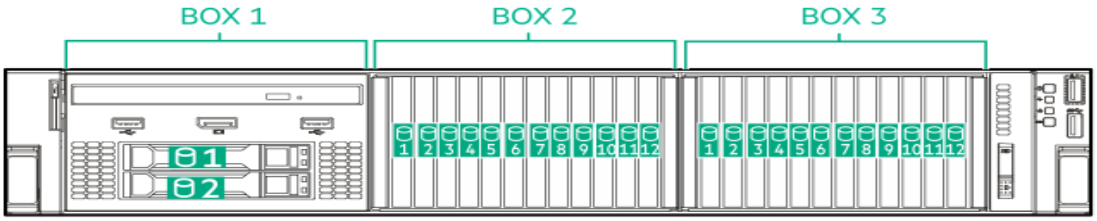
**Notes:**

– Capacity references are rounded to the common gigabyte (GB) values.
  - 8GB = 8,192 MB
  - 16GB = 16,384 MB
  - 32GB = 32,768 MB
  - 64GB = 65,536 MB
  - 128GB = 131072 MB
  - 256GB = 262144 MB

For more information on memory, refer to the Memory QuickSpecs: HPE DDR5 Smart Memory




**DL560 Gen11 24SFF Front View**




**DL560 Gen11 12 EDSFF + Media Bay Front View**

Technical Specifications

## System Unit

### Dimensions

- **SFF CTO servers:**
  - 8.75 x 43.3 x 80.6 cm / 3.4 x 17.05 x 31.75 in

**Weight** (approximate)

- **Air Cooling solution**:
  - Maximum: 38.02 kg
  - Minimum: 21.08 kg

**Liquid Cooling solution:**

- Maximum: 36.93kg
- Minimum: 26.83kg

## Input Requirements (per power supply)

### Rated Line Voltage

- For 1800 W-2200 W (Titanium) Power Supply: 200-240 VAC
- For 1600 W (Platinum) Power Supply: 200-240 VAC
- For 1000 W (Titanium) Power Supply: 100-240 VAC
- For 800 W (Platinum) Power Supply: 100-240 VAC
- For 1600 W (-48 VDC) Power Supply: -40 Vdc to -72 VDC

## BTU Rating

### Maximum

- For 1800W-2200W (Titanium) Power Supply: 6497 BTU/hr (at 200 VAC), 7230 BTU/hr (at 220 VAC), 7962 BTU/hr (at 240 VAC)
- For 1600W Power Supply: 5918 BTU/hr (at 200 VAC), 5888 BTU/hr (at 220 VAC), 5884 BTU/hr (at 240 VAC)
- For 1000W (Titanium) Power Supply: 3741 BTU/hr (at 100 VAC), 2589 BTU/hr (at 220 VAC), 3582 BTU/hr (at 240 VAC)
- For 800W (Platinum) Power Supply: 3067 BTU/hr (at 100 VAC), 2958 BTU/hr (at 200 VAC), 2949 BTU/hr (at 240 VAC)
- For 1600W-(48Vdc) Power Supply: 2983 BTU/hr (at -40 Vdc), 2951 BTU/hr (at -48Vdc), 2912 BTU/hr (at -72Vdc)

## Relative Humidity (non-condensing)

- **Operating**
  8% to 90% - Relative humidity (Rh), 28 °C maximum wet bulb temperature, non-condensing.
- **Non-operating**
  5 to 95% relative humidity (Rh), 38.7 °C (101.7 °F) maximum wet bulb temperature, non-condensing.

Technical Specifications

## Power Supply Output (per power supply)

### Rated Steady-State Power

- For 1800W-2200W (Titanium) Power Supply: 1800W-2200W (at 200-240 VAC), 2200W (at 240 VDC) for China only
- For 1600W Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC), 1000W (at 240 VDC) for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 1600W (-48VDC) Power Supply: 800W (at -40 Vdc), 800W (at -72Vdc)

### Maximum Peak Power

- For 1800W-2200W (Titanium) Power Supply: 1800W-2200W (at 200-240 VAC), 2200W (at 240 VDC) for China only
- For 1600W Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 1600W (-48VDC) Power Supply: 800W (at -40 Vdc), 800W (at -72Vdc)

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## 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.

  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: http://www.hpe.com/servers/ashrae

  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:
  http://www.hpe.com/servers/ashrae

  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.).

## 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).

## Acoustic Noise

Listed are the declared A-Weighted sound power levels (LwA,m) and declared average bystander position A-Weighted sound pressure levels (LpA,m) 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.

| Acoustic Noise | |
|---|---|
| **Idle** | |
| LwA,m | 5.6 B Entry<br>5.2 B Performance |
| LpAm | 44 dBA Entry<br>39 dBA Performance |
| Kv | 0.4 B Entry<br>0.4 B Performance |
| **Operating** | |
| LwA,m | 5.6 B Entry<br>6.1 B Performance |
| LpAm | 44 dBA Entry<br>49 dBA Performance |
| Kv | 0.4 B Entry<br>0.4 B Performance |

**Notes:**

- The declared mean A-weighted sound power level, LwA,m, is computed as the arithmetic average of the measured.
- A-weighted sound power levels for a randomly selected sample, rounded to the nearest 0,1 B.
- The declared mean A-weighted emission sound pressure level, LpA,m, is computed as the arithmetic average of the measured A-weighted emission sound pressure levels at the bystander positions for a randomly selected sample, rounded to the nearest 1 dB.

