HPE GreenLake

Data sheet

HPE OneView

What's new

- HPE iLO reset support for HPE ProLiant rackmount servers.
- Filter call home events in HPE OneView.
- Support for SAN peer zoning for Brocade SAN switches only.

Overview

HPE OneView is the foundation of today's software-defined infrastructure, helping IT deploy infrastructure faster, simplify lifecycle operations, and increase productivity. It lets IT compose workloads like code, while increasing agility, as well as enabling predictability and compliance. With HPE OneView, customers can orchestrate their infrastructure from core to cloud by integrating with partner cloud management platforms.

Features

Transform to Software-defined Automation

IT organizations want to spend less time deploying and managing hardware and more time delivering IT services. Software-defined automation in HPE OneView lets IT deploy infrastructure faster, simplify lifecycle operations, and increase productivity.

Using HPE OneView, IT specialists create a catalogue of workload optimized infrastructure templates, which allows generalists to rapidly and reliably provision compute, storage, and fabric resources.

A consolidated and easy to use interface in HPE OneView provides a unified view of the health of servers, profiles, enclosures, storage, and networking. IT can also proactively monitor the health of the entire infrastructure, sending alerts before issues create any downtime.

HPE OneView simplifies lifecycle management across the entire infrastructure. IT can apply firmware and driver updates within the template, which helps ensure more advanced self-monitoring and maintenance tools and frictionless updates for important lifecycle ops like firmware and driver updates.

Compose for Any Workload

Once IT software-defined processes with HPE OneView, IT administrators can easily compose on-premises physical infrastructure and manage it as code.

The physical infrastructure of the datacenter is defined using software, which makes it programmable and able to be managed through one unified API.

Using software templates, a single line of code can fully describe and compose all the physical resources required for an application, a virtual host, or a container infrastructure.

A growing list of automation partners is taking advantage of the unified API in HPE OneView, providing businesses with a wide range of automation tools, including Ansible® by Red Hat®, PowerShell®, Python, Terraform, and VMware® vRealize® Orchestration.

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Connect from Core to Cloud

HPE OneView enables IT administrators to connect their software-defined infrastructure from core to cloud by provisioning turnkey private cloud infrastructure with a diverse partner ecosystem.

IT organizations can leverage the partner ecosystem to integrate HPE OneView within their existing management frameworks with their preferred platforms. These capabilities allow teams to deliver projects consistently while meeting desired outcomes for key stakeholders.

Through HPE OneView integrations with ecosystem partners, IT administrators can automate deployment of modern enterprise applications.

HPE OneView customers can now transform their infrastructure, compose every workload, and connect from core to cloud while still working with the composable ecosystem partners such as Morpheus, MicroFocus, and CANCOM.

Accelerate Time to Value with HPE Pointnext Services and Support

Hewlett Packard Enterprise offers additional consulting services to help ensure faster deployment and time to value. HPE Pointnext Services envisions and define the right vision for the software-defined infrastructure.

As customers deploy HPE OneView, HPE Pointnext Services work with users to achieve faster time to value via rapid design and deployment.

HPE OneView implementation services provide custom consulting and system integration for the configuration and implementation of HPE OneView, from designing and implementing to identifying organizational impact and training requirements.

HPE OneView training from HPE Education Services offers a broad range of courses that help develop skills on IT's journey to composable infrastructure.

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For additional technical information, available models and options, please reference the QuickSpecs

HPE Services

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

Consulting services

Experts can help you map out your path to hybrid cloud and optimize your operations.

Managed services

HPE runs your IT operations, giving you unified control, so can focus on innovation.

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources.

- HPE Complete Care Service: a modular service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals. All delivered by an assigned team of HPE experts.
- HPE Tech Care Service: the operational service experience for HPE products. The service provides access to product specific experts, an AI driven digital experience, and general technical guidance to help reduce risk and search for ways to do things better.

Lifecycle Services

Address your specific IT deployment project needs with tailored project management and deployment services.

HPE Education Services

Training and certification designed for IT and business professionals across all industries. 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

The Defective Media Retention (DMR) service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction. Comprehensive Defective Material Retention (CDMR) allows you to keep all data retentive components.

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HPE GreenLake

Data sheet

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

What's new

- Supports HPE Synergy Gen10 Plus Compute platforms.
- Dedicated Hardware RAID 1 OS Boot Device.
- Includes two HPE enterprise-class 480 GB NVMe M.2 SSDs on a single HPE Synergy add-in card.
- Utilizes native in-box OS NVMe drivers.
- Hot plug universal installation (No longer requires a PCIe slot) .
- No cables or backplanes required.

Overview

Do you need to simplify data segregation? HPE OS Boot Devices offer enterprise customers turnkey, resilient boot solutions that easily segregate the OS from the data storage plane in today's popular OS for virtualized environments—VMware®, Linux®, Windows®.

HPE NS204i-u is a universal installation hot plug OS boot device that includes two 480 GB M.2 NVMe SSDs. The universal installation removes the need for cables and backplanes. This device no longer takes up a PCIe slot, and auto-creates RAID 1 volume.

HPE NS204i-p and NS204i-d NVMe OS Boot Devices are self-contained boot solutions in simple, pre-configured PCIe cards and HPE Synergy Option requires no GUI or user setup. These plug-and-play OS boot devices include two 480 GB M.2 SSDs, enabling customers to mirror OS through hardware RAID 1. Based on NVMe technology, HPE NS204i-p and NS204i-d NVMe OS Boot Devices deliver up to 4x faster read capability than legacy SATA boot solutions.[1]

Features

Simple and Secure OS Mirroring through Dedicated Hardware RAID 1

HPE NS204i-d NVMe OS Boot Device is a complete, turnkey optimized OS boot device that is easy to deploy—no need to configure or format, simply insert and it works, no GUI or user setup required.

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Pre-configured RAID 1 OS boot utilizes a single HPE Synergy designed card that connect to PCIe connection under drive cages to safely isolate OS from user data on today's popular virtualized environments.

Uses native in-box driver support for VMware, Linux, and Windows OS.

Supports secure firmware boot for simple and secure setup of HPE Synergy 480 Gen10 Plus Compute Modules.

Enables all drive bays are used for data, greatly reducing server complexity, while providing an economical way for booting in virtualized environments.

State-of-the-Art, Hardware Accelerated RAID 1 NVMe OS Boot Device

HPE NS204i-d NVMe OS Boot Device combines the latest generation NVMe technology and hardware RAID 1 redundancy in support of OS applications.

Self-contained HPE Synergy Gen3 boot device is integrated with two HPE enterprise-class 480GB NVMe M.2 SSDs allowing you to customize configuration.

HPE enterprise-class NVMe M.2 SSDs delivers enhanced data protection with power loss protection and error correction.

Based on Synergy design with NVMe technology, the HPE NS204i-d NVMe OS Boot Device delivers up to 4x times faster read capability than legacy SATA-based boot solutions. [2]

Increased Storage Density and Dedicated Hardware RAID 1 Resiliency for OS Boot

HPE NS204i-d NVMe OS Boot Device and HPE USB Flash drive with dual 32 GB microSD cards on-board RAID 1 free up internal server storage bays enabling greater platform storage density.

HPE OS Boot Devices provides separate, redundant disk solutions for the OS that enables a more robust, optimized compute platform.

Dedicated hardware RAID 1 OS boot mirroring helps eliminate downtime due to a failed OS drive—even if one drive fails the business continues running.

HPE OS Boot Devices are certified for VMware and Microsoft Azure Stack HCI for increased flexibility.

Full Hardware RAID 1 Boot Solution for VMware Environments

HPE USB Flash drive with dual 32 GB microSD cards and on-board RAID 1 boot devices deliver a redundant OS boot without consuming server storage drive bays.

Engineered with enterprise-class high endurance NAND for non-stop data center environments.

Integrated on-board RAID 1 for customers requiring dual boot solution.

Technical specifications — HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device

Product Number	P48183-B21
Platform supported	HPE ProLiant DL, ML and HPE Apollo servers. See QuickSpecs for a detailed listing of supported platforms.
Cache	N/A
RAID levels	Dedicated hardware RAID 1
Form factor	PCIe half-height, half-length (HHHL) card
Usable capacity	480GB
Compliance	RoHS, Lot 9
PCIe support	Gen3
Battery	N/A
Maximum drives supported	2, included in kit
Warranty	HPE Solid State Drives (SDDs) and add-in cards have a standard 3/0/0 warranty Customer Self Repair (CSR) subject to maximum usage limitations. Maximum usage limit is the maximum amount of data that can be written to the drive. Drives that have reached this limit will not be eligible for warranty coverage.

[1], [2] NVMe vs. SATA: It's time for NAND Flash in the fast lane, ATP electronics, October 2018 atpinc.com/blog/nvme-vs-sata-ssd-pcie-interface

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For additional technical information, available models and options, please reference the QuickSpecs

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Data sheet

HPE ProLiant DL380 Gen11

What's new

- Powered by the 4th Generation Intel® Xeon® Scalable Processors with next-generation technology that support up to 60 cores at 350W and 16 DIMMs for DDR5 memory at speeds up to 4800 MHz.
- Support for up to 8 TB total DDR5 memory with 16 DIMM channels per processor delivers increased performance, lower power requirements, and High Bandwidth Memory (HBM) support.
- Support for PCIe Gen5, resulting in improved bandwidth, advanced data transfer rates, and higher network speeds from the PCIe Gen5 serial expansion bus.
- Includes the new HPE Integrated Lights-Out 6 (iLO 6) server management software that enables you to securely configure, monitor, and update your HPE ProLiant Gen11 servers seamlessly, from anywhere.
- Supports hot-pluggable, high-availability RAID M.2 boot options.
- Supports up to 8 single wide (SW) or 3 double wide (DW) GPUs to accelerate graphic intense workloads.

Overview

Are you looking for a dual-socket scalable server solution to power your data-intense, large-capacity workloads?

The HPE ProLiant DL380 Gen11 server is a scalable 2U 2P solution that delivers exceptional compute performance expandability, and scalability for diverse workloads and environments at 1P economics. Powered by 4th Gen Intel® Xeon® Scalable Processors with up to 60 cores, increased memory bandwidth, and high-speed PCIe Gen5 I/O, the HPE ProLiant DL380 Gen11 server is a perfect dual-socket, 2U/2P, scalable solution.

The silicon root of trust anchors the server firmware to an HPE-exclusive ASIC, creating a fingerprint for the Intel® Xeon® Scalable Processor that must be matched exactly before the server will boot.

The HPE ProLiant DL380 Gen11 server is an excellent choice for data-intensive workloads like software-defined storage, video transcoding, and virtualized apps that require large storage capacity, and high I/O and memory bandwidth.

Features

Intuitive Cloud Operating Experience: Simple, Self-service, and Automated

HPE ProLiant DL380 Gen11 servers are engineered for your hybrid world. HPE ProLiant DL380 Gen11 servers simplify the way you control your business's compute—from edge to cloud—with a cloud operating experience.

Transform business operations and pivot your team from reactive to proactive with global visibility and insight through a self-service console.

Automate tasks for efficiency in deployment, instant scalability, and seamless, simplified support and lifecycle management reducing tasks and shortening maintenance windows.

These experiences are engineered and built into all HPE ProLiant Gen11 servers, whether purchased as physical servers or consume as-a-service using HPE GreenLake as your compute and storage demands grow.

Simplify and secure server management from edge to cloud with HPE

GreenLake for Compute Ops Management. HPE GreenLake for Compute Ops Management is an as-a-service compute management experience that delivers greater simplicity, agility, and speed across your entire compute landscape, globally.

Trusted Security by Design: Uncompromising, Fundamental, and Protected

The HPE ProLiant DL380 Gen11 server utilizes the HPE Silicon Root of Trust, HPE's fundamental approach to security that provides zero-trust architecture at the silicon level and ensures all server essential firmware is free from malware or compromised code.

This server, powered by 4th Gen Intel® Xeon® Scalable Processors, adds hardware- and software-assisted security features, including Intel® Software Guard Extensions and Intel® Boot Guard, which help secure the server hardware foundation on which critical apps run and better protect data in memory.

HPE ProLiant Gen11 servers continuously protect healthy servers by providing rapid detection of security-compromised servers, even to the point of not allowing them to boot if it identifies and contains malicious code, and secure servers at the edge with IDevID certificates installed by default.

HPE ProLiant servers provide automated recovery from a security event, including restoration of validated firmware, and facilitating recovery of operating system, application and data connections, providing the fastest path to bring a server back online and into normal operations.

From silicon to software, from factory to cloud, and from generation to generation, HPE ProLiant Gen11 is engineered with a fundamental security approach to defend against increasingly complex threats through an uncompromising commitment to constant security advancements that are built into our DNA.

Optimized Performance for your Workloads: Accelerated, Open, and Efficient

The HPE ProLiant DL380 Gen11 server is an excellent choice for compute and data storage demanding workloads (AI, ML, telco, DB analytics, VDI, containers) requiring maximum core count, GPU capabilities, and network and I/O bandwidth.

Harness major computer performance. The HPE ProLiant DL380 Gen11 server is powered by the 4th Generation Intel® Xeon® Scalable Processors with next-generation technology that supports up to 60 cores per processor, 350W, and up to 8 TB of memory.

The HPE ProLiant DL380 Gen11 server provides advanced data transfer rates and higher network speeds from the PCIe Gen5 serial expansion bus, with up to 2 x16 PCIe Gen5 and 2 OCP slots to improve I/O throughput and reduce latency.

It provides 16 DIMM channels per processor for up to 8 TB total DDR5 memory with increased memory bandwidth and performance, and lower power requirements.

It provides real-time operational feedback on server performance plus recommendations for fine-tuning BIOS settings to customize for changing business needs.

Available in an As-a-Service Experience

The HPE ProLiant DL380 Gen11 server is supported by HPE GreenLake to simplify IT infrastructure management across your entire hybrid estate. With 24x7 monitoring and management, our experts do the heavy lifting to manage your environment with services built into consumption-based solutions.

Hewlett Packard Enterprise provides customers with choices in how they acquire and consume IT beyond traditional financing and leasing, offering options that free trapped capital, accelerate infrastructure updates, and provide on-premises pay-per-use consumption with HPE GreenLake.

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Technical specifications — HPE ProLiant DL380 Gen11

Processor type	Intel®
Processor family	4th Generation Intel® Xeon® Scalable Processors
Processor number	1 or 2
Processor core available	16 to 60 core, depending on processor
Processor cache	22.5 MB to 112.5 MB L3, depending on processor
Processor speed	3.1 GHz maximum, depending on processor
Power supply type	800W, 1000W, or 1600W Dual hot-plug redundant 1+1 HPE Flexible Slot Power Supplies, depending on model
Expansion slots	Up to 8 PCIe Gen5, and 2 OCP 3.0, for detailed descriptions reference the QuickSpecs
Maximum memory	8 TB with 256 GB DDR5
Memory slots	32
Memory type	HPE DDR5 Smart Memory
Memory protection features	RAS – Advanced ECC, online spare, mirroring, combined channel (lockstep) functionality, and HPE Fast Fault Tolerant Memory (ADDDC) Intel Optane Persistent Memory
Optical drive type	Optional DVD-ROM Optional via Universal Media Bay External support only
System fan features	Hot-plug redundant fans, Standard Fan Kit or High Performance Fan Kit, depending on model
Network controller	1 Gb, 10 Gb, 10/25 Gb, 100 Gb, or 200 Gb, in PCIe adapter or OCP 3.0 form factor, for detailed descriptions reference the QuickSpecs
Storage controller	HPE SR932i-p and/or HPE MR216i-o and/or HPE MR416i-o and/or HPE MR216i-p and/or HPE MR416i-p and/or HPE MR408i-o, for detailed descriptions reference the QuickSpecs
DIMM capacity	16 GB to 256 GB
Infrastructure management	HPE iLO Standard with intelligent provisioning (embedded), HPE OneView Standard (requires download) (standard) HPE iLO Advanced, HPE OneView Advanced (optional, requires licenses), and HPE GreenLake COM
Warranty	3/3/3: Server Warranty includes three years of parts, three years of labor, and three years of onsite support coverage. Additional information regarding worldwide limited warranty and technical support is available at: https://h20564.www2.hpe.com/hpsc/wc/public/home. Additional HPE support and service coverage, to supplement the product warranty, is available. For more information, visit https://www.hpe.com/support.
Drive supported	8 or 12 LFF SAS/SATA/SSD 8, 16, or 24 SFF SAS/SATA/SSD, depending on configuration. 6 SFF rear drive optional or or 2 SFF rear-drive optional, 20 SFF NVMe optional, NVMe support via Express Bay will limit maximum drive capacity, depending on model.

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HPE GreenLake for Compute Ops Management subscription information

Subscription info

- To use HPE GreenLake for Compute Ops Management, a subscription must be purchased.
  - No HPE GreenLake contract is required for the hardware

The Subscription:

- Single-tier pricing model, with all capabilities included
- Payment terms: up-front, monthly
- Term lengths: 1, 3, 5 years
- Default 3-year subscription with all HPE ProLiant Gen11 servers

Platforms supported

- HPE ProLiant DL and ML Gen10, Gen10 Plus, Gen11 servers
- HPE Alletra 4000 storage systems
- HPE Edgeline EL8000 Converged Edge System
  - Models supported: SY20, E920t (initial monitoring support)

HPE GreenLake for Compute Ops Management features by category

Unified SaaS platform

A secure, unified management service within HPE GreenLake edge-to-cloud platform that delivers compute lifecycle operations and insights with a seamless cloud experience

- Account management
- Subscription management
- Seamless subscription upgrades
- Server onboarding
- Inventory management
- Role/user management

Server lifecycle management

Unify the management of compute devices throughout the entire lifecycle

- Set FW baseline, monitoring, notifications
- Hardware and firmware alerts and notifications
- Intelligent delta-only based updates
- Upgrades: Manual, scheduled
- Remote site / multisite management
- Low bandwidth / high latency network connectivity
- Automated HPE iLO update to COM baseline

Security

Multifactor authentication, governance, policy management, RBAC, and encryption to securely enable compute lifecycle management from the edge to the core and multi-tenant environments

- Single sign-on portal (OAuth 2, SAML 2.0)
- MFA authentication
- Role-based (RBAC) and scope based (SBAC) access controls
- Secure connection from server to HPE cloud service
- Data encryption (at rest in flight)
- Audit logs
- Multi-tenant isolation
- FW update in high security mode

Monitoring and support

Simplify the monitoring of servers and receive configurable alerts across IT environments through a single pane of glass. Quickly identify issues and prioritize efforts to reduce time to action

- Server and group status, notifications, and alerts
- Component status and notifications
- Enhanced logging for supportability
- FAQs and community support forum
- HPE Services support included
- Email notifications for critical hardware issue, and server health status
- Auto case creation for critical hardware issues
- HPE iLO remote console connection
- HTML5-based remote console

Governance and policy

Establish and maintain company compliance controls including audits of devices, users, and actions

- Firmware baseline audit
- Group policy manager
  - Firmware update
- Bulk server actions (groups)

Server deployment

Simplify the steps and reduce the time it takes to deploy servers with a secure, governed approach

- Server tagging, grouping, and search
- Bulk server onboarding to HPE GreenLake for Compute Ops Management
- OS image deployment

Sustainability and reporting

Get telemetry data, reports, and insights on how devices and environments are performing

- Reporting and logging
- Carbon footprint report
- Server health status report

Integrations

Facilitate ease and flexibility of integration and automation with public REST APIs

- Extensible GUI and REST APIs for all features
- VMware vCenter® plug-in
- ServiceNow integration for incident creation

Feature demo videos

>> How to update firmware

>> Using the VMware vCenter plug-in

>> Enabling auto case creation

>> Run a carbon footprint report

>> OS image deployment

Try HPE GreenLake for Compute Ops Management today!

Try it through the HPE demo portal

See how easy it is to use HPE GreenLake for Compute Ops Management and quickly update server firmware.

Log in now

Test it out in your environment

Register for a free 90-day evaluation license key

You'll get:

>> A 90-day evaluation of all features

>> To try out up to 10 compute devices

>> In-application support: Self-serve FAQs, product documentation, troubleshooting, and community support

Learn more at
HPE.com/solutions/compute-ops-management

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HPE Compute

HPE GreenLake for Compute Ops Management security guide

HPE GreenLake



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Executive summary

Hewlett Packard Enterprise is transforming compute management with a modern experience that delivers greater simplicity, agility, and performance. HPE GreenLake for Compute Ops Management is a secure and scalable cloud-based application that delivers unified compute operations as a service from edge to cloud. It simplifies how customers manage infrastructure across the lifecycle — from simplified health status to automated firmware management across a fleet of servers. Available through HPE GreenLake platform, Compute Ops Management is built on a cloud-native architecture that transforms complex compute operations into a simplified experience from edge to cloud.

This paper describes how HPE GreenLake for Compute Ops Management enforces all aspects of user and data security. After reading this paper, you will have a better understanding of the security features of HPE GreenLake for Compute Ops Management.

HPE GreenLake for Compute Ops Management was built with a vision of security in mind, focusing on three key requirements:

- Trusted HPE GreenLake for Compute Ops Management in the cloud and HPE iLO management processor embedded in the server
  - Both offerings have HPE CA certificates that are used to verify each other's authenticity.
- Data encryption in the cloud
  - All customer data in HPE GreenLake for Compute Ops Management is encrypted using AES-256.
- Multi-tenant isolation for safety
  - The data of each HPE GreenLake for Compute Ops Management customer is logically separated from that of other tenant companies, providing privacy and data access protection.

Important
The HPE iLO management processor embedded in the server communicates with HPE GreenLake for Compute Ops Management. The server OS or any customer-installed applications do not communicate with or send any data to HPE GreenLake for Compute Ops Management.

HPE also offers industry-leading service capabilities that provide enterprise-level security support for establishing secure data and controlled access.

Target audience

The target audience for this document are HPE GreenLake for Compute Ops Management customers. The customer roles include corporate security personnel, risk management personnel, and server administrative personnel, who will be working with HPE GreenLake for Compute Ops Management.

You should be familiar with computer concepts associated with management, networking, security, and HPE servers, as well as with the needs and requirements of your organization and its infrastructure.

