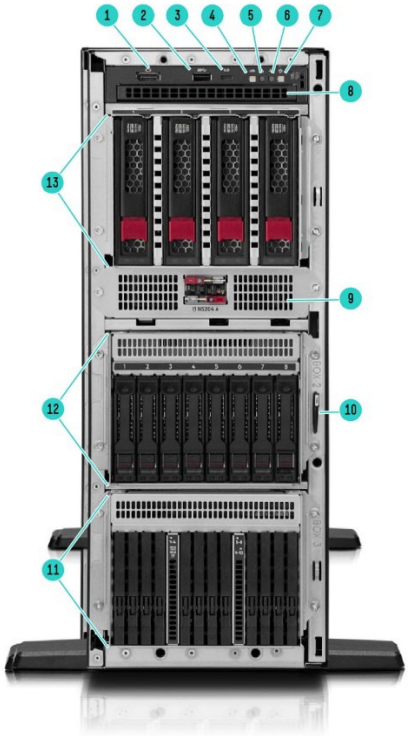
Overview

Shape the Future of QuickSpecs – Your Input Matters

HPE ProLiant Compute ML350 Gen12

HPE ProLiant Compute ML350 Gen12 delivers our most powerful tower compute platform for SMB, ROBO, retail chain store, and Enterprise customers to handle a wide range on-premise and hybrid workloads. Powered by latest Intel® Xeon® 6700P/6500P-series processors (Up to 86 P-Cores per socket), increased bandwidth DDR5 6400 MT/s memory and with outstanding storage flexibility to provide exceptional compute performance, security, reliability, and expandability for diverse workloads.

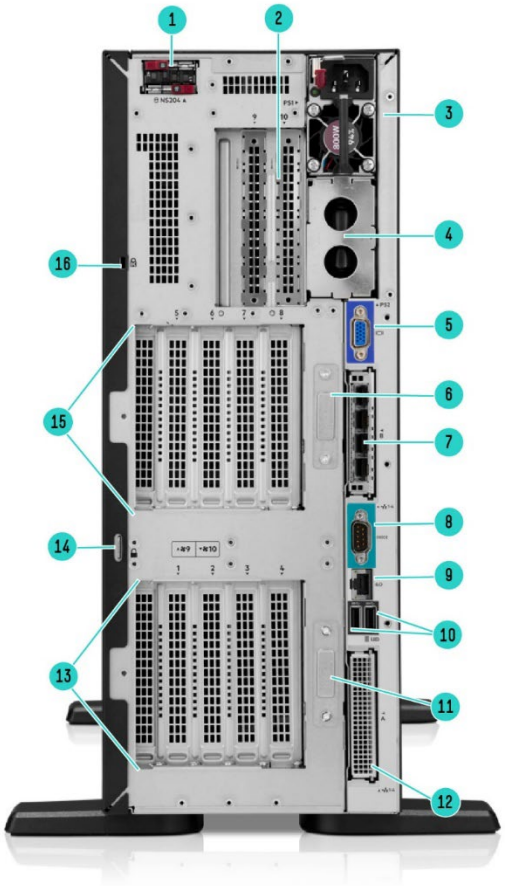


Front View – Chassis with optional 12EDSFF/8SFF/4LFF Drive Cage Kits and front NS204i-u shown

1. DisplayPort 1.1a
2. USB 3.2 Gen1 port
3. iLO service port (Type-C)
4. UID button/LED
5. OCP NIC status LED[1]
6. Health LED
7. Power on/Standby button and system power LED
8. Optical drive bay
9. NS204i-u (Front) or Media bay filler panel/LTO
10. Serial number/iLO information pull tab
11. Box 3: 12EDSFF drive cage, Optional for 8SFF/4LFF/ NVMex4*/ EDSFF
12. Box2: 8SFF drive cage, Optional for 8SFF/4LFF/ NVMex4*
13. Box1: 4LFF drive cage, Optional for 8SFF/4LFF/ NVMex4* with x2 cable kit or Internal LTO Tape Drive

Notes: *x4 SFF drive cage supports NVMe drives only. Up to (2) NVMex4 drive cage with x4 DA cable kit or (3) NVMEx4 drive cage with x2 DA cable kit.

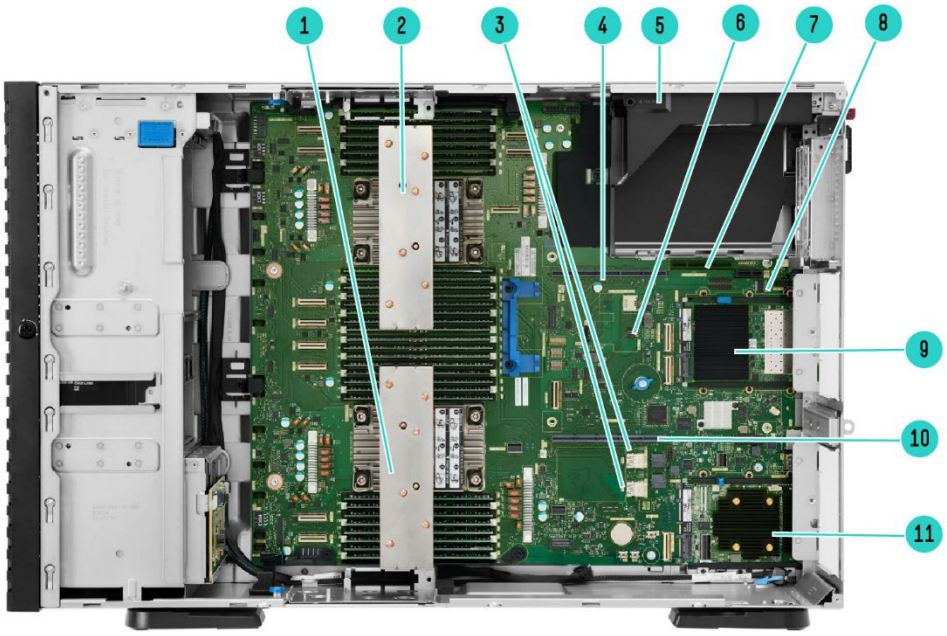
Overview



Rear View – With optional rear NS204i-u and HPE Flex Slot RPS shown.

1. HPE NS204i-u V2 (Optional)
2. PCIe Slots 9-10 (Optional tertiary riser, 2nd processor required for expansion card installation)
3. Flexible Slot power supply 1
4. Flexible Slot power supply 2 (Optional)
5. VGA Port
6. External Fan connector 9
7. Slot 15 OCP B (Optional for NIC)
8. Serial port (Optional)
9. iLO management port
10. USB 3.2 Gen 1 ports x2
11. External Fan connector 10
12. Slot 14 OCP A (Optional for OROC/NIC)
13. PCIe Slots 1-4 (Primary riser)
14. Padlock eye
15. PCIe Slots 5-8 (Optional Secondary riser, 2nd processor required for expansion card installation)
16. Kensington slot

Overview



Internal View – with optional 2nd CPU, OCP NIC adapter and NS204i-u shown

1. CPU Socket 1[1]
2. CPU Socket 2[2]
3. (2) USB 3.2 Gen1 ports
4. Secondary riser connector (Optional)
5. Megacell battery holder (Under)/ HPE NS204i-u V2 (Upper)
6. HPE NS204i-u V2 power connector
7. Tertiary riser* sideband connector (Optional)
8. Serial port cable connector
9. Slot 15 OCP B (Optional for NIC adapter)
10. Primary riser connector
11. Slot 14 OCP A (Optional for OROC/NIC)

Notes:

– [1] CPU1 (bottom) shown Performance Heatsink with fully memory populated in 16 slots (32 slots in total)

– [2] CPU2 (top) shown Performance Heatsink with fully memory populated in 16 slots (32 slots in total)

Overview

What's New

- Powered by Intel® Xeon® 6700 and 6500 series with P-Cores processors that support up to 86 P-Cores per socket (172 P-Cores per server), 350W TDP, 336 MB of L3 Cache, and 32 DIMMs for DDR5 memory up to 6400 MT/s.
- Increased memory bandwidth, performance and lower power requirements with DDR5 memory that supports up to 8 TB memory capacity per system.
- Supports ultra-high SSD performance with NVMe x4 and EDSFF drive cages, and allowing mixed dual mode LFF and Tri-mode SFF drive cages as hybrid storage optimization solution.
- Provides up to 24 NVMe drives with PCIe Gen5 x2 bandwidth to have maximum storage capacity with balanced performance solution.
- Includes HPE Integrated Lights-Out 7 (iLO 7) server management software that enables you to securely configure, monitor, and update your HPE ProLiant Compute Gen12 servers seamlessly from anywhere.
- HPE iLO 7 supports quantum-resistant (PQC) algorithms and signs HPE ProLiant Compute Gen12 firmware with algorithms approved by CNSA 2.0, which enhances resilience against potential future attacks by quantum computers
- Supports NS204i-u V2 as hot-pluggable, high-availability, RAID1 protected M.2 NVMe boot option.
- Support NVIDIA L4 24GB Accelerator.
- Support NVIDIA L40 48GB PCIe Accelerator, NS204i-u Front Enablement Kit, Internal LTO Tape Drive and Tertiary riser.

Platform Information

Form Factor

- 4U tower with rack conversion capability

Notes: When deployed as a Rack model, this system will take 5U-height space in a standard data center rack facility.

Chassis Types

- Single chassis without any default drive cage provides optional 8SFF Tri-mode (SAS/SATA/NVMe x1), 4LFF Dual mode (SAS/SATA), 8NVMe x4, 12EDSFF drive cage options and 1 slim-line DVD bay kit option

Notes:

– Mixed Tri-mode SFF and LFF drive cages is supported, up to 3 drive cages.
– 12 EDSFF drive cage kit are supported up to 1 drive cage.

