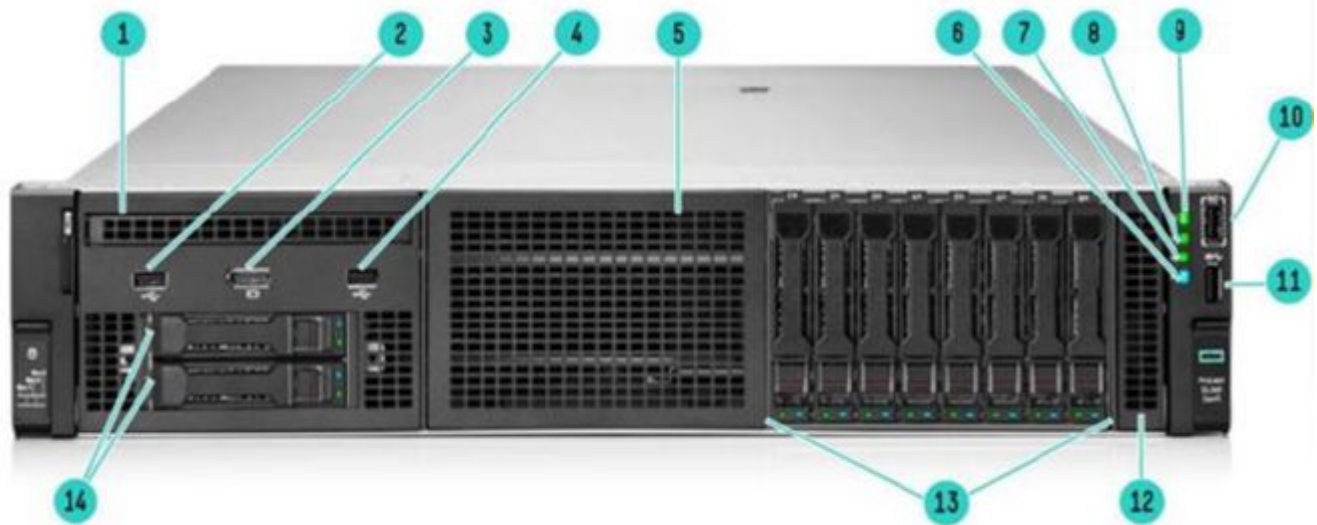


Overview

HPE ProLiant DL560 Gen11

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, IO 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.

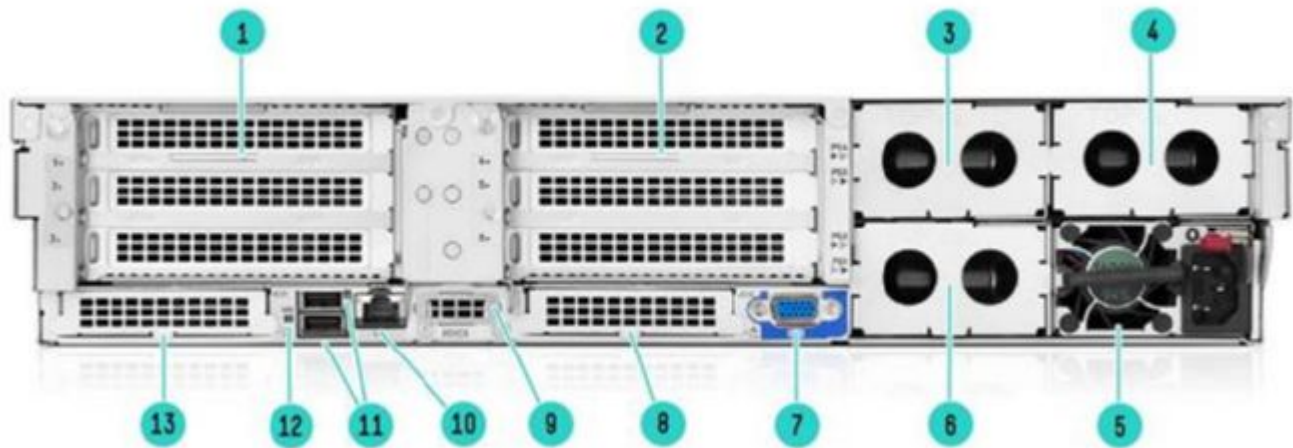
The HPE ProLiant DL560 Gen11 Server is the ideal server for business-critical workloads, in-memory database, data analytics, virtualization, server consolidation, business processing, and general 4S data-intensive applications where data center space and the right performance are paramount.