Table 1. Terminology

Term	Explanation
COM	Compute Ops Management
CVE	Common Vulnerabilities and Exposures are a list of records of cybersecurity vulnerabilities. The website cve.mitre.org tracks and records the workaround or remediation for any discovered CVE.
DDoS	A distributed denial-of-service attack is a malicious attempt to disrupt network communication with a cloud service.
HPE iLO	HPE Integrated Lights-Out. HPE iLO server management software that enables you to securely configure, monitor, and update HPE servers seamlessly, from anywhere in the world. In this document, HPE iLO refers to HPE iLO 5.
HTTPS	Hyper Text Transfer Protocol Secure provides secure communication for data exchange over computer networks. HTTPS traffic is encrypted through TLS and provides support for authentication via asymmetric key exchanges.
mTLS	Mutual TLS provides a cryptographic method to establish protected and secure communication tunnel over computer networks so that the server authenticates the client and the client authenticates the server.
RBAC	Role-based access control associates a unique authority to a specific user to perform allowed action for a particular component. This function allows just enough permission to support the zero trust security model.

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Term	Explanation
SaaS	Software as a service is the licensing and delivery model of software on a subscription basis and is centrally hosted.
SAML	Security Assertion Markup Language provides a protocol to integrate SSO from the customer.
SSO	Single sign-on is an authentication mechanism that allows a user to log in with a single ID and password to multiple independent systems. SSO organizes multiple users under an organization so that a single authentication can be used for distributed applications.
TLS	Transport Layer Security protocol provides cryptographic methods to establish protected and secure communication tunnel over computer networks (internet) so that the client recognizes the server.

Overview

HPE GreenLake for Compute Ops Management is a secure and scalable cloud-based management platform built on a microservice architecture. It facilitates device onboarding, inventory, health, power control, and firmware management for HPE servers depicted in Figure 1. HPE GreenLake for Compute Ops Management is continuously enhancing and adding new features.

Note
HPE GreenLake for Compute Ops Management inherits the cloud security framework enforced by HPE GreenLake.

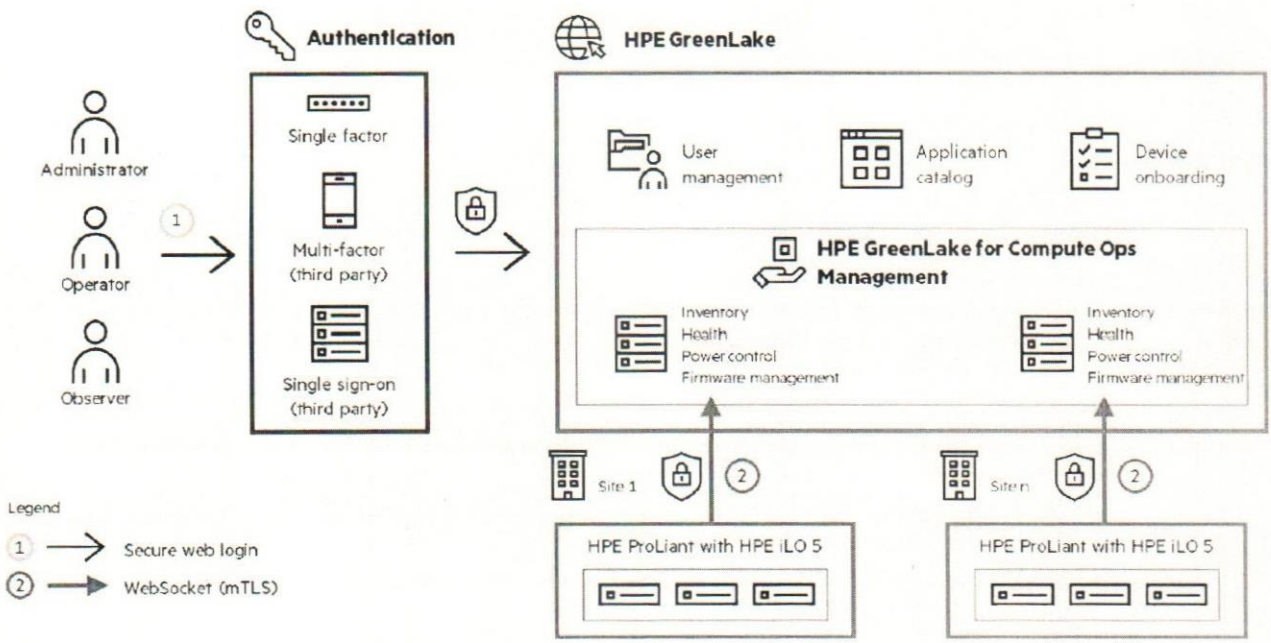


Figure 1. HPE GreenLake for Compute Ops Management security representation

Security for this solution is based on a shared responsibilities model applicable to customers and HPE. It considers both customers and host provider premises; the roles of users as the consumers; and HPE as the service providers. Figure 2 illustrates this shared security responsibility model. Customer and server information in the cloud belongs to the customer and HPE secures it acting as the custodian.

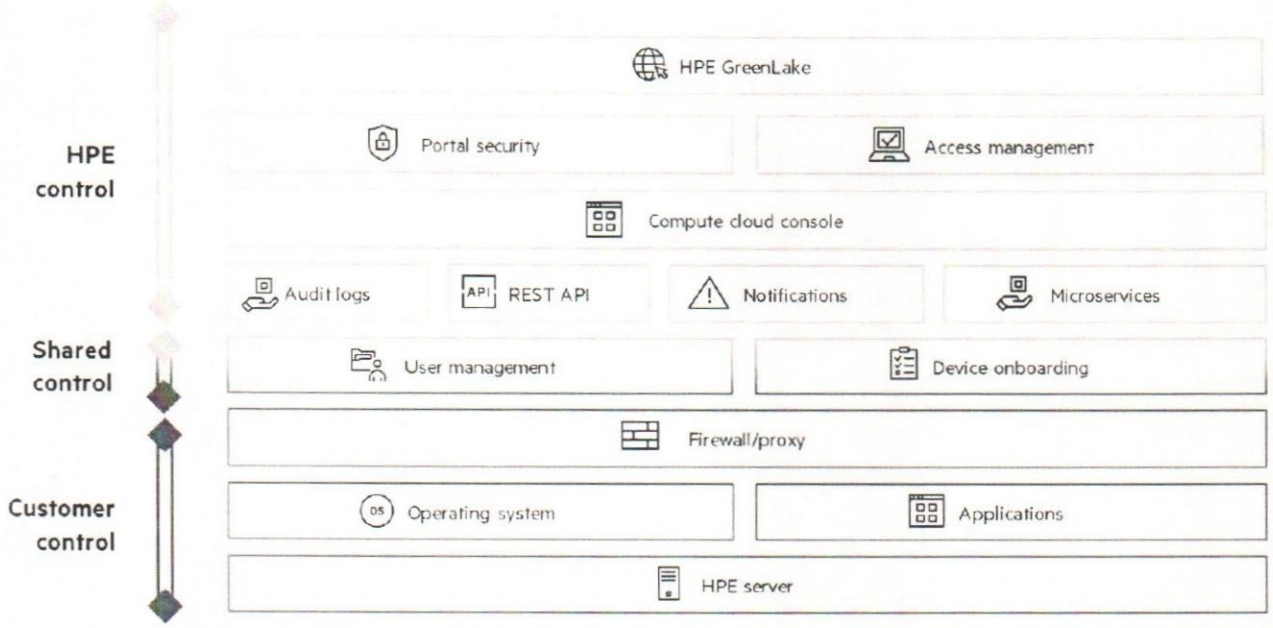


Figure 2. Shared security policy model

Be prepared

HPE GreenLake for Compute Ops Management provides several features that incorporate into customer's cybersecurity processes and plans.

Customer accessible network connections or endpoints

Customers consume HPE GreenLake for Compute Ops Management services using a TLS-secured web portal and integrate their on-premises components through mTLS connections as identified in Figure 1. These connections and port settings should be accounted for in your cybersecurity processes and documentation.

Important

HPE highly recommends that all HPE GreenLake for Compute Ops Management and HPE GreenLake communication be protected with adequate firewall and HTTP proxy devices.

- Webpage (HTML): You can use a standard web browser to access HPE GreenLake, which is secured using HTTPS with TLS v1.3 or 1.2, that is authenticated by an HPE CA certificate for authenticated, encrypted, and secure connection. TLS v1.0 and v1.1 are disabled. To validate the authenticity of users, HPE GreenLake requires users to provide a correct combination of their username and password. In addition, MFA and SSO with SAML 2.0 is supported as a more secure and preferred method of authentication. These are explained later in this document.

  The HPE CA Certificate uses SHA256 with key size equal to EC 384 bits. Refer to Table 2 to understand the supported TLS v1.2 and 1.3 cipher suites.

Table 2. Supported TLS 1.2 and 1.3 cipher suites

The following cipher suites are supported in server-preferred order:	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
	TSL_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
	TLS_AES_128_GCM_SHA256
	TLS_AES_256_GCM_SHA384
	TLS_CHACHA20_POLY1305_SHA256

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- **mTLS:** HPE iLO 5 and HPE iLO 6 management processors embedded in the customer's on-premises server connects to HPE GreenLake for Compute Ops Management via an HTTPS (port 443) secured web connection for bidirectional communication to provide onboarding, inventory, health, power control, and firmware management. This WebSocket is created during the onboarding steps and remains open with a persistent connection to HPE GreenLake for Compute Ops Management cloud. During the onboarding process, an HPE issued client certificate is used to connect to HPE GreenLake for Compute Ops Management for HPE iLO management. HPE OneView uses the same approach to connect to Compute Ops Management via HTTPS (port 442) with a mTLS secured WebSocket.

Important
The HPE iLO management processor embedded in the server communicates with HPE GreenLake for Compute Ops Management and is isolated from the server.

If network issues occur, this WebSocket will be closed on either side. The HPE iLO will retry to establish the WebSocket connection to HPE GreenLake for Compute Ops Management every 30 seconds in a 5-minute window; if all of those fail, the device will give up for one hour before repeating the reconnection process of one attempt every 30 seconds for 5 minutes. The retry process will continue until the connection to the WebSocket is reestablished. This allows the solution to withstand any sort of network outages between the on-premises server and cloud. The WebSocket connection and retry process will be terminated if cloud-based management is disabled in the HPE iLO.

Customers need to open only port 443 on their firewall for any outbound communication to various COM endpoints. Public interface FQDNs, ports used, and the initiator that access the internet include the following:

Table 3. Customer firewall requirements

Public interface FQDN	Port	Initiator	Protocol	Direction	Description
cloud.hpe.com	443	User	TCP	Outbound	Allows communication to HPE GreenLake
common.cloud.hpe.com	443	User	TCP	Outbound	Allows login to HPE GreenLake for Compute Ops Management
us-west2.compute.cloud.hpe.com	443	User	TCP	Outbound	HPE GreenLake for Compute Ops Management US region
us-west2-mtls.compute.cloud.hpe.com	443	User	TCP	Outbound	Device management API
us-west2-api.compute.cloud.hpe.com	443	User	TCP	Outbound	Allows access to HPE GreenLake for Compute Ops Management API calls
us-west2-devices.compute.cloud.hpe.com	443	HPE iLO 5, HPE iLO 6, HPE OneView 8.4	TCP	Outbound	Device management WebSocket server
eu-central1.compute.cloud.hpe.com	443	User	TCP	Outbound	HPE GreenLake for Compute Ops Management EU region
eu-central1-mtls.compute.cloud.hpe.com	443	User	TCP	Outbound	Device management API
eu-central1-api.compute.cloud.hpe.com	443	User	TCP	Outbound	Allows access to HPE GreenLake for Compute Ops Management API calls
eu-central1-devices.compute.cloud.hpe.com	443	HPE iLO 5, HPE iLO 6, HPE OneView 8.4	TCP	Outbound	Device management WebSocket server
ap-northeast1.compute.cloud.hpe.com	443	User	TCP	Outbound	HPE GreenLake for Compute Ops Management APJ region
ap-northeast1-mtls.compute.cloud.hpe.com	443	User	TCP	Outbound	Device management API
ap-northeast1-api.compute.cloud.hpe.com	443	User	TCP	Outbound	Allows access to HPE GreenLake for Compute Ops Management API calls
ap-northeast1-devices.compute.cloud.hpe.com	443	HPE iLO 5, HPE iLO 6, HPE OneView 8.4	TCP	Outbound	Device management WebSocket server
device.cloud.hpe.com	443	HPE iLO 5, HPE iLO 6, HPE OneView 8.4	TCP	Outbound	Device activation
midway.ext.hpe.com	443	HPE iLO 5, HPE iLO 6, HPE OneView 8.4	TCP	Outbound	Allows HPE iLO to obtain certificate and firmware downloads. Provide HPE OneView HPE client certificate for mTLS and the appliance ID.

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For the mTLS connection, HPE iLO certificate will be ECDSAp384 and key size will be 384 bits.

Table 4. Supported TLS 1.2 cipher suites and their associated HPE iLO security mode

Description	HPE iLO security mode	Cipher suite
The following cipher suites are supported in server-preferred order	**Production**	**ECDHE-RSA-AES256-GCM-SHA384**
		ECDHE-RSA-AES256-SHA384
		ECDHE-RSA-AES256-SHA
		DHE-RSA-AES256-GCM-SHA384
		DHE-RSA-AES256-SHA256
		DHE-RSA-AES256-SHA
		AES256-GCM-SHA384
		AES256-SHA256
		AES256-SHA
		ECDHE-RSA-AES128-GCM-SHA256
		ECDHE-RSA-AES128-SHA256
		ECDHE-RSA-AES128-SHA
		DHE-RSA-AES128-GCM-SHA256
		DHE-RSA-AES128-SHA256
		DHE-RSA-AES128-SHA
		AES128-GCM-SHA256
		AES128-SHA256
		AES128-SHA
		ECDHE-RSA-DES-CBC3-SHA
		EDH-RSA-DES-CBC3-SHA
		DES-CBC3-SHA
	FIPS	**ECDHE-RSA-AES256-GCM-SHA384**
		ECDHE-RSA-AES256-SHA384
		DHE-RSA-AES256-GCM-SHA384
		DHE-RSA-AES256-SHA256
		ECDHE-RSA-AES128-GCM-SHA256
		ECDHE-RSA-AES128-SHA256
		DHE-RSA-AES128-GCM-SHA256
		DHE-RSA-AES128-SHA256

HPE OneView connections are secured using a similar list of algorithms, ciphers, and protocols. For more details, please refer to the HPE OneView User guide located here.

Authentication for users

This section discusses industry-standard authentication methods available for HPE GreenLake for Compute Ops Management. HPE provides three types of authentications for logging into HPE GreenLake.

- Single sign-on (SSO)
- Multi-factor authentication (MFA)
- Single-factor authentication

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Single sign-on authentication

SSO authentication enables organizations to simplify the user experience of logging into external portals by allowing users to enter their company login credentials to authenticate their identity.

Users will be able to log in to HPE GreenLake with their company's user credentials. After their login, however, HPE GreenLake will verify those credentials by sending a SAML request (digitally signed XML) to the user's trusted company IdP, which in turn will verify the credentials and send back a SAML response confirming that they are valid.

Multi-factor authentication

Multi-factor authentication implements multiple levels of authentication for a user to gain access to HPE GreenLake. HPE supports software-based authenticators (Okta Verification, Security Key or Biometric Authenticator, Google Authenticator™) that, when combined with a traditional user login, provide an extra layer of security.

Single-factor authentication

Single-factor authentication requires a username and password to verify a user's identity. Passwords must meet the following specifications:

- Must be between 8 and 255 characters, with a minimum of five unique characters
- Cannot have more than two repeated characters
- Must contain at least one special character, one numeric character, one uppercase letter, and a lowercase letter
- Cannot contain user account data and are checked against a list of commonly used passwords

All validated passwords adhere to a strict policy:

- New passwords cannot match the past six passwords used within the past 365 days.
- Passwords expire automatically after 182 days.
- Accounts with multiple login failures are automatically locked out for a period.

Role-based access control for users

HPE GreenLake

HPE GreenLake user permissions are enforced by using role-based access control (RBAC) to ensure that the correct level of access is given to each user. The administrator of an organizational unit has the option to assign predefined roles provided by HPE GreenLake or create custom roles for users. Information can be found in the HPE GreenLake user guide.

Note

The creator of the organizational unit within HPE GreenLake is automatically assigned administrator permissions.

HPE GreenLake for Compute Ops Management

This section describes the RBAC for Compute Ops Management. It is recommended that you learn more about the RBAC features in HPE GreenLake, which can be found in the HPE GreenLake user guide. HPE GreenLake for Compute Ops Management supports three different roles, which should be clearly defined in your cybersecurity processes and plans.

Table 5. HPE GreenLake for Compute Ops Management RBAC roles

Type	Assigned permissions
Administrator	Enables all privileges for the customer's organization including onboarding, asset management, creating roles, inviting users, and assigning roles for users
Operator	Enables privileges to edit servers and schedules as well as user groups in HPE GreenLake for Compute Ops Management, all other resource access is read only
Observer	Enables privileges to view components in the assigned organization without the ability to make change

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Device onboarding into the HPE GreenLake for Compute Ops Management

This section describes security topics you need to be aware of during device onboarding.

Important

All device onboarding communications are always initiated by HPE iLO. There will never be a cloud-initiated device onboarding discovery request. Network communications are secured with mTLS.

Connections to HPE GreenLake are made with HTTPS and TLS v1.2. RBAC ensures that you are directed to the correct instance with the correct permissions.

When cloud-based management is enabled in the HPE iLO, a WebSocket connection using mTLS will be established between HPE iLO and Compute Ops Management. This WebSocket is permanent and would only be permanently disabled if cloud-based management is disabled.

Onboarding HPE OneView appliances into HPE GreenLake for Compute Ops Management — HPE OneView Edition

HPE OneView appliances can be onboarded into HPE GreenLake for Compute Ops Management through a slightly different process but use the same robust security mechanisms to ensure trusted private connections. The unique HPE OneView appliance ID is taken from the HPE OneView instance and entered into HPE GreenLake for Compute Ops Management. When the appliance ID is put into the HPE GreenLake for Compute Ops Management user interface, it will respond with an Activation Key. This key is unique to the appliance and can only be used to onboard the specific appliance.

Once the activation key is put into the HPE OneView user interface to enable cloud management, the HPE OneView instance will create a persistent mTLS WebSocket connection to the HPE GreenLake for Compute Ops Management endpoint in the cloud. This connection is secured with HPE issued security certificate similar to the one used when onboarding an HPE iLO into HPE GreenLake for Compute Ops Management. Finally, with the certificate and the activation complete an mTLS connection created.

Important

Service subscriptions are used to control access to HPE GreenLake for Compute Ops Management — HPE OneView Edition devices. A Compute Ops Management — HPE OneView Edition subscription is needed to manage Compute Ops Management — HPE OneView Edition devices within HPE GreenLake for Compute Ops Management, and user rights further control access to manage Compute Ops Management — HPE OneView Edition devices. If a user account does not have the proper Compute Ops Management — HPE OneView Edition access added to their account they will not even see Compute Ops Management — HPE OneView Edition devices within HPE GreenLake for Compute Ops Management.

RBAC for HPE iLO

The HPE iLO also has RBAC for the local users. Four roles are defined in HPE iLO as shown in Table 6. These roles are used only for local direct access to HPE iLO and not for communicating with HPE GreenLake for Compute Ops Management.

Table 6. HPE iLO RBAC roles

Type	Assigned permissions
Administrator	Enables all privileges except Recovery Set (usable for onboarding)
Operator	Allows all privileges except: Configure HPE iLO 5 Settings, Administer User Accounts, and Recovery Set (usable for onboarding)
Read only	Enables only the login privilege
Custom (default)	Allows the user to define a custom privilege set (usable for onboarding with required custom role settings)

Note

Only HPE authorized engineers with customer consent have access to customer accounts for support troubleshooting.

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How HPE GreenLake for Compute Ops Management and HPE GreenLake protect you in the cloud

Risk assessments

HPE GreenLake for Compute Ops Management does a regular review of the application architecture and threat analysis for discovery of any type of risks present in the system and identifying how those risks can be mitigated or eliminated. This analysis helps HPE GreenLake for Compute Ops Management to correct any vulnerabilities before an attack occurs, protect against theft and damage against systems, avoid any fines from lack of compliance.

Protecting against vulnerabilities

When a vulnerability is discovered, HPE engineering will perform an analysis on the CVEs and determine how the vulnerability applies to HPE GreenLake for Compute Ops Management cloud design. CVEs applicable to HPE GreenLake for Compute Ops Management cloud model will be mitigated or will have workarounds to alleviate the discovered CVE in HPE GreenLake for Compute Ops Management controlled space. Furthermore, if additional actions are required for customers to follow through on their premises, HPE will provide a bulletin that details the requirement.

To protect against breaches and incidents on the web application layer, HPE GreenLake for Compute Ops Management has integrated application security into the software development lifecycle. HPE GreenLake Compute Ops Management tests applications for vulnerabilities and weaknesses on a continuous basis using standards such as OWASP Application Security Verification Standard (ASVS) checking applications for remote code execution, SQL injection, cross-site scripting (XSS), identity and access, session validation, code injections, cryptography, and more.

Secure architecture

HPE GreenLake for Compute Ops Management is designed and implemented with a set of containerized microservices. Its containers are built with HPE controlled minimal base images. Containers built with base images provide the developer with full control of the content, which allows HPE engineers to quickly mitigate security issues and redeploy mitigated microservices in a highly efficient manner.

HPE GreenLake for Compute Ops Management is deploying tools that identify vulnerabilities, misconfigurations, and compliance violations in Infrastructure as code templates, container images, and Git repositories. It goes through architectural reviews, network, and application penetration tests on a regular schedule.

API gateway and Amazon CloudFront

The API gateway provides protection against DDoS attacks by authenticating at the application layer to prevent counterfeit requests, and rate limit protections prevent SYN flood attacks. Additionally, the API gateway provides obfuscation of components in the solution, allows authorization of APIs, and controls access to select endpoints in the solution. Amazon CloudFront provides the caching layer along with integration with web application firewall for additional layers of security.

Customer data stored

Data that is stored and used by HPE GreenLake for Compute Ops Management includes HPE iLO inventory data and health status along with HPE OneView data for managed physical devices and logical resources. No HPE OneView credentials are stored by HPE GreenLake for Compute Ops Management. All data at rest is encrypted.

RBAC verifies that users have the correct access to each resource in the application. Customers can plan their IT business processes with RBAC when using HPE GreenLake for Compute Ops Management.

Data related to user accounts and customer details for each HPE GreenLake for Compute Ops Management customer are isolated from other tenant companies at the HPE GreenLake level. This provides consistent privacy and data access protection across applications.