System Fans

- Standard – 3 fans included

Notes:

– Base models typically ship with 3 standard fans as default with every ML350 Gen12 server.
– Optional Redundant Fan Kit (P47219-B21), Second CPU Fan Kit (P47902-B21) and External GPU Fan Kit (P47220-B21) provide advanced cooling and redundancy functionality in heavier configurations. Configurations that require additional fan kits are provided in later sections.

Standard Features

Processors

Up to 2 of the following processors, depending on model.

Notes: For more information regarding Intel Xeon processors, please see the following **https://www.hpe.com/support/hpeuefisystemutilities-quicklinks**

Intel Xeon 6700/6500 Series Processors with Performance Core (P-core)							
Intel Xeon Models	**CPU Frequency**	**Cores**	**L3 Cache**	**TDP**	**UPI (24 GT/s)**	**DDR5**	**SGX Enclave size**
6787P	2 GHz	86	336 MB	350W	4	6400 MT/s	512 GB
6767P	2.4 GHz	64	336 MB	350W	4	6400 MT/s	512 GB
6760P	2.2 GHz	64	320 MB	330W	4	6400 MT/s	128 GB
6747P	2.7 GHz	48	288 MB	330W	4	6400 MT/s	512 GB
6745P	3.1 GHz	32	336 MB	300W	4	6400 MT/s	512 GB
6740P	2.1 GHz	48	288 MB	270W	4	6400 MT/s	128 GB
6737P	2.9 GHz	32	144 MB	270W	4	6400 MT/s	512 GB
6736P	2 GHz	36	144 MB	205W	4	6400 MT/s	512 GB
6730P	2.5 GHz	32	288 MB	250W	4	6400 MT/s	512 GB
6530P	2.3 GHz	32	144 MB	225W	4	6400 MT/s	128 GB
6527P	3 GHz	24	144 MB	255W	4	6400 MT/s	512 GB
6520P	2.4 GHz	24	144 MB	210W	4	6400 MT/s	128 GB
6517P	3.2 GHz	16	72 MB	190W	4	6400 MT/s	512 GB
6515P	2.3 GHz	16	72 MB	150W	4	6400 MT/s	128 GB
6507P	3.5 GHz	8	48 MB	150W	4	6400 MT/s	512 GB
6505P	2.2 GHz	12	48 MB	150W	4	6400 MT/s	128 GB

Notes:

- 88 PCIe 5.0 lanes per processor.
- Processors with TDP equal to or greater than 225W require Performance Heatsink (P72359-B21).
- Processors with TDP equal to or greater than 300W require both Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- DDR5 memory speed is the maximum memory speed supported by the processor. Actual maximum memory speed is a function of the memory type, memory configuration, and processor model.

System Management Chipset

HPE iLO 7 ASIC

Memory

One of the following depending on model

Type	HPE DDR5 Smart Memory, Registered (RDIMM)
DIMM Slots Available	32 DIMM slots 16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	8.0TB 32 x 256 GB RDIMM @ 5200MT/s at 2 DPC with Intel Xeon 6700/6500 Series Processors with Performance Core (P-core) and DDR5 6400 DIMMs

Notes:

- Actual maximum memory speed is a function of the memory type, memory configuration, and processor model.
- For additional information, please see the **HPE DDR5 Smart Memory QuickSpecs**.
- For General Server Memory Population Rules and Guidelines see details here: **http://www.hpe.com/docs/memory-population-rules**

Standard Features

Memory Protection

Advanced ECC

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

Expansion Slots

Primary Riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- There are two Primary riser configurations:
  - Default with 4x8 Primary Riser Kit provides 4 slots with PCIe Gen5 x8 on Slot1-4.
  - Optional 2x16 Primary FIO Riser Kit provides 2 slots with PCIe Gen5 x16 on Slot2 & 4.

Primary Riser 4x8					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
1	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot
2	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot
3	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot
4	CPU 1	PCIe 5.0	X8	X16	Full-height, full-length slot

Primary Riser 2x16					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
2	CPU 1	PCIe 5.0	X16	X16	Full-height, full-length slot
4	CPU 1	PCIe 5.0	X16	X16	Full-height, full-length slot

Secondary Riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- There are two Secondary riser kit as options and can interchangeable with Primary Riser kit:
  - 4x8 Secondary Riser Kit provides 4 slots with PCIe Gen5 x8 on Slot5-8.
  - 2x16 Secondary Riser Kit provides 2 slots with PCIe Gen5 x16 on Slot6 & 8.

Secondary Riser 4x8					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
5	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot
6	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot
7	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot
8	CPU 2	PCIe 5.0	X8	X16	Full-height, full-length slot

Secondary Riser 2x16					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
6	CPU 2	PCIe 5.0	X16	X16	Full-height, full-length slot
8	CPU 2	PCIe 5.0	X16	X16	Full-height, full-length slot

Tertiary Riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- Tertiary Riser Kit provides 2 slots with PCIe Gen5 x8 on Slot9 & 10.
- Two CPU 2 MCIO connectors will be occupied to support the expansion card on the riser.
- 2x8 Tertiary Riser Kit provides 2 slots with PCIe Gen5 x8 on Slot9 & 10.

Standard Features

Tertiary Riser 2x8					
Slots #	**Processor**	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**
9	CPU 2	PCIe 5.0	X8	X16	Half-height, Half-length slot
10	CPU 2	PCIe 5.0	X8	X16	Half-height, Half-length slot

Internal Storage Devices

- **Optical Drive**
  Available as an option (DVD-ROM or DVD-RW) with additional cable kit
- **HDD/SSD**
  None ship as standard

Storage Controllers

NVMe Boot Devices

- HPE NS204i-u v2 480GB NVMe Hot Plug Boot Optimized Storage Device

Hybrid RAID

Notes: Additional steps are required for OS installation with Intel VROC, please refer to the link **Intel Virtual RAID on CPU User Guide - Installing OS on the Intel VROC RAID**

- **Intel VROC NVMe for HPE ProLiant Gen12**

  Notes:

  - All models feature 4 x8 PCIe 5.0 connectors per socket for NVMe connectivity, provide support for up to 8 direct attach x4 NVMe bays.
  - Intel VROC for HPE ProLiant Gen12 is an enterprise, hybrid RAID solution specifically designed for NVMe SSDs connected directly to the CPU. Intel VROC is a software-based solution utilizing Intel CPU to RAID or HBA direct connected drives.
  - Intel Virtual RAID on CPU RAID 1 (S3Q19A/ S3Q39AAE) or Premium SKU for RAID 0/1/5/10 (R7J57A/ R7J59AAE) must be ordered to enable RAID support.
  - Windows, Linux, VMware OS support.
  - Host Tools- Windows GUI/CLI, Linux CLI.
  - UEFI Support- HII Utility, OBSE.
  - Active health monitoring of NVMe M.2 drives requires use of SMART tools.
  - Intel VROC NVMe for HPE ProLiant Gen12 will operate in UEFI mode only. For legacy support an additional Tri-Mode controller will be needed.
  - For NVMe SSDs only, no PCIe card support.

Tri-mode RAID Controllers

- HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller
- HPE MR216i-p Gen11 x16 Lanes without Cache OCP SPDM Storage Controller
- HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller
- HPE MR408i-p Gen11 x8 Lanes 4GB Cache PCI SPDM Plug-in Storage Controller
- HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller
- HPE MR416i-p Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller

Standard Features

Maximum Storage

Drive	Capacity	Configuration
Hot Plug LFF SAS HDD	288 TB	12 x24TB
Hot Plug LFF SATA HDD	288TB	12 x24TB
Hot Plug LFF SAS SSD	11.52 TB	12 x960GB
Hot Plug LFF SATA SSD	11.52 TB	12 x960GB
Hot Plug SFF SAS HDD	57.6 TB	24 x2.4TB
Hot Plug SFF SAS SSD	368.64 TB	24 x15.36TB
Hot Plug SFF SATA SSD	184.32 TB	24 x7.68TB
Hot Plug SFF NVMe SSD	368.64 TB	24 x15.36TB
Hot Plug EDSFF NVMe SSD	183.6 TB	12 x15.36TB
Hot Plug NVMe M.2 SSD	480 GB	2 x480GB (With RAID1 protected NS204i-u boot option)

Graphics

Integrated Video Standard

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

Power Supply

- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 94%. Power Efficiency
- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 96%. Power Efficiency
- HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes:
  - Available in 94% Power Efficiency.
  - 200-240VAC power input only.
- HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply
  Notes:
  - Available in 96% Power Efficiency.
  - 200-240VAC power input only.

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 Gen12 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.
All pre-configured servers include power cord. If 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**

Standard Features

Interfaces

Serial	Optional, rear
Display Port	1 standard, front
VGA Port	1 VGA Port standard, rear
Network Ports	None. Choice of OCP or stand up card
HPE iLO Remote Management Network Port	1 Gb Dedicated, rear
Front iLO Service Port	1 standard, front
USB 3.2 Gen1	5 standard on all models: 1 front, 2 rear, 2 internal

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 Gen12 servers have a UEFI Class 3 implementation.

Notes: The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **https://www.hpe.com/support/hpeuefisystemutilities-quicklinks**.