Front View - SFF chassis with optional Universal Media bay shown

- | | |
|--|--------------------------------|
| 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. Display port | 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 |

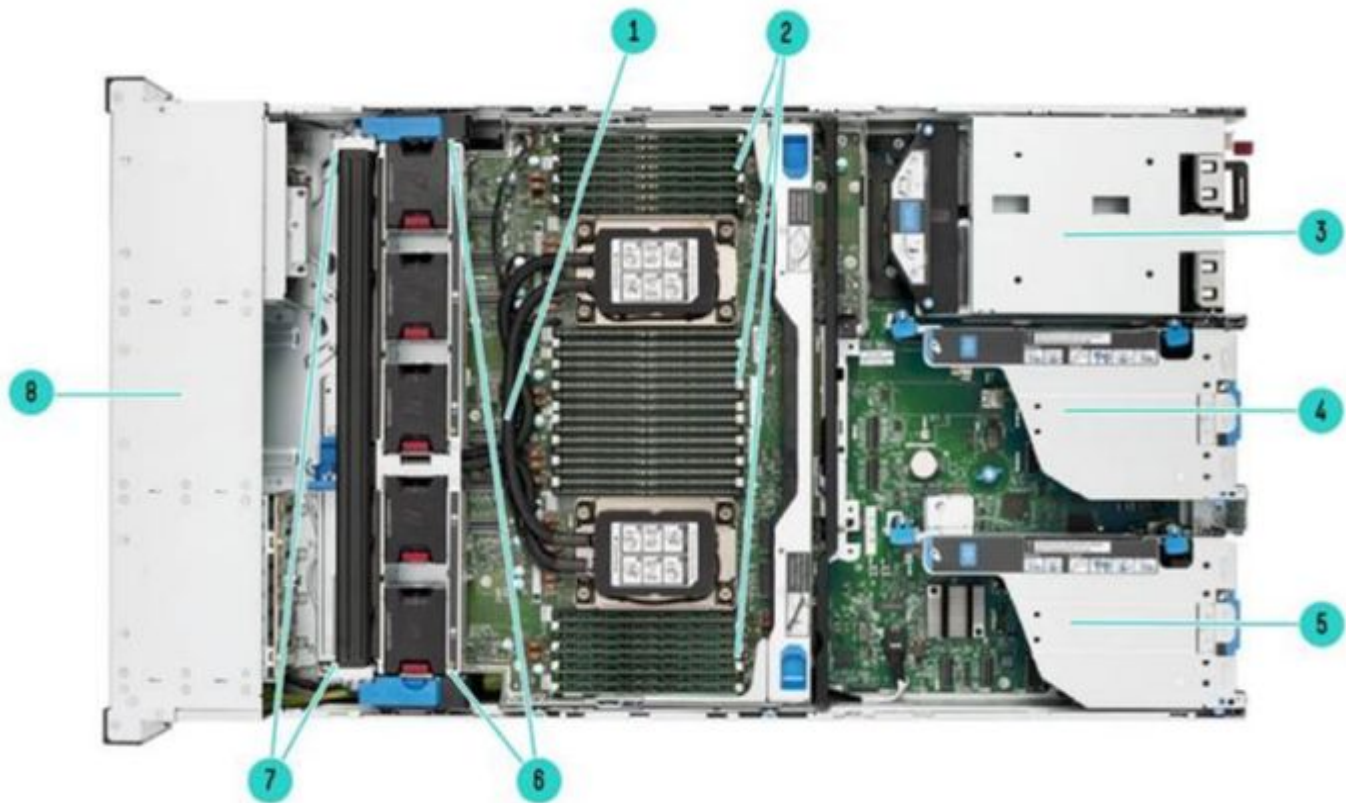
Overview



Rear View - Standard for all DL560 Gen11

- | | | | |
|----|---|-----|------------------------|
| 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 | | |

Overview



Internal View Liquid Cooling Chassis

- | | |
|-----------------------------------|---------------------------------|
| 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
-

Overview

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.
-

Standard Features

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, please see 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 fwding, 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.