Data stored within HPE GreenLake for Compute Ops Management remains in the region that is specified during the initial setup. For more information, see the HPE privacy statement at hpe.com/us/en/legal/privacy.html.

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Data that HPE employees or partners can access

HPE R&D teams and HPE partners do not have access to customer-related data and application data. However, a very limited number of engineers with the customer's permission will have read-only access to the customer information (such as usernames, address, server network information, and such). We maintain a separate environment for internal development, and no customer data is allowed in those environments.

Security assurance and compliance

HPE GreenLake for Compute Ops Management recently completed CSA STAR Level 1: self-assessment to offer better transparency around the security controls put in place for securing customer data. For more information, see the HPE GreenLake for Compute Ops Management CAIQ.

HPE GreenLake for Compute Ops Management has also undergone SOC 2 Type 1 attestation.

HPE is actively working toward a FIPS 140-2 Level 1 certification. All data in transit between customer devices on-premises and HPE GreenLake for Compute Ops Management device portal is protected with FIPS 140-2 compliant encryption and ciphers. Similarly, all data in transit and at rest within the software application is protected with FIPS 140-2 encryption and ciphers. All cryptography within the application is provided by OpenSSL 1.1.1, and we are actively working toward implementing a FIPS Certified OpenSSL 3.0 provider. The HPE GreenLake for Compute Ops Management application has been built to enable the FIPS 140-2 compliance by design. Customers don't have to make any changes to the software or their account to enable FIPS 140-2 compliance.

Open-source software license statement

See the HPE GreenLake user guide and HPE GreenLake for Compute Ops Management online help for open-source software license statements.

Data security and privacy statement for HPE GreenLake and Compute Ops Management

HPE respects and considers the major privacy principles and frameworks around the world, including, but not limited to, the OECD Guidelines on the Protection of Privacy and Transborder Flows, the EU General Data Protection Regulation (GDPR) 2016/679, and the APEC Privacy Framework. The HPE privacy practices described in this privacy statement also comply with the APEC Cross Border Privacy Rules (CBPR) system. For more information, see the HPE privacy statement at hpe.com/us/en/legal/privacy.html.

Learn more at

HPE.com/us/en/compute/management-software.html

Explore HPE GreenLake

Chat now (sales)

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Quality Policy

At Hewlett Packard Enterprise, quality is everyone's responsibility and it's accelerating time to value.

We are committed to continually improving and meeting requirements by embedding quality in everything we do.

We earn customers' trust by delivering exceptional experiences through partnering, innovation, and a bias for action.

Antonio Neri
President and Chief Executive Officer
Hewlett Packard Enterprise

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Overview

HPE MR Gen11 Storage Controllers

A versatile, simplified, and flexible choice for data centers. HPE introduces an expansive and agile PCIe Gen 4.0 storage controller portfolio based on Broadcom® MegaRAID® technology delivering quality, performance, and security for mission-critical applications.

Key Features

- Standard PCI HH/HL and OCP NIC 3.0 form-factors
- Mixed Mode (RAID and/or JBOD) supporting RAID 0,1,10,5,50,6,60 (MR416i) or RAID 0,1,10 (MR216i)
- Up to 13.7 GBs of bandwidth, 3M Random Read IOPs, and 240K RAID5 Random Write IOPs
- 8 PCIe 4.0 host lanes
- 72b DDR4-2666 4GB (MR408i) or 8GB (MR416i) Flash-Backed Write Cache (energy pack is optional)
- 8 (MR408i) or 16 (MR416i) tri-mode NVMe, SAS, SATA internal lanes
- 16Gbs NVMe, 12Gbs SAS SSD/HDD, 6Gbs SATA SSD/HDD
- Up to 16 drives without expander
- DMTF Security Protection Data Model (SPDM) supports certificate-based authentication with HPE iLO6.
- Hardware Root of Trust (HWRoT) protects against malicious firmware
- Self-Encrypting Drives (SED) for data at rest encryption
- Windows, Linux, and VMWare
- MRSA, StorCLI, UEFI, and Redfish Management
- FASTPATH® (SSD acceleration)
- Online firmware updates for controllers, backplanes, and drives

Models

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

Notes: An HPE Smart Storage energy pack (available in both battery and hybrid capacitor options) is optional with the HPE MR416i-o Gen11 and HPE MR416i-p Gen11 storage controller. See below for energy pack options.

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Standard Features

Standard Features

Description	HPE MR416i-p Gen11 SPDM Storage Cntlr	HPE MR416i-o Gen11 SPDM Storage Cntlr	HPE MR216i-p Gen11 SPDM Storage Cntlr	HPE MR216i-o Gen11 SPDM Storage Cntlr	HPE MR408i-o Gen11 SPDM Storage Cntlr
SKU	P47777-B21	P47781-B21	P47785-B21	P47789-B21	P58335-B21
Ports	2x8 SlimSAS	2x8 LP SlimSAS	2x8 SlimSAS	2x8 LP SlimSAS	1x8 LP SlimSAS
Storage Lanes	x16	x16	x16	x16	X8
ASIC	Broadcom Aero	Broadcom Aero	Broadcom Aero	Broadcom Aero	Broadcom Aero
Form Factor	PCI HH/HL	OCP NIC 3.0	PCI HH/HL	OCP NIC 3.0	OCP NIC 3.0
Host Interface	PCIe Gen 4.0 x8 host	PCIe Gen 4.0 x8 host	PCIe Gen 4.0 x8 host	PCIe Gen 4.0 x8 host	PCIe Gen 4.0 x8 host
Cache Size (FBWC)	8GB	8GB	N/A	N/A	4GB
Read Ahead Caching	✓	✓	✓	✓	✓
Write-back Caching	✓	✓	-	-	✓
Storage Protocol	16Gbs NVMe, 12Gbs SAS, 6Gbs SATA	16Gbs NVMe, 12Gbs SAS, 6Gbs SATA	16Gbs NVMe, 12Gbs SAS, 6Gbs SATA	16Gbs NVMe, 12Gbs SAS, 6Gbs SATA	16Gbs NVMe, 12Gbs SAS, 6Gbs SATA
Max Drives	16	16	16	16	8
Max Volumes	64	64	64	64	64
RAID:	0,1,5,6,10,50,60	0,1,5,6,10,50,60	0,1,10	0,1,10	0,1,5,6,10,50,60
Mixed Mode: (RAID & HBA)	✓	✓	✓	✓	✓

Feature	Description
SSD Accelerator	FASTPATH
Array Features	• Expand Array • Move Drives • Shrink Array • Spare Management

Standard Features

Volume Features	• Expand Logical Drive • Instant Secure Erase • Migrate RAID/Stripe Size • Modifying Cache Write Policy • Move Logical Drive • Re-enable Failed Logical Drive • Load balancing • Configurable stripe size up to 1 MB • Fast initialization for quick array setup • Check consistency for background data integrity • Patrol read for media scanning and repairing • Rebuild
Other Features	• Auto resume after loss of system power during array • SSD support with SSD Guard™ technology • DDF compliant Configuration on Disk • SSD Wear Gauge • SMART Predictive Drive Failure • Global and dedicated Hot Spare with Revertible Hot • Spare support: – Automatic rebuild – Enclosure affinity – Emergency SATA hot spare for SAS arrays • Enclosure management: – Universal Backplane Management (UBM) • Shield state drive diagnostic technology • SED Key Management (HKM, LKM, and RKM) • DRAM ECC detects and corrects data bit errors.
HPE OneView Support	Monitored Mode
Kit contents	Includes storage controller, information card, warranty statement, and backup power cable (MR408 & MR416)

Optional Accessories for HPE MR408i-o / MR416i-o / MR416i-p Gen11 SPDM Storage Controllers

Energy pack Options Sold Separately

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE 96W Smart Storage Lithium-ion Battery with 260mm Cable Kit	P01367-B21
HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21
HPE Smart Storage Hybrid Capacitor with 260mm Cable Kit	P02381-B21

Notes:

- An HPE Smart Storage energy pack is optional
- Moving volumes or SED locked drives between SR and MR controllers is not supported.

Warranty

The warranty for this device is 3 years parts only.

Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4 hours.
- Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days.
- Duration - Select duration of coverage for a period of 1, 3, or 5 years.

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Standard Features

Warranty upgrade options can come in the form of HPE Pointnext operational, which are sold at the HPE System level to which this product attaches.

Operating System Support

- **Microsoft Windows Server**
- **Red Hat Enterprise Linux (RHEL)**
- **SUSE Linux Enterprise Server (SLES)**
- **VMware ESXi**
- **Canonical Ubuntu**
- **CentOS**

Notes: HPE MR Gen11 Storage Controllers supports the server operating systems. For more information on HPE's server operating systems and virtualization software, please visit: **http://www.hpe.com/info/ossupport**

Storage Management Software Suite

- HPE MR Storage Administrator (MRSA)
- HPE StorCLI
- UEFI System Utilities (storage configuration)
- HPE iLO6 Redfish

Please refer to **https://www.hpe.com/info/scmo** for more detailed information.

HPE MR Storage Administrator

The MR Storage Administrator is a web-based application that enables you to configure, monitor and troubleshoot MegaRAID (MR) storage controllers. The MR Storage Administrator graphical user interface (GUI) helps you to view, create, and manage storage configurations.

- Configuring: HPE MR Storage Administrator enables you to configure and view status of the controllers, volumes, and drives. The device status icons are displayed on their respective pages to notify you in case of drive failures and other events that require your immediate attention. Real-time email notifications on the status of the server are sent based on your alert settings. The system errors and events are recorded and displayed in an event log file. Additionally, you can also import or clear foreign configurations.
- Monitor: HPE MR Storage Administrator (MRSA) allows you to selectively deliver alerts to the OS system log, event log, or email based upon severity level. Additionally, individual storage devices can be viewed within the GUI.
- Troubleshooting: HPE MR Storage Administrator displays information related to drive failures, device failures, and so on. It also provides recommendations and displays contextual links, helping you to easily locate the drives that have issues and troubleshoot them. You can also download a support log containing the devices, properties, configurations, and logs and send it to the HPE support teams for further troubleshooting.

Please refer to **https://www.hpe.com/support/MRSA** for more detailed information.

StorCLI Management Tool

The Storage Command Line Interface (StorCLI) tool is the command line management software designed for the MegaRAID product line. The StorCLI tool is designed to be easy to use, and script.

Please refer to **https://www.hpe.com/support/StorCLI** for more detailed information.

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Service and Support

HPE Pointnext - Service and Support

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

Consume IT on your terms

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

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

Managed services to run your IT operations

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

Recommended Services

HPE Pointnext Tech Care.

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

HPE Pointnext Complete Care

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

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

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

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Service and Support

HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**

HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers.
Learn more **http://www.hpe.com/support/hpesc**

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

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.
Notes: *HPE Support Center Mobile App is subject to local availability

Parts and Materials

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

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

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

Related Services

HPE Server Hardware Installation

Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner
https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf

HPE Installation and Startup Service provides for the installation and startup of HPE technology including BladeSystems, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

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

For more information

Visit the Hewlett Packard Enterprise Service and Support **website**.

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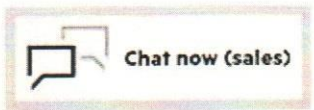
Summary of Changes

Date	Version History	Action	Description of Change
11-Sep-2023	Version 3	Changed	Models Section was Updated
14-Aug-2023	Version 2	Changed	Compatibility Section was updated
10-Nov-2022	Version 1	New	New QuickSpecs

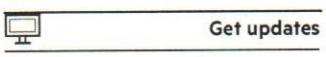
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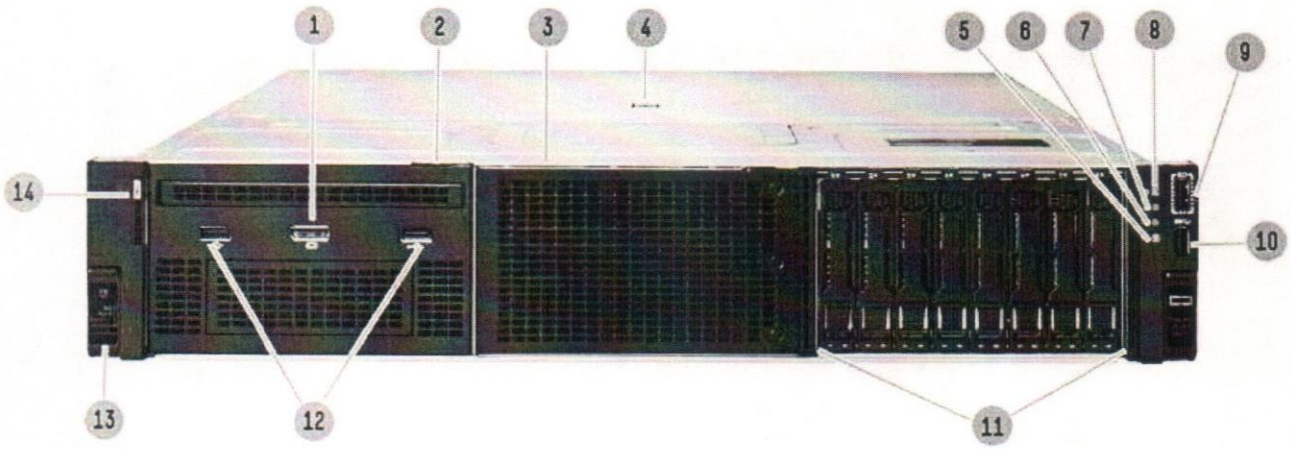
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Hewlett Packard
Enterprise

Overview

HPE ProLiant DL380 Gen11

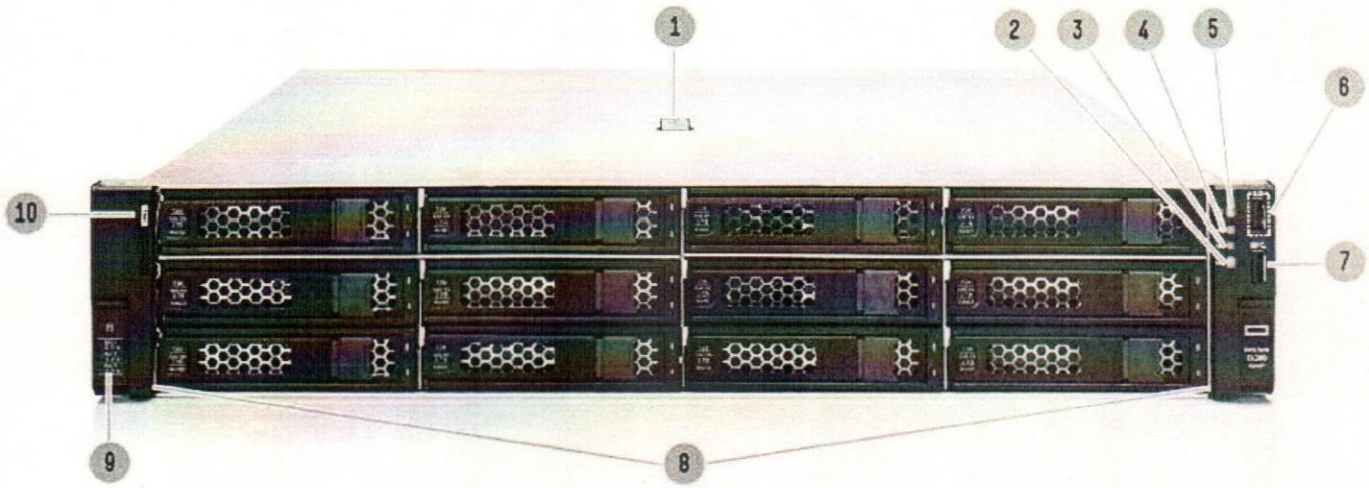
Adaptable for diverse workloads and environments, the secure 2P 2U HPE ProLiant DL380 Gen11 delivers world-class performance with the right balance of expandability and scalability. Designed for supreme versatility and resiliency while being backed by a comprehensive warranty make it ideal for multiple environments from Containers to Cloud to Big Data. Standardize on the industry's most trusted compute platform.



Front View – SFF chassis with optional Universal Media bay shown

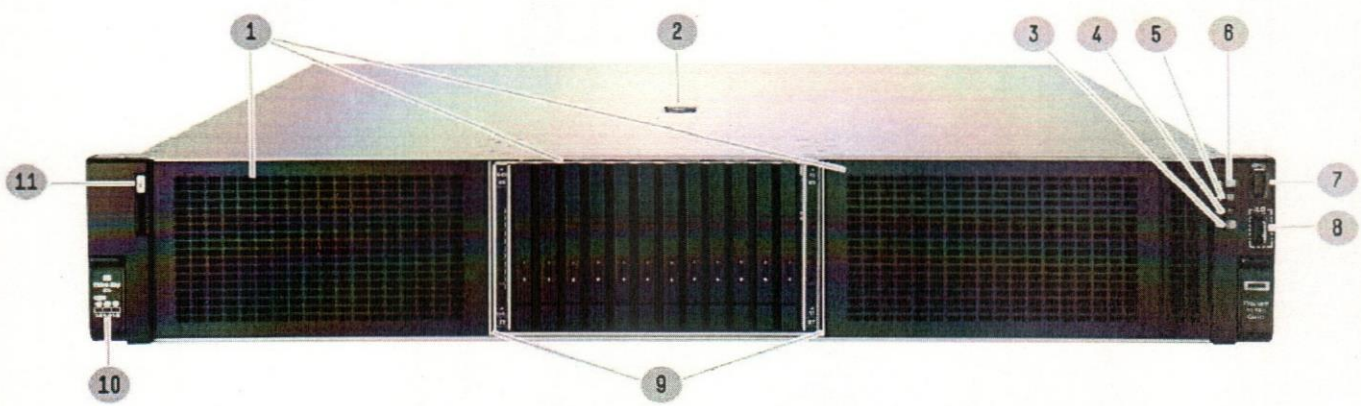
1. Optional Front Display Port (via Universal Media Bay)
2. Box 1 (shown with optional Universal Media Bay installed)
3. Box 2 (shown blank)
4. Quick removal access panel
5. UID button/LED
6. NIC Status
7. Health LED
8. Power On / Standby button and LED
9. iLO Service Port
10. USB 3.0
11. Box 3 (shown with 8SFF drives populated)
12. Optional USB 2.0 (via Universal Media Bay)
13. Drive Support Label
14. Serial Number Label Pull Tab

Overview



Front View – 12LFF chassis shown

1. Quick removal access panel
2. UID Button / LED
3. NIC Status
4. Health LED
5. Power On / Standby button and LED
6. iLO Service Port
7. USB 3.0
8. 12 x LFF Media
9. Drive support label
10. Serial Number Label Pull Tab

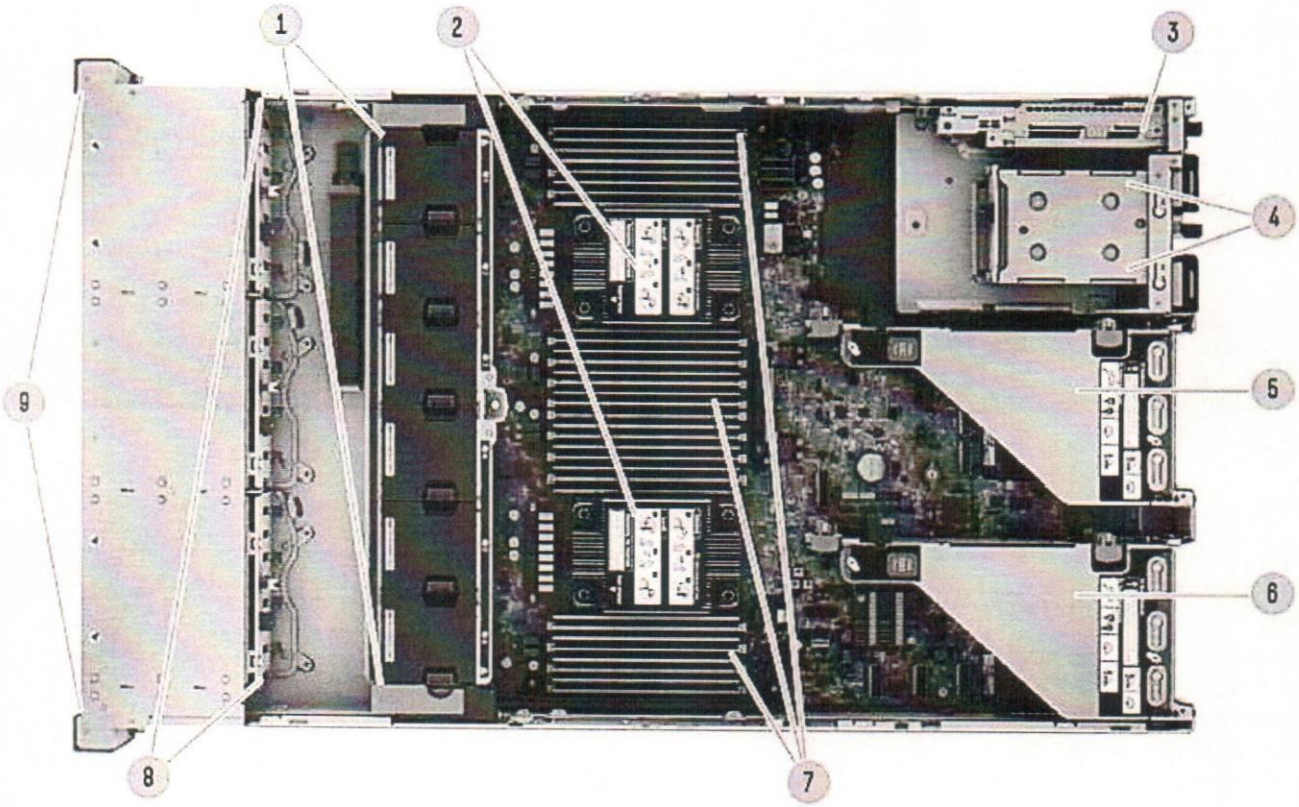


Front View –12EDSFF chassis shown

1 12EDSFF drive bays optical drive
2 Quick removal access panel
3 UID Button / LED
4 NIC Status
5 Health LED
6 Power On / Standby button and LED
7 iLO Service Port
8 USB 3.0
9 12x EDSFF Media
10 Drive support label
11 Serial Number Label Pull Tab

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Overview



Internal View 8SFF chassis

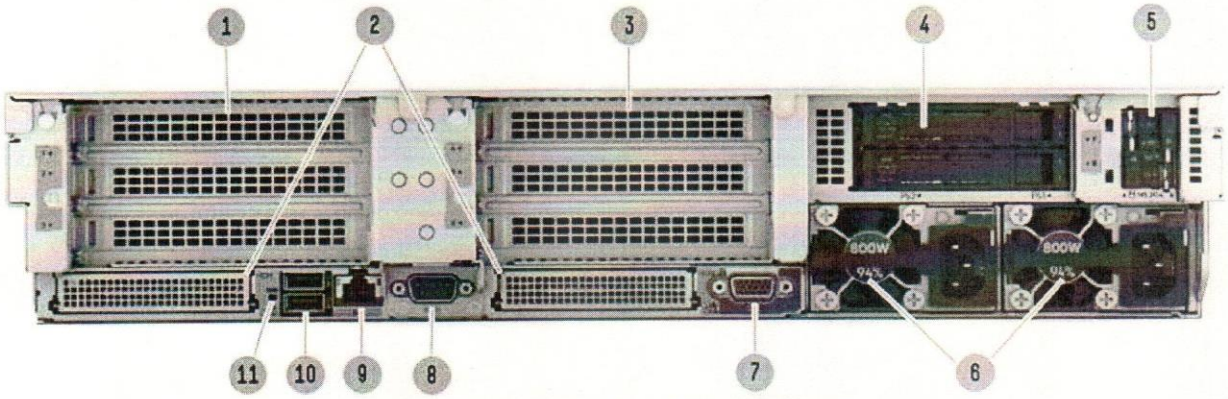
1. Hot Plug Fans[1]
2. Processors, heatsinks showing
3. Optional NS204i-u Boot Device
4. Hot Plug redundant HPE Flexible Slot Power Supplies
5. Secondary Riser (Optional) (Requires second processor)
6. Primary Riser
7. DDR5 DIMM slots, shown fully populated in 32 slots[2]
8. Drive Backplanes
9. Drive Cages

Notes:

- [1]High performance temperature fans optional
- [2]Shown fully populated in 32 slots (16 per processor)

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Overview



Rear View – Standard for all DL380 Gen11

1. Primary Riser. PCIe 5.0 Slots (Slots 1-3)
2. OCP 3.0 Slots, shown covered
3. Secondary Riser. PCIe 5.0 Slots (Slots 4-6)
4. Tertiary Riser (Slots 7-8) shown with optional 2SFF drive cage installed
5. Optional NS204i-u Boot Device
6. Power Supply 1 and 2
7. VGA Connector
8. Optional Serial Port
9. Dedicated iLO Management Port
10. USB 3.0 Connectors (2)
11. UID Indicator LED

Notes: [1] Supports various NICs, and Storage controllers.

