HPE ProLiant Compute Gen12 rack and tower servers

Next-level security, performance, and efficiency

HPE DiGiCOR

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Compute for your hybrid world

HPE ProLiant Compute brings a new level of security, performance, and efficiency to IT operations. With the pressure to deploy AI applications and rethink virtualization strategies, IT needs advanced capabilities to maximize productivity and performance. With the addition of new Gen12 systems, Hewlett Packard Enterprise has a full, modern portfolio of hardware and software solutions that provide a secure foundation for the next generation of workloads while increasing power efficiency and streamlining operations. This guide will help you learn more about all these servers and how they can best help you in your journey.

Next-level security

Enterprise organizations live in constant fear of a data breach and its impact on operations, cost, performance, revenue, and reputation. They need to protect the data at all costs to address an unceasing and sophisticated threat landscape. Protect against attack with multilayer security.
HPE iLO multilayer silicon root of trust from HPE protects servers from manufacturing to end-of-life and provides compliance readiness for future quantum-computing attacks.

More performance and efficiency

Organizations cannot enable new use cases and workloads such as AI and edge while addressing inefficiencies with existing virtualization, on legacy infrastructure, and rising energy bills.

AI-driven productivity

Server operations can be inefficient, time-consuming, costly, and lack visibility and insights. Boost IT productivity with new AI-driven insights. Enable operators to react quicker and gain greater control, from forecasting energy costs to managing a global server footprint.

Secured: Deliver next-level security with built-in, industry-leading silicon root of trust from HPE iLO, to safeguard every phase of the server lifecycle now and for the future—from manufacturing to end of life.

A complete compute solution

Choose HPE rack and power infrastructure options to complete your foundation for a modern and optimized IT environment. HPE delivers the right value where it matters, with:

— Racks in a variety of height, width, and depth options

— Power distribution units (PDUs) ranging from enterprise to basic

— Various sizes of uninterruptable power supplies (UPSs)

— Kernel-based virtual machine solutions and other rack accessories

Optimized: The HPE ProLiant Compute portfolio is optimized for performance, efficiency, and cost with tailored solutions to power workloads from virtual desktop infrastructure (VDI) to AI. With ever-increasing power demands on data centers, purpose-built compute for AI and superior cooling innovations deliver energy efficiency without compromising performance or productivity. To help organizations make informed choices from pre-order to deployment, on-demand carbon footprint reporting is available only from HPE to support your sustainability initiatives.

Automated: Ensure smooth enterprise operations with proactive and predictive automation from data center to edge, leveraging a single management solution powered by AI-driven insights. Enable operators to react quicker and gain greater control, from forecasting energy costs to managing a global server footprint. Boost productivity of IT staff by quickly pinpointing problem areas through dashboards, intelligent alerts, and a global map view of all servers with status and activity.

HPE ProLiant MicroServer family
Affordable, compact, yet powerful entry-level server

HPE ProLiant ML family

The ideal choice for remote or branch offices and growing businesses

HPE ProLiant DL family

Secure and versatile rack-optimized servers delivering performance, expansion, and manageability

HPE ProLiant RL family

The next generation of compute from HPE for cloud-native applications

Why choose HPE ProLiant rack and tower servers?

HPE is committed to innovation, quality, and an excellent customer experience. Our approach to excellence in our innovation and quality is instilled across the product lifecycle, from our customer-first approach to design, to our supplier selection, quality, and management, to our world-class manufacturing and rigorous product testing, to our global support services and network of channel partners.

With HPE ProLiant rack and tower servers, you can deliver a flexible software-defined approach that is built on a foundation of intelligence beginning with the server. HPE ProLiant is an intelligent compute foundation for hybrid cloud, delivering unmatched workload optimization, security, and automation, all available as a service for your hybrid cloud infrastructure.

Servers are available in the following families of servers:

— HPE ProLiant MicroServer
— HPE ProLiant ML server
— HPE ProLiant DL server
— HPE ProLiant RL server

While all the families are designed to handle multiple workloads, each server is optimized for specific use cases.

HPE ProLiant Compute rack servers

The HPE ProLiant DL family of servers is the most flexible, reliable, and performance-optimized HPE ProLiant rack servers ever. HPE continues to provide industry-leading compute innovations. The HPE ProLiant Compute Gen12 rack portfolio with flexible choices and versatile design, along with improved energy efficiencies, ultimately helps lower your TCO. Integrated with a simplified, but comprehensive management suite and industry-leading support, the HPE ProLiant Compute Gen12 rack portfolio delivers a more reliable, fast, and secure infrastructure solution, helps increase IT staff productivity, and accelerates service delivery. In addition, the rack portfolio is performance-optimized for multiapplication workloads to significantly increase the speed of IT operations and enable IT to respond to business needs of any size, faster.

The HPE ProLiant Gen12 rack portfolio delivers:

— **Up to 41% better performance per watt than legacy systems:**[1] Get the higher performance needed for new AI and edge workloads, and boost VDI efficiency—all while saving space and energy.
— **Consolidate and save**, with up to 7:1 consolidation and 65% in power savings compared to Gen10. Free up data center capacity and reduce energy consumption.[2]
— **AI-optimized server platforms** with HPE ProLiant Compute DL380a Gen12 with NVIDIA® H200 NVL and first to market HPE ProLiant Compute DL384 Gen12 with NVIDIA GH200 NVL2, 144 GB.
— **Direct liquid cooling (DLC)** will be available on all Intel®-based 1 and 2-socket Gen12 rack servers, delivering superior cooling efficiency for even the highest performance workload needs.
— **HPE offers automated, on-demand carbon footprint reporting** with HPE Power Advisor with anticipated HPE product carbon footprint before you order and ongoing sustainability insights within HPE Compute Ops Management.