4 th 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	1.9GHz	60	112.5	350W	4/3	4800 MT/s	512
Platinum 8468H Processor	2.1GHz	48	105	330W	4/3	4800 MT/s	512
Platinum 8460H Processor	2.2GHz	40	105	330W	4/3	4800 MT/s	512
Platinum 8450H Processor	2.0GHz	28	75	250W	4/3	4800 MT/s	512
Platinum 8444H Processor	2.9GHz	16	45	270W	4/3	4800 MT/s	512

Standard Features

4 th 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	2.4GHz	32	60	250W	4/3	4800 MT/s	512
Gold 6434H Processor	3.7GHz	8	22.5	195W	4/3	4800 MT/s	512
Gold 6418H Processor	2.1GHz	24	60	185W	4/3	4800 MT/s	512
Gold 6416H Processor ¹	2.2GHz	18	45	165W	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 2.2GHz 18-core 165W	165	MCC	4S	AC	AC
6418H	P49621-B21	Intel Xeon-G 6418H 2.1GHz 24-core 185W	185	MCC	4S	AC	AC
6448H	P49622-B21	Intel Xeon-G 6448H 2.4GHz 32-core 250W	250	MCC	4S	AC	AC
6434H	P49623-B21	Intel Xeon-G 6434H 3.7GHz 8-core 195W	195	MCC	4S	AC	LC
8444H	P49625-B21	Intel Xeon-P 8444H 2.9GHz 16-core 270W	270	XCC	4S	AC	LC
8450H	P49626-B21	Intel Xeon-P 8450H 2.0GHz 28-core 250W	250	XCC	4S	AC	AC
8460H	P49628-B21	Intel Xeon-P 8460H 2.2GHz 40-core 330W	330	XCC	4S	AC	LC
8468H	P49629-B21	Intel Xeon-P 8468H 2.1GHz 48-core 330W	330	XCC	4S	AC	LC
8490H	P49630-B21	Intel Xeon-P 8490H 1.9GHz 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 can't 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, please see the following URL:

<https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html>

Standard Features

On System Management Chipset

HPE iLO 6 ASIC

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

Memory

One of the following depending on model.

Type	HPE DDR5 Smart Memory, Registered (RDIMM)
DIMM Slots Available	64 16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel
Maximum capacity	16.0 TB 64 x 256 GB RDIMM @ 4800 MT/s 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 riser 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, half-length slot	Proc 1/2

Standard Features

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 2P: Proc 1/2 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, half-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 2.4TB
Hot Plug SFF SAS SSD	368.64 TB	24 x 15.36TB
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**

Standard Features

None ship 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, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements.

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

Storage Controllers

The available Gen11 controllers are depicted below.

Essential RAID Controller

- HPE Smart Array E208e-p SR Gen10 Controller
-

Standard Features

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 Controller¹.

Notes:

- PE80xx NVMe drives are not supported.
- ¹Requires 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)

Software 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, pls visit Customer Advisory Document ID: a00128934en_us, at HPE Support Center.

Interfaces

Serial	Optional, rear
Display Port	1 optional front display port via Universal Media Bay
VGA Port	1 standard, rear for all chassis. 1 Optional front display port (Via Universal Media Bay) 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: Front 1 USB 3.2 2 optional USB 2.0 via Universal Media Bay; Rear: 2 USB 3.2 Internal 1 USB 3.2; 1 USB 2.0
Systems Insight Display (SID)	Optional Notes: None shipping as standard. Available as a CTO option or as a field upgrade

Operating Systems and Virtualization Software Support for ProLiant Servers

Standard Features

See [HPE Servers Support & Certification Matrices](#)

- [Microsoft Windows Server](#)
- [VMware ESXi](#)
- [Red Hat Enterprise Linux \(RHEL\)](#)
- [SUSE Linux Enterprise Server \(SLES\)](#)
- [Canonical Ubuntu](#)
- [Oracle Linux and Oracle VM](#)
- [Citrix](#)

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 2 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

Notes: 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

Standard Features

- VGA
- Display Port
Notes: This support is on the optional Universal Media Bay.
- USB 3.2 Compliant
- USB 2.0 Compliant (vía Universal Media Bay)
Notes: This support is on the optional Universal Media Bay.
- Energy Star
- SMBIOS 3.2
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- TPM 1.20 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

Standard Features

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

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 GreenLake for Compute Ops Management

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

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

A 3-year subscription to HPE GreenLake for Compute Ops Management is added by default when ordering an HPE ProLiant Gen11 rack, tower, or micro server.