What's New

- New HPE 1800W-2200W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
- New NVMe SSDs
- New OpenBMC Capable through iLO6 Transfer of Ownership Process

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Overview

Platform Information

Form Factor

- 2U rack

Chassis Types

- 8SFF (SAS/SATA/NVMe) with optional SFF Universal Media Bay (P50728-B21), and/or up to 6SFF rear drive bay options
- 24SFF bay (SAS/SATA/NVMe) with up to 6SFF rear drive bay options to a total 30 SFF drives
- 8LFF supporting 2SFF front, and up to 4LFF rear or 2SFF rear drive bay options
- 12LFF with optional 4LFF rear for a total 16LFF drives

Notes:

- The 8SFF chassis can be upgraded to support up to 24SFF (front) with a variety of 8SFF Drive Cages to select from, including 8SFF U.3 x4/x2 Trimode, 8SFF U.3 (x1 Trimode), and 8SFF SAS/SATA. See "Drive Cages" section within this document for options.
- The 8SFF chassis comes with an 8SFF U.3 x1 drive bay by default in bay 3.
- The Universal Media Bay (P50728-B21) is only available as an option for the 8SFF chassis and can only be populated in Box 1.
- The 2 LFF primary and 2LFF secondary rear cages will consume all PCIe slots for the primary and secondary riser, respectively
- The 8 LFF chassis cannot be upgraded to 12 LFF front in the field.
- The 2 LFF primary and 2LFF secondary rear cages supported in LFF chassis only.

System Fans

- High Performance Fan Kit – required for all CPUs over 205W TDP

Notes:

- On 8SFF CTO server models ship with 4 standard fans.
- The 12 LFF and 8LFF CTO server models ship with 4 standard fans.
- The 24 SFF CTO server model ships with 6 high performance fans.
- The High Performance fan kit (P48820-B21) is available to meet ambient temperature requirements.
- In general, the Maximum Performance fan kit is required when rear drives, or >205W Processors SKUs, or High Performance NVMe drives, three drive cages, mid-tray, GPU card, or certain backplanes are populated. See notes under each option category or each individual option for specifics.

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Standard Features

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

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

This table covers the public Intel offering only.

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

4th Generation Intel® Xeon® Scalable Processor Family (Platinum)							
Intel Xeon Models	**CPU Frequency**	**Cores**	**L3 Cache (MB)**	**Power**	**UPI Links**	**DDR5**	**SGX Enclave size (GB)**
Platinum 9462 Processor[2]	2.7GHz	32	75	350W	3	4800 MT/s	128
Platinum 8490H Processor	1.9GHz	60	112.5	350W	4	4800 MT/s	512
Platinum 8480+ Processor	2.0GHz	56	105	350W	4	4800 MT/s	512
Platinum 8470 Processor	2.0GHz	52	105	350W	4	4800 MT/s	512
Platinum 8470N Processor	1.7GHz	52	97.5	300W	4	4800 MT/s	128
Platinum 8470Q Processor[1]	2.1GHz	52	105	350W	4	4800 MT/s	512
Platinum 8468 Processor	2.1GHz	48	105	350W	4	4800 MT/s	512
Platinum 8468V Processor	2.4GHz	48	97.5	330W	3	4800 MT/s	128
Platinum 8462Y+ Processor	2.8GHz	32	60	300W	3	4800 MT/s	128
Platinum 8460Y+ Processor	2.0GHz	40	105	300W	4	4800 MT/s	128
Platinum 8458P Processor	2.7GHz	44	82.5	350W	3	4800 MT/s	512
Platinum 8452Y Processor	2.0GHz	36	67.5	300W	3	4800 MT/s	128
Platinum 8444H Processor	2.9GHz	16	45	270W	4	4800 MT/s	512

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Standard Features

Notes:

- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP equal to or greater than 150W through 350W require High Performance Heatsink (P48818-B21)
- Processors with TDP greater than 150W through 350W and mid-tray drive cage require HPE DL3xx/560 Gen11 High Performance Heatsink (P48905-B21)
- "Q" processors require Max Performance Heatsink (P48817-B21)
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21)
- 8-Channel DDR5 @ 4800 MT/
- 2 socket capable, 4 UPI @ 16 GT/s.
- [1]Liquid cooled CPUs require Maximum Performance Heat Sink (P48817-B21). One heatsink covers both CPUs.
- [2] This is Intel High Bandwidth Memory (HBM) CPU.

4th Generation Intel® Xeon® Scalable Processor Family (Gold)

Intel Xeon Models	CPU Frequency	Cores	L3 Cache (MB)	Power	UPI Links	DDR5	SGX Enclave size (GB)
Gold 6454S Processor	2.2GHz	32	60	270W	4	4800 MT/s	128
Gold 6448H Processor	2.4GHz	32	60	250W	3	4800 MT/s	512
Gold 6430 Processor	2.1GHz	32	60	270W	3	4800 MT/s	128
Gold 6414U Processor[1]	2.0GHz	32	60	250W	0	4800 MT/s	128
Gold 6458Q Processor	3.1GHz	32	60	350W	3	4800 MT/s	128
Gold 6448Y Processor	2.1GHz	32	60	225W	3	4800 MT/s	128
Gold 6444Y Processor	3.6GHz	16	45	270W	3	4800 MT/s	128
Gold 6442Y Processor	2.6GHz	24	60	225W	3	4800 MT/s	128
Gold 6438N Processor	2.0GHz	32	60	205	3	4800 MT/s	128
Gold 6438Y+ Processor	2.0GHz	32	60	205W	3	4800 MT/s	128
Gold 6434 Processor	3.7GHz	8	22.5	195W	3	4800 MT/s	128
Gold 6426Y Processor	2.5GHz	16	37.5	185W	3	4800 MT/s	128
Gold 6421N Processor	1.8GHz	32	60	185	0	4400 MT/s	128
Gold 6418H	2.1GHz	24	60	185W	3	4800 MT/s	512
Gold 6416H	2.2GHz	18	45	165W	3	4800 MT/s	512
Gold 5415+ Processor	2.9GHz	8	22.5	150W	3	4400 MT/s	128
Gold 5416S Processor	2.0GHz	16	30	150W	3	4400 MT/s	128
Gold 5418N Processor	1.8GHz	24	45	165W	3	4000 MT/s	128
Gold 5418Y Processor	2.0GHz	24	45	185W	3	4400 MT/s	128
Gold 5420+ Processor	2.0GHz	28	52.5	205W	3	4400 MT/s	128
Gold 5411N Processor	1.9GHz	24	45	165W	0	4400 MT/s	128

Notes:

- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP greater than 150W through 350W require High Performance Heatsink (P48818-B21)
- Processors with TDP greater than 150W through 350W and mid-tray drive cage require HPE DL3xx/560 Gen11 High Performance Heatsink (P48905-B21)
- "Q" processors require Max Performance Heatsink (P48817-B21)
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21)
- 8-Channel DDR5 @ 4800 MT/s
- [1]Single socket processor. No dual socket support.

4th Generation Intel® Xeon® Scalable Processor Family (Silver)

Intel Xeon Models	CPU Frequency	Cores	L3 Cache (MB)	Power	UPI Links	DDR5	SGX Enclave size (GB)
Silver 4410Y Processor	2.0GHz	12	30	150W	2	4000 MT/s	64
Silver 4416+ Proceesor	2.0GHz	20	37.5	165W	2	4000 MT/s	64

Standard Features

Notes:
- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP greater than 150W through 350W require High Performance Heatsink (P48818-B21)
- Processors with TDP greater than 150W through 350W and mid-tray drive cage require HPE DL3xx/560 Gen11 High Performance Heatsink (P48905-B21)
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21)

4th Generation Intel® Xeon® Scalable Processor Family (Bronze)

Intel Xeon Models	CPU Frequency	Cores	L3 Cache (MB)	Power	UPI Links	DDR5	SGX Enclave size (GB)
Bronze 3408U	1.8GHz	8	22.5	125W	0	4000 MT/s	64

Notes:
- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21)

Chipset
Intel C741 Chipset
Notes: For more information regarding Intel® chipsets, please see the following URL:
https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html

On System Management Chipset
HPE iLO 6 ASIC
Read and learn more in the **iLO QuickSpecs**.

Memory
One of the following depending on model.

Type	HPE DDR5 Smart Memory, Registered (RDIMM)
DIMM Slots Available	32 16 DIMM slots per processor, 8channels per processor, 2 DIMMs per channel
Maximum capacity	8.0 TB 32 x 256 GB RDIMM @ 4800 MT/s (32 DIMMs only with 8SFF or 16SFF, 16 DIMMs maximum with 24SFF)

Notes: The maximum memory speed is limited by the processor selection.

Expansion Slots

Primary Riser
Notes:
- Bus width indicates the number of physical electrical lanes running to the connector.
- There are 2 types of risers supported on Primary Slot
- x16 cards installed on x8 slots could observe sub-optimal performance.

Primary Riser1

Slots #	Technology	Bus Width	Connector Width	Slot Form Factor	Notes
1	PCIe 5.0	X8	X16	Full-height,full-length slot	Proc 1
2	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 1
3	PCIe 5.0	X8	X16	Full-height,half-length slot	Proc 1

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Standard Features

Primary Riser2					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**	**Notes**
1**	NA	NA	NA	NA	NA
1	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 1
2	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 1
3	PCIe 5.0	X16	X16	Full-height,half-length slot	Proc 1

Notes: ** If Slot 1 of HPE DL380 Gen11 2U 3x16 Prim Riser Kit needs to be enabled then 3 x16 Primary Cable Kit (P56073-B21)must be selected..

Secondary Riser:

Notes:

- Bus Width Indicates the number of physical electrical lanes running to the connector.
- There are 2 types of risers support on Secondary Slot
- x16 cards installed on x8 slots could observe sub-optimal performance.

Secondary Riser1					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**	**Notes**
4	PCIe 5.0	X8	X16	Full-height,full-length slot	Proc 2
5	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 2
6	PCIe 5.0	X8	X16	Full-height,half-length slot	Proc 2

Secondary Riser2					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**	**Notes**
4*	NA	NA	NA	NA	NA
4	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 2
5	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 2
6	PCIe 5.0	X16	X16	Full-height,half-length slot	Proc 2

Notes: * If Slot 4 of HPE DL380 Gen11 2U 3x16 Sec Riser Kit needs to be enabled then 3 x16 Secondary Cable Kit (P56074-B21) must be selected.

Tertiary Riser

Notes:

- Bus Width Indicates the number of physical electrical lanes running to the connector.
- There is 1 type of riser supported on the Tertiary Slot
- x16 cards installed on x8 slots could observe sub-optimal performance.

Tertiary Riser1 (default)					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**	**Notes**
7	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 2
8	PCIe 4.0	X16	X16	Full-height,full-length slot	Proc 2

Tertiary Riser1 (with Optional Tertiary Riser FIO x8 Enablement Kit P53632-B21)					
Slots #	**Technology**	**Bus Width**	**Connector Width**	**Slot Form Factor**	**Notes**
7	PCIe 5.0	X16	X16	Full-height,full-length slot	Proc 2
8	PCIe 5.0	X8	X16	Full-height,full-length slot	Proc 2

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Standard Features

Graphics

Integrated Video Standard

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

Maximum Internal Storage

Drive	Capacity	Configuration
Hot Plug SFF SAS HDD	91.2 TB	24+8+6 x 2.4TB
Hot Plug SFF SAS SSD	583.3 TB	24 +8+6 15.35TB
Hot Plug SFF SATA HDD	76 TB	24+8+6 x 2 TB
Hot Plug SFF SATA SSD	291.84 TB	24 +8+ 6 x 7.68 TB
Hot Plug LFF SAS HDD	360 TB	12+4+4x 18 TB (with optional rear LFF drive cage)
Hot Plug LFF SATA HDD	360 TB	12+4+4 x 18 TB (with optional rear LFF drive cage)
Hot Plug SFF NVMe PCIe SSD	374.4 TB	24+ x 15.36TB + 6 x 960GB<10W (with optional rear Primary and Secondary 2SFF and rear 2SFF drive cages)

Internal Storage Devices

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

Power Supply

- HPE 1800W-2200W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Notes: 1 available in 96% efficiency.
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: 1 available in 94% efficiency.
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Notes: 1 available in 96% efficiency.
- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: 1 available in 94% efficiency.

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen11 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

The standard 6-foot IEC C-13/C-14 jumper cord (A0K02A) is included with each standard AC power supply option kit. If a different power cord is required, please check the **ProLiant Power Cables** web page. o 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**.

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Standard Features

Storage Controllers

The available Gen11 controllers are depicted below.

Software RAID Controller

- **Intel VROC SATA for HPE ProLiant Gen11**

  Notes:

  - All models feature an embedded storage controller, with embedded software SATA RAID support for up to 14 bays.
  - Intel VROC for HPE ProLiant Gen11 is an enterprise, hybrid Software RAID solution specifically designed for SSDs.
  - Intel VROC is a software-based solution utilizing Intel CPU to RAID or HBA direct connected drives.
  - RAID Support- 0/1/5/10.
  - Windows and Linux OS support.
  - Host Tools- Windows GUI/CLI, Linux CLI.
  - UEFI Support- HII Utility, OBSE.
  - iLO Support- IML, Alert, SNMP, AHS.
  - iLO Redfish- Redfish Read .
  - Intel VROC SATA for HPE ProLiant Gen11 will operate in UEFI mode only. For legacy support an additional storage controller will be needed.
  - Intel VROC SATA is off by default and must be enabled.

- **Intel VROC NVMe for HPE ProLiant Gen11**

  Notes:

  - All models feature 4 x8 PCIe 5.0 connectors per socket for NVMe connectivity, provides support for up to 8 direct attach x4 NVMe bays.
  - Only supported on SFF models.
  - Intel VROC for HPE ProLiant Gen11 is an enterprise, hybrid Software 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 Standard for RAID 0/1/10 (S0E37A/S0E38AAE) 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 Gen11 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.

Essential RAID Controller

- HPE Smart Array E208e-p SR Gen10 Controller

Tri-Mode Controller

- HPE MR416i-p Gen11 Controller
- HPE MR416i-o Gen11 Controller
- HPE MR216i-p Gen11 Controller
- HPE MR216i-o Gen11 Controller
- HPE MR408i-o Gen11 Controller
- HPE SR932i-p Gen11 Controller[1,2]

  Notes:

  - PE80xx NVMe drives are not supported.
  - [1]Requires x16 physical and electrical riser slot

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Standard Features

- [2]If second controller is required, must select secondary riser
- Controllers with cache require either P02377-B21 HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit or P01366-B21 HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit.

Interfaces

Serial	Optional, rear
Display Port	1 optional front display port via Universal Media Bay
VGA Port	1 standard, rear for all chassis. 1 Optional front display port (Via Universal Media Bay) **Notes:** Both ports are not active simultaneously.
Network Ports	None standard. Choice of OCP networking card or stand-up networking card required. BTO models will come pre-selected with a primary networking card.
HPE iLO Remote Management Network Port	1 Gb Dedicated, rear
Front iLO Service Port	1 standard (Not available when System Insight Display Kit is ordered)
USB 3.0	Up to 4 total: 1 front(3.0), 2 rear(3.0), 2 internal (secure – 1 – 3.0, 1 – 2.0), 1 optional USB 2.0 front via Universal Media Bay
Systems Insight Display (SID)	Optional **Notes:** Not shipping as standard. Available as a CTO option or as a field upgrade (P48819-B21).

Operating Systems and Virtualization Software Support for ProLiant Servers

See **HPE Servers Support & Certification Matrices** (For OS support for HBM, refer to the OS Certification Matrices.)

- **Microsoft Windows Server**
- **VMware ESXi This does not include support for Intel High Bandwidth Memory (HBM) processors.**
- **Red Hat Enterprise Linux (RHEL)**
- **SUSE Linux Enterprise Server (SLES)**
- **Canonical Ubuntu**
- **Oracle Linux and Oracle VM**

HPE Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen11 servers have a UEFI Class 2 implementation to support UEFI Mode.

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

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

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

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Standard Features

UEFI Boot Mode only

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

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

Industry Standard Compliance

- ACPI 6.3 Compliant
- PCIe 5.0 Compliant
- Wake on LAN (WoL) Support
- Microsoft® Logo certifications
- PXE Support
- VGA
- Display Port
  Notes: This support is on the optional Universal Media Bay.
- USB 3.0 Compliant
- USB 2.0 Compliant (via Universal Media Bay)
  Notes: This support is on the optional Universal Media Bay.
- Energy Star
- SMBIOS 3.2
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- TPM 1.20 and 2.0 Support
  Notes: Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature.
- Advanced Encryption Standard (AES)
- Triple Data Encrytion Standard (3DES)
- SNMP v3
- TLS 1.2
- DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP)
- Active Directory v1.0
- ASHRAE A3/A4
  Notes: For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please visit **DL380 Gen11 Extended Ambient Temperature Guidelines**
- European Union Erp Lot 9 Regulation
  Notes:
  - Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements.
  - HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.
  - Please visit: **https://www.hpe.com/us/en/about/environment/msds-specs-more.html** for more information regarding HPE Lot 9 conformance.
- UEFI (Unified Extensible Firmware Interface Forum) 2.7

Standard Features

Embedded Management

HPE Integrated Lights-Out (HPE iLO)
Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO.
Learn more at **http://www.hpe.com/info/iLO.**

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

Intelligent Provisioning
Hassle free server and OS provisioning for 1 or more servers with Intelligent Provisioning.
Learn more at **https://support.hpe.com/hpesc/public/docDisplay?docId=c04465280&docLocale=en_US**

iLO RESTful API
iLO RESTful API is DMTF Redfish API implementation and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi.**

OpenBMC Support
OpenBMC Capable through iLO6 Transfer of Ownership Process.
Learn more at **OpenBMC Support**

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

Smart Update
Keep your servers up to date with the HPE Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP).

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

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

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

Scripting Tools
Provision one to many servers using your own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at **http://www.hpe.com/servers/powershell**.

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

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Standard Features

HPE GreenLake for Compute Ops Management

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

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

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

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

Security

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

Warranty

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

Notes: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
https://www.hpe.com/us/en/search-results.html?page=1&q=servers%20warranty&autocomplete=0.

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Optional Features

Server Management

HPE iLO Advanced

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

HPE OneView Advanced

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

HPE InfoSight for Servers

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

HPE Insight Cluster Management Utility (CMU)

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

One Config Simple (OCS/SCE)

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

Rack and Power Infrastructure

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

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

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

HPE Uninterruptible Power Systems are cost-effective power protection for any type workload. Some UPSs include options for remote management and extended runtime modules so you're critical dense data center is covered in power outages.
HPE KVM Solutions include a console and switches designed to work with your server and IT equipment reliably. We've got a cost-effective KVM switch for your first rack and multiple connection IP switches with remote management and security capabilities to keep your data center rack up and running.

Learn more about HPE Racks, KVM, PDUs and UPSs at **HPE Rack and Power Infrastructure**.

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Service and Support

HPE Pointnext - Service and Support

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

Consume IT on your terms

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

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

Managed services to run your IT operations

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

Recommended Services

HPE Pointnext Tech Care.

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

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

HPE Pointnext Complete Care

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

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

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

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Service and Support

Other related Services

HPE Server Hardware Installation
Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw

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

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

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

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HPE products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

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

HPE Education Services
Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**

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Service and Support

HPE Support Center

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

Learn more **http://www.hpe.com/support/hpesc**

The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.
Notes: *HPE Support Center Mobile App is subject to local availability.