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

- Secure Boot and Secure Start enabled for enhanced security
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.2 Gen1 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant
- PXE boot support for IPv6 networks
- Workload Profiles for simple performance optimization

UEFI Boot Mode only

- TPM 2.0 Support
- NVMe Boot Support
- iSCSI Software Initiator Support.
- HTTP/HTTPs Boot support as a PXE alternative.
- Boot support for option cards that only support a UEFI option ROM

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

Industry Standard Compliance

- ACPI 6.5 Compliant
- PCIe 5.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- Support for Microsoft Secure Code
- PXE Support
- VGA/Display Port
- USB 3.2 Gen1 Compliant

Standard Features

- USB 2.0 Compliant
- OCP 3.0 SFF NIC Support
- OCP 3.0 SFF Storage Support
- Embedded TPM Support
- Energy Star
- SMBIOS 3.7
- UEFI 2.10
- UEFI Class 3 (Unified Extensible Firmware Interface Forum)
- Redfish API
- IPMI 2.0
- Advanced Encryption Standard (AES)
- SNMP v3
- TLS 1.3
- DMTF Redfish support for SecureBoot Key Management
- ACPI DSM Drive LED Management
- Memory Page Retire Support
- Retire old VMware Secure Boot Key
- APML
- Active Directory v1.0
- ASHRAE A3/A4

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 **https://www.hpe.com/support/hpeilodocs-quicklinks.**

Intelligent Provisioning

Starting with Gen12 IP features which have alternatives either in HPE iLO or HPE Restful interface tool have been removed.
Hardware Validation Tool
Embedded UEFI Diagnostic (this can be run from the BIOS RBSU)
SR Storage Administrator (SSA)
MR Storage Administrator (MRSA)

Hassle free server and OS provisioning for 1 or more servers with Intelligent Provisioning will be supported on Gen12 post launch.
Learn more at **https://www.hpe.com/support/hpeintelligentprovisioning-quicklinks**

iLO RESTful API

iLO RESTful API is Redfish API conformance and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at **https://www.hpe.com/support/restfulinterface/docs**

Standard Features

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 HPE GreenLake cloud (access via **https://common.cloud.hpe.com**) and leverages the HPE GreenLake architecture, security, and unified operations.

A 3-year subscription to HPE Compute Ops Management is added by default when ordering an HPE ProLiant Gen12 rack, tower, or micro server.

For a complete list of software as-a-service subscription SKUs and more information, visit the HPE Compute Ops Management QuickSpecs: **https://www.hpe.com/psnow/doc/a50004263enw**

For information on supported HPE servers, the complete list can be found here:
https://www.hpe.com/info/com-supported-servers

Server Utilities

Active Health System

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

Smart Update

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

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**

HPE OneView Standard

HPE OneView is an on premises, 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.**

Standard Features

Security

Experience unparalleled security benefits with HPE ProLiant Compute Gen12 servers, designed to enhance your infrastructure's security and performance. These servers come equipped with cutting-edge embedded security features, ensuring robust protection for your critical data and applications. Key features include:

- **HPE Integrated Lights-Out (HPE iLO7):** This product offers advanced embedded security features for monitoring, service alerting, reporting, and remote management.
- **Enhanced Server Data Security:** Encryption and key management, iLO Managed Encryption, UEFI-managed encryption, and self-encrypting drives (SED) for enhanced data-at-rest protection.
- **Sanitize Data with One-Button Secure Erase:** This method complies with NIST SP 800-88 guidelines for media sanitization, ensuring the secure decommissioning of servers.
- **Expanded Industry Security Compliance:** Adherence to standards such as FIPS 140-3, NIST SP 800-53, NIST SP 800-171, and NIST SP 800-88.
- **HPE Compute Ops Management:** Provides an intuitive cloud operating experience, ensuring streamlined and highly secure operations from the edge to the cloud.
- **Physical Security Options:** System maintenance switch, USB security, rack and power security, bezel lock, and chassis intrusion detection switch.
- **HPE Trusted Supply Chain:** HPE Trusted Supply Chain offers enhanced security and compliance for organizations worldwide. Servers built with this option undergo rigorous inspections and checkpoints to detect and mitigate malicious microcode and counterfeit parts throughout the server build and lifecycle

Please refer to the HPE ProLiant Compute Gen12 Embedded Security QuickSpecs document for more detailed information at **https://www.hpe.com/psnow/doc/a50009218enw**

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE 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 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. 3) Non CSR parts must be serviced by a trained authorized service engineer. Additional information regarding worldwide limited warranty and technical support is available at: **https://www.hpe.com/support/ProLiantServers-Warranties**

Optional Features

Server Management

HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. To learn more visit **https://www.hpe.com/us/en/hpe-integrated-lights-out-ilo.html**

HPE OneView Advanced-

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

HPE Insight Cluster Management Utility (CMU)

HPE Insight Cluster Management Utility is a HyperScale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. Learn more at **https://www.hpe.com/psnow/doc/c04111735**.

Accelerator and GPGPU Information

Hewlett Packard Enterprise supports various accelerators on select HPE ProLiant servers to support different workloads. The accelerators enable seamless integration of GPU computing with HPE ProLiant servers for inferencing, training, high-performance computing, large data center graphics, deep learning and virtual desktop deployments. These accelerators deliver all of the standard benefits of GPU computing while enabling maximum reliability and tight integration with system monitoring and management tools such as HPE Insight Cluster Management Utility.

Rack and Power Infrastructure

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

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

HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°, include color-coded outlets and load segments and a low-profile design for optimal access to the rack and support for dense rack environments.
HPE Uninterruptible Power Systems are cost-effective power protection for any type workload. Some UPSs include options for remote management and extended runtime modules so 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**.

One Config Simple (SCE)

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

Service and Support

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

https://www.hpe.com/services/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 in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

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

Service and Support

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 services 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 quick-specs, 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/**

Service and Support

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution 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

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

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

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
http://www.hpe.com/services

Pre-configured Models

HPE Smart Choice purchase program

The HPE Smart Choice purchase program features popular fully configured products that can be quoted in minutes and shipped quickly through HPE Authorized Partners. Products are configured and tested in an HPE factory and stocked at HPE Authorized Distributors and Partners. The products arrive in a single box, making onsite integration easier and more efficient for partners and customers. Additionally, there are aggressively priced HPE Tech Care Services available only through the HPE Smart Choice program when you purchase an HPE Smart Choice product.

For HPE Smart Choice configuration and product details, please visit the Smart Choice Supplemental QuickSpecs:
https://www.hpe.com/psnow/doc/a50009219enw

Notes: Smart Choice for ML350 Gen12 will be available in 2H 2025.

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 fulfilment 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 fulfilment experience. Check the Template section in our configurators for eligible Mainstream configurations.

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 integratable 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.
- 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 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.
- All CTO servers are Energy Star 3.0 compliant. After January 11, 2024, Energy Star 3.0 compliance is no longer valid. Energy Star 4.0 certification will be valid upon system configuration.

Configuration Information

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

CTO Server	**HPE ProLiant Compute ML350 Gen12 NC Configure-to-order Server**
SKU Number	P72297-B21
Processor Sockets	2 Sockets available
Processor	Intel ® Xeon® 6500P-series & 6700P-series processors
DIMM Slots	32 DIMM slots available*
Storage Controller	Choice of HPE OCP-type RAID (OROC) and/or PCIe Standup controller card (s)
PCIe	4 PCIe Gen5 slots (x8, x8, x8, x8) available in primary riser as standard, 2 PCIe Gen5 x16 slots riser kit is optional. **Notes:** PCIe slots 5 – 10 require the second processor to enable.
Drive Cage	Optional, **No default drive cage included.** Up to 3 drive cages with four types: (3) 8SFFTri-mode (SAS/SATA/NVMex1), (3) 4LFF Dual mode (SAS/SATA), (2) 8SFF NVMex4, (3) 8SFF NVMex4 with x2 cable kit, (1) 12EDSFF. Mixing 8SFFx1/4LFF drive cages are allowed.
Boot option	Optional with front or rear enablement kit and HPE NS204i-u v2 480GB/960GB
ODD	Optional, Up to 1
Internal LTO Tape Drive	Optional, Up to 1
Megacell Battery	Optional
Network Controller	Choice of HPE OCP-type networking adapter and/or PCIe Standup controllers. Default selected with Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE (P51181-B21)
Redundant Fan Kit	Optional, Up to 8 fans, 3 fans as standard
Power Supply	Optional HPE Flex Slot Hot Plug Power Supply Kit. Up to 2 power supply.
Management	HPE iLO with Intelligent Provisioning (standard), iLO Advances and OneView (optional), HPE Compute Ops Management (subscription included)
USB	5x 3.2 Gen1 USB ports, Plus front iLO Service Port
Tower-to-Rack conversion kit	Optional, **Notes:** Tower to Rack kit is not factory integratable option and will be shipped as a standalone option.

Notes:

- * 32 DIMM slots require selection of 2 processors, 16 DIMM slots supported with 1 processor.
- While internal LTO tape configured, boot option can only be selected with rear enablement kit and drive cage is up to 2.
- Second CPU Fan Kit (P47902-B21) is required when any following options are selected: Second processor, HPE NS204i-u V2 Hot Plug Boot Opt Dev, Tertiary riser kit.
- Both Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) are required with any of following conditions: Redundant fan feature is required, 300W~350W TDP processor, 256GB memory, EDSFF, GPU selected.
- To get advanced cooling in richer configurations and/or under certain ambient environmental conditions, the additional Fan kits: Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) may require.
- Refer to **HPE Power Advisor Tool** to review the power requirement for your selected configuration and determine what power supply module(s) to select.