HPE ProLiant Compute tower servers

The HPE ProLiant ML family of servers delivers simple, efficient business value and is the ideal choice for remote or branch offices and growing businesses. Industry-leading compute innovations include simple management and storage tools, along with proven configurations that provide easy remote access and improved energy efficiencies to lower your TCO. Integrated with a simplified but comprehensive management suite and industry-leading support, the HPE ProLiant tower portfolio delivers more business value and helps increase IT staff productivity and expedite service delivery. In addition, the complete, rightsized tower portfolio includes financing options, IT infrastructure support options, and a channel network to significantly increase the speed of IT operations and enable IT to respond to business needs faster.

The HPE ProLiant Compute tower portfolio delivers:

— Faster memory, more cores, increased system performance
— Performance cores for traditional enterprise workloads and virtualization
— New generation HPE iLO 7 management controller chip
— More storage capability and options
— Support for new GPUs to help accelerate workloads
— Expanded direct liquid cooling support for greater efficiency

HPE ProLiant Compute Gen12 technology portfolio

HPE ProLiant Compute Gen12 brings next-level security, performance, and efficiency.

New Intel processors with specialized cores: Intel® Xeon® 6 processors are designed to address market needs for diverse performance and efficiency requirements. These new processors are available with either efficiency cores (E-cores) or with performance cores (P-cores), allowing better optimization for user workloads while sharing a common platform foundation and shared software stack.

[1] The performance per watt advantages are based on internal power and performance measurements on similarly configured high-energy-efficient servers and compared against an estimated 86-core Gen12 system.

[2] SPEC and the names SPECrate are registered trademarks of the Standard Performance Evaluation Corporation (SPEC). The stated results [SPECrate2017_int_base: #36693 (1), #36691 (2), #20893 (3), #37007 (4)] are published as of 01-01-2025, see spec.org, and compared against a 48-core estimated Gen12 system. All rights reserved. Power savings based on the Thermal Design Power of the systems. (6) The performance per watt advantages are based on internal power and performance measurements on similar configured high energy efficient servers and compared against an estimated 86-core Gen12 system.

Compute, general-purpose, and intensive AI workloads can benefit from the P-core processors, which are optimized for performance-per-watt. High-density and scale-out workloads benefit from the E-core processors optimized for performance or efficiency workloads.

Increased GPU support: As part of the NVIDIA AI Computing by HPE portfolio, select new HPE ProLiant Compute Gen12 servers can be optimized for enterprise AI workloads such as computer vision inference, generative visual AI, and end-to-end natural language processing. From GPU-accelerated mixed workloads to inferencing to fine-tuning, unleash new opportunities for your organization.

Advanced cooling options: As businesses search for holistic solutions that closely match their performance, energy efficiency, and sustainability initiatives, HPE offers two new cooling options for select HPE ProLiant Compute Gen11 systems—closed-loop liquid cooling, which is a server-contained solution that includes a radiator and direct liquid cooling (DLC). Proven effective in the HPC market, liquid cooling is a mature technology designed to increase energy efficiency and reduce cooling costs.

- Closed-loop liquid cooling systems are designed for use with higher thermal design power (TDP) processors (CPUs with higher wattage). Each closed-loop liquid cooling kit is available with CPU cold plates with pumps, heatsinks, fans, and a heat exchanger/radiator.
- DLC is designed for fully rack-contained and integrated water-cooled systems to enhance power usage effectiveness PUE and reduce cooling costs, resulting in lower operating costs.

New generation HPE iLO 7: HPE ProLiant Compute Gen12 servers come equipped with HPE iLO 7, enabling you to securely manage and update your infrastructure remotely from any location. As the only server Original Equipment Manufacturer (OEM) that designs its own management ASIC, HPE supports enhanced supply chain reliability while HPE iLO 7 incorporates silicon root of trust 2.0 from HPE with secure enclave for enhanced security. Additionally, HPE iLO 7 uses telemetry data to provide valuable power consumption insights.

HPE Compute Ops Management: Seamlessly monitor, manage, and gain visibility of your distributed compute environment. Unify compute management, simplify and automate tasks, and secure compute operations with an intuitive cloud operating experience that's simple to use and can be managed through a single console using HPE Compute Ops Management.

HPE Morpheus VM Essentials Software: Simplify management of virtual environments. Manage existing virtualized workloads, replatform to the HPE Morpheus VM Essentials Software hypervisor, and experience a simple VM-vending experience across both stacks. Get started now with a free 60-day trial.

Choose your rack or tower server

HPE ProLiant rack and tower servers are available in a variety of platforms to support different compute needs and workloads. The following charts help you compare the offerings within the HPE ProLiant rack and tower families. These charts are organized according to server needs.

- HPE ProLiant MicroServer
- HPE ProLiant 10 series
- HPE ProLiant 100 series
- HPE ProLiant 300 series
- HPE ProLiant 500 series

Rack servers

Do you continue to need traditional IT for diverse workloads? Consider these HPE ProLiant 300 series servers.