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

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

Parts and Materials

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

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

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

Pre-Configured Models

Worldwide & Japan BTO Models			
SKU Number	P52560-B21 P52560-291 P52560-421	P52562-B21 P52562-291 P52562-421	P58417-B21 P58417-291
Model Name	HPE ProLiant DL380 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server	HPE ProLiant DL380 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R NC 12LFF 800W PS Server	HPE ProLiant DL380 Gen11 6430 2.1GHz 32-core 1P 32GB-R NC 8SFF 1000W PS Server
Chassis	8SFF NC CTO Server (P52534-B21)	12LFF NC CTO Server (P52533-B21)	8SFF NC CTO Server (P52534-B21)
Processor **Number of Processors**	4410Y (12 core, 2.0GHz, 150W) One with standard heatsink	4410Y (12 core, 2.0GHz, 150W) One with standard heatsink	6430 (32-core, 2.1GHz, 270W) One with high performance heatsink
Memory	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)	64 GB RDIMM 2R 4800 MT/s (2x 32 GB)
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery	Embedded SW RAID with 14 SATA ports (12-ports accessible), choice of HPE modular Smart Array and PCIe plug-in controller.	Embedded SW RAID with 14 SATA ports (12-ports accessible), choice of HPE modular Smart Array and PCIe plug-in controller.
Hard Drive	None Included	None Included	None Included
Internal Storage	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)	12 LFF CTO Server	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)
PCIe Slots	3-slots (x8, x16, x8) as standard; upgradeable to 8-slots in a 2 processor configuration		
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291) 1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291) 1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
Fans	4 - Standard	4 - Standard	6 – High Performance
Management	HPE iLO 6	HPE iLO 6	HPE iLO 6
Rail Kit	SFF Easy Install Rail Kit; cable management arm	SFF Easy Install Rail Kit; cable management arm	SFF Easy Install Rail Kit; cable management arm
Energy Star	Energy Star 3.0	Energy Star 3.0	Energy Star 3.0
Form Factor	2U Rack	2U Rack	2U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.		

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Pre-Configured Models

Worldwide & Japan BTO Models

SKU Number	P52561-B21 P52561-291 P52561-421	P52564-B21 P52564-291 P52564-421	P60636-B21 P60636-291 P60636-421
Model Name	HPE ProLiant DL380 Gen11 5416S 2.0GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server (-B21 & - 291)	HPE ProLiant DL380 Gen11 5415+ 2.9GHz 8-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server (-B21 & -291)	HPE ProLiant DL380 Gen11 4416+ 2.0GHz 20-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server (-B21 & -421)
	HPE ProLiant DL380 Gen11 5416S 2.0GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server (-421)	HPE ProLiant DL380 Gen11 5415+ 2.9GHz 8-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server (-421)	HPE ProLiant DL380 Gen11 4416+ 2.0GHz 20-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server (-421)
Chassis	8SFF NC CTO Server (P52534-B21)	8SFF NC CTO Server (P52534-B21)	8SFF NC CTO Server (P52534-B21)
Processor	5416S (16 core, 2.0GHz, 150W)	5415+ (8 core, 2.9GHz, 150W)	4416+ (20-core, 2.0GHz, 165W)
Number of Processors	One with standard heatsink	One with standard heatsink	One with high performance heatsink
Memory	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)
Network Controller	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery
Hard Drive	None Included	None Included	None Included
Internal Storage	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)
PCIe Slots	3-slots (x8, x16, x8) as standard; upgradeable to 8-slots in a 2 processor configuration		
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291)
	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)
Fans	4 - Standard	4 - Standard	4 - Standard
Management	HPE iLO 6	HPE iLO 6	HPE iLO 6
Rail Kit	SFF Easy Install Rail Kit; cable management arm	SFF Easy Install Rail Kit; cable management arm	SFF Easy Install Rail Kit; cable management arm
Energy Star	Energy Star 3.0	Energy Star 3.0	Energy Star 3.0
Form Factor	2U Rack	2U Rack	2U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.		

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Pre-Configured Models

Worldwide & Japan BTO Models

SKU Number	P60637-B21 P60637-291 P60637-421	P60638-B21 P60638-291 P60638-421
Model Name	HPE ProLiant DL380 Gen11 6426Y 2.5GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server (-B21 & - 291) HPE ProLiant DL380 Gen11 6426Y 2.5GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 1000W PS Server (-421)	HPE ProLiant DL380 Gen11 5418Y 2.0GHz 24-core 1P 64GB-R MR408i-o NC 8SFF 800W PS Server (-B21 & -291) HPE ProLiant DL380 Gen11 5418Y 2.0GHz 24-core 1P 64GB-R MR408i-o NC 8SFF 1000W PS Server (-421)
Chassis	8SFF NC CTO Server (P52534-B21)	8SFF NC CTO Server (P52534-B21)
Processor	6426Y (16 core, 2.0GHz, 185W)	5418Y (24 core, 2.0GHz, 185W)
Number of Processors	One with high-performance heatsink	One with high-performance heatsink
Memory	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)
Network Controller	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery
Hard Drive	None Included	None Included
Internal Storage	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)
PCIe Slots	3-slots (x8, x16, x8) as standard; upgradeable to 8-slots in a 2 processor configuration	
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291)
	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)
Fans	4 - Standard	4 - Standard
Management	HPE iLO 6	HPE iLO 6
Rail Kit	SFF Easy Install Rail Kit; cable management arm	SFF Easy Install Rail Kit; cable management arm
Energy Star	Energy Star 3.0	Energy Star 3.0
Form Factor	2U Rack	2U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.	

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Pre-Configured Models

China BTO Models	
SKU Number	P60740-AA1
Model Name	HPE ProLiant DL380 Gen11 4416+ 2.0GHz 20-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server
Chassis	8SFF NC CTO Server (P52534-B21)
Processor	4416+ (20 core, 2.1GHz, 150W)
Number of Processors	One with standard heatsink
Memory	32 GB RDIMM 2R 4800 MT/s (1x 32 GB)
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery
Hard Drive	None Included
Internal Storage	8 SFF CTO Server (upgradeable to 24 SFF front + 2SFF rear)
PCIe Slots	
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-B21 & -291)
	1x HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (-421)
Fans	4 - Standard
Management	HPE iLO 6
Rail Kit	SFF Easy Install Rail Kit; cable management arm
Energy Star	Energy Star 3.0
Form Factor	2U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.

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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 installable option.
- All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
- Some options may not be integrated at the factory. Contact your local sales representative for additional information.

Step 1: Base Configuration (choose one (1) of the following four (4) configurable server models from the tables below)
The below (4) CTO server models, denoted with "NC" in the SKU description, provide flexibility in the networking choice and require a network adapter from the "HPE Networking" section be selected.

Networking Choice CTO Server Models	HPE ProLiant DL380 Gen11 8LFF NC CTO Server	HPE ProLiant DL380 Gen11 12LFF NC CTO Server	HPE ProLiant DL380 Gen11 8SFF NC CTO Server	HPE ProLiant DL380 Gen11 24SFF NC CTO Server
SKU Number	P52532-B21	P52533-B21	P52534-B21	P52535-B21
TAA SKU*	P52532-B21#GTA	P52533-B21#GTA	P52534-B21#GTA	P52535-B21#GTA
HPE Trusted Supply Chain	P36394-B21 – Optional			
Processor	Not included as standard	Not included as standard	Not included as standard	Not included as standard
DIMM Slots	32-DIMM slots	32-DIMM slots	32-DIMM slots	32-DIMM slots
Storage Controller	Embedded SW RAID with 14 SATA ports (12-ports accessible), choice of HPE modular Smart Array and PCIe plug-in controller.			
PCIe	Three standard in primary riser			
Drive Cage - available	8 LFF	12 LFF	8 SFF (8SFF U.3 x1)	24 SFF (3x 8SFF U.3 x1)

Configuration Information

Network Controller	Choice of either OCP 3.0 or select stand-up network adapters for primary networking selection plus additional/optional stand-up network adapters **Notes:** No embedded networking			
Fans	4-Standard	4-Standard	4-Standard	6-High Performance
Management	HPE iLO with Intelligent Provisioning (standard), iLO Advanced and OneView (optional)			
USB	4x 3.0 standard plus iLO front service port	4x 3.0 standard plus iLO front service port	4x 3.0 standard plus iLO front service port	4x 3.0 standard plus iLO front service port
Networking Choice CTO Server Models	HPE ProLiant DL380 Gen11 12EDSFF NC Configure-to-order Server			
SKU Number	P52536-B21			
TAA SKU*	P52536-B21#GTA			
HPE Trusted Supply Chain	P36394-B21 - Optional			
Processor	Not included as standard			
DIMM Slots	32-DIMM slots			
Storage Controller	Embedded SW RAID with 14 SATA ports (12-ports accessible), choice of HPE modular Smart Array and PCIe plug-in controller			
PCIe	Three standard in primary riser			
Drive Cage - available	12 EDSFF			
Network Controller	Choice of either OCP 3.0 or select stand-up network adapters for primary networking selection plus additional/optional stand-up network adapters **Notes:** No embedded networking			
Fans	6 -Standard			
Management	HPE iLO with Intelligent Provisioning (standard), iLO Advanced and OneView (optional)			
USB	4x 3.0 standard plus iLO front service port			

Notes:

- Network Choice (NC) server models require a networking selection of a network adapters in the "HPE Networking" section.
- HPE Trusted Supply Chain (P36394-B21) is an optional security upgrade intended for agencies and regulated industries needing enhanced security and compliance needs. Applying this option to a DL380 Gen11 CTO server ensures it is built in the USA in a secured facility by vetted HPE personnel assigned to the manufacturing processes. A multitude of checkpoints/inspections for malicious microcode and counterfeit parts are performed throughout the server build, and additional safeguards are put in place against cyber-exploits throughout the server lifecycle. The HPE ProLiant DL380 Gen11 is re-branded as a HPE ProLiant DL380T Gen11 to denote the HPE Trusted Supply Chain security enhancements. The DL380T is Trade Agreement Act (TAA) compliant. See "HPE Security" section within this document for more detail and learn more at **http://www.hpe.com/security**
- *HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed in a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).
- All CTO servers are Energy Star 3.0 compliant.

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Configuration Information

CTO Server	8 SFF CTO Chassis	24 SFF CTO Chassis	8 LFF CTO Chassis	12 LFF CTO Chassis
Available Drive Cage	8SFF U.3 x1 Drive Cage	3x 8SFF U.3 x1 Drive Cage	8 LFF (2x 4LFF Drive Cages)	12 LFF (3x 4LFF Drive Cages)
Universal Media Bay	1 Optional	Not available	Not available	Not available
Optical Disk Drive	1 Optional with UMB	Not available	1 Optional with ODD Enable Kit	Not available
8 SFF NVMe/SAS/SATA Drive Cage	Up to 3 Optional	Not available	Not available	Not available
2 SFF NVMe/SAS/SATA (Front)	1 Optional with UMB	Not available	1 Optional with Side-by-Side Drive Cage	Not available
2 SFF NVMe/SAS/SATA (Rear)	3 Optional	3 Optional	1 Optional	1 Optional
2 LFF SAS/SATA (Rear riser)	Not available	Not available	2 Optional	2 Optional

CTO Server	EDSFF CTO Chassis
Available Drive Cage	12 EDSFF Drive Cage
Universal Media Bay	Not supported
Optical Disk Drive	Not supported
8 SFF NVMe/SAS/SATA Drive Cage	Up to 1 Optional
2 SFF NVMe/SAS/SATA (Front)	Not supported
2 SFF NVMe/SAS/SATA (Rear)	1 Optional
2 LFF SAS/SATA (Rear riser)	Not available

Notes: This applies to CTO configurations; field upgrades may differ depending on field configuration.

Step 2: Choose Required Options

Please select up to two processors required below.

Notes:

- 8SFF, 8LFF, and 12LFF CTO models ship with 4 standard fans.
- 24 SFF CTO Servers ship with 6 High performance fans included. Maximum Performance fan kit is available to meet ambient temperature environments and are required for rear drives or NVMe configurations.
- Maximum memory capacity per processor is dependent on processor models. All processors support up to 4TB max memory per processor.
- Mixing of 2 different processor models are NOT allowed.
- Processors with TDP greater than 150W require High Performance Heatsink (P48818-B21).
- Q series processors require Max Performance Heat Sink (P48817-B21)
- DDR5 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

Step 2a: Choose Processors

Processor Option Kits (Required Processor)

4th Generation Intel Xeon-Platinum

Notes:

- All SKUs below ship with processor only. Adequate fans and heatsinks must be selected.
- Processors with TDP equal to or greater than 150W require High Performance Heatsink (P48818-B21)
- Q series processors require Max Performance Heat Sink (P48817-B21)
- 8470Q processor is not supported with 12LFF CTO Server and 24SFF CTO Server.

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Configuration Information

Intel Xeon-Platinum 9462 2.7GHz 32-core 350W Processor for HPE P49645-B21

Notes:

- This is Intel High Bandwidth Memory (HBM) CPU.
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

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

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8480+ 2.0GHz 56-core 350W Processor for HPE P49607-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8470Q 2.1GHz 52-core 350W Processor for HPE P49609-B21

Notes:

- Requires Max Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8470 2.0GHz 52-core 350W Processor for HPE P49606-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8470N 1.7GHz 52-core 300W Processor for HPE P49649-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8468V 2.4GHz 48-core 330W Processor for HPE P49631-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8468 2.1GHz 48-core 350W Processor for HPE P49605-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8462Y+ 2.8GHz 32-core 300W Processor for HPE P49603-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8458P 2.7GHz 44-core 350W Processor for HPE P49632-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Platinum 8460Y+ 2.0GHz 40-core 300W Processor for HPE P49604-B21

Notes:

- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

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Configuration Information

Intel Xeon-Platinum 8452Y 2.0GHz 36-core 300W Processor for HPE P49616-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

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

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

4th Generation Intel Xeon-Gold

Intel Xeon-Gold 6458Q 3.1GHz 32-core 350W Processor for HPE P49608-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

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

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6448Y 2.1GHz 32-core 225W Processor for HPE P49600-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6444Y 3.6GHz 16-core 270W Processor for HPE P49602-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6442Y 2.6GHz 24-core 225W Processor for HPE P49599-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6438N 2.0GHz 32-core 205W Processor for HPE P49638-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6438Y+ 2.0GHz 32-core 205W Processor for HPE P49615-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6434 3.7GHz 8-core 195W Processor for HPE P49601-B21

Notes: Requires High Performance Heat Sink

Intel Xeon-Gold 6430 2.1GHz 32-core 270W Processor for HPE P49614-B21

Notes:
- Requires High Performance Heat Sink
- Requires High Performance Fan Kit

Intel Xeon-Gold 6426Y 2.5GHz 16-core 185W Processor for HPE P49598-B21

Notes: Requires High Performance Heat Sink

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Configuration Information

Intel Xeon-Gold 6454S 2.2GHz 32-core 270W Processor for HPE	P49654-B21
Notes: – Requires High Performance Heat Sink – Requires High Performance Fan Kit	
Intel Xeon-Gold 6421N 1.8GHz 32-core 185W Processor for HPE	P49641-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 6418H 2.1GHz 24-core 185W Processor for HPE	P49621-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 6416H 2.2GHz 18-core 165W Processor for HPE	P49620-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 6414U 2.0GHz 32-core 250W Processor for HPE	P49619-B21
Notes: – This is a single socket CPU, max allowed = 1 – Requires High Performance Heat Sink – Requires High Performance Fan Kit	
Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W Processor for HPE	P49597-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 5416S 2.0GHz 16-core 150W Processor for HPE	P49653-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 5418N 1.8GHz 24-core 165W Processor for HPE	P49640-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 5418Y 2.0GHz 24-core 185W Processor for HPE	P49612-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Gold 5420+ 2.0GHz 28-core 205W Processor for HPE	P49613-B21
Notes: – Requires High Performance Heat Sink – Requires High Performance Fan Kit	
Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W Processor for HPE	P49597-B21
Notes: – Requires Standard Heat Sink – 4th Generation Intel Xeon-Silver	
Intel Xeon-Gold 5411N 1.9GHz 24-core 165W Processor for HPE	P49639-B21
Notes: Requires High Performance Heat Sink	
Intel Xeon-Silver 4410Y 2.0GHz 12-core 150W Processor for HPE	P49610-B21
Notes: Requires Standard Heatsink	
Intel Xeon-Silver 4416+ 2.0GHz 20-core 165W Processor for HPE	P49611-B21
Notes: – Requires Standard Heatsink – 4th Generation Intel Xeon-Bronze	
Intel Xeon-Bronze 3408U 1.8GHz 8-core 125W Processor for HPE	P49617-B21
Notes: Requires Standard Heatsink	

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Configuration Information

Step 2b: Choose Memory Options

Please select one or more memory from below.
For new Gen11 memory population rule whitepaper and optimal memory performance guidelines, please go to:
HPE Memory Population Rules
For details on the HPE Server Memory Options Population Rules, please go to:
Memory population rules for HPE Gen11 servers with 4th Generation Intel Scalable Processors

Notes:

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

Registered DIMMs DDR5 (RDIMMs)

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43322-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43328-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43331-B21
HPE 96GB 2Rx4 PC5-4800B-R Smart Kit	P66675-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43334-B21
HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43337-B21

Notes:

- 4800 MT/s memory SKUs offer a transfer rate of 4800 MT/s at 1 DIMM per channel and 4400 MT/s at 2 DIMMs per channel
- Mixing of 3DS memory and non-3DS memory is not supported
- Mixing of x4 and x8 memory is not allowed
- Memory with larger than 128GB capacity will need High Performance Fan Kit (P48820-B21) and ambient limitation. 256GB DIMM will also need to limit the maximum front-end cage to two.
- If 96GB or higher density memory is selected then High Performance Fan Kit must be selected.
- 96GB memory cannot be mixed with any other memory.
- 96GB memory configuration must be either 8 or 16 only on 1 processor unit.
- 96GB memory configuration must be either 16 or 32only on 2 processor unit.

Memory Blank Kit

HPE DDR4 DIMM Blank Kit	P07818-B21

Notes: DIMM Blanks are optional and not required.

Step 2c: Choose Power Supplies

Select one or two power supplies from below.
Notes: Mixing of 2 different power supplies is NOT allowed.

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Configuration Information

HPE Flex Slot Power Supplies

HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit	P44712-B21
HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	P38997-B21
HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit	P17023-B21
HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit	P03178-B21
HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	P38995-B21

Notes:

- Select a minimum (1), maximum (2) power supplies.
- 1600W Power supplies only support high line voltage (200VAC to 240VAC).
- Prior to making a power supply selection it is highly recommended that the HPE Power Advisor is run to determine the right size power supply for your server configuration. The HPE Power Advisor is located at: **http://www.hpe.com/info/hppoweradvisor**.
- All power supplies in a server should match.
- Mixing Power Supplies is not supported.
- HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). Visit **HPE power cords** for a full list of optional power cords.
- Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output.
- HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements. HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.

Step 3: Choose Additional Factory Integratable Options

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

HPE Security Options

HPE iLO Common Password FIO Setting	P08040-B21

Notes:

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

HPE Bezel Lock Kit	875519-B21

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

HPE ProLiant DL3XX Gen11 Intrusion Cable Kit	P48922-B21

Notes: This option must be selected if HPE Trusted Supply Chain SKU (P36394-B21) is selected.

HPE Gen11 2U Bezel Kit	P50400-B21

Factory Instructions and Server Settings

HPE ProLiant DL380 Gen11 20EDSFF FIO Bundle Kit	P56076-B21

Notes:

- If this NVMe Bundle/ EDSFF Bundle is selected then Qty 1 of High Performance Fan Kit must be selected.
- If NVMe Bundle/ EDSFF Bundle is selected then Second Processor must be selected.
- For 12EDSFF CTO Server, If EDSFF Bundle is selected then Max Quantity of 256GB Memory is limited to 16.
- EDSFF Drive cage supports Direct attach Only and requires selection of EDSFF Bundle.
- If EDSFF Bundle is selected then Qty1 of HPE DL380 Gen11 12EDSFF CPU1/2 Cbl Kit must be selected

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Configuration Information

- If EDSFF Bundle is selected then Qty2 of HPE DL380/DL560 G11 2U 12EDSFF NVMe Kit must be selected.
- EDSFF Bundle is supported with 12EDSFF CTO Server Only.
- If EDSFF Bundle is selected then OCP1 x16 Enablement Kit AND OCP2 x16 Enablement Kit AND CPU1 OCP2 x8 Enable kit cannot be selected.
- If EDSFF Bundle is selected then Tertiary Riser cannot be selected.
- If EDSFF Bundle is selected then HPE DL380 Gen11 x16/x16/x16 Prim Cbl Kit AND HPE DL380 Gen11 x16/x16/x16 Sec Cbl Kit cannot be selected.
- If 20EDSFF Bundle is selected then Maximum 20 EDSFF Drives only can be selected.

HPE ProLiant DL380 Gen11 32NVMe Balanced FIO Bundle Kit P53639-B21

Notes:

- If NVMe bundle is selected then default stoarge controller cannot be selected.
- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cbl Kit must be selected.
- If this NVMe Bundle/ EDSFF Bundle is selected then Qty 1 of High Performance Fan Kit must be selected.
- If 24NVMe Bundle/ 32NVMe Bundle is selected then Qty 3 (min/max) of 8SFF U.3 x4 cage must be selected.
- If 24NVMe Bundle/ 32NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Pri Rsr must be selected.
- If 24NVMe Bundle/ 32NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 SEC Rsr must be selected.
- If 24NVMe Bundle/ 32NVMe Bundle is selected then Qty 1 of OCP1 x16 Enablement Kit must be selected.
- If 24NVMe Bundle/ 32NVMe Bundle is selected then Qty 1 of OCP2 x16 Enablement Kit must be selected.
- If 24NVMe Bundle/ 32NVMe Bundle is selected then Qty 1 of HPE Gen4 Re-timer/-p Cable Kit must be selected.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If NVMe Bundle/ EDSFF Bundle is selected then Second Processor must be selected.
- If 24NVMe/ 32NVMe Bundle is selected then Tertiary Riser cannot be selected.
- For 8SFF CTO Server, 8SFF U.3 x4 Mid Tray requires selection of 32NVMe Bundle or SR932i controller.
- If 32NVMe Bundle is selected then Qty 1 (min/max) of HPE DL380 G11 2U 8SFF x4 U.3 Mid TM Kit must be selected.
- If 32NVMe Bundle is selected then Qty 4 of HPE DL385 Gen10+ 12Gb NVMe 2p Adptr must be selected.

HPE ProLiant DL380 Gen11 8NVMe Balanced FIO Bundle Kit P53633-B21

Notes:

- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cable Kit (P48825-B21) must be selected and defaulted.
- If this NVMe Bundle is selected then Qty 1 of High Performance Fan Kit (P48820-B21) must be selected and defaulted.
- If 8NVMe Bundle is selected then Qty 1 (min) of 8SFF U.3 x4 drive must be selected.
- If NVMe Bundle is selected then 8SFF U.3 x4 Cage is defaulted.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If NVMe Bundle is selected then Second Processor must be selected.
- If 8SFF U.3 x1 Cage is selected along with 8 OR 16 NVMe bundle then controller must be selected.