Configuration Information

Step 2: Choose Smart Chassis

Smart Chassis is a new automation feature in One Config Advanced building with intelligence running compatible storage backplane cable kit without manual selection process from configurator user. Controller Cable Kits selection is not required. When Smart Chassis ID# is identified successfully, the configurator system will load the essential Cable Kits in later BOM section.

Notes:

- Recommend following the sequence for key component upfront selection.
- The selection sequence: (each -B21 SKUs are listed in later section)
- Default Smart chassis for ML350 Gen12 includes 30C System Inlet Ambient Temp, one 8SFF x1 Tri-Mode drive Cage, and MR408i-o controller.

Step 2a: Choose Datacenter Ambient Operating Temperature Tracking SKU

An extended thermal support capability will be provided based on the facts and preference selected from customers, Facts of customer server environment ambient temperature setting. Choose the maximum temperature setting from datacenter/operation environment. The higher System Inlet Temperature has higher thermal and cooling requirements.

Datacenter Ambient Operating Temperature Tracking SKU

Notes: Only one Ambient Operating Temperature Tracking SKU is required.

HPE ProLiant Compute 30C System Inlet Ambient Operating Temperature Configuration Tracking	P79552-B21
HPE ProLiant Compute 27C System Inlet Ambient Operating Temperature Configuration Tracking	P79555-B21
HPE ProLiant Compute 25C System Inlet Ambient Operating Temperature Configuration Tracking	P79558-B21

Step 2b: Choose Drive Cage configuration

Choices of front cage enablement kit, SKUs variates from CTO server.

Drive Cage

Notes:

- Supports up to 3 drive cages from following selections.
- Mixing NVMe x4 drive cage and 12EDSFF drive cage is not allowed.
- Supports mixing 8SFF x1, 4LFF drive cage with NVMe x4 or 12EDSFF drive cage.

HPE ProLiant Compute ML350 Gen12 8SFF x1 Tri-Mode Drive Cage Kit P72318-B21

Notes: Supports up to 8 SFF SAS/SATA/NVMe x1 drives in one drive cage, controller and cable kit are required.

HPE ProLiant Compute ML350 Gen12 4LFF SAS/SATA Drive Cage Kit P72357-B21

Notes: Supports up to 4 LFF SAS/SATA drives in one drive cage, controller and cable kit are required.

HPE ProLiant Compute ML350 Gen12 8SFF x4 NVMe Drive Cage Kit P72316-B21

Notes:

- Mixing x2 and x4 cable kits is not allowed.
- With x4 direct attach cable kit, Supports up to 2 drive cages for 16 NVMe drives.
- With x2 direct attach cable kit, Supports up to 3 drive cages for 24 NVMe drives.

HPE ProLiant Compute ML350 Gen12 12EDSFF x4 NVMe Drive Cage Kit P72320-B21

Notes:

- Supports up to 1 drive cage with direct attach cable kit for 12 EDSFF NVMe drives.
- Dual processors configuration is required.
- Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) are required.
- External Fan kit included in this drive cage kit to be installed in rear of chassis and covered rear of primary riser cage, results external connectivity is not allowed.
- 25C System Inlet Ambient Operating Temperature Configuration Tracking SKU is required to ensure 25° C maximum inlet temperature is applied, and system fans may operate at higher speed and higher acoustic level to maintain optimum system cooling condition.

Configuration Information

Step 2c: Choose Storage Controller configuration

Storage Controllers

Notes:

- OCP-type RAID (OROC) controller can only be supported on OCP A slot.
- OCP enablement kit is not required for OROC controllers.
- For more information on the HPE Storage Controller, please refer to: **HPE Compute MR Gen11 Controllers QuickSpecs**

Tri-mode RAID Controllers

HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller P47789-B21

Notes:

- Does not occupy a PCIe expansion slot.
- This controller supports up to 16 SAS/SATA/NVMe Drives with RAID 0/1/10.

HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller P47785-B21

Notes: This controller supports up to 16 SAS/SATA/NVMe Drives with RAID 0/1/10.

HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller P58335-B21

Notes:

- Does not occupy a PCIe expansion slot.
- This controller supports up to 8 SAS/SATA/NVMe Drives
- HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21) must be selected with this controller.

HPE MR408i-p Gen11 x8 Lanes 4GB Cache PCI SPDM Plug-in Storage Controller P74775-B21

Notes:

- This controller supports up to 8 SAS/SATA/NVMe Drives
- HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21) must be selected with this controller.

HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller P47781-B21

Notes:

- Does not occupy a PCIe expansion slot.
- This controller supports up to 16 SAS/SATA/NVMe Drives
- HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21) must be selected with this controller.

HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller P47777-B21

Notes:

- This controller supports up to 16 SAS/SATA/NVMe Drives
- HPE 96W Smart Storage Battery (P01367-B21) or HPE Smart Hybrid Capacitor (P02381-B21) must be selected with this controller.

Step 2d: Choose Smart Chassis

One or multiple set(s) of Smart Chassis Result will be presented with completion of the above selections. Confirm the final Smart Chassis selection with select quantity 1 to the ideal Smart Chassis.
With the completion of the above steps, Option menu with selection will be presented.

Additional Options

Step 3: Choose Additional Factory Integratable Options

Processor Option Kits – Intel Xeon 6700/6500 Series Processors with Performance Core (P-core)

Notes:

- Mixing of 2 different processor models is not supported.
- Processor kits don't include heat sink and fans.
- Processors with TDP equal to or greater than 225W require Performance Heatsink (P72359-B21).
- Processors with TDP equal to or greater than 300W require both Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- DDR5 memory speed is the maximum memory speed supported by the processor. Actual maximum memory speed is a function of the memory type, memory configuration, and processor model.
- CTO server includes 3 fans as standard. Second CPU Fan Kit (P47902-B21) is required for 2 processors configuration as 4th fan.
- All SKUs ship with processor only. Adequate fan and heatsink kits (standard or performance) must be selected.
- 6400 MT/s maximum memory speed with 1DPC and 5200 MT/s maximum memory speed with 2DPC.
- 128GB SGX Enclave unless otherwise noted.
- Performance Heatsink (P72359-B21) is required unless otherwise noted.

Intel Xeon 6700P-series Processors

Intel Xeon 6787P 2.0GHz 86-core 350W Processor for HPE P73837-B21

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512GB SGX Enclave.

Intel Xeon 6767P 2.4GHz 64-core 350W Processor for HPE P73834-B21

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512GB SGX Enclave.

Intel Xeon 6760P 2.2GHz 64-core 330W Processor for HPE P73832-B21

Notes: Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).

Intel Xeon 6747P 2.7GHz 48-core 330W Processor for HPE P73831-B21

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512GB SGX Enclave.

Intel Xeon 6745P 3.1GHz 32-core 300W Processor for HPE P81591-B21

Notes:

- Requires Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21).
- 512GB SGX Enclave.

Intel Xeon 6740P 2.1GHz 48-core 270W Processor for HPE P73829-B21

Intel Xeon 6737P 2.9GHz 32-core 270W Processor for HPE P74576-B21

Notes: 512GB SGX Enclave.

Intel Xeon 6736P 2.0GHz 36-core 205W Processor for HPE P74575-B21

Notes:

- Requires Standard Heatsink (P72358-B21).
- 512GB SGX Enclave.

Intel Xeon 6730P 2.5GHz 32-core 250W Processor for HPE P74573-B21

Notes: 512GB SGX Enclave.

Intel Xeon 6500P-series Processors

Intel Xeon 6530P 2.3GHz 32-core 225W Processor for HPE P74571-B21

Intel Xeon 6527P 3.0GHz 24-core 255W Processor for HPE P74570-B21

Notes: 512GB SGX Enclave.

Additional Options

Intel Xeon 6520P 2.4GHz 24-core 210W Processor for HPE P74568-B21
Notes: Requires Standard Heatsink (P72358-B21).

Intel Xeon 6517P 3.2GHz 16-core 190W Processor for HPE P74507-B21
Notes:
- Requires Standard Heatsink (P72358-B21).
- 512GB SGX Enclave.

Intel Xeon 6515P 2.3GHz 16-core 150W Processor for HPE P74506-B21
Notes: Requires Standard Heatsink (P72358-B21).

Intel Xeon 6507P 3.5GHz 8-core 150W Processor for HPE P74504-B21
Notes:
- Requires Standard Heatsink (P72358-B21).
- 512GB SGX Enclave.

Intel Xeon 6505P 2.2GHz 12-core 150W Processor for HPE P74503-B21
Notes: Requires Standard Heatsink (P72358-B21).

Heat Sink

Select heat sink that matching processor qty.

HPE ProLiant Compute ML350 Gen12 Standard Heat Sink Kit P72358-B21
Notes: Processors with TDP less than 225W require Standard Heat Sink.

HPE ProLiant Compute ML350 Gen12 Performance Heat Sink Kit P72359-B21
Notes: Processors with TDP equal to or greater than 225W require Performance Heat Sink.

Memory – for the Intel® Xeon® 6700P/6500P-series processor

Please select one or more memory from below.
For Gen12 memory population rule whitepaper and optimal memory performance guidelines, please go to: **https://www.hpe.com/docs/memory-population-rules**
For Gen12 memory speed table, please go to: **https://www.hpe.com/docs/memory-speed-table**
For memory Reliability, Accessibility, Serviceability (RAS) features whitepaper like Fast Fault Tolerance and legacy mirrored memory feature etc. please go to: **https://www.hpe.com/docs/server-memory**

Notes:
- The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model.
- The quantity of memory DIMMs selected per socket must be 1, 2, 4, 8, 12 or 16.
- For additional information, please see the **HPE DDR5 Smart Memory QuickSpecs**.
- For General Server Memory and Persistent Memory Population Rules and Guidelines, see details here: **http://www.hpe.com/docs/memory-population-rules**
- 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.
- Mixing of different Rank memory is allowed only if max memory qty is selected per processor (i.e. 16 memory for 1 processor and 32 memory for 2 Processors).
- X4 and x8 memory cannot be mixed.
- 16GB memory can only support 1DPC configuration.
- 64GB, 96GB, 128GB, 256GB memory cannot be mixed with any other capacity.
- Redundant fan configuration is required for 256GB memory.