Technical Specifications

- The statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LwA,m, such that there will be a 95 % probability of acceptance, when using the verification procedures of ISO 9296, if no more than 6,5 % of the batch of new equipment, has A-weighted sound power levels greater than (LwA,m + Kv).
- The quantity, LwA,c (formerly called LwAd), can be computed from the sum of LWA,m and Kv.
- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109.
- B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
- The results in this declaration apply only to the model numbers listed above when operating and tested according to the indicated modes and standards. A system with additional configuration components or increased operating functionality may increase the noise emission values.
- Systems under abnormal conditions may increase the noise level, people in the vicinity of the product [cabinet] for extended periods of time should consider wearing hearing protection or using other means to reduce noise exposure.

## 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

## Environmentally 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 European Union Waste Electrical and Electronic Equipment Directive [EU WEEE] (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-Feb-2026 | Version 28 | Changed | Core Options section was updated. |
| | | Added | HPE InfiniBand SKU. |
| | | Removed | RDIMMs obsolete SKUs. |
| 05-Jan-2026 | Version 27 | Changed | Core Options section was updated. |
| | | Removed | NVMe Read Intensive – EDSFF E3.S - –Solid State Drives and HPE InfiniBand obsolete SKUs. |
| 08-Dec-2025 | Version 26 | Changed | Core Options section was updated. |
| | | Removed | Read Intensive – NVMe – SFF – Solid State Drives and HPE InfiniBand obsolete SKUs. |
| 10-Nov-2025 | Version 25 | Changed | Core Options section was updated. |
| | | Removed | HPE InfiniBand obsolete SKUs. |
| 28-Jul-2025 | Version 24 | Changed | Core Options section was updated.<br>Changed: Naming conventions on two SKUs were updated: S2A69A and R8M41A. |
| 02-Jun-2025 | Version 23 | Changed | Core Options section was updated.<br>Added: HPE Hard Disk Drives long names. |
| 05-May-2025 | Version 22 | Changed | Core Options and Additional Options sections were updated.<br>Added: Software as a Service Management Enablement SKU, NVMe Read Intensive – EDSFF E3.S - –Solid State Drive SKU and European Union ErP Lot 9 Regulation section to include Turkey and Ireland.<br>Removed: HPE Graphics Accelerators SKU and HPE Uninterruptible Power Systems (UPS) SKUs. |
| 07-Apr-2025 | Version 21 | Changed | Core Options and Additional Options sections were updated.<br>Added: COM Advanced SKUs, NVMe Read Intensive – EDSFF E3.S - SSD SKU and QuickSpecs Survey.<br>Removed: Disk Based Backup SKUs |
| 03-Mar-2025 | Version 20 | Changed | Core Options section was updated. |
| 03-Feb-2025 | Version 19 | Changed | Standard Features and Core Options sections were updated. Intel® VROC Software RAID naming changed to Hybrid RAID |
| 06-Jan-2025 | Version 18 | Changed | Core Options section was updated. |
| 02-Dec-2024 | Version 17 | Changed | Core Options section was updated. |
| 04-Nov-2024 | Version 16 | Changed | Configuration Information section was updated. |
| 07-Oct-2024 | Version 15 | Changed | Core Options and Additional Options sections were updated. |
| 03-Sep-2024 | Version 14 | Changed | Standard Features (Operating Systems and Virtualization Software Support for HPE Servers) and Additional Options sections were updated. |
| 01-Jul-2024 | Version 13 | Changed | Overview and Core Options sections were updated. |
| 03-Jun-2024 | Version 12 | Changed | Core Options and Additional Options sections were updated. |
| 06-May-2024 | Version 11 | Changed | Core Options and Additional Options sections were updated. |
| 01-Apr-2024 | Version 10 | Changed | Configuration Information and Additional Options sections were updated. |
| 04-Mar-2024 | Version 9 | Changed | Configuration Information and Additional Options sections were updated. |
| 05-Feb-2024 | Version 8 | Changed | Core Options section was updated. |

Summary of Changes

| Date | Version History | Action | Description of Change |
|---|---|---|---|
| 08-Jan-2024 | Version 7 | Changed | Configuration Information and Core Options sections were updated. |
| 04-Dec-2023 | Version 6 | Changed | Standard Features and Core Options sections were updated. |
| 18-Sep-2023 | Version 5 | Changed | Standard Features, Configuration Information and Core Options sections were updated. |
| 05-Sep-2023 | Version 4 | Changed | Standard Features, Configuration Information and Core Options sections were updated. |
| 07-Aug-2023 | Version 3 | Changed | Standard Features and Configuration Information sections were updated. |
| 05-Jun-2023 | Version 2 | Changed | Configuration Information section was updated. |
| 01-May-2023 | Version 1 | New | New QuickSpecs |

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