Table 1. Technical specifications for rack-based servers

	HPE ProLiant DL320 Gen12	HPE ProLiant DL340 Gen12	HPE ProLiant DL360 Gen12
	Cost/power-optimized server for VDI, virtualization, containers, and hybrid cloud	Cost/power-optimized server for hybrid cloud and data solutions	Compact, rack-optimized solution for VDI, virtualization, containers, and hybrid cloud
Workloads	Data management.; data collection; cold storage; virtualization, edge AI, VDI	Infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS). Data/storage centric workloads that need more PCIe lanes.	IT infrastructure: physical, virtual, containerized
Number of processors	1	1	1 or 2
Processors supported	Intel Xeon 6 processors	Intel Xeon 6 processors	Intel Xeon 6 processors
Cores per processor	Up to 144 E-cores (64/96/112/128/144) Up to 86 P-cores (8/16/24/32/36/48/64/86)	Up to 144 E-cores (64/96/112/128/144) Up to 86 P-cores (8/16/24/32/36/48/64/86)	Up to 144 E-cores (64/96/112/128/144) Up to 86 P-cores (8/16/24/32/36/48/64/86)
Maximum processor frequency/cache	3.5 GHz maximum, depending on processor/48 to 36 MB L3, total, depending on processor	3.5 GHz maximum, depending on processor/48 to 36 MB L3, total, depending on processor	3.5 GHz maximum, depending on processor/48 to 336 MB L3, total, depending on processor
I/O expansion slots	Up to 6 PCIe Gen5, and 2 OCP 3.0 with Rich IO Processor	Up to 6 PCIe Gen5, and 2 OCP 3.0 with Rich IO Processor	Up to 3 PCIe Gen5 slots (x16 lanes/each) & up to 2 OCP 3.0 slots (x16 lanes/each)
Maximum memory/No. of slots/speed	4 TB DDR5/16 /6400 MT/s	4 TB DDR5/16 /6400 MT/s	8 TB DDR5/32 /6400 MT/s
Storage controller	Intel Virtual RAID on CPU (Intel VROC) Optional—HPE MR216i-o, MR216i-p, MR408i-o, MR408i-p, MR416i-o, and MR416i-p storage controllers	Intel Virtual RAID on CPU (Intel VROC) Optional—HPE MR216i-o, MR216i-p, MR408i-o, MR408i-p, MR416i-o, and MR416i-p storage controllers	Intel Virtual RAID on CPU (Intel VROC) Optional—Array of HPE ProLiant Compute Gen12 Storage Controllers Optional—Intel VROC Hybrid RAID for NVMe Optional—HPE ProLiant Compute Gen12 OS Boot Device, in rear or front accessible
Maximum storage drive bays	Up to 8+2 SFF SAS/SATA HDDs or SATA/SAS/NVMe U.2 or U.3 SDDs, depending on model. Up to 12 LFF SAS/SATA HDDs or SSDs, depending on the model. Up to 20 EDSFF E3.s 1T, depending on model. Optional HPE NS204i-u NVMe Hot Plug Boot Device (includes two 480 GB NVMe M.2 SSDs).	Up to 12 LFF SAS/SATA, Up to 24 SFF SAS/SATA/NVMe, Up to 36 EDSFF drives, depending on chassis type and system configuration. Optional HPE NS204i-u NVMe Hot Plug Boot Device (includes two 480 GB NVMe M.2 SSDs).	Up to 4 LFF SAS/SATA. Up to 8+2 SFF SAS/SATA or SATA/SAS/NVMe U.3 SSDs, Up to 10 SFF/20 E3.S to be mixed. Optional HPE NS204i-u NVMe Hot Plug Boot Device (includes two 480 GB NVMe M.2 SSDs).
Maximum internal storage	288 TB (12x 24 TB LFF HDD)	552.9 TB (36x 15.36 TB SFF NVMe	307.2 TB (20x 15.36 TB EDSFF NVMe SSD
Networking ports (embedded)/option	Nonstandard. Choice of OCP or stand-up card required.	Nonstandard. Choice of OCP or stand-up card required.	Nonstandard. Choice of OCP or stand-up card required.
VGA/serial/USB/SD ports	DC-SCM VGA port (rear) Optional DisplayPort (front) Optional Serial (rear), requires Serial Enablement Kit 4 standard USB 3.2 Gen1 (1 front, 2 rear, 1 internal) HPE iLO remote management port 1GbE dedicated (rear) on DC-SCM module Front HPE iLO Service Port 1 standard (USB-C, front)	DC-SCM VGA port (rear) Optional DisplayPort (front) Optional Serial (rear), requires Serial Enablement Kit 4 standard USB 3.2 Gen1 (1 front, 2 rear, 1 internal) HPE iLO remote management port 1GbE dedicated (rear) on DC-SCM module Front HPE iLO Service Port 1 standard (USB-C, front)	1 Front—DisplayPort (optional) 1 Rear—VGA port (standard on all models) Serial kit optional 5 standard USB 3.2 Gen1 on all models: 1 front, 2 rear, 2 internal Optional front USB 2.0 Front HPE iLO Service Port 1 standard (USB-C, front)

Rack servers (continued)

Do you continue to need traditional IT for diverse workloads? Consider these HPE ProLiant 300 series servers.

Table 1. Technical specifications for rack-based servers (continued)