Additional Options

Memory

HPE 16GB (1x16GB) Single Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69726-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69727-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69728-B21
HPE 96GB (1x96GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69729-B21
HPE 128GB (1x128GB) Dual Rank x4 DDR5-6400 CAS-52-52-52 EC8 Registered Smart Memory Kit	P69730-B21
HPE 256GB (1x256GB) Quad Rank x4 DDR5-6400 CAS-60-52-52 EC8 Registered 3DS Smart Memory Kit	P73447-B21

Storage Devices

Smart Storage Battery

HPE 96W Smart Storage Lithium-ion Battery with 260mm Cable Kit	P01367-B21
HPE Smart Storage Hybrid Capacitor with 260mm Cable Kit	P02381-B21
Notes: Above two 260mm cable kits can't be selected together.	
HPE ProLiant Compute ML350 Gen11/Gen12 Smart Storage Battery Cable Kit	P58199-B21
Notes: This cable kit is required when any of battery kit (P02377-B21, P01366-B21) is selected.	

Storage Controller Cables

Notes: For details on cable options and cable routing instructions, refer to **HPE ML350 Gen12 User Guide**	
HPE ProLiant Compute ML350 Gen12 4LFF SAS/SATA OROC Box 3 Cable Kit	P77436-B21
Notes: This cable kit supports 1x 4LFF drive cages with HPE OCP-type RAID controller (OROC) at Box3.	
HPE ProLiant Compute ML350 Gen12 4LFF SAS/SATA OROC Box 1/2 Cable Kit	P77435-B21
Notes: This cable kit supports 2x 4LFF drive cages with HPE OCP-type RAID controller (OROC) at Box1/2.	
HPE ProLiant Compute ML350 Gen12 4LFF SAS/SATA PCIe Box 3 Cable Kit	P77432-B21
Notes: This cable kit supports 1x 4LFF drive cages with HPE stand-up PCIe storage controller at Box3.	
HPE ProLiant Compute ML350 Gen12 4LFF SAS/SATA PCIe Box 1/2 Cable Kit	P77431-B21
Notes: This cable kit supports 1x 4LFF drive cages with HPE stand-up PCIe storage controller at Box1/2.	
HPE ProLiant Compute ML350 Gen11/Gen12 8SFF x1 OROC Box 2/3 Cable Kit	P47235-B21
Notes: This cable kit supports 2x 8SFF drive cages with HPE OCP-type RAID controller (OROC) at Box2/3.	
HPE ProLiant Compute ML350 Gen12 8SFF x1 Tri-Mode PCIe Box 3 Cable Kit	P77434-B21
Notes: This cable kit supports 2x 8SFF drive cages with HPE stand-up PCIe storage controller at Box2/3.	
HPE ProLiant Compute ML350 Gen12 8SFF x1 Tri-Mode PCIe Box 1/2 Cable Kit	P77433-B21
Notes: This cable kit supports 2x 8SFF drive cages with HPE stand-up PCIe storage controller at Box1/2.	
HPE ProLiant Compute ML350 Gen12 8SFF x4 NVMe Direct Attach Cable Kit	P72361-B21
Notes: This cable kit supports 1x 8NVMe x4 Drive Cage Kit (P72316-B21) with x4 direct attached, up to 2 at Box 2/3.	
HPE ProLiant Compute ML350 Gen12 8SFF x2 NVMe Direct Attach Cable Kit	P72363-B21
Notes: This cable kit supports 1x 8NVMe x4 Drive Cage Kit (P72316-B21) with x2 direct attached, up to 3.	
HPE ProLiant Compute ML350 Gen12 12EDSFF x4 Direct Attach Cable Kit	P72362-B21
Notes: This cable kit supports 1x 12EDSFF x4 NVMe Drive Cage Kit (P72320-B21) with direct attached at Box 3.	

Additional Options

HPE Drives

HPE Hard Disk Drives

Enterprise - 12G SAS - SFF Drives

HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P40430-B21
HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P53561-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Wty FIPS 140-2 TAA-compliant HDD	P28622-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Wty 512e FIPS 140-2 TAA-compliant HDD	P28618-B21

Business Critical - 12G SAS - LFF Drives

HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833926-B21
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861746-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68583-B21

Business Critical - 6G SATA - LFF Drives

HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861742-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P68585-B21

Notes: Requirements for MR Tri-mode controller SED support

- TPM is not required for Local Key Management as key is stored in controller.
- iLO Advanced is required for Remote Key Management. Key is stored in remote key manager. (Ex. ESKM)

SSD Selection

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

Notes: LFF backplane supports up to 12G SAS.

Mixed Use - 12G/24G SAS - SFF - Solid State Drives

Notes: When SAS4 24G Mixed Use SSD drive is selected, a Redundant Fan Kit (P47219-B21) is required.

HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-B21
HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63871-B21

Additional Options

Read Intensive - 12G/24G SAS - SFF - Solid State Drives	
HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-B21
HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-B21
HPE 3.84TB SAS Read Intensive SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63875-B21
Mixed Use - LFF- Solid State Drives	
HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37009-B21
Mixed Use - 6G SATA - SFF - Solid State Drives	
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21
Read Intensive - 6G SATA - SFF - Solid State Drives	
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21
HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40496-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 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21
Read Intensive – 6G SATA - LFF – Solid State Drives	
HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21
Mixed Use - NVMe - SFF - Solid State Drives	
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-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
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63845-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63849-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 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70428-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
Read Intensive – NVMe - SFF - Solid State Drives	
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50219-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-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

Additional Options

HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63829-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63833-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63837-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63841-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static SPDM Multi Vendor SSD	P69255-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70434-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70436-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
Mixed Use – NVMe - EDSFF - Solid State Drives	
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
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
Read Intensive – NVMe - EDSFF - Solid State Drives	
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57799-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57803-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57807-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70392-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70395-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-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
Very Read Optimized – NVMe - EDSFF - Solid State Drives	
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

Notes:

- NVMe EDSFF drive can only be selected with 12EDSFF Drive Cage Kit (P72320-B21).
- NVMe EDSFF drives are limited to 25°C maximum inlet temperature and system fans may operate at higher speed and higher acoustic level to maintain optimum system cooling condition while EDSFF is installed.
- HPE has qualified the NVMe drive portfolio using Operating System inbox drivers, full detail on the HPE Solid State Drive QuickSpecs.

Additional Options

HPE Optical Drives

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

Notes: When internal ODD is selected, HPE Gen12 ODD USB/SATA Sig Cbl Kit (P72199-B21) is required.

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

Notes: When internal ODD is selected, HPE Gen12 ODD USB/SATA Sig Cbl Kit (P72199-B21) is required.

HPE Mobile USB DVD-RW Optical Drive 701498-B21

HPE ProLiant Compute Gen12 Optical Disk Drive USB to SATA Signal Cable Kit P72199-B21

Notes: When internal ODD is selected, this cable kit is required.

Riser Cards

Notes: The primary riser and secondary riser are interchangeable.

HPE ProLiant Compute ML350 Gen11/Gen12 2x16 Primary FIO Riser Kit P48406-B21

Notes: Identical to HPE ML350 G11/G12 2x16 Sec Riser Kit (P47238-B21), but only for factory integratable option (FIO). When this FIO riser kit is selected, default 4x8 Primary Riser will be replaced.

HPE ProLiant Compute ML350 Gen11/Gen12 4x8 Secondary Riser Kit P48407-B21

Notes: When this riser kit is selected, a secondary processor is required.

HPE ProLiant Compute ML350 Gen11/Gen12 2x16 Secondary Riser Kit P47238-B21

Notes: When this riser kit is selected, a secondary processor is required.

HPE ProLiant Compute ML350 Gen12 2x8 Tertiary Riser Kit P79317-B21

Notes: When this Riser Kit is selected, a second processor is required to support expansion card installation and 2 MCIO connectors from CPU2 will be used. Without Second processor, the PCIe slots from tertiary riser will not have function and only able to provide power source for internal LTO tape drive.

OS Boot Device

Notes:

- When NS204i-u is selected, Second CPU Fan Kit (P47902-B21), NS204i-u Front Enable Kit (P74252-B21) or NS204i-u Rear Enable Kit (P72360-B21) are required.
- Without Redundant Fan Kit (P47219-B21), limited to 25°C maximum inlet temperature with 3 SFF/LFF Drive Cages selected with NS204i-u.
- System fans may operate at a higher speed and higher acoustic level to maintain optimum system cooling condition.

HPE NS204i-u v2 480GB NVMe Hot Plug Boot Optimized Storage Device P78279-B21

HPE NS204i-u v2 960GB NVMe Hot Plug Boot Optimized Storage Device P81160-B21

HPE NS204i-u v2 960GB NVMe SED Hot Plug Boot Optimized Storage Device P81162-B21

HPE ProLiant Compute ML350 Gen12 NS204i-u Front Enablement Kit P74252-B21

Notes: When this enablement kit is selected, an internal LTO tape drive cannot be selected.