HPE ProLiant DL380 Gen11 16NVMe Balanced FIO Bundle Kit P53634-B21

Notes:

- If NVMe bundle is selected then defaulted Controller has to be deselected.

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Configuration Information

- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cable Kit (P48825-B21) must be selected and defaulted.
- If this NVMe Bundle is selected then Qty 1 of High Performance Fan Kit (P48820-B21) must be selected and defaulted.
- If 16NVMe Bundle is selected then Qty 2 (min) of 8SFF U.3 x4 drive cage must be selected.
- If NVMe Bundle is selected then 8SFF U.3 x4 drive cage will be defaulted.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If 16NVMe/ 24NVMe Bundle is selected then Universal Media Bay kit cannot be selected.
- If NVMe Bundle is selected then Second Processor must be selected.
- If Tertiary Riser is selected along with 16NVMe Bundle then 2x16 Tertiary FIO x8 Enable Kit (P53632-B21) must be selected
- If 8SFF U.3 x1 drive cage (P48813-B21) is selected along with 8 OR 16 NVMe bundle then controller must be selected.

HPE ProLiant DL380 Gen11 24NVME Balanced I/O FIO Bundle Kit P53635-B21

Notes:

- If NVMe bundle is selected then defaulted Controller has to be deselected.
- If NVMe Bundle is selected then 8SFF U.3 x1 drive cage (P48813-B21) cannot be selected.
- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cable Kit (P48825-B21) must be selected and defaulted.
- If this NVMe Bundle is selected then Qty 1 of High Performance Fan Kit (P48820-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 3 (min) of 8SFF U.3 x4 drives must be selected.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Primary Riser (P48803-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Secondary Riser (P51083-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of OCP1 x16 Enablement Kit (P48827-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of OCP2 x16 Enablement Kit (P48828-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 2 of HPE DL385 Gen10+ 12Gb NVMe 2p Adapter (P25527-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE Gen4 Re-timer/-p Cable Kit must be selected and defaulted.
- If NVMe Bundle is selected then 8SFF U.3 x4 drive cage will be defaulted.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If 16NVMe/ 24NVMe Bundle is selected then Universal Media Bay kit cannot be selected.
- If NVMe Bundle is selected then Second Processor must be selected.
- If 24NVMe Bundle is selected then Tertiary Riser cannot be selected.
- If 24NVMe Balanced or 24NVMe DIFF IO-3 Bundle is selected then CPU1 OCP2 x8 enablement OR CPU2 OCP2 x8 enablement kit cannot be selected.
- If 24NVMe Bundle is selected then Primary 3 x16 Cable OR Secondary 3 x16 Cable cannot be selected.

HPE ProLiant DL380 Gen11 24NVME Differential I/O OCP1/2 x8 FIO Bundle Kit P53636-B21

Notes:

- If NVMe bundle is selected then defaulted Controller has to be deselected.
- If NVMe Bundle is selected then 8SFF U.3 x1 drive cage (P48813-B21) cannot be selected.
- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cable Kit (P48825-B21) must be selected and defaulted.

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Configuration Information

- If this NVMe Bundle is selected then Qty 1 of High Performance Fan Kit (P48820-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 3 (min) of 8SFF U.3 x4 drive cage must be selected.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Primary Riser (P48803-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 x8x16x8 Secondary Riser (P48802-B21)must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL300 Gen11 CPU1 OCP2 x8 Enable kit (P51911-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL385 Gen10+ 12Gb NVMe 2p Adapter (P25527-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE Gen4 Re-timer/-p Cable Kit (P54874-B21) must be selected and defaulted.
- If NVMe Bundle is selected then 8SFF U.3 x4 drive cage will be defaulted.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If 16NVMe/ 24NVMe Bundle is selected then Universal Media Bay kit cannot be selected.
- If NVMe Bundle is selected then Second Processor must be selected.
- If Tertiary Riser is selected along with 16NVMe Bundle then 2x16 Tertiary FIO x8 Enable Kit (P53632-B21) must be selected
- If 24NVMe Diff IO-1 bundle is selected then OCP1 x16 enablement Kit and OCP2 x16 enablement kit and CPU2 OCP2 x8 enablement Kit cannot be selected.
- If 24NVMe Bundle is selected then Pri 3 x16 Cable OR Sec 3 x16 Cable cannot be selected.

HPE ProLiant DL380 Gen11 24NVME Differential I/O OCP1 x16 FIO Bundle Kit P53637-B21

Notes:

- If NVMe bundle is selected then defaulted Controller has to be deselected.
- If NVMe Bundle is selected then 8SFF U.3 x1 drive cage (P48813-B21) cannot be selected.
- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cable Kit (P48825-B21) must be selected and defaulted.
- If this NVMe Bundle is selected then Qty 1 of High Performance Fan Kit (P48820-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 3 (min) of 8SFF U.3 x4 drive cage must be selected.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Primary Riser (P48803-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 x8x16x8 Secondary Riser (P48802-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of OCP1 x16 Enablement Kit (P48827-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL385 Gen10+ 12Gb NVMe 2p Adapter (P25527-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE Gen4 Re-timer/-p Cable Kit (P54874-B21) must be selected and defaulted.
- If NVMe Bundle is selected then 8SFF U.3 x4 drive cage will be defaulted.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If 16NVMe/ 24NVMe Bundle is selected then Universal Media Bay kit cannot be selected.
- If NVMe Bundle is selected then Second Processor must be selected.
- If 24NVMe Bundle is selected then Tertiary Riser cannot be selected.
- If 24NVMe Diff IO-2 bundle is selected then OCP2 x16 enablement kit and CPU2 OCP2 enablement Kit OR CPU1 OCP2 x8 enablement Kit OR OCP2 x16 enablement cannot be selected.
- If 24NVMe Bundle is selected then Pri 3 x16 Cable OR Sec 3 x16 Cable cannot be selected.

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Configuration Information

HPE ProLiant DL380 Gen11 24NVME Differential I/O OCP1/2 x16 FIO Bundle Kit P53638-B21

Notes:

- If NVMe bundle is selected then defaulted Controller has to be deselected.
- If NVMe Bundle is selected then 8SFF U.3 x1 drive cage (P48813-B21) cannot be selected.
- If this NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 8NVMe CPU1/2 Cable Kit (P48825-B21) must be selected and defaulted.
- If this NVMe Bundle is selected then Qty 1 of High Performance Fan Kit (P48820-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 3 (min) of 8SFF U.3 x4 drive cage must be selected.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Primary Riser (P48803-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 x8x16x8 Secondary Riser (P51083-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of OCP1 x16 Enablement Kit (P48827-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of OCP2 x16 Enablement Kit (P48828-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 2 of HPE DL385 Gen10+ 12Gb NVMe 2p Adapter (P25527-B21) must be selected and defaulted.
- If 24NVMe Bundle is selected then Qty 1 of HPE Gen4 Re-timer/-p Cable Kit (P54874-B21) must be selected and defaulted.
- If NVMe Bundle is selected then 8SFF U.3 x4 drive cage will be defaulted.
- NVMe Bundle is supported with 8SFF CTO Server Only.
- If 16NVMe/ 24NVMe Bundle is selected then Universal Media Bay kit cannot be selected.
- If NVMe Bundle is selected then Second Processor must be selected.
- If 24NVMe Bundle is selected then Tertiary Riser cannot be selected.
- If 24NVMe Balanced or 24NVMe DIFF IO-3 Bundle is selected then CPU1 OCP2 x8 enablement OR CPU2 OCP2 x8 enablement kit cannot be selected
- If 24NVMe Bundle is selected then Pri 3 x16 Cable OR Sec 3 x16 Cable cannot be selected.

HPE iLO Common Password FIO Setting P08040-B21

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

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

Notes:

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

HPE Converged Infrastructure Management Software

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

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

vSAN ReadyNode

- 3, 6, 8 or 16 node vSAN Clusters (3 node minimum)
- HW is optimized for vSAN
- VMware vSAN Advanced LTU bundled

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

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Core Options

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

Software as a Service Management

HPE GreenLake for Compute Ops Management

Base SKU

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

Upgrade SKUS

HPE GreenLake for Compute Ops Management Enhanced 1-year Upfront ProLiant SaaS R7A10AAE

HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS R7A12AAE

HPE OneView

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

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

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

HPE GreenLake for Compute Ops Management Base SaaS R6Z73AAE

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

HPE Unique Options

HPE ProLiant DL380 Gen11 12EDSFF Drive Cage Kit P48808-B21

Notes:

- This is the 12EDSFF drive cage.
- This drive cages holds a maximum of 12 single thickness EDSFF drives
- Currently available for Factory Install Only orders and not available for standalone or upgrade ordering.

HPE ProLiant DL380 Gen11 2SFF U.3 Primary/Secondary Riser Cage Kit P48810-B21

Notes:

- 2SFF drive cage for rear in Primary or Secondary riser position.
- This Drive cage can be selected with 8SFF CTO Server and 24SFF CTO Server Only.
- For 8SFF/ 24SFF CTO Server, Max = 2.

HPE ProLiant DL380 Gen11 2SFF U.3 HDD Stacking Drive Cage Kit P48811-B21

Notes:

- This is a 2SFF drive cage for front or rear. For a front mount it installs into Universal Media Bay.
- This drive cage supports controller and Direct Attach. If Direct Attached then it will support NVMe Drives only
- For 8SFF CTO Server, Max = 2.

HPE ProLiant DL380 Gen11 2SFF U.3 Side-by-Side Drive Cage Kit P48812-B21

Notes:

- This is 2SFF side-by-side drive cage for the 8LFF CTO server only.
- This Drive cage supports controller and Direct Attach. If Direct Attached then it will support NVMe drives only.
- Max = 1

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Core Options

HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit P48813-B21

Notes:

- This is a 8SFF U.3 x1 front drive cage.
- This drive cage can be selected with 8SFF CTO Server Only.
- Max = 3
- If Qty3 of 8SFF Front cage is selected then High Performance Fan Kit (P48820-B21) must be selected.
- This Drive cage supports controller and Direct Attach. If Direct Attached then it will support SATA Drives only and connects to SATA port on motherboard.

HPE ProLiant DL380 Gen11 8SFF U.3 Premium Drive Cage Kit P48814-B21

Notes:

- This is a 8SFF U.3 x4 front drive cage.
- This Drive cage can be selected with 8SFF CTO Server Only.
- Max = 3
- If Qty3 is selected then High Performance Fan Kit (P48820-B21) must be selected.
- This drive cage supports controller and Direct Attach. If Direct Attached then it will support NVMe Drives only.

HPE ProLiant DL380 Gen11 4LFF SAS/SATA 12G LP Midplane Drive Cage Kit P48809-B21

Notes:

- This is the 4LFF mid-tray drive cage.
- This drive cage holds a maximum of 4LFF drives.
- Max 16LFF SAS/SATA is possible when storage controller is selected
- Max 14LFF SATA is possible if mid-tray is direct connected to motherboard

HPE ProLiant DL380 Gen11 8SFF x1 Tri-Mode 24G U.3 BC Midplane Drive Cage Kit P48815-B21

Notes:

- This is the 8SFF U.3 x1 mid-tray drive cage.
- This drive cage holds a maximum of 8 SAS/SATA/NVMe drives.

HPE ProLiant DL380 Gen11 2U 8SFF x4 U.3 Mid Tray Tri-Mode Drive Cage Kit P48816-B21

Notes:

- This is the 8SFF U.3 x4 mid-tray drive cage.
- This drive cage holds a maximum of 8 SAS/SATA/NVMe drives.

HPE ProLiant DL380 Gen11 2LFF Primary Riser Cage Kit P48823-B21

Notes:

- This is a 2LFF drive cage for the rear Primary Riser position.
- This Drive cage supports controller and Direct Attach. If Direct Attached then it will support SATA Drives only and connects to SATA port on motherboard.
- Max = 1
- This drive cage can be selected with 8LFF CTO Server and 12LFF CTO Server Only.

HPE ProLiant DL380 Gen11 2LFF Tertiary Riser Cage Kit P48826-B21

Notes:

- This is a 2LFF drive cage for the rear Secondary + Tertiary Riser position.
- Max = 1

HPE ProLiant DL380 Gen11 SFF Universal Media Bay Kit P50728-B21

Notes:

- This is the Universal Media Bay, it occupies an 8SFF drive cage slot on the front of the 8SFF CTO server.
- The Universal Media Bay can be selected with the 8SFF CTO Server only.

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Core Options

HPE ProLiant DL380 Gen11 2LFF LP Secondary Riser Cage Kit P51095-B21

Notes:
- This is a 2LFF drive cage for the rear Primary Riser position.
- Max = 1
- This drive cage can be selected with 8LFF CTO Server and 12LFF CTO Server Only.

HPE ProLiant DL380/DL560 Gen11 2U High Performance Fan Kit P48820-B21

Notes:
- If Processor above 205W is selected then High Performance Fan Kit is required.
- If 128GB or higher memory is selected then High Performance Fan Kit is required.
- If quantity 3 of front drive cage is selected, then High Performance Fan Kit is required.
- If NVMe is selected, then High Performance Fan Kit is required.
- 24SFF CTO server comes with High Perfromance Fan Kit installed.

HPE ProLiant DL380 Gen11 Max Performance Heat Sink Kit P48817-B21

Notes:
- If Q series Processor is selected then Max Performance Heat Sink is required.
- Max = 1

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

Notes:
- If Processor above 150W is selected then High Performance Heat Sink is required.
- Number of Heat Sinks selected must match number of processor(s) selected.

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

Notes: This is a low profile high performance heatsink, this is only used when storage mid-tray is selected.

HPE ProLiant DL380 Gen11 Standard Heat Sink Kit P49145-B21

Notes: Standard heatsinl is for CPUs with 150W or lower TDP.

HPE ProLiant DL380/DL560 Gen11 2U Rear Serial Port Cable Kit P48824-B21

HPE ProLiant DL380 Gen11 System Insight Display Kit P48819-B21

Notes: Max = 1

HPE Processors

Processor Option Kits

4th Generation Intel Xeon-Platinum

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

Intel Xeon-Platinum 9462 2.7GHz 32-core 350W Processor for HPE P49645-B21

Notes: This is Intel High Bandwidth Memory (HBM) CPU.

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

Intel Xeon-Platinum 8480+ 2.0GHz 56-core 350W Processor for HPE P49607-B21

Intel Xeon-Platinum 8470Q 2.1GHz 52-core 350W Processor for HPE P49609-B21

Intel Xeon-Platinum 8470 2.0GHz 52-core 350W Processor for HPE P49606-B21

Intel Xeon-Platinum 8470N 1.7GHz 52-core 300W Processor for HPE P49649-B21

Intel Xeon-Platinum 8468V 2.4GHz 48-core 330W Processor for HPE P49631-B21

Intel Xeon-Platinum 8468 2.1GHz 48-core 350W Processor for HPE P49605-B21

Intel Xeon-Platinum 8458P 2.7GHz 44-core 350W Processor for HPE P49632-B21

Intel Xeon-Platinum 8460Y+ 2.0GHz 40-core 300W Processor for HPE P49[illegible]

Intel Xeon-Platinum 8452Y 2.0GHz 36-core 300W Processor for HPE P49[illegible]

Intel Xeon-Platinum 8444H 2.9GHz 16-core 270W Processor for HPE P49[illegible]

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Core Options

4th Generation Intel Xeon-Gold

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

Intel Xeon-Gold 6458Q 3.1GHz 32-core 350W Processor for HPE	P49608-B21
Intel Xeon-Gold 6448H 2.4GHz 32-core 250W Processor for HPE	P49622-B21
Intel Xeon-Gold 6448Y 2.1GHz 32-core 225W Processor for HPE	P49600-B21
Intel Xeon-Gold 6444Y 3.6GHz 16-core 270W Processor for HPE	P49602-B21
Intel Xeon-Gold 6442Y 2.6GHz 24-core 225W Processor for HPE	P49599-B21
Intel Xeon-Gold 6438N 2.0GHz 32-core 205W Processor for HPE	P49638-B21
Intel Xeon-Gold 6438Y+ 2.0GHz 32-core 205W Processor for HPE	P49615-B21
Intel Xeon-Gold 6434 3.7GHz 8-core 195W Processor for HPE	P49601-B21
Intel Xeon-Gold 6430 2.1GHz 32-core 270W Processor for HPE	P49614-B21
Intel Xeon-Gold 6454S 2.2GHz 32-core 270W Processor for HPE	P49654-B21
Intel Xeon-Gold 6426Y 2.5GHz 16-core 185W Processor for HPE	P49598-B21
Intel Xeon-Gold 6414U 2.0GHz 32-core 250W Processor for HPE	P49619-B21

Notes: Single socket capable, no dual socket support.

Intel Xeon-Gold 6421N 1.8GHz 32-core 185W Processor for HPE	P49641-B21
Intel Xeon-Gold 6418H 2.1GHz 24-core 185W Processor for HPE	P49621-B21
Intel Xeon-Gold 6416H 2.2GHz 18-core 165W Processor for HPE	P49620-B21
Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W Processor for HPE	P49597-B21
Intel Xeon-Gold 5416S 2.0GHz 16-core 150W Processor for HPE	P49653-B21
Intel Xeon-Gold 5418N 1.8GHz 24-core 165W Processor for HPE	P49640-B21
Intel Xeon-Gold 5418Y 2.0GHz 24-core 185W Processor for HPE	P49612-B21
Intel Xeon-Gold 5420+ 2.0GHz 28-core 205W Processor for HPE	P49613-B21
Intel Xeon-Gold 5411N 1.9GHz 24-core 165W Processor for HPE	P49639-B21

4th Generation Intel Xeon-Silver

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

Intel Xeon-Silver 4410Y 2.0GHz 12-core 150W Processor for HPE	P49610-B21
Intel Xeon-Silver 4416+ 2.0GHz 20-core 165W Processor for HPE	P49611-B21

4th Generation Intel Xeon-Bronze

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

Intel Xeon-Bronze 3408U 1.8GHz 8-core 125W Processor for HPE	P49617-B21

Memory Selection

To streamline the configuration process for HPE ProLiant Gen11 servers and to provide the best product availability, HPE recommends memory from the list located here: **http://www.hpe.com/products/recommend**.
Best product availability is limited to US, Canada, and Latin America at this time.

Notes:

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

HPE DDR5 Memory

Registered DIMMs (RDIMMs)

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43322-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43328-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43331-B21

Core Options

HPE 96GB 2Rx4 PC5-4800B-R Smart Kit	P66675-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43334-B21
HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43337-B21

Notes:

- Memory should be installed in even quantity of DIMMs
- 4800 MT/s memory SKUs offer a transfer rate of 4800 MT/s at 1 DIMM per channel and 4400 MT/s at 2 DIMMs per channel
- Mixing of 3DS memory and non-3DS memory is not supported
- Mixing of x4 and x8 memory is not allowed
- If 96GB or higher density memory is selected then High Performance Fan Kit must be selected.
- 96GB memory cannot be mixed with any other memory.
- 96GB memory configuration must be either 8 or 16 only on 1 processor unit.
- 96GB memory configuration must be either 16 or 32only on 2 processor unit.

HPE DDR Blank Kit

HPE DDR4 DIMM Blank Kit	P07818-B21

Notes: DIMM Blanks are optional and not required.

HPE Optical Drives

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

Notes: HPE DL38X Gen11 Universal Media Bay Kit (P50728-B21) is required for this option on a SFF model. No support in 12 LFF or 24 SFF models.

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

Notes: HPE DL38X Gen11 Universal Media Bay Kit (P50728-B21) is required for this option on a SFF model. No support in 12 LFF or 24 SFF models.

HPE Mobile USB DVD-RW Optical Drive	701498-B21

Notes: This is only supported on USB 3.0 ports.

Media Bay Kits

HPE ProLiant DL380 Gen11 SFF Universal Media Bay Kit	P50728-B21

Notes:

- The HPE DL380 Gen11 Universal Media bay provides front Display Port and 2xUSB 2.0; plus support for 2x SFF front drives or 2 NVME front drives (riser required) and ODD support (Not included); and can only be located in Box1 in either an 8 SFF or 8+8 SFF model.
- This is a SFF model option only.
- Not supported on 12EDSFF, 24SFF, 12FF, or 8LFF CTO servers.

HPE Hard Disk Drives

Mission Critical - 12G SAS - SFF Drives

HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Self-encrypting FIPS HDD	P28618-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Self-encrypting FIPS HDD	P28622-B21

Enterprise - 12G SAS - SFF Drives

HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 1TB SAS 12G Business Critical 7.2K SFF BC 1-year Warranty HDD	P53560-B21
HPE 900GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P40502-B21
HPE 600GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P53560-B21

Core Options

HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P53561-B21
HPE 300GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P28028-B21
HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P40430-B21
Midline - 12G SAS - SFF Drives	
HPE 2TB SAS 12G Business Critical 7.2K SFF BC 1-year Warranty 512e HDD	P28505-B21
Midline - 6G SATA - SFF Drives	
HPE 2TB SATA 6G Business Critical 7.2K SFF BC 1-year Warranty 512e HDD	P28500-B21
HPE 1TB SATA 6G Business Critical 7.2K SFF BC 1-year Warranty HDD	P28610-B21
Midline - 12G SAS - LFF Drives	
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 18TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P37669-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 14TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	P09155-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21
HPE 10TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e ISE Multi Vendor HDD	P53556-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861746-B21
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833926-B21
Midline - 6G SATA - LFF Drives	
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 18TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P37678-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 14TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	P09165-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 10TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e ISE Multi Vendor HDD	P53557-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861742-B21
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21

SSD Selection

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

Read Intensive – NVMe - EDSFF - Solid State Drives

HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57799-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57803-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57807-B21

Notes: Selection of PM1743 EDSFF drives with VMware requires the selection of HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device(P48183-B21) for booting.