	HPE ProLiant DL320 Gen12	HPE ProLiant DL340 Gen12	HPE ProLiant DL360 Gen12
GPU support	Up to four single-wide GPUs or two double-wide GPUs	Up to six single-wide GPUs or four double-wide GPUs	Single-wide and active to 9.5" (2), up to 150W each
Form factor/chassis depth	Rack (1U) HxW (1.69" x 17.11") Depth: SFF (23.92"), SFF/EDSFF and 4 LFF (26.26"), 12 LFF (39.27"), GPU Dense (32.35")	Rack (2U) (height x width x depth) ·8 SFF, 24 SFF and EDSFF chassis — 8.75 x 44.8 x 63.95 cm — 3.45 x 17.64 x 25.18 in — 12 LFF chassis: — 8.75 x 44.8 x 65.61 cm — 3.45 x 17.64 x 25.83 in — GPU chassis: — 8.75 x 44.8 x 83.71 cm — 3.45 x 17.64 x 32.96 in	Rack (1U) (height x width x depth) SFF drives — 4.29 x 43.46 x 75.31 cm — 1.69 x 17.11 x 29.65 in LFF Drives — 4.29 x 43.46 x 77.31 cm — 1.69 x 17.11 x 30.43 in SFF/DSFF Hybrid Drives — 4.29 x 43.46 x 77.31 cm — 1.69 x 17.11 x 30.43 in
Power and cooling	1000W, 1500W, or 2400W Titanium Hot Plug Modular—Common Redundant Power Supply (M-CRPS) Standard fan kit or high performance fan kit, depending on model Closed-loop liquid cooling	1000W, 1500W, 2400W, or 3200W Titanium Hot Plug Modular—Common Redundant Power Supply (M-CRP) 6 Hot-plug redundant fans included, Standard fan kit or high performance fan kit, depending on system configuration	800W, 1600W Flex Slot Platinum Hot Plug 1000W, 1800W, 2200W Flex Slot Titanium Hot Plug 1600W Flex Slot—48 VDC Hot Plug Standard fan kit or high performance fan kit, depending on system configuration Closed-loop liquid cooling DLC
Industry compliance	ASHRAE A3 and A4 ENERGY STAR®	ASHRAE A3 and A4 ENERGY STAR	ASHRAE A3 and A4 ENERGY STAR
System ROM	UEFI	UEFI	UEFI
Management	The HPE iLO 7 ASIC is required on the DC-SCM Module and is included. HPE OneView Standard requires download while HPE iLO Advanced, HPE iLO Advanced Premium Security Edition, and HPE OneView Advanced require licenses. A subscription to HPE Compute Ops Management is included.	The HPE iLO 7 ASIC is required on the DC-SCM Module and is included. HPE OneView Standard requires download while HPE iLO Advanced, HPE iLO Advanced Premium Security Edition, and HPE OneView Advanced require licenses. A subscription to HPE Compute Ops Management is included.	Included—HPE iLO 7 Standard with intelligent provisioning (embedded), HPE OneView Standard (requires down-load). Optional—HPE iLO 7 Advanced, and HPE OneView Advanced.
Serviceability	Optional easy install rails and cable management arm	Optional easy install rails and cable management arm	Optional easy install rails and cable management arm
Warranty—(years) (parts/labor/on-site)	3/3/3	3/3/3	3/3/3

Rack servers (continued)

Do you continue to need traditional IT for diverse workloads? Consider these HPE ProLiant 300 series servers.

Table 1. Technical specifications for rack-based servers (continued)

	HPE ProLiant DL380 Gen12	HPE ProLiant DL380a Gen12	HPE ProLiant DL384 Gen12
	The industry-leading server for multi workload compute	GPU-optimized solution	AI-optimized server
Workloads	Collaborative, CRM, data management, analytics and AI, VDI, SCM, ERM, and content mgmt., containers	AI training and inference, content analytics and search, mechanical CAD, engineering apps, and network infrastructure software	Training, tuning, and deploying generative AI models with Retrieval-Augmented Generation (RAG). Large-scale simulation, EDA, weather forecasting
Number of processors	1 or 2	2	1 or 2
Processors supported	Intel Xeon 6 processors	Intel Xeon 6 processors	NVIDIA GH200 Grace Hopper™ Superchip
Cores per processor	Up to 144 E-cores (64/96/112/128/144) Up to 86 P-cores (8/12/16/24/32/36/48/64/86)	Up to 144 E-cores (64/96/112/128/144) Up to 86 P-cores (8/12/16/24/32/36/48/64/86)	GH200 72 Arm® Neoverse V2 cores GH200 NVL2 144 Arm Neoverse V2 cores
Maximum processor frequency/cache	3.5 GHz maximum, depending on processor/48 to 336 MB L3, total, depending on processor	3.5 GHz maximum, depending on processor/48 to 336 MB L3, total, depending on processor	GH200 3.1 GHz, 114 MB L3 GH200 NVL2 3.0 GHz, 228 MB L3
I/O expansion slots	Up to 8 PCIe Gen5 2 OCP 3.0 (front or rear)	Up to 6 PCIe Gen5 2 OCP 3.0	Up to 4 high-speed PCIe Gen5 x16 devices. Up to 4 PCIe full height half length (FHHL) slots, or up to 2 PCIe FHHL and two OCP 3.0
Maximum memory/No. of slots/speed	8 TB DDR5/32/6400 MT/s	8 TB DDR5/32/6400 MT/s	GH200 624 GB combined GH200 NV2 1248 GB combined
Storage controller	Intel Virtual RAID on CPU (Intel VROC) HPE MR216i-o and/or MR216i-p, HPE MR416i-o and/or HPE MR416i-p, HPE MR408e-p, HPE 408i-0 and/or HPE MR408i-p, depending on model.	Intel Virtual RAID on CPU (Intel VROC) HPE MR216i-o and/or MR216i-p, HPE MR416i-o and/or HPE MR416i-p, HPE MR408e-p, HPE 408i-0 and/or HPE MR408i-p, depending on model.	HW RAID controllers are not supported in this generation for either the M.2 or EDSFF NVMe drives
Maximum storage drive bays	8 or 12 LFF SAS/SATA/SSD 8, 16, or 24 SFF SAS/SATA/SSD, depending on configuration. 6 SFF rear drive optional or 2 SFF rear-drive optional, 20 SFF NVMe optional, NVMe support through Express Bay will limit maximum drive capacity, depending on model	Front drive count Up to 8 SFF NVMe Up to 8 EDSFF E3.S	Up to 8 EDSFF NVMe Gen5 drives M.2 drives (Up to 2, not in HW RAID)
Maximum internal storage	550.8 TB (36 x 15.3 TB EDSFF NVMe)	245.76 TB (16 x 15.36 TB Hot Plug E3.S NVMe)	122.8 TB (8 x 15.36 TB NVMe EDSFF)
Networking ports (embedded)/option	Nonstandard. Choice of OCP or stand-up card required.	Nonstandard. Choice of OCP or stand-up card required.	Nonstandard. Choice of OCP or stand-up card required. 11 GB HPE iLO dedicated NIC

Rack servers (continued)

Do you continue to need traditional IT for diverse workloads? Consider these HPE ProLiant 300 series servers.