HPE ProLiant Compute ML350 Gen12 NS204i-u Rear Enablement Kit P72360-B21

Additional Options

HPE Graphics Accelerators

Notes:

- System memory is recommended to be 2 times larger than the memory with accelerator card.
- Mixing different accelerators is not supported.
- Redundant Fan Kit (P47219-B21) and Second CPU Fan Kit (P47902-B21) are required for all GPU accelerators.
- System fans may operate at higher speed and higher acoustic level to maintain optimum system cooling condition with accelerator card.
- GPU are all required x16 bandwidth unless otherwise noted. Therefore, 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required to support up to 2 GPUs with each riser kit.

NVIDIA L40 48GB PCIe Accelerator for HPE S0K90C

Notes:

- GPU Power Cable Kit (P47221-B21) is required and support up to 1 L40 GPU with each cable kit.
- External GPU Fan Kit (P47220-B21) is recommended to provide advanced cooling and results Display Ports can't be connected and covered by the fan kit.
- Without External GPU Fan Kit installed, maximum inlet temperature is limited to 23° C with limited configuration: Up to 2 GPUs, up to 64GB memory, up to TDP 195W processor(s) and one Drive Cage (8SFF/4LFF) only.
- Refer to following GPU information table for limited support inlet temperature with External GPU Fan Kit and Redundant Fan Kit on various configurations.

HPE ProLiant ML350 12(8+4)-pin/16-pin Cable Kit for NVIDIA GPU P47221-B21

Notes:

- This power Cable Kit (P47221-B21) is required for L40 Accelerator.
- Each power Cable Kit supports up to one accelerator.

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

Notes:

- External GPU Fan Kit (P47220-B21) is required to provide advanced cooling with this GPU.
- Refer to following GPU information table for limited support inlet temperature with External GPU Fan Kit and Redundant Fan Kit on various configurations.

Accelerator configuration information

Part Number	Card	TDP	PCIe Speed	Qty Support	ML350 Gen12 Front Storage Configuration		
					1x Drive Cage	2x Drive Cages	3x Drive Cages
S0K90C	NVIDIA L40 48GB PCIe Accelerator for HPE	300W	Gen4 x16	4	27°C/ 30°C*	25°C/ 30°C*	23°C/ 30°C*
S0K89C	NVIDIA L4 24GB PCIe Accelerator for HPE	72W	Gen4 x16	4	30°C	30°C	30°C

Notes: Accelerator information table indicated the limited support inlet temperature with both External GPU Fan Kit and Redundant Fan Kit selected on various configurations.

* With limited configuration: 2 Processors, up to 2 GPUs installed on Secondary Riser Kit with External GPU Fan Kit on slot 9.

HPE Networking

Notes:

- Up to 2 OCP networking adapters are supported, OCP B slot is the default slot for OCP networking adapter.
- WOL and shared NIC function are only supported in OCP B slot.
- An OCP B Enablement Kit is required when installing OCP card in OCP B slot.
- OCP A slot provides x8 PCIe 5.0 lanes from system board, additional OCP A Enablement Kit may require for x16 OCP NIC to install on OCP A slot.

Additional Options

- High performance networking card is equaled or greater than 100Gb that may cause the fans to operate at higher speed and higher acoustic level to maintain optimum system cooling when system at idle status.
- Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. Please see the related NIC QuickSpecs for Technical Specifications and additional information: **https://h20195.www2.hpe.com/v2/getpdf.aspx/A00002507ENW**.

InfiniBand

Notes:

- When AOC (Active Optical Cables) and processors TDP greater than 270W are selected, limited to 25°C maximum inlet temperature is supported with all drive cage combinations.
- When AOC (Active Optical Cables) and processors TDP equal to or less than 270W are selected, limited to 30°C maximum inlet temperature is supported with up to 2x LFF and/or Tri-mode SFF drive cage.
- When DAC (Direct Attach Cables) is selected, limited to 30°C maximum inlet temperature is supported with all drive cage combinations.
- InfiniBand controllers require PCIe x16 bandwidth. 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required.
- Redundant Fan Kit (P47219-B21) is required

HPE InfiniBand NDR/Ethernet 400Gb 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter	P45641-B23
HPE InfiniBand NDR200/Ethernet 200GbE 2-port QSFP112 PCIe5 x16 MCX755106AC-HEAT Adapter	P65333-B21
HPE InfiniBand NDR200/Ethernet 200Gb 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter	P45642-B22

Ethernet PCIe

1 Gigabit Ethernet adapters

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P51178-B21

10 Gigabit Ethernet adapters

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

Notes

10/25 Gigabit Ethernet adapters

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

100 Gigabit Ethernet adapters

*	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21
*	NVIDIA Ethernet 100Gb 2-port NVMe-oF Offload Adapter for HPE	R8M41A

Notes: * The controllers require PCIe x16 bandwidth. 2x16 Primary FIO Riser Kit (P48406-B21) or 2x16 Secondary Riser Kit (P47238-B21) is required.

Ethernet OCP Adapter

1 Gigabit Ethernet OCP adapters

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P51181-B21

10 Gigabit Ethernet OCP Adapters

Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P26256-B21
Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21

Additional Options

10/25 Gigabit Ethernet OCP adapters

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
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21
Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P26269-B21

Notes: OCPA x16 (P72201-B21) or OCPB x16 (P72207-B21) cable kit is required for this adapter.

100 Gigabit Ethernet adapters

Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE	P22767-B21

Notes: OCPA x16 (P72201-B21) or OCPB x16 (P72207-B21) cable kit is required for this adapter.

Fibre Channel HBA

HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A
HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter	R7N87A

Notes: For the complete listing of Fibre Channel Converged Network Adapters please see:
https://www.hpe.com/us/en/product-catalog/servers/adapters

OCP Cable Options

HPE ProLiant Compute DL3XX/ML350 Gen12 CPU1 to Rear OCP SlotA x16 Cable Kit	P72201-B21

Notes: This cable kit supports x16 OCP NIC adapter on OCP A slot. CPU 1 MCIO connector will be occupied.

HPE ProLiant Compute DL3XX/ML350 Gen12 CPU1 to Rear OCP SlotB x8 Cable Kit	P72203-B21

Notes: This cable kit supports x8 OCP NIC adapter on OCP B slot. CPU 1 MCIO connector will be occupied.

HPE ProLiant Compute DL3XX/ML350 Gen12 CPU2 to Rear OCP SlotB x8 Cable Kit	P72205-B21

Notes: This cable kit supports x8 OCP NIC adapter on OCP B slot. 1x CPU 2 MCIO connector will be occupied.

HPE ProLiant Compute DL3XX/ML350 Gen12 CPU2 to Rear OCP SlotB x16 Cable Kit	P72207-B21

Notes: This cable kit supports x16 OCP NIC adapter on OCP B slot. 2x CPU 2 MCIO connector will be occupied.

HPE iLO Common Password

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 HPE Factory Express Integration Services.

Additional Options

Cooling Options

HPE ProLiant Compute ML350 Gen11/Gen12 Second CPU Fan Kit P47902-B21

Notes: When either secondary processor, Redundant Fan Kit, NS204i-u V2, Tertiary Riser Kit selected, this Fan Kit is required.

HPE ProLiant Compute ML350 Gen11/Gen12 Redundant Fan Kit P47219-B21

Notes:

- Processors with TDP equal to or greater than 300W require this Fan Kit.
- When either EDSFF, SAS4 24G Mixed Use SSD drive, 256G memory, 200Gb or faster Ethernet/InfiniBand, GPU selected, this fan kit is required.
- When Redundant Fan Kit is selected, the Second CPU Fan Kit (P47902-B21) needs be selected together.

HPE ProLiant Compute ML350 Gen11/Gen12 External GPU Fan Kit P47220-B21

Notes:

- With External GPU fan kit installed, the rear side of riser cage will be covered, and no connectivity allowed with Primary/ Secondary riser cage.
- Up to 2 External fan kits supported.
- External GPU fan kit provides advanced cooling in heavier configurations and allows the system to run with higher inlet temperature.
- This fan kit has already included in 12EDSFF Drive Cage Kit (P72320-B21) with qty 1.

Power Supplies

Notes:

- Mixing 2 different power supplies is NOT supported.
- Selection of two HPE Flex Slot power supplies provide 1+1 power redundancy.
- To review the power requirements for your selected configuration, please use the **HPE Power Advisor Tool**

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

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

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

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

Notes: Only supports high line voltage (200 VAC to 240 VAC).

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

Notes: Only supports high line voltage (200 VAC to 240 VAC).

Power Cords

For more Power Cord options, please refer to "HPE One Config Advance."

If any optional power cords are ordered, the quantity must be equal to the total number of Power Supplies on the order.

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot-plug, tool-less installation into select HPE ProLiant Gen12 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 reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

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

HPE ProLiant Gen12 CTO servers do not include any power cords; thus, they must be selected when configuring them on the HPE One Config Advance tool.

For information on power specifications and technical content, visit **HPE Flexible Slot Power Supplies**

Security Options

HPE ProLiant Compute ML Gen11/Gen12 Intrusion Cable Kit P47226-B21

Management Hardware

HPE ProLiant Compute ML350 Gen11/Gen12 Serial Port Cable Kit P55062-B21

Additional Options

HPE Compute Ops Management

Base SKU

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

Upgrade SKU

HPE Compute Ops Management Standard 5-year Upfront ProLiant SaaS	R7A12AAE
HPE Compute Ops Management Standard 7-year Upfront ProLiant SaaS	S2E10AAE
HPE Compute Cloud Management Server FIO Enablement	S1A05A
HPE Compute Ops Management Advanced Flex with ProLiant Enablement	S6C28AAE
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 Tape Backup

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

LTO Ultrium tape QuickSpecs

For hardware and software compatibility of Hewlett Packard Enterprise tape backup products

https://h20272.www2.hpe.com/SPOCK/Pages/spock2Html.aspx?htmlFile=hw_storeever.html

Notes:

- When internal LTO tape drive is configured, Tertiary Riser Kit (P79317-B21) and LTO cable kit (P77437-B21 or P77438-B21) are required. One available port from MR216i-o/p or MR408i-o/p storage controller is required to connect to LTO tape drive.
- Up to 1 internal LTO tape drive is supported in Box1 and Media Bay location.
- Required to change Thermal Configuration to Increased Cooling mode in BIOS/Platform Configuration (RBSU) menu and system fans may operate at higher speed and higher acoustic level.