For more information, visit the HPE GreenLake for Compute Ops Management QuickSpecs: <https://www.hpe.com/psnow/doc/a50004263enw>

Security

Standard Features

- 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 Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

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

<https://www.hpe.com/us/en/search-results.html?page=1&q=servers%20warranty&autocomplete=0>

Service and Support

Other related Services

HPE Server Hardware Installation

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

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

HPE Installation and Startup Service

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

DC for Hyperscale

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

HPE Factory Express for Servers and storage

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

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HPE products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAXxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

HPE Service Credits

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

HPE Education Services

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

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

Service and Support

HPE Support Center

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

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

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

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

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

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

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

Parts and Materials

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

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

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

Configuration Information

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 build 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 provide 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 +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.

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

Configuration Information

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 (16 DIMMs per processor)	64-DIMM slots (16 DIMMs per processor)
Storage Controller	Embedded SW RAID with 8 SATA ports , choice of HPE modular Smart Array and PCIe/OCF plug-in controller.	
PCIe	None riser included	
Drive Cage	None Optional x1/x4 cage	None 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 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 can't 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 in 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.

Configuration Information

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

Configuration Information

Notes:

- For 4P Air cooling configuration:
- Air cooling can't 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 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43334-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P63345-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

Configuration Information

- 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

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 (P43334-B21)	128GB DDR5 DIMM (P43337-B21)	256GB DDR5 DIMM (P43337-B21)
Air cooling 2 processor SKU	Up to 350W	6416H(165W) 6418H(185W) 6448H(250W) 6434H(195W)	8 SFF	Venting blank	Venting blank	8 SFF	35C	35C	25C
		8444H(270W) 8450H(250W) 8460H(330W)	Media bay + 8 SFF	Media BAY	Venting blank	8 SFF	35C	35C	
		8468H(330W) 8490H(350W)	Media bay + 12 EDSFF	Media BAY	12 EDSFF	Venting blank	35C	35C	
			8 SFF x2	8 SFF	Venting blank	8 SFF	35C	30C	
			8 SFF x2 (Direct Attach)	Venting blank	8 SFF	8 SFF	35C	30C	
			12 EDSFF x2	Venting blank	12 EDSFF	12 EDSFF	35C	25C	
			Media bay + 8 SFF x2	Media BAY	8 SFF	8 SFF	35C	30C	
			Media bay + 12 EDSFF x2	Media BAY	12 EDSFF	12 EDSFF	35C	30C	
			8 SFF x3	8 SFF	8 SFF	8 SFF	35C	25C	

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	128GB DDR5 DIMM (P43334-B21)	256GB DDR5 DIMM (P43337-B21)
Air cooling processor SKUs	Up to 185W	6416H(165W) 6418H(185W)	8 SFF	Venting Blank	8 SFF	Venting Blank	35C	35C	25C
			12 EDSFF	Venting Blank	12 EDSFF	Venting Blank	35C	30C	Not supported
			Media bay + 8 SFF	Media BAY	8 SFF	Venting Blank	35C	30C	Not supported
			Media bay + 12 EDSFF	Media BAY	12 EDSFF	Venting Blank	35C	30C	Not supported
			8 SFF x2	8 SFF	Venting Blank	8 SFF	35C	25C	Not supported
			12 EDSFF x2	Venting Blank	12 EDSFF	12 EDSFF	30C	Not supported	Not supported
			Media bay + 8 SFF x2	Media BAY	8 SFF	8 SFF	35C	Not supported	Not supported
			Media bay + 12 EDSFF x2	Media BAY	12 EDSFF	12 EDSFF	30C	Not supported	Not supported
			8 SFF x3	8 SFF	8 SFF	8 SFF	35C	Not supported	Not supported