Table 1. Technical specifications for rack-based servers (continued)

	HPE ProLiant DL380 Gen12	HPE ProLiant DL380a Gen12	HPE ProLiant DL384 Gen12
VGA/serial/USB/SD ports	1 standard VGA, rear. 1 optional front display port. 1 Optional rear serial. USB: 1 front (3.2 Gen1), 2 rear (3.0), 2 internal (3.0), 2 optional USB 2.0 front via Universal Media Bay.	1 standard VGA, rear. 1 Optional rear serial. 4 USB 3.2 Gen1 Port (1 front, 2 rear, 1 internal)	1 Rear VGA Port—Standard 1 Standard Serial port 1 USB 3.2 port 2 USB (3.0) 1 Front HPE iLO Service Port
GPU support	Up to 8 single-wide or up to 3 double-wide	Up to 8 double-wide	NVIDIA Hopper Support for dual superchips with NVIDIA GH200 NVL2 NVLink between two GH200 for twice the memory and performance
Form factor/chassis depth	Rack (2U) (height x width x depth) SFF/EDSFF CTO servers: 3.44" x 17.64" x 28.62" LFF CTO servers: 3.44" x 17.64" x 28.84"	4U (height x width x depth) 6.88" x 17.63" x 31.60"	2U (height x width x depth) 3.44" x 17.64" x 31.75" 1.69 x 17.11 x 30.43 in
Power and cooling	800W, 1000W, 1600W or 1800W-2200W Dual hot-plug redundant 1+1 HPE Flexible Slot Power Supplies, depending on model. Hot-plug redundant fans, standard fan kit or high performance fan kit, depending on model DLC	Up to 8 M-CRPS. Single 1+1 redundancy for system board. Dual 2+1 redundancy for GPUs. — HPE 1500W M-CRPS Kit — HPE 2400W M-CRPS Kit — HPE 3200W M-CRPS Kit Note: Up to 96% efficiency. Air cooling with 4 hot-plug fan assemblies (qty: four 92 mm + qty: eight 40 mm fans)	Up to 4 HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kits. For a single GH200: 2+0, 2+1, or 2+2 redundancy. Minimum of two power supplies. For a dual GH200 with NVL2: 3+1 redundancy, and four power supplies required, no other choices are supported. Air-cooled with six hot plug redundant fans
Industry compliance	ASHRAE A3 and A4, ENERGY STAR	ASHRAE A3 and A4, ENERGY STAR	
System ROM	UEFI	UEFI	UEFI
Management	Included—HPE iLO 7 Standard with intelligent provisioning (embedded), HPE OneView Standard (requires download). Optional—HPE iLO 7 Advanced, and HPE OneView Advanced	Included—HPE iLO 7 Standard with intelligent provisioning (embedded), HPE OneView Standard (requires download). Optional—HPE iLO 7 Advanced, and HPE OneView Advanced	HPE iLO 6 HPE iLO Standard with intelligent provisioning (embedded), HPE iLO Advanced
Serviceability	Optional easy install rails and cable management arm	HPE ProLiant Compute DL380a Gen12 Ball bearing rail kit and cable management arm	Server ships with a rail kit included
Warranty—(years) (parts/labor/on-site)	3/3/3	3/3/3	3/3/3

Tower servers

Do you continue to need traditional IT for diverse workloads? Consider these HPE ProLiant 300 series servers.

Table 1. Technical specifications for rack-based servers (continued)

	HPE ProLiant ML350 Gen12
	Powerful and versatile 2P tower
Workloads	IT infrastructure, data management, VDI, ERP/CRM
Number of processors	1 or 2
Processors supported	Intel Xeon 6700 and 6500 series with P-cores
Cores per processor	Up to 86 P-cores (8/12/16/24/32/36/48/64/86)
Maximum processor frequency/cache	3.5 GHz maximum, depending on processor/48 to 336 MB L3, total, depending on processor
I/O expansion slots	Up to 10 PCIe Gen5 and 2 OCP slots
Maximum memory/No. of slots/speed	8 TB/32/6400 MT/s
Storage controller	Intel Virtual RAID on CPU (Intel VROC) Choice of HPE OCP-type RAID (OROC) and/or PCIe Standup controller card(s) Supports NS204i-u V2 as a hot-pluggable, high-availability, RAID 1 protected M.2 NVMe boot option.
Maximum storage drive bays	Up to 12 LFF SAS/SATA drives or 24 SFF SAS/SATA/NVMe drives or 12 EDSFF NVMe SSD drives
Maximum internal storage	368.64 TB (24 x 15.36 TB Hot Plug SFF)
Networking ports (embedded)/option	None/OCP or standup card required
VGA/serial/USB/SD ports	1 VGA Port standard, rear Optional, rear serial port 5 x 3.2 Gen1 USB Front HPE iLO Type-C port/HPE iLO remote management network port 1 GB dedicated, rear 1 standard DisplayPort, front
GPU support	Up to eight single-wide or four double-wide GPUs
Form factor/chassis depth	Tower 18.2" (H) x 28" (D) x 6.85" (W)/Rack—System only 6.85" (H) x 25.51" (D) x 17.52" (W)
Power and cooling	800W, 1000W, 1600W or 1800W–2200W Dual hot-plug redundant 1+1 HPE Flexible Slot Power Supplies Air cooling with standard/performance heatsink and fan kits; Up to eight Fans
Industry compliance	ASHRAE A3 and A4, ENERGY STAR
System ROM	UEFI
Management	Included—HPE iLO 7 Standard with intelligent provisioning (embedded), HPE OneView Standard (re-quires download). Optional—HPE iLO 7 Advanced, and HPE OneView advanced.
Serviceability	Tower-to-rack conversion kit
Warranty—(years) (parts/labor/on-site)	3/3/3

Which OSs/virtual environments are supported?