HPE Tape Drives

HPE StoreEver LTO-9 Ultrium 45000 Internal Tape Drive	BC040A
HPE StoreEver LTO-8 Ultrium 30750 Internal Tape Drive	BC022A
HPE StoreEver LTO-8 Ultrium 30750 TAA-compliant SAS Internal Tape Drive	BC024A
HPE LTO-7 Ultrium 15000 Internal Tape Drive	BB873A
HPE StoreEver LTO-7 Ultrium 15000 TAA-compliant Internal Tape Drive	BB953A

Internal LTO Support Kit

HPE ProLiant Compute ML350 Gen12 Internal LTO PCIe Cable Kit	P77437-B21

Notes: Supporting cables to connect -p controller with internal LTO tape drive for data backup or archiving.

HPE ProLiant Compute ML350 Gen12 Internal LTO OROC Cable Kit	P77438-B21

Notes: Supporting cables to connect -o controller with internal LTO tape drive for data backup or archiving.

HPE Tape Drives Cartridge

HPE LTO-9 Ultrium 45TB RW Data Cartridge	Q2079A
HPE LTO-8 Ultrium 30TB RW Data Cartridge	Q2078A
HPE LTO-7 Ultrium 15TB RW Data Cartridge	C7977A

Additional Options

Hybrid RAID

Notes:

- Requires UEFI, not supported in Legacy Mode.
- For NVMe SSDs only, no PCIe card support.
- Additional steps are required for OS installation with Intel VROC, please refer to the link:
  Intel Virtual RAID on CPU User Guide - Installing OS on the Intel VROC RAID

Intel Virtual RAID on CPU RAID 1 FIO Software for HPE S3Q19A

Notes: Support RAID 1

Intel Virtual RAID on CPU RAID 1 E-RTU for HPE S3Q39AAE

Notes:

- Support RAID 1
- Similar to Intel Virtual RAID on CPU Standard FIO Software for HPE (S3Q19A), but intended for field deployments (BTO).

Intel Virtual RAID on CPU Premium FIO Software for HPE R7J57A

Notes: Support RAID 0/1/5/10

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

Notes:

- Support RAID 0/1/5/10
- Similar to Intel Virtual RAID on CPU Premium FIO Software for HPE (R7J57A), but intended for field deployments (BTO).

Additional Options

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.
Notes: The **User Guide (UG)** can help to explain the cable routing for each option.

HPE Racks

- Please see the HPE Advanced Series Racks QuickSpecs for information on additional racks options and rack specifications. **HPE G2 Advanced Series Racks**
- Please see 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)

- 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.

HPE Uninterruptible Power Systems (UPS)

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

HPE Rack Options

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

Rail Kits

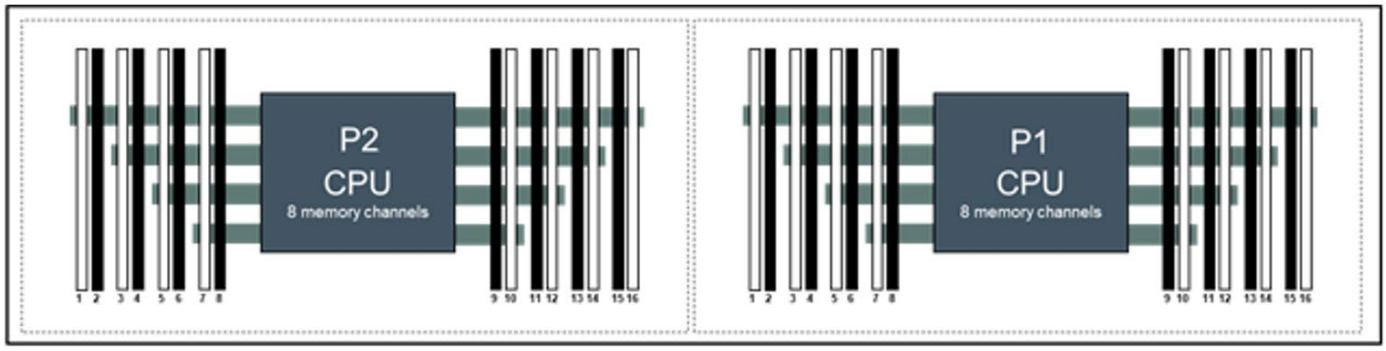
HPE ProLiant Compute ML Gen11/Gen12 Tower to Rack Conversion Kit P47394-B21

Notes:

- Easy install rack rail tray which takes up 1U height in a standard rack facility.
- This kit is supported in both ML350 Gen11/Gen12 and ML110 Gen11 for tower to rack conversion.
- This kit includes CMA and is shipped as standard.
- This kit is not factory integratable option and only can be shipped with standalone package.
- 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.

Memory

Memory Population guidelines



HPE ML350 Gen12 Server (Front of server)

Notes: 2 Slots per channel

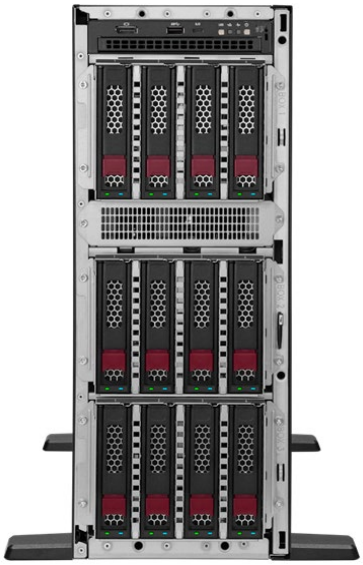
HPE ProLiant Compute ML350 Gen12 Servers 16 slots per CPU DIMM population order

1 DIMM										10						
2 DIMMs							7			10						
4 DIMMs			3				7			10				14		
8 DIMMs	1		3		5		7			10		12		14		16
12 DIMMs	1		3	4	5		7	8	9	10		12	13	14		16
16 DIMMs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

General Memory Population Rules and Guidelines:

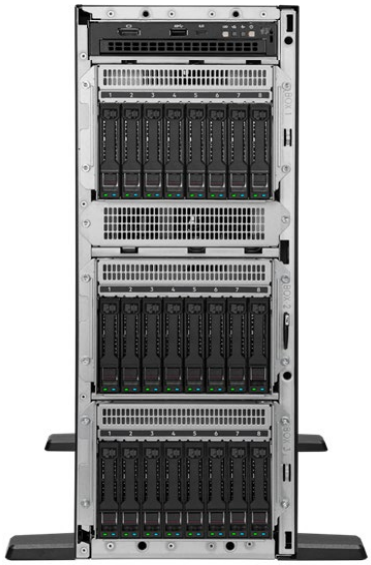
- Install DIMMs only if the corresponding processor is installed. If only one processor is installed in a 2-processor system, only half of the DIMM slots are available to populate.
- If a memory channel consists of more than one DIMM slot, the white DIMM slot is located furthest from the CPU. White DIMM slots denote the first slot to be populated in a channel. For one DIMM per channel (DPC), populate white DIMM slots only
- Rank mixing is not allowed on a channel except for 1 rank + 2 rank combination when all 16 DIMMs for a Processor socket is populated. (2 rank in white slot, 1 rank in block slot),
- No x4 mixing with x8 within same channel or across a channel.
- If multiple CPUs are populated, split the HPE Smart Memory DIMMs evenly across the CPUs and follow the corresponding CPU rules when populating DIMMs.
- To maximize performance, it is recommended to balance the total memory capacity across all installed processors and load the channels similarly whenever possible.
- If the number of DIMMs does not spread evenly across the CPUs, populate as close to evenly as possible.
- Avoid creating an unbalanced configuration for any CPU.
- 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 qualified processors installed on the platform.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- For details on the HPE Server Memory Options Population Rules, visit: **http://www.hpe.com/docs/memory-population-rules**.
- For additional information, please see the **HPE DDR5 Smart Memory QuickSpecs**.
- For details on the HPE Server Memory speed, visit: **https://www.hpe.com/docs/server-memory**

Storage



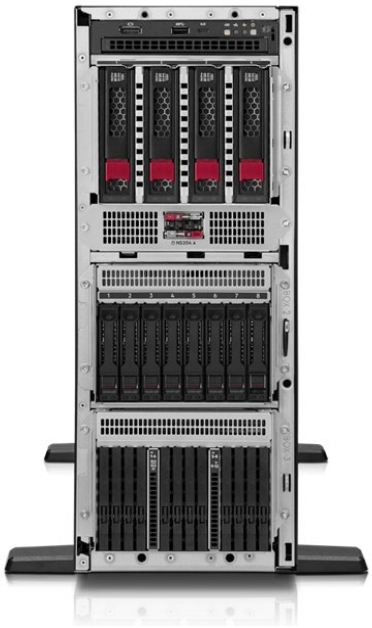
12 LFF hot-plug drive model:
Tower – shown without the tower feet.