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	128GB DDR5 DIMM (P43334-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	35C	35C	25C
			12 EDSFF	Venting blank	12 EDSFF	Venting blank	35C	30C	Not supported
			Media bay + 8 SFF	Media BAY	8 SFF	Venting blank	35C	30C	Not supported
			Media bay + 12 EDSFF	Media BAY	12 EDSFF	Venting blank	35C	30C	Not supported
			8 SFF x2	8 SFF	Venting blank	8 SFF	30C	25C	Not supported
			12 EDSFF x2	Venting blank	12 EDSFF	12 EDSFF	30C	Not supported	Not supported
			Media bay + 8 SFF x2	Media BAY	8 SFF	8 SFF	30C	Not supported	Not supported
			Media bay + 12 EDSFF x2	Media BAY	12 EDSFF	12 EDSFF	25C	Not supported	Not supported
8 SFF x3	8 SFF	8 SFF	8 SFF	Not supported	Not supported	Not supported			

Notes: For listed as 'not supported' configuration, please check with Sales representative for special support if needed except 8SFFx3 configuration.

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	128GB DDR5 DIMM (P63345-B21)	256GB DDR5 DIMM (P43337-B21)
Liquid cooling 4 processor SKU	Up to 350W	6434H(195W)	8 SFF	Venting blank	8 SFF	Venting blank	35C	30C	Contact local Sales Representative
		8444H(270W)	12 EDSFF	Venting blank	12 EDSFF	Venting blank	30C	30C	
		8460H(330W)	Media bay + 8 SFF	Media BAY	8 SFF	Venting blank	30C	30C	
		8468H(330W)	Media bay + 12 EDSFF	Media BAY	12 EDSFF	Venting blank	25C	25C	
		8490H(350W)	8 SFF x2	8 SFF	Venting blank	8 SFF	25C	25C	
		12 EDSFF x2	Venting blank	12 EDSFF	12 EDSFF	25C	25C		
		Media bay + 8 SFF x2	Media BAY	8 SFF	8 SFF	25C	25C		
		Media bay + 12 EDSFF x2	Media BAY	12 EDSFF	12 EDSFF	Not supported	Not supported		
8 SFF x3	8 SFF	8 SFF	8 SFF	Not supported	Not supported				

Notes: For Liquid cooling CTO server, if 128GB Memory module is required, the P63345-B21 must be selected.

Core Options

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 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
HPE 3.84TB SAS 24G Read Intensive SFF BC Self-encrypting FIPS PM6 SSD	P41398-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Self-encrypting FIPS PM6 SSD	P41399-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 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
HPE 800GB SAS 24G Mixed Use SFF BC Self-encrypting FIPS PM6 SSD	P41400-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Self-encrypting FIPS PM6 SSD	P41401-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 3.84TB SATA 6G Read Intensive SFF BC PM893 SSD	P44010-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC PM893 SSD	P44009-B21
HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 480GB SATA 6G Read Intensive SFF BC PM893 SSD	P44007-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 960GB SATA 6G Read Intensive SFF BC PM893 SSD	P44008-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
HPE 1.92TB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58240-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 960GB SATA 6G Mixed Use SFF BC PM897 SSD	P44012-B21
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 480GB SATA 6G Mixed Use SFF BC PM897 SSD	P44011-B21
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58248-B21

Read Intensive - NVMe - SFF - Solid State Drives

HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21

Core Options

EDSFF Selection NVMe

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

NVMe High Performance Read Intensive - EDSFF E3.S - -olid State Drives

HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57807-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57803-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57799-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)
- Selection of EDSFF PM1743 Drives require NS204i-u boot controller to run VMware

Hard Drive Blank Kits

HPE Small Form Factor Hard Drive Blank Kit	666987-B21
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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

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

Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	P25960-B21
HPE Ethernet 100Gb 1-port QSFP28 PCIe3 x16 MCX515A-CCAT Adapter	P31246-B21
HPE NV60100M 100Gb 2-port Storage Offload Adapter	R8M41A
Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21

200 Gigabit Ethernet Adapters

Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE	P10180-B21
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- Broadcom 5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE
- Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE

Core Options

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

Remarks: * 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 f
- 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

Core Options

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	
Notes: Output capped at 1600W maximum on Gen10 & Gen10 Plus servers, greater than 1600W only feasible on Gen11." Similar to the one currently stated on FlexSlot PSUs	
Notes: Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements. HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.	