HPE ProLiant rack and tower servers support the following OSs and virtual environments:

— Microsoft

— Red Hat®

— SUSE

— Oracle®

— Canonical

You can purchase your entire operating environment from HPE; we resell and provide full service and support for Microsoft Windows OSs; Red Hat Enterprise Linux® subscriptions; SUSE Linux subscriptions; Microsoft Hyper-V, VMware®, and Red Hat Virtualization subscriptions.

Get enhanced functionality and added benefits with HPE server options

Inside each HPE server are essential performance building blocks—think core DNA—such as DDR4 memory, storage, and network adapters. We call these building blocks HPE Server Options—designed to deliver the highest performance for any workload, deliver the performance with persistent reliability, and at economics that don't slow down your business. Thus, HPE ProLiant servers configured with HPE Server Options create the ideal solution for any application workload and any IT environment, from the smallest SMB site to the largest enterprise data center.

HPE Server Options are integrated with many HPE system management tools for easy configuration, maintenance, and installation, lowering your operations costs when compared to third-party components.

HPE Server Options have gone through a rigorous testing process for flawless installation, maintenance, and upgrade. There's a wide range of options, from storage drives, memory, network adapters, and processors, to the rack and power infrastructure and beyond.

HPE Server Memory

Choose from a large selection of memory types and capacities to support a variety of price points as well as both current and future computing needs.

HPE SmartMemory

HPE DDR5 Smart Memory is designed for small to large enterprise customers with a significant need for performance and capacity, along with a desire to manage total cost of ownership. HPE DDR5 Smart Memory enables total server memory optimization, runs at top throughput speed, and is among the ultimate power-efficient memories available. In addition to performance and efficiency, HPE DDR5 Smart Memory also delivers on reliability. Only the highest-quality DRAM modules are selected from top suppliers. Now more than ever, DRAM quality is critical, as data center trends such as server virtualization, cloud computing, and the use of large database applications have increased the need for higher-capacity memory with greater uptime. HPE DDR5 Smart Memory undergoes rigorous qualification and testing processes that enable memory performance features available only with HPE servers.

HPE Standard Memory

Small and medium business owners often must choose between the need for high performance server memory that supports their workloads and the simultaneous desire to control capital and operating expenses. With HPE DDR5 Standard Memory, you don't need to choose between performance and cost efficiency. HPE Standard Memory options are designed to deliver performance, reliability, and efficiency at an affordable price. Unlike third-party alternatives, HPE Standard Memory is sourced from the highest-quality DRAMS and undergoes a rigorous testing and authentication process. This extensive testing ensures that it is completely compatible with and optimized for entry-level HPE server platforms to perform to industry-defined specifications.

References

— HPE Server Options home page

— HPE rack and power infrastructure home page

HPE server storage

A broad portfolio of workload-optimized solutions that includes: hard disk drives (HDDs), solid-state drives (SSDs), and Gen11 controllers featuring HPE technologies to deliver high performance, outstanding reliability, security, and improved operational efficiency.

HPE Hard Disk Drives

— Deliver proven performance and reliable data integrity at the lowest cost per gigabyte.

HPE Solid-State Drives

— Minimize performance bottlenecks, enabling faster access to data with consistently low latency—all while using less power.

— Gen12 controllers—HPE's newest line of enterprise-class RAID controllers help maximize performance, data availability, and storage capacity.

For more information, visit the webpage of HPE Server Options.

Server networking

It presents a wide variety of server networking offerings, including standard, advanced, and performance series adapters from 1GbE to 200GbE. These adapters are supplemented by a broad range of transceiver and cable offerings.

HPE Server Networking delivers:

— **Performance**—Improve network bandwidth and lower latency with HPE's broad Ethernet-enhanced network adapters portfolio

— **Reliability and security**—Reduce downtime and help ensure seamless integration with servers through rigorous qualification and testing. Monitor health with HPE iLO, and critical software updates and latest security features to protect, detect, and recover from a cyberattack.

— **Efficiency**—Optimize workload with HPE software-defined features, from virtualization to network partitioning, boosting application performance

These adapters help prevent, detect, and recover from cyberattacks by protecting applications, data, and server infrastructure through authentication of digitally signed firmware through a silicon root of trust architecture. In addition, they offer secure boot, device-level firewall, and other advanced security features. For more information, visit the home page of HPE Networking.

HPE rack and power infrastructure

Includes HPE rack enclosures and HPE power and cooling management offerings that provide the foundation for a secure and reliable hybrid cloud infrastructure.

HPE racks

Whether you're just looking into getting your first server rack or researching advanced, high-density options for your enterprise data center, HPE racks offer you an amazing range of features and options designed to satisfy your business needs and fit within your IT budget.

HPE rack and power infrastructure portfolio

— HPE IT management
— HPE power distribution units
— HPE uninterruptible power supplies
— Intelligent tools from HPE
— HPE Power Advisor

For more information,
visit the home page of HPE rack and power Infrastructure.

HPE Power Supplies

HPE Power Supplies offer high-efficiency power options available in multiple input and output options, allowing you to right-size a power supply for specific server/storage configurations and environments. This flexibility helps to minimize power waste, lower overall energy costs, and avoid trapped power capacity in the data center.

Standard

— Optimized features at an entry-level price

Advanced

— Compact flexibility and efficiency
— HPE Flex Slot Power Supplies are 25% smaller than previous generation power supplies, providing more space and power

Performance

— Higher power density, enhanced business continuity
— HPE performance power supplies provide highly efficient and flexible power options specifically designed for HPE dense computing environments

Accelerated computing with HPE ProLiant Compute servers and NVIDIA GPUs

Workloads can never finish their tasks too quickly. HPE offers a range of NVIDIA GPUs designed to power various workloads, from AI and deep learning to professional visualization. Our offerings span from the entry-level A2 to the high performance H200 NVL, designed for large-scale AI inferencing and high performance computing (HPC). With this comprehensive lineup, we help ensure businesses and developers have the right GPU solution to meet their specific performance and scalability needs.