Read Intensive - 24G SAS - SFF - Solid State Drives

HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Self-encrypting FIPS PM6 SSD	P41399-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Self-encrypting FIPS PM6 SSD	P41398-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21

Core Options

Read Intensive - 12G SAS - SFF - Solid State Drives	
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21
Mixed Use - 24G SAS - SFF - Solid State Drives	
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-B21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Self-encrypting FIPS PM6 SSD	P41401-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21
HPE 800GB SAS 24G Mixed Use SFF BC Self-encrypting FIPS PM6 SSD	P41400-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
Mixed Use - 12G SAS - SFF - Solid State Drives	
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
Very Read Optimized - 6G SATA - SFF - Solid State Drives	
HPE 7.68TB SATA 6G Very Read Optimized SFF BC 5400 SSD	P58228-B21
Read Intensive - 6G SATA - SFF - Solid State Drives	
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC PM893 SSD	P44010-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58240-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC PM893 SSD	P44009-B21
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21
HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 480GB SATA 6G Read Intensive SFF BC PM893 SSD	P44007-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 960GB SATA 6G Read Intensive SFF BC PM893 SSD	P44008-B21
HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40496-B21
Mixed Use - 6G SATA - SFF - Solid State Drives	
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58248-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC PM897 SSD	P44013-B21
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 960GB SATA 6G Mixed Use SFF BC PM897 SSD	P44012-B21
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 480GB SATA 6G Mixed Use SFF BC PM897 SSD	P44011-B21
Read Intensive - 12G SAS - LFF –Solid State Drives	
HPE 7.68TB SAS 24G Read Intensive LFF LPC Multi Vendor SSD	P49030-B21
Mixed Use - 12G SAS - LFF –Solid State Drives	
HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37008-B21

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Core Options

Very Read Optimized - 6G SATA - LFF - Solid State Drives	
HPE 7.68TB SATA 6G Very Read Optimized LFF LPC 5400 SSD	P58232-B21
Read Intensive - 6G SATA - LFF - Solid State Drives	
HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21
Read Intensive - NVMe - SFF - Solid State Drives	
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64848-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47847-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64846-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41403-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50219-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47846-B21
HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64844-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41402-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 1.9TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47845-B21
HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64842-B21
HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47844-B21
Mixed Use - NVMe - SFF - Solid State Drives	
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47840-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65015-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41405-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47839-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65007-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41404-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47838-B21
HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P64999-B21
HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47837-B21

Hard Drive Blank Kits	
HPE Gen9 LFF HDD Spade Blank Kit	807878-B21
HPE Small Form Factor Hard Drive Blank Kit	666987-B21
Hard Drive Cage Kits	
HPE ProLiant DL380 Gen11 12EDSFF Drive Cage Kit	P48808-B21
Notes: Currently available as Factory Install Only and not available for standalone or upgrade ordering.	
HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit	P48813-B21
HPE ProLiant DL380 Gen11 8SFF U.3 Premium Drive Cage Kit	P48814-B21
HPE ProLiant DL380 Gen11 SFF Universal Media Bay Kit	P50728-B21
HPE ProLiant DL380 Gen11 2SFF U.3 HDD Stacking Drive Cage Kit	P48811-B21
HPE ProLiant DL380 Gen11 2SFF U.3 Side-by-Side Drive Cage Kit	P48812-B21

Core Options

HPE ProLiant DL380 Gen11 2SFF U.3 Primary/Secondary Riser Cage Kit	P48810-B21
HPE ProLiant DL380 Gen11 8SFF x1 Tri-Mode 24G U.3 BC Midplane Drive Cage Kit	P48815-B21
HPE ProLiant DL380 Gen11 2U 8SFF x4 U.3 Mid Tray Tri-Mode Drive Cage Kit	P48816-B21
HPE ProLiant DL380 Gen11 4LFF SAS/SATA 12G LP Midplane Drive Cage Kit	P48809-B21
HPE ProLiant DL380 Gen11 2LFF Primary Riser Cage Kit	P48823-B21
HPE ProLiant DL380 Gen11 2LFF LP Secondary Riser Cage Kit	P51095-B21
HPE ProLiant DL380 Gen11 2LFF Tertiary Riser Cage Kit	P48826-B21

HPE Networking

1 Gigabit Ethernet adapters

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

10 Gigabit Ethernet adapters

Notes: Unless otherwise noted, one of the below 10Gb networking adapters below can be selected as the primary networking choice when configuring a Networking Choice (NC) Configure-to-Order (CTO) chassis. The DL380 Gen11 NC CTO chassis does not come with embedded networking, hence the requirement to configure with either a FlexibleLOM or select PCIe networking adapter.

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

25 Gigabit Ethernet adapters

Notes: Unless otherwise noted, one of the below 10/25Gb networking adapters below can be selected as the primary networking choice when configuring a Networking Choice (NC) Configure-to-Order (CTO) chassis. The DL380 Gen11 NC CTO chassis does not come with embedded networking, hence the requirement to configure with either an OCP3 or select PCIe networking adapter.

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

100 Gigabit Ethernet Adapters

Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	P25960-B21

Recommended System Ambient Temperature

System Config	P25960-B21
8LFF	25C
24SFF	Not support
16SFF	25C
8SFF	25C

Other Restrictions

1. These cards are not supported with 12LFF CTO server and 24SFF CTO server config.
2. Required to use High Performance Fan Kit (P48820-B21)
3. Only supported on x16 physical and electrical slots.

Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21

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Core Options

Recommended System Ambient Temperature	
System Config	**P21112-B21**
8LFF	25C
24SFF	Not supported
16SFF	25C
8SFF	30C

Notes:

- This adapter requires High Performance Fan Kit (P48820-B21).
- Not supported on 8SFF CTO server with 3x drive cages.
- Not Supported with 24SFF and 12LFF CTO Servers.
- Only supported on x16 physical and electrical slots.

200 Gigabit Ethernet Adapters

Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE P10180-B21

Recommended Ambient Temparate	
System Config	**P10180-B21**
8LFF	25C
24SFF	25C (3 max)
16SFF	25C
8SFF	30C

200 Gigabit Slingshot Adapters

HPE Slingshot SA210S Ethernet 200Gb 1-port PCIe NIC R4K46A

Notes:

- Can only be selected or configured for a Cray or Slingshot Solution. Not allowed for a Non-Cray or Non-Slingshot Solution.
- Cannot have the following networking options configured within the same server: Slingshot 11 or Slingshot 22.

Storage Offload Adapters

HPE NV60100M 100Gb 2-port Storage Offload Adapter R8M41A

Notes: This storage offload adapter requires selection 2 each of either 100GbE QSFP28 PSM4 500m XCVR OR 100GbE QSFP28 SR4 100m XCVR transceivers OR HPE 100GbE QSFP28 to QSFP28 5m AOC.

OCP 3.0 Adapters

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

OCP 3.0 Enablement

HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit	P51911-B21
HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit	P48827-B21
HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit	P48828-B21
HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	P48830-B21

Core Options

DL380 Gen11 OCP 1 and OCP 2 Priority Support Matrix

OCP Slot Location	1 OCP Storage Controller (OROC) + 1OCP NIC	1 OCP NIC	2 OCP NICs	1 OCP Storage Controller (OROC)	2 OCP Storage Controllers (OROC)
OCP 1	OROC	N/A	OCP NIC	OROC (Higher priority)	OROC (Higher priority)
OCP 2 (with shared NIC and WoL)	OCP NIC	NIC (higher priority)	OCP NIC (higher priority)	N/A	OROC

HPE InfiniBand

HPE InfiniBand NDR200 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter P45642-B21

HPE InfiniBand NDR 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter P45641-B21

Notes:

- High Performance Fan Kit is required (P48820-B21).
- Must be populated in x16 physical and electrical slot.
- Ambient temperature should not exceed 25C.

HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter P31323-B21

Recommended Ambient Temparate	
System Config	**P31323-B21**
8LFF	25C (only to OCP2)
24SFF	Not supported
16SFF	25C (only to OCP2)
8SFF	30C (only to OCP2)

HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter P31348-B21

Recommended Ambient Temparate	
System Config	**P31323-B21**
8LFF	Not supported
24SFF	Not supported
16SFF	Not supported
8SFF	25C (only to OCP2)

Other Restrictions

1. High Performance Fan Kit is required (P48820-B21).
2. Not supported on 24SFF CTO server or 12LFF CTO server.
3. Ambient temperature should not exceed 25C.
4. OCP2 x16 Enablement Kit (P48828-B21) is required.
5. 256GB DIMMs not supported if these adapters are selected.
6. Max = 1Could observe sub-optimal performance if installed in x8 slot.

HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter P23664-B21

Recommended Ambient Temparate	
System Config	**P23664-B21**
8LFF	25C
24SFF	Not supported
16SFF	25C
8LFF	30C

Other Restrictions

1. High Performance Fan Kit is required (P48820-B21).
2. Must be populated in x16 physical and electrical slot.
3. Ambient temperature should not exceed 25C.

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Core Options

If configured for a Cray or Slingshot Solution, this option is to be used as the Slingshot 10 networking card.

HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter P31324-B21

Recommended System Ambient Temperature	
System Config	**P31324-B21**
8LFF	25C
24SFF	Not supported
16SFF	25C
8SFF	25C

Other Restrictions

1. High Performance Fan Kit is required (P48820-B21).
2. Not supported on 24SFF CTO server or 12LFF CTO server.
3. Must be populated in x16 physical and electrical slot.
4. Ambient temperature should not exceed 25C.

If configured for a Cray or Slingshot Solution, this option is to be used as the Slingshot 10 networking card.

HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter 829335-B21

Notes:

- High Performance Fan Kit is required (P48820-B21).
- Must be populated in x16 physical and electrical slot.

HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter P23665-B21

Notes: High Performance Fan Kit is required (P48820-B21).

HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter P23666-B21

Recommended Ambient Temparate		
System Config	**P23665-B21**	**P23666-B21**
8LFF	30C	25C
24SFF	30C	Not supported
16SFF	30C	25C
8SFF	30C	30C

Notes:

- High Performance Fan Kit is required (P48820-B21).
- Must be populated in x16 physical and electrical slot.
- If 2SFF drive cage is selected then Max = 2
- Max = 4

HPE I/O Expansion Options

Notes:

- The Primary Riser shipping default in the CTO server is a x8 FH, FL, x16 FH, FL and x8 FH, HL.
- For a Secondary/Tertiary riser, the second processor is required.
- x16 cards installed on x8 slots could observe sub-optimal performance.

HPE ProLiant DL380 Gen11 2U x16/x16/x16 Primary Riser Kit P48803-B21

Notes:

- Slot 1 - PCIe 5.0 x16 Full Height and Full Length
- Slot 2 - PCIe 5.0 x16 Full Height and Full Length
- Slot 3 - PCIe 5.0 x16 Full Height and Half Length
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 Pri Rsr must be selected and defaulted.
- If this Primary Riser is selected then default Primary Riser is replaced with this riser.

Core Options

- If Slot 1 of HPE DL380 Gen11 2U 3x16 Primary Riser Kit needs to be enabled then 3 x16 Primary Cable Kit (P56073-B21) must be selected.
- If Primary 3 x16 Cable Kit is NOT selected then only Slot 2 and Slot 3 will be available for PCIe card selection and no PCIe cards can be selected for Slot 1.

HPE ProLiant DL380 Gen11 2U x16/x16/x16 Secondary Riser Kit P51083-B21

Notes:

- Slot 4 - PCIe 5.0 x16 Full Height and Full Length
- Slot 5 - PCIe 5.0 x16 Full Height and Full Length
- Slot 6 - PCIe 5.0 x16 Full Height and Half Length
- When 2LFF Tertiary Cage is selected then Secondary and Tertiary Riser cannot be selected.
- When 2LFF Secondary Cage is selected then Secondary Riser cannot be selected.
- If 24NVMe Bundle is selected then Qty 1 of HPE DL380 Gen11 3x16 SEC Rsr must be selected and defaulted.
- If Slot 4 of HPE DL380 Gen11 2U 3x16 Secondary Riser Kit needs to be enabled then 3 x16 Secondary Cable Kit (P56074-B21) must be selected.
- If Secondary 3 x16 Cable Kit is NOT selected then only Slot 5 and Slot 6 will be available and no PCIe cards can be selected for Slot4.
- If Secondary OR Tertiary Riser is selected then Second Processor must be selected.
- Tertiary Riser and Secondary 3 x16 Riser cannot be selected together.

HPE ProLiant DL380 Gen11 2U Primary/Secondary NEBS-compliant Riser Kit P48805-B21

Notes:

- GPU and NEBS Riser cannot be selected together.
- When this reiser is selected it replaces the default Primary Riser.
- When Primary and Secondary NEBS risers are selected the Tertiary Riser cannot be selected.
- NEBS risers cannot be mixed with other non-NEBS risers.

HPE ProLiant DL380 Gen11 2U Secondary/Tertiary NEBS-compliant Riser Kit P48806-B21

Notes:

- This riser requires selection of second processor.
- GPU and NEBS Riser cannot be selected together.
- When Primary and Secondary NEBS risers are selected the Tertiary Riser cannot be selected.
- NEBS risers cannot be mixed with other non-NEBS risers.
- When 24 NVMe or 32 NVMe bundles are selected the Tertiary Riser cannot be selected.

HPE ProLiant DL380 Gen11 2U x8/x16/x8 Secondary Riser Kit P48802-B21

Notes:

- Slot 4 - PCIe 5.0 x8 Full Height and Full Length
- Slot 5 - PCIe 5.0 x16 Full Height and Full Length
- Slot 6 - PCIe 5.0 x8 Full Height and Half Length
- If quantity 1 of 2SFF Primary/Secondary Drive Cage is selected then HPE DL380 Gen11 x8x16x8 secondary riser is required.
- If quantity 1 of 2SFF Primary/Secondary Drive Cage is selected then top two slots (Slot 4 and Slot 5) of HPE DL380 Gen11 x8x16x8 Secondary Riser will be blocked by Drive Cage.
- If 2LFF Tertiary Drive Cage is selected then Secondary and Tertiary Riser cannot be selected.
- if 2LFF Secondary Drive Cage is selected then Secondary Riser cannot be selected.
- If 24NVMe Bundle is selected then quantity 1 of HPE DL380 Gen11 x8x16x8 secondary riser must be selected.
- If Secondary OR Tertiary Riser is selected then Second Processor must be selected.

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Core Options

HPE ProLiant DL380 Gen11 2U x16/x16 Tertiary Riser Kit P48804-B21

Notes:

- This is the tertiary riser.
- Slot 7 - PCIe 5.0 x16 Full Height and Full Length
- Slot 8 - PCIe 4.0 x16 Full Height and Full Length

HPE ProLiant DL380 Gen11 x16/x16/x16 Primary Cable Kit P56073-B21

HPE ProLiant DL380 Gen11 x16/x16/x16 Secondary Cable Kit P56074-B21

HPE ProLiant DL380 Gen11 2x16 Tertiary Riser x8 Enablement FIO Bundle Kit P53632-B21

Risers

Riser Information*

Part number	Description	Riser position			Bus width (Gen5 lanes)		
		Primary	Secondary	Tertiary	Top slot	Middle Slot	Bottom slot
N/A	This is the default riser in the chassis	D	N	N	x8	x16	x8
P48803-B21	HPE DL380 Gen11 x16/x16/x16 Primary Riser Kit	O	N	N	x16	x16	x16[1]
P51083-B21	HPE DL380 Gen11 x16/x16/x16 Secondary Riser Kit	N	O	N	x16	x16	x16[2]
P48802-B21	HPE DL38X Gen11 x8/x16/x8 Sec Riser Kit	N	O	N	x8	x16	x8
P48804-B21	HPE DL38X Gen11 2x16 Tertiary Riser Kit	N	N	O	x16	x16[3]	
P48805-B21	HPE ProLiant DL380 Gen11 2U Primary/Secondary NEBS-compliant Riser Kit	O	N	N	x8	x16	x8
P48806-B21	HPE ProLiant DL380 Gen11 2U Secondary/Tertiary NEBS-compliant Riser Kit	N	O	N	x8	x16	x8

Notes:

- D = Default on chassis; O = Optional; N = not supported or slot/connector not present.
- [1]Requires HPE DL380 Gen11 x16/x16/x16 Primary Cable Kit (P56073-B21)
- [2]Requires HPE DL380 Gen11 x16/x16/x16 Secondary Cable Kit (P56074-B21)
- [3]PCIe Gen4 lanes.
- x16 cards installed on x8 slots could observe sub-optimal performance.

HPE Power Supplies

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

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

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

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

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

Notes: Flex Slot Platinum Plus power supplies support power efficiency of up to 94% and include a C-14 power inlet connector that can support HPE Power Discovery Services (blue connector).

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Core Options

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

Notes: Requires selection of HPE 1600W DC PSU power lug option kit OR HPE 1600W DC PSU Power Cable Kit.

HPE 1600W -48VDC Power Cable Lug Kit P36877-B21

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

Notes:

- Flex Slot Platinum power supplies support power efficiency of up to 94% and are EU Lot 9 compliant.
- Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. HPE Flexible Slot power supplies are single-output, and part numbers 865438-B21, P03178-B21, and P44712-B21 are 96% efficient, thus meeting requirements. HPE is on target to fulfil compliant systems ahead of time and will begin enforcing these requirements in advance to satisfy requests with the current power supplies by the set deadline.

HPE Cooling Options

HPE ProLiant DL380/DL560 Gen11 2U High Performance Fan Kit P48820-B21

Notes:

- This kit is required for specific **Ambient temperature environments**.
- High Performance fan kit consists of 6 fans, these will need to replace all the standard fans in the unit, and fill all 6 fan cages.
- The 24 SFF CTO server will already include 6 High Performance fan kits.
- The High Performance fan kit is needed to support certain ASHRAE operating environments.
- For elevated ambient temperature support please see: **DL380 Gen11 Extended Ambient Temperature Guidelines**.

HPE ProLiant DL380 Gen11 Max Performance Heat Sink Kit P48817-B21

Notes: This kit is required for "Q" series processors.

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

Notes: This kit is CPUs with TDP over 150W.

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

Notes: This kit is a low profile high performance heatsink. This heatsink is required when a mid-tray storage cage is selected.

HPE ProLiant DL380 Gen11 Standard Heat Sink Kit P49145-B21

Notes: The standard heatsink is for CPUs with TDP equal to or lower than 150W.

HPE Direct Liquid Cooling Options for HPE ProLiant DL380 Gen11 (coming 2H23)

HPE ProLiant DL380 Gen11 Cold Plate Module NS204 Quick Disconnect Tube Set FIO Kit P62023-B21

Notes:

- This kit is the Direct Liquid Cooling Kit that uses the NS204i-u slot for connections
- If this option is selected the HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device(P48183-B21) cannot be selected.
- This kit contains 2 Cold Plate Modules and 1 Quick Disconnect Module.

HPE ProLiant DL3XX Gen11 Cold Plate Module FIO Kit from PCIe P62029-B21

Notes:

- This kit is the Direct Liquid Cooling Kit that uses a PCIe slot on the Primary Riser.
- If this option is selected the Primary Riser will have one less PCIe slot available for PCIe adapters. Please keep this in mind when considering total number of PCIe adapters required.
- This kit contains 2 Cold Plate Modules and 1 Quick Disconnect Module.

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Core Options

HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 600mm FIO Hose Kit	P62038-B21

Notes:

- This kit includes the 65CM tube kit for Direct Liqud Cooling.
- This kit must be selected when using the Direct Liquid Colling Kit in the NS204i-u slot (P62023-B21).

HPE ProLiant DL3XX Gen11 Direct Liquid Cooling 55cm Quick Disconnect Tube Set FIO Kit	P62042-B21

Notes:

- This kit includes the 55CM tube kit for Direct Liqud Cooling.
- This kit must be selected when using the Direct Liquid Colling Kit in the Primary Riser slot (P62029-B21).

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Additional Options

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

HPE Computation and Graphics Accelerators

NVIDIA H100 80GB PCIe Accelerator for HPE R9S41C

Notes:

- Max = 3
- Must be populated in x16 slot.
- System memory should be 2x of GPU memory.
- Requires selection of High Performance Fan Kit.
- This GPU requires HPE ProLiant DL380/DL560 Gen11 2U GPU Power Cable Kit - P56072-B21
- Not supported with 12LFF CTO Server, 24SFF CTO Server, or 8SFF CTO Server with 3x 8SFF drive cages.
- For 12EDSFF CTO Server, If no additional cage is selected then Max of 2 GPU can be selected per Server.
- On 12EDSFF CTO Server, when one additional 8SFF cage is selected with DLC Component then Max 1 GPU can be selected per sever.
- On 8SFF CTO Server, If Qty2 of 8SFF Front cage is selected with DLC Component then Max 1 GPU can be selected per sever.
- On 8SFF CTO Server, If Qty2 of 8SFF Front cage is selected without DLC Component then this GPU is not supported.
- For 12EDSFF CTO Server, when additional cages are selected without DLC Component then this GPU is not supported
- For 8LFF CTO Server, If NO DLC component is selected then this GPU is not supported.
- On 8LFF CTO Server, If DLC component is selected then Max 1 GPU can be selected per sever.
- If Qty1 of this GPU is selected then Secondary OR Tertiary Riser Must be selected.
- If Qty2 of this GPU is selected then Secondary AND Tertiary Riser Must be selected.

NVIDIA L40 48GB PCIe Accelerator for HPE S0K90C

Notes:

- Max = 3
- Must be populated in x16 slot.
- System memory should be 2x of GPU memory.
- Requires selection of High Performance Fan Kit.
- This GPU requires HPE ProLiant DL380/DL560 Gen11 2U GPU Power Cable Kit - P56072-B21
- On 8SFF CTO Server, if Qty2 of 8SFF Front cage is selected without DLC component then Max of 2 GPU can be selected per Server.
- On 8SFF CTO Server, if Qty1 of 8SFF Front cage is selected then Max of 3 GPU can be selected per Server.
- On 8LFF CTO Server, if NO DLC component is selected then Max of 2 GPU can be selected per Server
- On 8LFF CTO Server, if DLC component is selected then Max of 3 GPU can be selected per Server.
- On 12LFF CTO Server, 24SFF CTO Server, or 8SFF CTO Server with Qty3 8SFF drive cages if NO DLC component is selected then Max of 1 GPU can be selected per Server
- On 12LFF CTO Server, 24SFF CTO Server, or 8SFF CTO Server with Qty3 8SFF drive cages and DLC component is selected then Max of 2 GPU can be selected per Server.
- On 12EDSFF CTO Server, if one additional 8SFF cage is selected without DLC Component then Max 2 GPU can be selected per sever.
- On 12EDSFF CTO Server, if one additional 8SFF cage is selected with DLC Component then Max 3 GPU can be selected per sever.
- On 8SFF CTO Server, if Qty2 of 8SFF Front cage is selected with DLC component then Max of 3 GPU can be selected per Server.