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	

Additional Options

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

Embedded Management

HPE iLO Common Password FIO Setting

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

HPE 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
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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

Additional Options

HPE NS204i-u Gen11 Hot Plug Boot Option Dev (Installation location: Front: Between Fan cage and storage box)

Notes: None 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	35C	35C	35C
12 EDSFF	35C	35C	35C*
Media bay + 8 SFF	35C	35C	Not Supported
Media bay + 12 EDSFF	35C	35C	Not Supported
8 SFF x2	35C	35C	35C
12 EDSFF x2	35C	30C	Not Supported
Media bay + 8 SFF x2	35C	30C	Not Supported
Media bay + 12 EDSFF x2	35C	25C	Not Supported
8 SFF x3	35C	Not Supported	Not Supported

Remarks: * One 12 EDSFF box has to be located in Box3

HPE NS204i-u Gen11 Ht Plg 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	35C	35C	25C*
12 EDSFF	35C	35C	25C*
Media bay + 8 SFF	35C	35C	25C*
Media bay + 12 EDSFF	35C	35C	25C*
8 SFF x2	35C	35C	25C*
12 EDSFF x2	35C	30C	Not Supported
Media bay + 8 SFF x2	35C	30C	Not Supported
Media bay + 12 EDSFF x2	35C	25C	Not Supported
8 SFF x3	35C	Not Supported	Not Supported

Remarks: * The boot device is required on slot4, the slot 5 must be kept empty

Additional Options

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
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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.

Software RAID

Intel Virtual RAID on CPU Premium FIO Software for HPE	R7J57A
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Notes:

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

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

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

Intel Virtual RAID on CPU Standard FIO Software for HPE	S0E37A
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Notes:

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

<u>Intel Virtual RAID on CPU Standard E-RTU for HPE</u>	S0E38AAE
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Additional Options

Notes:

- Requires UEFI, not supported on Legacy Mode.
- For NVMe SSDs only, 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 H100 80GB PCIe Accelerator for HPE

R9S41C

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	25C	25C	Not Supported
12 EDSFF	25C	Not Supported	Not Supported
Media bay + 8 SFF	25C	Not Supported	Not Supported
Media bay + 12 EDSFF	25C	Not Supported	Not Supported
8 SFF x2	25C	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

Additional Options

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

Notes: (*) The maximum support ambient temperature is 25C 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 <http://www.hpe.com/storage/BURAccompatibility>

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-5 Ultrium 3000 SAS External Tape Drive	EH958B
HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit	C0H28A
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

Disk-Based Backup

HPE RDX External Docking Station	C8S07B
HPE RDX 4TB Removable Disk Cartridge	Q2048A

Additional Options

HPE RDX 2TB Removable Disk Cartridge	Q2046A
HPE RDX 500GB Removable Disk Cartridge	Q2042A
HPE RDX 1TB Removable Disk Cartridge	Q2044A

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 Racks

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

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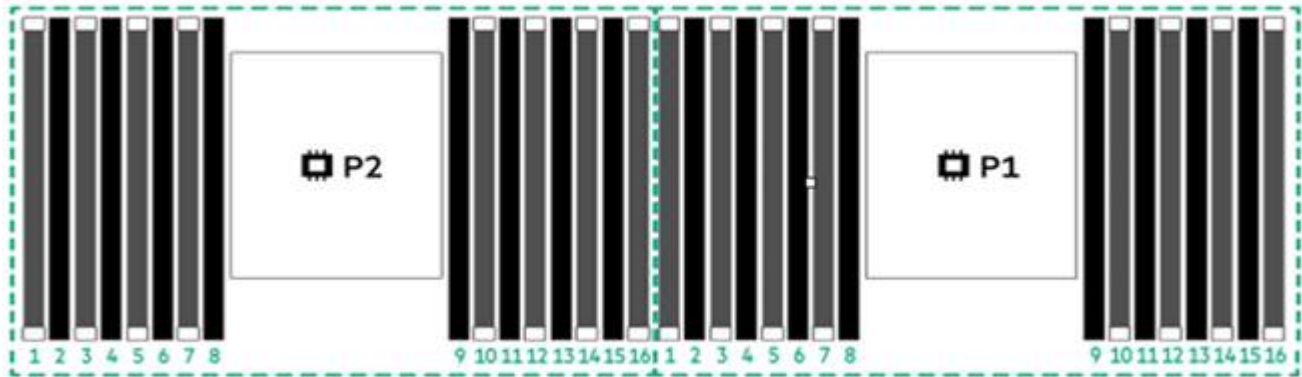
HPE Uninterruptible Power Systems (UPS)

