Hewlett Packard Enterprise

HPE Apollo 6000 Gen10 System

Extreme compute performance in a high-density package

Fast, resilient and secure compute, storage and fabric technologies, with rack-level efficiencies delivering exceptional price/performance

Whether you're designing an airplane, discovering an oil reservoir, creating a feature-length animated film, detecting fraud, or mapping the human genome—high-performance computing (HPC) enables you to bring more innovative, higher-quality products and services to the market faster than ever before. In many cases, HPE solution for HPC workloads makes it possible for you to solve problems that simply could not be solved otherwise.

Even so, enterprises are challenged to solve these highly complex computational problems quickly and with lower IT overhead—while minimizing unexpected costs and simplifying rack-level HPC deployments.

To address the growing demand for HPC and the relentless pursuit of efficiency, HPE has taken the lead on a new approach—thinking beyond the server and designing a rack-level solution that gives you the right compute at the right economics. The HPE Apollo 6000 Gen10 System offers you excellent compute performance with rack-level air-cooled density, and flexibility to tailor the system to precisely meet the most demanding HPC workload requirements.

For comprehensive HPE solution you may choose the HPC software suite and HPE Pointnext Services to build and support IT at scale to drive your business success.

"The new supercomputer (based on the HPE Apollo 6000 Gen10 System) will promote the application and development of complex modeling and simulation approaches, opening up completely new avenues for our research at BASF."

– Dr. Martin Brudermueller, Vice Chairman of the Board of Executive Directors and Chief Technology Officer, BASF[1]

[1] "**BASF Selects HPE to Build Supercomputer for Global Chemical Research**," Marketwired, March 2017.

Versatile performance, efficiency, and time to value

For IT managers who need to tackle the most complex problems quickly, the HPE Apollo 6000 Gen10 System's new integrated design allows deploying hundreds of servers quickly and use the clusters immediately. Leading edge technologies of the system are optimized to deliver performance and conserve energy. Integrated design simplifies deployment and comprehensive management tools lower IT overhead.

Enjoy leading-edge technology and performance

- Achieve 323 TFLOPS per rack[2] with Intel® Xeon® Processor Scalable family delivering up to a 2X performance increase[3] over earlier generation processors

- Get the latest compute, storage, and fabric technologies available today, in an architecture future-proofed to support upcoming technologies

- Drive rack-scale efficiency

- Benefit from rack-level reliability, availability, serviceability, and manageability (RASM) features through an integrated design

- Quickly deploy, service, and manage the compute and storage with cold aisle front accessible nodes

Lower your TCO

- Lower power and space requirements with an optimized architectural integrated design

- Eliminate stranded switch ports with an optimized design aligned to fabric radix

HPE Apollo k6000 chassis features

- 12U air-cooled chassis

- 24 front-accessible nodes

Highly integrated chassis:

- Hot-plug redundant power supplies with common cooling

- A choice between high-speed InfiniBand Enhanced Data Rate (EDR) or Intel Omni-Path Architecture (OPA) switches
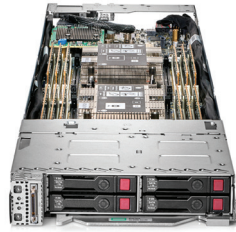
- 10GbE switch or pass-through module

[2] 32 double precision flops x 28 cores x 2.5 GHz x 144 processors per rack = 323 TFLOPS per rack.

[3] Improvement in peak performance compared to Intel AVX2 (Haswell and Broadwell) processors. Intel internal testing, September 2016.