HPE water cooling options

HPE future-focused cooling strategy supports the ever-growing processing power needs of today's businesses and advances sustainability. Businesses adopt larger IT systems to analyze increasing data volumes as well as support AI workloads. However, these systems strain air-cooling setups in data centers, impacting overall efficiency. Heat from powerful CPUs and GPUs, soon to draw over 500 watts, worsens the cooling crisis. 3D silicon chips exacerbate the issue, as traditional cooling can struggle to cool the entire chip stack effectively, risking overheating in lower layers.

As businesses search for holistic solutions that closely match their performance, energy efficiency, and sustainability initiatives, HPE offers three cooling options for select HPE systems—closed-loop liquid cooling, DLC, and liquid-to-air cooling.

— **Closed-loop** liquid cooling functions like a server-contained radiator akin to a car's engine cooling system. Completely integrated into the computer's chassis, cool liquid is piped to cold plates atop CPUs and draws off heat. The warm liquid flows through a heat exchanger that is cooled by air in motion. Once cooled, it returns to the cold plates.
— **DLC** improves power usage effectiveness (PUE) and cuts cooling expenses in a fully rack- contained and integrated water-cooled system. Our DLC unit directs coolant through cold plates atop CPUs, capturing heat and pumping it elsewhere for cooling. HPE offers systems that are fully liquid cooled and others where most of the server heat goes to water (DLC) and the rest of the server heat goes to air through fans.
— **Liquid-to-air** cooling solutions refer to a cooling system where liquid is used to absorb heat from a device or system and then the heat is transferred from the liquid to the air. HPE offers two liquid-to-air cooling solutions—HPE Rear Door Heat Exchanger or HPE Adaptive Rack Cooling Solution. These work with facility-chilled water that provides cold air where it is needed most in the rack.

HPE server and infrastructure management software

HPE server management solutions provide improved operational efficiency, faster application deployment, and reduced costs—through agile operations, error reduction, faster response times, and streamlined processes.

HPE Compute Ops Management

Seamlessly monitor, manage, and gain visibility of your distributed compute environment.

Modernize your compute management experience

HPE Compute Ops Management simplifies and automates operations across the server lifecycle, no matter where your compute infrastructure lives. The service provides a consistent, secure cloud experience for the whole environment that scales elastically and unifies compute management.

Included with HPE ProLiant Gen12 servers

With the HPE ProLiant Gen12 next-generation portfolio, the management experience is being transformed. It provides an intuitive cloud operating experience that's simple to use and can be managed through a single console using HPE Compute Ops Management.

See how easy it is to manage compute

Stop managing your management tools and instantly access new services, features, and fixes.

Unify compute management

Streamline compute management operations with a centralized, cloud experience. With real-time access to servers, you can quickly gain visibility into your distributed environment, identify issues, and update servers in a few clicks.

Simplify and automate tasks

Save time and money with agile server lifecycle management that reduces manual efforts, drives better efficiency of server deployments and updates, gives visibility into server health status, and alerts you to critical hardware failures.

Secure compute operations

Take a zero trust approach that incorporates multifactor authentication, security certificates, and the world's most secure industry-standard server—HPE ProLiant—so you can easily establish governance and compliance controls across the entire environment.

New generation HPE iLO 7

HPE ProLiant Compute Gen12 servers come equipped with HPE iLO 7, enabling you to securely manage and update your infrastructure remotely from any location. As the only server OEM that designs its own management ASIC, HPE supports enhanced supply chain reliability while HPE iLO 7 incorporates silicon root of trust 2.0 from HPE with secure enclave for enhanced security. Additionally, HPE iLO 7 uses telemetry data to provide valuable power consumption insights.

HPE Morpheus VM Essentials Software

HPE ProLiant Compute Gen12, combined with HPE Morpheus VM Essentials Software, simplifies management of virtual environments. Manage existing virtualized workloads, replatform to the HPE Morpheus VM Essentials Software hypervisor, and experience a simple VM-vending experience across both stacks. Get started now with a free 60-day trial.

HPE OneView

HPE OneView is an integrated IT infrastructure management software that automates IT operations and simplifies lifecycle management across compute, storage, and networking.

HPE storage solutions for HPE ProLiant servers

No matter what your storage needs, HPE offers virtualized shared storage, data protection, and data retention and archiving solutions that complement your HPE ProLiant investment and are designed to offer a seamless service, support, and management experience. With storage solutions for any scale, performance, or investment level, you can handle more workloads more simply and more affordably by combining servers and storage solutions from HPE.

HPE disk enclosures

Manage growing storage needs with modular solutions for HPE ProLiant capacity expansion. HPE disk enclosures let you expand your HPE ProLiant server storage capacity at a low cost for a variety of general use cases.

Access the best IT more affordably when you need it.

Select the program that fits your goals

- **Transition from old legacy IT to new hybrid cloud:** Shift from existing owned assets to a flexible usage payment model. Receive the value hidden in your existing IT equipment to invest in new technology innovation.
- **Increase deployment flexibility:** Acquire forecasted compute and storage capacity in advance of the actual need, begin monthly payments as you deploy, and install it over 12 months.
- **Manage experimental deployments:** Lower risks and improve control with built-in flexibility to return equipment without penalty within a set time window.
- **Routinely refresh your servers:** Regularly update your IT infrastructure more affordably every 24 to 48 months for predictable monthly or quarterly payments.
- **Simplify IT consumption for small and mid-sized businesses:** Subscribe to a complete, customized solution for a predictable monthly subscription fee, and help eliminate the hassle of ownership. Trade in your old IT to make room for a new subscription.

HPE Financial Services: Creating investment capacity to accelerate digital transformation.