- To learn more, please visit the [HPE Uninterruptible Power Systems \(UPS\) web page](#).
 - Please see the [HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs](#) for information on these products and their specifications.
 - Please see the [HPE Line Interactive Single Phase UPS QuickSpecs](#) for information on these products and their specifications.
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HPE T750 Gen5 NA/JP UPS with Management Card Slot	Q1F47A
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Memory

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:

- Omitted 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

Memory

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, please see 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	P43334-B21	P63345-B21	P43337-B21
SKU Description	HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit
DIMM Capacity	128GB	128GB	256GB
DIMM Rank	Quad Rank (4R)	Quad Rank (4R)	Octal Rank (8R)
Voltage	1.1 V	1.1 V	1.1 V
DRAM Depth [bit]	4G	4G	4G
DRAM Width [bit]	x4	x4	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

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/memory-speed-table>

DDR5 memory options part number decoder

Notes:

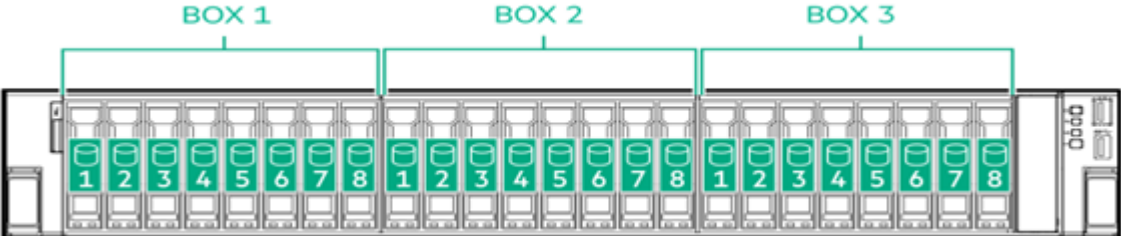
– Capacity references are rounded to the common gigabyte (GB) values.

Memory

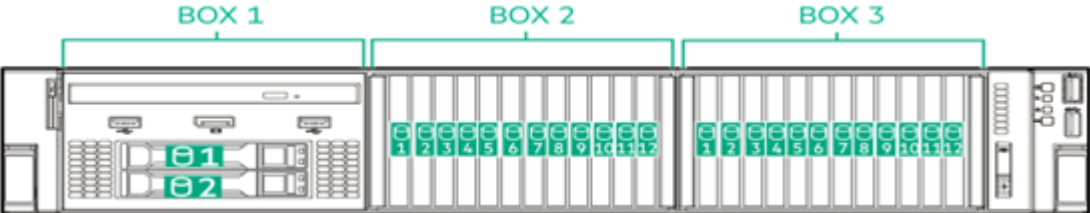
- o 8GB = 8,192 MB
- o 16GB = 16,384 MB
- o 32GB = 32,768 MB
- o 64GB = 65,536 MB
- o 128GB = 131072 MB
- o 256GB = 262144 MB

For more information on memory, please see the Memory Quickspecs: [HPE DDR5 Smart Memory](#)

Storage



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

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>

Technical Specifications

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 5.2 B Performance
LpAm	44 dBA Entry 39 dBA Performance
Kv	0.4 B Entry 0.4 B Performance
Operating	
LwA,m	5.6 B Entry 6.1 B Performance
LpAm	44 dBA Entry 49 dBA Performance
Kv	0.4 B Entry 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, K_v , is a quantity to be added to the declared mean A-weighted sound power level, $L_{wA,m}$, 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 $(L_{wA,m} + K_v)$.
 - The quantity, $L_{wA,c}$ (formerly called L_{wAd}), can be computed from the sum of $L_{wA,m}$ and K_v .
 - 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.
 - System under abnormal conditions may increase the noise level, persons 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>

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

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

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