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Additional Options

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

Notes:

- Max = 8
- System memory should be 2x of GPU memory.
- Requires selection of High Performance Fan Kit
- On 12LFF CTO Server, 24SFF CTO Server, or 8SFF CTO Server with Qty3 8SFF drive cages are selected without DLC component then Max of 5 can be selected per server

NVIDIA A16 64GB PCIe Non-CEC Accelerator for HPE R8T26C

Notes:

- Max = 3
- System memory should be 2x of GPU memory.
- This GPU requires Pwr Cable Kit (P39102-B21) to also be selected.
- This GPU requires HPE DL380/DL560 G11 2U High Perf Fan Kit P48820-B21.
- Coming to Gen11 by end of April 2023.

NVIDIA A100 80GB PCIe Non-CEC Accelerator for HPE R9P49C

Notes:

- Max = 3
- System memory should be 2x of GPU memory.
- This GPU requires Pwr Cable Kit (P39102-B21) to also be selected.
- This GPU requires HPE DL380/DL560 G11 2U High Perf Fan Kit P48820-B21.
- Coming to Gen11 by end of April 2023.

HPE ProLiant DL300 Gen10 Plus GPU 8-pin Keyed Cable Kit P39102-B21

Notes:

- This GPU power cable is used for NVIDIA A16 and NVIDIA A100 GPUs.
- One power cable supports up to 3x GPUs

HPE ProLiant DL380/DL560 Gen11 2U GPU Power Cable Kit P56072-B21

Notes:

- This GPU power cable is used for NVIDIA H100 and NVIDIA L40 GPUs.
- One power cable supports up to 3x GPUs

GPU Information

HPE DL380 Gen11 Configuration

Part number	Card	Qty Supported	PCIe	8SFF	16SFF/8LFF	24SFF/12LFF
R9S41C	NVIDIA H100 80GB PCIe Accelerator	2 or 3	Gen5	2@25C (Air) 3@20C (DLC)	2 @ 20C (Air) 2 @ 25C (DLC)	Not supported
S0K90C	NVIDIA L40 48GB PCIe Accelerator	3	Gen4	3@25C(Air) 3@25C(DLC)	2@25C(Air) 3@25C(DLC)	1@25C(Air) 2@25C(DLC)
S0K89C	NVIDIA L4 24GB PCIe Accelerator	8	Gen4	8	8@25C(Air) 8@25C(DLC)	5@25C(Air) 8@25C(DLC)
R9P49C	NVIDIA A100 80GB PCIe NonCEC Accelerator	3	Gen4	30C	25C	Not supported
R8T26C	NVIDIA A16 64GB PCIe Non-CEC Accelerator for HPE	3	Gen4	30C	25C	Not supported

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Additional Options

Maximum GPU Support at 25C Ambient Temperature			
Qty SFF Drive Cages	**Cooling Method**	**NVIDIA A16**	**NVIDIA A100**
1 drive cage	Air Cooled + Heatsink	3	3
2 drive cages	Air Cooled + Heatsink	2	2
3 drive cages	Air Cooled + Heatsink	1	
1 drive cage	Direct Liquid Cooling	3	3
2 drive cages	Direct Liquid Cooling	3	3
3 drive cages	Direct Liquid Cooling	2	

Embedded Management

HPE iLO Common Password FIO Setting

HPE iLO Common Password FIO Setting P08040-B21

Notes:

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

HPE ILO Advanced

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

HPE Converged Infrastructure Management Software

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

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

HPE Security

HPE Trusted Supply Chain for HPE ProLiant P36394-B21

Notes:

- HPE Trusted Supply Chain (P36394-B21) is an optional security upgrade intended for agencies and regulated industries needing enhanced security and compliance needs. Applying this option to a DL380 Gen11 CTO server ensures it is built in the USA in a secured facility by vetted HPE personnel assigned to the manufacturing processes. A multitude of checkpoints/inspections for malicious microcode and counterfeit parts are performed throughout the server build, and additional safeguards are put in place against cyber-exploits throughout the server lifecycle. The HPE ProLiant DL380 Gen11 is re-branded as a HPE ProLiant DL380T Gen11 to denote the HPE Trusted Supply Chain security enhancements. The DL380T Gen11 is Trade Agreement Act (TAA) compliant.Learn more at **http://www.hpe.com/security**
- This option requires the selection of HPE Gen11 Intrusion Detection Kit (P48922-B21)

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Additional Options

- This option requires the selection of either HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features (BD505A) or HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features (512485-B21)
- This option is limited to stand-alone DL380 Gen11 CTO servers only. The HPE Trusted Supply Chain configuration will not be available if the server is ordered as factory integrated into a rack
- One instance of the following Electronic License to Use is required per order (not per server): R6X85AAE
- HPE Trusted Supply Chain E-LTU
- Logistics delivery speeds and services are available and selectable within Next Gen Quoter.
- This option cannot be selected with TAA instruction SKU nor TAA CTO Models

HPE iLO Common Password FIO Setting P08040-B21

Notes:

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

HPE Gen11 2U Bezel Kit P50400-B21

HPE Bezel Lock Kit 875519-B21

Notes: Requires the bezel kit

HPE Boot Controllers

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

Notes:

- This is the NS204i-u hot pluggable boot device
- Default is NVMe are internal to system and not hot pluggable
- If external accessible drives are needed please add trigger SKU P54542-B21 HPE ProLiant DL380 Gen11 NS204i-u FIO Bundle Kit. This trigger SKU allows NVMe drives to be externally accessible and hot pluggable.
- Max = 1

HPE ProLiant DL380 Gen11 NS204i-u Internal Cable Kit P52152-B21

Notes:

- If NS204i-u Gen11 Hot Plug Boot Option Device is selected then HPE DL380 Gen11 NS204i-u Internal Cable Kit is required.
- Max = 1

HPE ProLiant DL380 Gen11 NS204i-u FIO Bundle Kit P54542-B21

Notes:

- This SKU is required only when external accessible drives are required for the NS204i-u.
- Max = 1

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Additional Options

HPE Storage Controllers

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

HPE Tri-Mode Controllers

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

Notes: Requires x16 riser slot

Essential RAID Controllers

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

NVMe Adapter

HPE DL385 Gen10 Plus 12Gb NVMe 2-port Adapter	P25527-B21

HPE Cable Options

HPE ProLiant DL380 Gen11 12EDSFF CPU1/2 Cable Kit	P52153-B21
HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit	P48918-B21
HPE ProLiant DL380 Gen11 8SFF CPU1/2 NVMe Cable Kit	P48825-B21
HPE ProLiant DL380 Gen11 8SFF OROC1/2 x2 Cable Kit	P48829-B21
HPE ProLiant DL380 Gen11 2U Tri-Mode Premium Cable Kit	P48831-B21
HPE ProLiant DL380 Gen11 Tri-Mode Splitter Cable Kit	P48832-B21
HPE ProLiant DL380 Gen11 8SFF to Retimer/-P Controller Cable Kit	P54874-B21
HPE ProLiant DL380 Gen11 LFF Front Tri-Mode Cable Kit	P56995-B21

Optional Upgrades

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21

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

HPE Tape Backup

For the complete range of tape drives, autoloaders, libraries and media see:
https://www.hpe.com/us/en/storage/storeever-tape-storage.html For hardware and software compatibility of Hewlett Packard Enterprise tape backup products **http://www.hpe.com/storage/BURAcompatibility**

HPE Storage Options

Emulex Fibre Channel HBAs

HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A
HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	R2N77A
HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter	R2N78A

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Additional Options

QLogic Fibre Channel HBAs

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

HPE Racks

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

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.

Easy Install Rail Kits

Easy Install rail kits contain telescoping rails which allow for in-rack serviceability.
To assist in the installation of the server into the rack an optional installation tool is available by contacting your local services representative.
Notes: Hewlett Packard Enterprise recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit	P52341-B21

Notes: Does not include Cable Management Arm (CMA) (P22020-B21).

HPE DL38X Gen10 Plus 2U Cable Management Arm for Rail Kit	P22020-B21

Additional Options

HPE USB and SD Options

Notes:

- In vSphere 7.0, VMware made changes that impact the use of an SD Card/USB media as a standalone boot device and will be removing support for them after version 7.x.
- SD Card/USB media can still be used as a standalone boot option through all 7.x releases via published Customer Advisory **Usage of SD Card/USB Devices As Standalone Boot Devices Has Changed Due to System Storage Changes For VMware ESXi 7.0 (Or Later)**.
- For any major release beyond VMware ESXi 7.x, VMware will require M.2 or another local persistent device as the standalone boot option.

HPE USB Keyboard/Mouse Kits

HPE USB US Keyboard/Mouse Kit	631341-B21
HPE USB UK Keyboard/Mouse Kit	631344-B21
HPE USB FR Keyboard/Mouse Kit	631346-B21
HPE USB ES Keyboard/Mouse Kit	631348-B21
HPE USB DE Keyboard/Mouse Kit	631358-B21
HPE USB JP Keyboard/Mouse Kit	631360-B21
HPE USB IT Keyboard/Mouse Kit	631362-B21
HPE USB CN Keyboard/Mouse Kit	631364-B21
HPE USB AE Keyboard/Mouse Kit	638212-B21
HPE USB RU Keyboard/Mouse Kit	638214-B21
HPE USB SE Keyboard/Mouse Kit	672097-103
HPE USB CH Keyboard/Mouse Kit	672097-113
HPE USB PT Keyboard/Mouse Kit	672097-133
HPE USB TR Keyboard/Mouse Kit	672097-143
HPE USB CZ Keyboard/Mouse Kit	672097-223
HPE USB FI Keyboard/Mouse Kit	672097-353
HPE USB AP/INTL Keyboard/Mouse Kit	672097-373
HPE USB INTL Keyboard/Mouse Kit	672097-B33
HPE USB IN Keyboard/Mouse Kit	672097-D63
HPE USB KR Keyboard/Mouse Kit	672097-KD3

HPE Support Services

Installation & Startup Services

HPE Install ProLiant DL38x(p) Service	U4554E
HPE Installation and Startup DL38x(p) Service	U4555E

Tech Care Services

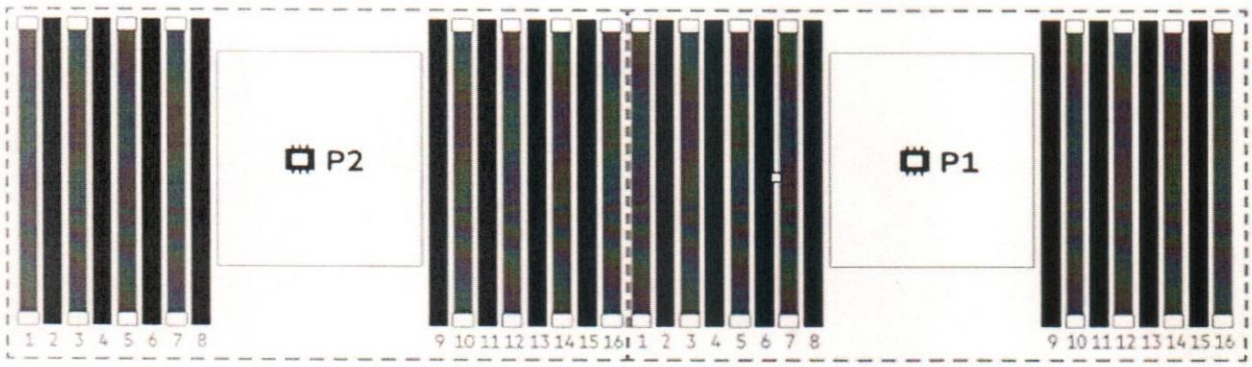
HPE 3 Year Tech Care Essential DL380 Gen11 HW Service	H93G4E
HPE 3 Year Tech Care Essential wDMR DL380 Gen11 HW Service	H93G5E
HPE 5 Year Tech Care Essential DL380 Gen11 HW Service	H93G6E
HPE 5 Year Tech Care Essential wDMR DL380 Gen11 HW Service	H93J0E

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

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Memory

Memory Population guidelines



HPE ProLiant DL380 Gen11

HPE ProLiant Gen11 16 slot per CPU DIMM population order

DIMM population order

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

Notes:

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

General Memory Population Rules and Guidelines:

- DIMMs should be installed in quantities of even numbers.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- Mixing of x4 and x8 memory is not allowed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed processors qualified on the platform.
- For details on the HPE Server Memory Options Population Rules, visit:
  Server memory populations rules for HPE Gen11 servers with 4th Gen Intel Xeon Scalable processors
- To realize the performance memory capabilities listed in this document, HPE DDR5 Smart Memory is required.
- For additional information, please see the **HPE DDR5 Smart Memory QuickSpecs**.

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Memory

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

HPE SKU P/N	P43334-B21	P43337-B21
SKU Description	HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit
DIMM Capacity	128GB	256GB
DIMM Rank	Quad Rank (4R)	Octal Rank (8R)
Voltage	1.1 V	1.1 V
DRAM Depth [bit]	4G	4G
DRAM Width [bit]	x4	x4
DRAM Density	16Gb	16Gb
CAS Latency	40-39-39	40-39-39
DIMM Native Speed	4800 MT/s	4800 MT/s

Notes: The maximum memory speed is a function of the memory type, memory configuration, and processor model. For details on the HPE Server Memory speed, visit: **https://www.hpe.com/docs/memory-speed-table**

DDR5 memory options part number decoder

Notes:

- Capacity references are rounded to the common gigabyte (GB) values.
  - 8GB = 8,192 MB
  - 16GB = 16,384 MB
  - 32GB = 32,768 MB
  - 64GB = 65,536 MB
  - 96GB = 98,304 MB
  - 128GB = 131072 MB
  - 256GB = 262144 MB
  - 512GB = 524288 MB

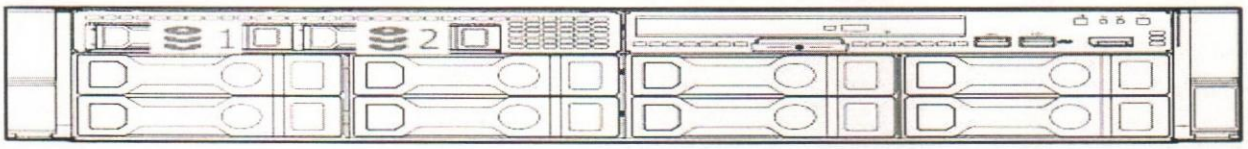
For more information on memory, please see the Memory Quickspecs: **HPE DDR5 Smart Memory**

Memory Speed Table for HPE ProLiantDL380 Gen Gen11

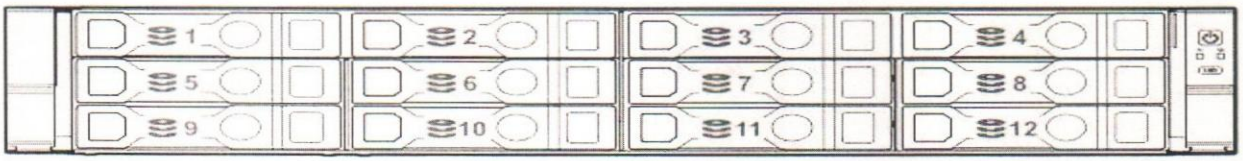
For details on the HPE Server Memory speed, please visit: **https://www.hpe.com/docs/memory-speed-table**

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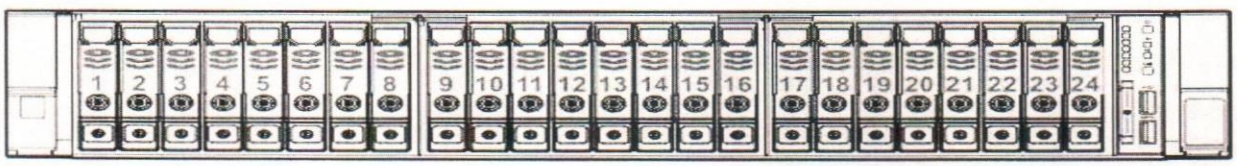
Storage

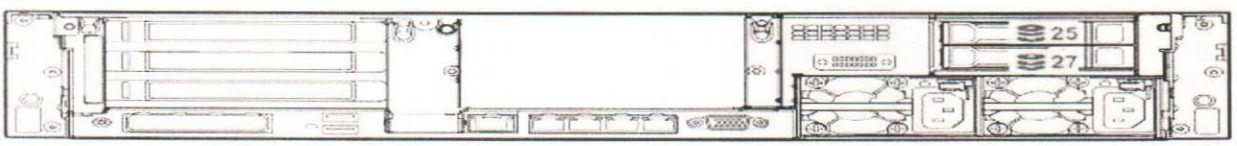


8LFF chassis with Universal media bay and optional 2SFF and optical drive shown



12 LFF chassis





24 SFF + rear 2 SFF drives

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Technical Specifications

System Unit

Dimensions

- **SFF CTO servers:**
  8.75 x 44.8 x 72.7. cm / 3.44 x 17.64 x 28.62 in
- **LFF CTO servers:**
  8.75 x 44.8 x 73.25 cm / 3.44 x 17.64 x 28.84 in

Weight (approximate)

- **Maximum:** 8 SFF hard drives (no rear drives), 2x processors, 2x power supplies, 1x Smart Array, 2x Risers installed)
  - **Maximum:** 33kg/72.75 lbs
  - **Minimum:** 16kg/35.27 lbs
- **Maximum:** 12 LFF hard drives (no rear drives), 2x processors, 2x power supplies, 1x Smart Array, 2x Risers installed)
  - **Maximum:** 37kg/81.57 lbs
  - **Minimum:** 18kg/39.68 lbs

Input Requirements (per power supply)

Rated Line Voltage

- For 1800W-2200W (Titanium) Power Supply: 200-240 VAC
- For 1600W (Platinum) Power Supply: 200-240 VAC
- For 800W (Titanium) Power Supply: 200-240 VAC
- For 800W (Platinum) Power Supply: 100-240 VAC
- For 800W (Universal) Power Supply: 200-277 VAC

BTU Rating

Maximum

- For 1800W-2200W Power Supply: 6497 BTU/hr (at 200 VAC), 6868 BTU/hr (at 208 VAC), 7230 BTU/hr (at 220 VAC), 7596 BTU/hr (at 230VAC), 7962 BTU/hr (at 240VAC)
- For 1600W Power Supply: 5918 BTU/hr (at 200 VAC), 5888 BTU/hr (at 220 VAC), 5884 BTU/hr (at 240 VAC)
- For 800W (Titanium) Power Supply: 2905 BTU/hr (at 200 VAC), 2899 BTU/hr (at 220 VAC), 2893 BTU/hr (at 240 VAC)
- For 800W (Platium) Power Supply: 3067 BTU/hr (at 100 VAC), 2958 BTU/hr (at 200 VAC), 2949 BTU/hr (at 240 VAC)
- For 800W (Universal) Power Supply: 2964 BTU/hr (at 200 VAC), 2951 BTU/hr (at 230 VAC), 2936 BTU/hr (at 277 VAC)

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..

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Technical Specifications

Power Supply Output

(per power supply)

Rated Steady-State Power

- For 1800W-2200W Power Supply: 1800W(at 200 VAC), 1900W(at 208 VAC), 2000W(at 220 VAC), 2100W(at 230VAC), 2200W(at 240VAC)
- For 1600W Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 800W (Universal) Power Supply: 800W (at 200 VAC), 800W (at 277 VAC)

Maximum Peak Power

- For 1800W-2200W Power Supply: 1800W(at 200 VAC), 1900W(at 208 VAC), 2000W(at 220 VAC), 2100W(at 230VAC), 2200W(at 240VAC)
- For 1600W Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 800W (Universal) Power Supply: 800W (at 200 VAC), 800W (at 277 VAC)

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: **DL380 Gen11 Extended Ambient Temperaure Guidelines**

  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: **DL380 Gen11 Extended Ambient Temperature Guidelines**

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

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

Altitude

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

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Technical Specifications

Acoustic Noise

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

Acoustic Noise	
Idle	
LwA,m	4.2 B Entry 4.2 B Base 4.2 B Performance
LpAm	28 dBA Entry 27 dBA Base 30 dBA Performance
Operating	
LwA,m	4.2 B Entry 4.2 B Base 4.2 B Performance
LpAm	29 dBA Entry 27 dBA Base 29 dBA Performance
Kv	0.4 B Entry 0.4 B Base 0.4 B Performance

Notes:

- The declared mean A-weighted sound power level, LwA,m, is computed as the arithmetic average of the measured.
- A-weighted sound power levels for a randomly selected sample, rounded to the nearest 0,1 B.
- The declared mean A-weighted emission sound pressure level, LpA,m, is computed as the arithmetic average of the measured A-weighted emission sound pressure levels at the bystander positions for a randomly selected sample, rounded to the nearest 1 dB.
- The statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LwA,m, such that there will be a 95 % probability of acceptance, when using the verification procedures of ISO 9296, if no more than 6,5 % of the batch of new equipment, has A-weighted sound power levels greater than (LwA,m + Kv).
- The quantity, LwA,c (formerly called LwAd), can be computed from the sum of LWA,m and Kv.
- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109.
- B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
- The results in this declaration apply only to the model numbers listed above when operating and tested according to the indicated modes and standards. A system with additional configuration components or increased operating functionality may increase the noise emission values.
- 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.

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Technical Specifications

Emissions Classification (EMC) – Regulatory Information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:
http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

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

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

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

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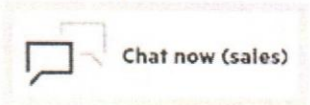
Summary of Changes

Date	Version History	Action	Description of Change
11-Sep-2023	Version 10	Changed	Standard Features section was updated
05-Sep-2023	Version 9	Changed	Overview, Standard Features, Configuration Information, Core Options and Memory sections were updated
24-Jul-2023	Version 8	Changed	Standard Features section was updated
10-Jul-2023	Version 7	Changed	Overview, Standard Features, Pre- Configured Models, Configuration Information and Core Options sections were updated
05-Jun-2023	Version 6	Changed	Overview, Standard Features, Pre- Configured Models, Configuration Information and Core Options sections were updated
01-May-2023	Version 5	Changed	Standard Features, Configuration Information, Core Options and Technical Specifications sections were updated.
03-Apr-2023	Version 4	Changed	Standard Features, Pre- Configured Models, Configuration Information, Core Options and Technical Specifications sections were updated.
06-Mar-2023	Version 3	Changed	Standard Features and Core Options sections were updated.
15-Feb-2023	Version 2	Changed	Standard Features section was updated
10-Jan-2023	Version 1	New	New QuickSpecs

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

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