- 3 x 4LFF SAS/SATA hot-pluggable HDD/SSD Cage Kits in Box 1/2/3.



24 SFF hot-plug drive model:
Tower – shown with the tower feet.

- 3 x 8SFF SAS/SATA/NVME hot-pluggable Drive Cage Kits in Box 1/2/3.



12EDSFF+8SFF+4LFF hot-plug drive model:
Tower – shown with the tower feet.

- 12EDSFF, 8SFF SAS/SATA/NVME and 4LFF SAS/SATA Drive Cage Kits in Box 1/2/3.

Technical Specifications

System Unit

Dimensions

- **Tower**
  46.2 (H) x 71.2 (D) x 17.4 (W) cm
  18.2 (H) x 28 (D) x 6.85 (W) in
- **Rack – System only**
  17.4 (H/4U) x 64.8 (D) x 44.5 (W) cm
  6.85 (H) x 25.51 (D) x 17.52 (W) in
- **Tower-to-Rack Conversion Kit (1U)**
  4.445 (H/1U) x 69.2 (D/without CMA. Depth with CMA: 83.5) x 45.2 (W) cm
  1.75 (H/1U) x 27.24 (D/without CMA. Depth with CMA: 32.87) x 17.795 (W) in

Weight (approximate)

- **23.96 kg (52.82 lb.)**
  SFF Minimum:
  Chassis with 1x 8SFF drive cage included 1x SFF HDD and 7x SFF HDD blanks, 1x HDD Drive Cage blank, 2x Media Bay blanks, 1x DVD bay blank, 1x processor including standard heatsink, 1x DIMM, 1x power supply (plus blank), 3x Fans (plus 1 fan blank), 1x Primary Riser, 1x Riser Cage blank, 1x Megacell, 1x OROC, 1x OCP blanks, Cables for the above.
- **42.28 kg (93.21 lb.)**
  SFF Maximum:
  Chassis with 3x 8SFF drive cages included 24x SFF HDDs, 1x DVD device, 2x processors including performance heatsink, 32x DIMMs, 2x power supply, 8x Fans, 2x External Fans, 2x Riser kits, 1x Tertiary Riser, 1x Mega cell, 2x OCP, 4x Double Width x16 GPU card, 2x FHHL card, 1x NS204i-u, Cables for the above.
- **24.41 kg (53.81 lb.)**
  LFF Minimum:
  Chassis with 1x 4LFF drive cage included 1x LFF HDD and 3x LFF HDD blanks, 1x HDD Drive Cage blank, 2x Media Bay blanks, 1x DVD bay blank, 1x processor including standard heatsink, 1x DIMM, 1x power supply (plus blank), 3x Fans (plus 1 fan blank), 1x Primary Riser, 1x Riser Cage blank, 1x Megacell, 1x OROC, 1x OCP blank, Cables for the above.
- **45.13 kg (99.50 lb.)**
  LFF Maximum:
  Chassis with 3x LFF drive cages included 12x LFF HDDs, 1x DVD device, 2x processor including performance heatsink, 32x DIMMs, 2x power supply, 8x Fans, 2x External Fans, 2x Riser kits, 1x Tertiary Riser, 1x Megacell, 2x OCP, 4x Double Width x16 GPU card, 2x FHHL card, 1x NS204i-u, Cables for the above.

Input Requirements (per power supply)

Rated Line Voltage

- 100 to 120 VAC
- 200 to 240 VAC
- 40 to 72 VDC

BTU Rating

Maximum

- For 800W Power Supply: 3067 BTU/hr. (at 100 VAC), 2958 BTU/hr. (at 200 VAC), 2949 BTU/hr. (at 240 VAC)
- For 1000W Power Supply: 3741 BTU/hr. (at 100 VAC), 3596 BTU/hr. (at 200 VAC), 3582 BTU/hr. (at 240 VAC)
- For 1600W Power Supply: 5918 BTU/hr. (at 200 VAC), 5884 BTU/hr. (at 240 VAC)
- For 1600W -48VDC Power Supply: 6026 BTU/hr. (at 40 VDC), 6000 BTU/hr. (at 48 VDC), 5989 BTU/hr. (at 72 VDC)
- For 1800W-2200W Power Supply: 6497 BTU/hr. (at 200 VAC), 7962 BTU/hr. (at 240 VAC)

Technical Specifications

Power Supply Output (per power supply)

Maximum Rated Output Wattage Rating

- For 1800W-2200W (Titanium) Power Supply: 1799W (at 200 VAC), 2200W (at 240 VAC)
- For 1600W (Platinum) Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 1600W -48VDC Power Supply: 1600W (at 40 VDC), 1600W (at 48 VDC), 1600W (at 72 VDC)
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC)
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only

System Inlet Temperature

- **Standard Operating Temperature**
  10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft.) above sea level to a maximum of 3050 m (10,000 ft.), no direct sustained sunlight. Maximum rate of change is 20°C/hr. (36°F/hr.). The upper limit and rate of change may be limited by the type and number of options installed.
  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: **https://www.hpe.com/support/ASHRAEGen12**

  For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft.) above 900 m (2953 ft.) to a maximum of 3050 m (10,000 ft.). The approved hardware configurations for this system are listed at the URL: **https://www.hpe.com/support/ASHRAEGen12**

  System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
- **Non-operating**
  -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr. (36°F/hr.).

Relative Humidity (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.

Altitude

- **Operating**
  3050 m (10,000 ft.). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft./min).
- **Non-operating**
  9144 m (30,000 ft.). Maximum allowable altitude change rate is 457 m/min (1500 ft./min).

Technical Specifications

Emission 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:
https://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.

Technical Specifications

Acoustic Noise

Listed are the declared mean A-Weighted sound power levels (LwAm), declared average bystander position A-Weighted sound pressure levels (LpAm) and the statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LwA,m when the product is operating in a 23± 2°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.

Idle	
LWA,m	4.0 B Entry – LFF 4.9 B Performance – LFF 4.0 B Entry – SFF 4.8 B Base - SFF 4.9 B Performance - SFF
LpAm	28 dBA Entry – LFF 37 dBA Performance – LFF 29 dBA Entry – SFF 35 dBA Base - SFF 36 dBA Performance - SFF
Kv	0.4 B Entry – LFF 0.4 B Performance – LFF 0.4 B Entry – SFF 0.4 B Base - SFF 0.4 B Performance - SFF
Operating	
LWA,m	4.2 B Entry – LFF 5.0 B Performance – LFF 4.1 B Entry – SFF 4.9 B Base - SFF 5.0 B Performance - SFF
LpAm	29 dBA Entry – LFF 37 dBA Performance – LFF 29 dBA Entry – SFF 37 dBA Base - SFF 38 dBA Performance - SFF
Kv	0.4 B Entry – LFF 0.4 B Performance – LFF 0.4 B Entry – SFF 0.4 B Base - SFF 0.4 B Performance - SFF

Notes:

- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109. Operating mode is represented by 50% of CPU TDP.
- The results in this declaration apply only to the specific configuration listed below 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.
  - Entry – LFF Configuration: 1x Intel 6507P CPU, 1x SAS 7.2K LFF HDD, 1x 32GB DIMM, 1x 800W PSU, Default system fan, 1x MR408i-o, 1x 1Gb 4p BASE-T OCP.
  - Performance – LFF Configuration: 1x Intel 6520P CPU, 8x SAS 7.2K LFF HDD, 8x32GB DIMM, 2x 800W PSU, Redundant fan kit, 1x MR408i-o, 1x 10GbE 2p BASE-T OCP3.
  - Entry – SFF Configuration: 1x Intel 6507P CPU, 1x SATA SFF SSD, 1x 32GB DIMM, 1x 800W PSU, Default system fan, 1x MR408i-o, 1x 1Gb 4p BASE-T OCP.

Technical Specifications

- Base – SFF Configuration: 2x Intel 6520P CPU, 8x SATA SFF SSD, 8x 32GB DIMM, 2x 800W PSU, 2nd CPU fan kit, 1x MR408i-o, 1x 10GbE 2p BASE-T OCP3, 1 X 10/25GbE 4p SFP28 Adapter
- Performance – SFF Configuration: 2x Intel 6730P CPU, 16x SATA SSD, 8x 32GB DIMM, 2x 800W PSU, Redundant fan kit, 1x MR416i-o OCP, 1x 10GbE 2p BASE-T OCP3 Adapter.

– 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.
– 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.
– B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 db.
– 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.

Summary of Changes

Date	Version History	Action	Description of Change
07-Jul-2025	**Version 5**	Changed	Additional Options section was updated. Added: Intel Xeon 6700/6500 Series Processors with Performance Core (P-core) SKU and rules. Base configuration Boot Option rules.
02-Jun-2025	**Version 4**	Changed	Additional Options section was updated. Added: Storage Controller Cable rules, SSD Selection rules and Cooling Options rules.
05-May-2025	**Version 3**	Changed	Overview, Additional Options and Technical Specifications sections were updated. Added: OS Boot Device SKUs, HPE Graphics Accelerators SKUs, Software as a Service Management Enablement SKU (COM) and European Union ErP Lot 9 Regulation section to include Turkey and Ireland.
10-Mar-2025	**Version 2**	Changed	Configuration Information section was updated. (Smart Chassis verbiage).
24-Feb-2025	**Version 1**	New	New QuickSpecs.

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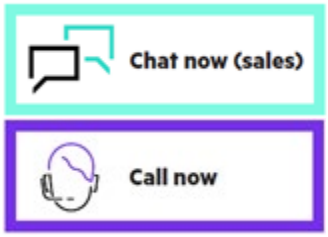

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less

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Hewlett Packard Enterprise