HPE Financial Services helps organizations create the investment capacity they need for digital transformation in an innovative and sustainable way. HPE Financial Services partners with customers to develop a playbook for their entire IT asset portfolio (from edge to cloud to end user), one that is unique to their aspirations and size. Our financial and asset management solutions are anchored by best-in-class tech upcycling services.

Advisory and transformation services—HPE Services designs the transformation and builds a road map tuned to your unique challenges, including hybrid cloud, workload and application migration, Big Data, and the edge. HPE leverages proven architectures and blueprints, integrates and partner products and solutions, and engages professional and operational services teams from HPE Services as needed.

Entry-level shared storage

When performance and scale are your priorities, HPE also offers low-cost external storage systems that deliver the benefits of virtualized, shared storage and file sharing, capably designed with HPE ProLiant server users in mind. Our flexible entry storage options let you choose from direct-attached storage to extend your server capabilities, NAS appliances for file sharing and home directory consolidation, and highly scalable shared storage arrays for physical and virtual applications. These arrays can run on your existing IP network or a dedicated Fibre Channel SAN.

All-flash and hybrid flash storage

The world is changing fast. An all-flash data center is now a reality, thanks to HPE Nimble Storage—with a choice between all flash and adaptive flash arrays—and the HPE 3PAR StoreServ family of all-flash and flash-optimized arrays. These lightning-fast arrays deliver exceptional uptime with built-in resiliency. In addition, HPE Nimble Storage offers radical simplicity of management and a transformative support experience through predictive analytics from HPE InfoSight.

Data availability, protection, and retention

Today's businesses demand aggressive service levels. Data loss, risk, and downtime must be avoided at all costs. When an outage does occur, recovery time must be minimized. HPE can equip you to meet the most stringent recovery-time objectives (RTOs) and recovery-point objectives (RPOs), all while reducing your protection storage capacity requirements. Learn more about our affordable portfolio of modern data availability, protection, and retention solutions with the right scale, performance, and application integration to meet your needs.

Storage management and orchestration

With HPE, you can get past hardware management limitations with open, automated orchestration. Control storage, compute, and networking resources as well as data services across physical and virtual domains. It's all compatible with many third-party tools and fully integrated into HPE data storage solutions—from flash optimized to software defined.

Storage networking

HPE provides dynamic end-to-end solutions, solving your storage networking challenges. Agile HPE StoreFabric host adapters, multiprotocol switches, and highly scalable directors for cloud-optimized SANs help ensure reliability and high performance.

Integration services

With HPE Factory Express Integration Services, all the build, integration, and testing are done at our factory, resulting in a ready-to-deploy, custom IT solution built to your specific requirements. Our services cover the entire HPE portfolio from single server to multirack solutions.

Technical training courses

HPE Education Services focuses on your most important asset, your people, to help prepare them to have the right skills to deliver business outcomes. With over 35 years of experience, we lead the industry when it comes to modern skills-based IT training and digital on-demand learning. We deliver unmatched expertise across a broad range of HPE products, industry-leading technologies, and IT process disciplines by combining technical knowledge, business insight, and hands-on experience.

HPE Services

HPE Services leverages our strength in infrastructure, partner ecosystems, and the end-to-end lifecycle experience to accelerate powerful, scalable IT solutions to provide you with the assistance for faster time to value. HPE Services provides a comprehensive portfolio, including advisory and transformational, professional, and operational services to help accelerate your digital transformation.

Operational services

- **HPE Management Services:** An infrastructure service that offers on-demand capacity, combining the agility and economics of public cloud with the security and performance of on-premises IT
- **HPE Complete Care Service:** Our 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
- **HPE Tech Care Service:** Get more from your IT with an AI-powered and digitally enabled service that drives your business forward
- **HPE Lifecycle Services:** Predefined and custom services delivering technology outcomes and helping you get the utmost from your IT at every stage of its lifecycle

Advisory and Professional Services—Stay ahead of new opportunities with proven strategies from our team of experts. Create new edge experiences, implement effective cloud strategies, modernize your IT, and simplify IT operations with global technology services from HPE.

HPE server families

A server for every need

HPE understands that when it comes to servers, one size does not fit all. That's why we offer you a comprehensive array of server families, designed for a wide variety of business needs. Explore our other server portfolios:

- **HPE Synergy**—A composable bladed infrastructure that powers any workload within a hybrid cloud environment
- **HPE OneView**—Integrated IT infrastructure management software that automates IT operations, HPE OneView simplifies infrastructure lifecycle management across compute, storage, and networking
- **HPE Superdome Flex and Scale-up Servers**—Modular compute platforms that power critical applications, accelerate analytics, and tackle HPC and AI workloads holistically
- **HPE Edgeline systems**—Converged OT and enterprise-class IT in a single, ruggedized system that implements data center-level compute and management technology at the edge
- **HPE Nonstop**—Power mission-critical workloads with a fully integrated solution engineered for the highest availability, massive scalability, and security
- **HPE ProLiant Compute XD680**—Power demanding AI workloads cost-efficiently and securely with 8 GPUs offering optimized price performance

— **HPE ProLiant Compute XD685**—Accelerate AI training with a purpose-built architecture powered by 8 GPUs and sustainable direct liquid cooling options

— **HPE Private Cloud AI**—With NVIDIA AI computing by HPE, you can accelerate your path from AI pilot to production with a turnkey AI private cloud

HPE ProLiant Compute brings a new level of performance, efficiency, and security to IT operations. With the pressure to deploy AI applications and rethink virtualization strategies, IT needs advanced capabilities to maximize productivity and performance. With the addition of new Gen12 systems, HPE has a full, modern portfolio of hardware and software solutions that provide a secure foundation for the next generation of workloads, while increasing power efficiency and streamlining operations.

Learn more at

HPE.com/us/en/HPE-ProLiant-Servers.html

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