Technical specifications

HPE Apollo Gen10 system power architecture

Extreme compute configuration N + 0 (15.9 kW)	Typical configuration N + 1 (13.2 kW)
Node with 2 x 165 W SKL	Node with 2 x 145 W SKL
12 DDR4 DIMMs	12 DDR4 DIMMs
2 SATA HDDs	2 SATA HDDs
2 x EDR Mezzanine Adapter + switch	EDR Mezzanine Adapter + switch
2 x 10/40GbE switch	10/40GbE switch
APM module	APM module
4 x front and 12 x rear fans	4 x front and 12 x rear fans

Technical specifications

HPE ProLiant XL230k Gen10 Server

Form factor	HPE ProLiant XL230k Gen10 Server is a single-slot tray for the HPE Apollo k6000 chassis
Processors	The Intel Xeon Processor Scalable family including Intel Xeon Platinum Processor
Cores	4/6/8/12/14/16/18/20/22/24/26/28
Chipset	Intel C622 series chipset
Max processor speed	3.6 GHz
Drive description	4 SFF SAS/SATA/NVMe
Supported drives	Hot-plug 2.5-inch SAS/SATA
Memory slots	16 x DDR4-2666 DIMMs 12 x RDIMMs/LRDIMMs 4 x 3D XPoint
Memory max	1024 GB (16 x 64 GB) per server tray
Memory type, ECC	DDR4; RDIMM/LRDIMM 2666 MHz
Network options	2 x 10GbE integrated ports, InfiniBand EDR or Intel OPA Mezzanine cards
Storage controller	HPE Dynamic Smart Array S100i SATA Controller HPE Smart Array E208i-p Controller HPE Smart Array P408i-p Controller
Expansion slots	2 x InfiniBand EDR or Intel OPA Mezzanine Adapters PCIe slot options: • 1 x external x 16 low profile • 1 x internal and 1 x external x 8 low profile PCIe • Supports –F Omni-Path directly off CPU (independent of above I/O options)
USB ports	1 internal and 2 external via serial, USB, video (SUV) port
Management	New HPE Integrated Lights-Out (iLO) 5 remote manageability
OS support	Microsoft® Windows Server® Red Hat® Enterprise Linux® 7 and 8 SUSE Linux Enterprise Server (SLES) 11.4 or later VMware® ESX® CentOS

High-performance fabric interconnects

All HPE Apollo 6000 Gen10 Systems support the latest high-bandwidth, low-latency interconnect technologies. Choose between InfiniBand, which provides the performance and scalability required by HPC clusters and data center applications or Intel OPA, which delivers HPC workloads and scales to tens of thousands of servers.

HPE Apollo Systems Management

Hewlett Packard Enterprise offers a complete portfolio of system management software to match user and data center needs.

HPE iLO 5
- Embedded, advanced baseboard management and monitoring
- iLO Advanced software available for remote management

Apollo Platform Manager (APM)—optional
- Expanded power management function
- Static and customizable dynamic power capping
- Third-party management interfaces

HPE Insight Cluster Management Utility (CMU)
- Single-pane, complete HPC and Big Data cluster management
- "Limitless" architecture that scales to clusters of any size

HPE OneView
- Interface to single-pane enterprise and data center management
- Dynamic discovery and monitoring

Apollo Chassis Controller
- Dynamic power and cooling infrastructure management
- Consolidated iLO port reduces cabling and provides a single point of access to 24 nodes

HPE Financing for HPE Apollo Systems

Having access to technology on terms that align to your business needs is critical, and HPE Financial Services is uniquely positioned to help accelerate your move to the data center of the future with a broad portfolio of flexible investment and transition solutions.

Learn more at
hpe.com/info/hpc

HPE Pointnext Services provide:
Deep HPC expertise in key verticals such as Government, Manufacturing, Oil and Gas, Research and Higher Education, and Life Sciences

Expanded global reach with technical experts both remote and local

- **Advisory Services** to plan, design, migrate, and modernize your HPC infrastructure to enable innovation, growth, and competitive advantage

- **Professional Services** to provide flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of your software and hardware investment

- **Operational Support Services** to offer you the exact support for your IT and business demands

Get started today
Solving complex scientific, engineering, and data analysis problems starts by partnering with Hewlett Packard Enterprise to get the solution for your most complex challenges.

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