



# HPE SERVERS AND STORAGE: PORTFOLIO AT A GLANCE

April 2020

## OVERVIEW

- View the HPE server and storage portfolio at a high level
- Find the right products to drive infrastructure transformation
- Compare key specifications across the product line

## TRANSFORM IT WITH SOFTWARE-DEFINED INFRASTRUCTURE

Cloud is not a destination; it's a model for a better way of doing things. To ensure your private cloud experience mirrors that of the public cloud, you need a partner who can help you build private clouds and manage hybrid cloud successfully, with the flexibility to adapt to changing business needs, by transforming your technology, people, and processes and economics. HPE is uniquely positioned to accelerate your hybrid cloud strategy through world-class software-defined IT solutions, proven hybrid cloud expertise, and flexible consumption and economic options—all supporting your choice of clouds, workloads, and tools. [hpe.com/us/en/solutions/data-center-infrastructure.html](https://hpe.com/us/en/solutions/data-center-infrastructure.html)

## HPE SYNERGY

Gain efficiency and control, and deploy IT resources quickly for any workload through a single interface. HPE Synergy, a powerful software-defined solution, enables you to compose fluid pools of physical and virtual compute, storage, and fabric resources into any configuration for any application. Learn more at [hpe.com/synergy](https://hpe.com/synergy)

## THE HPE SERVER FAMILY ([hpe.com/servers](https://hpe.com/servers))

### Innovation based on standards

Fundamental to establishing a converged infrastructure are your underlying platform choices. Whether it is a departmental server, an enterprise data center, or anything in between, HPE is committed to meeting your exact needs. Only HPE has the breadth of innovation, open partnerships, and depth of expertise to bring it all together.

Our portfolio includes:

**HPE ProLiant servers**—The world's most secure industry standard servers,<sup>1</sup> HPE ProLiant Gen10 servers coupled with HPE OneView, HPE InfoSight, and HPE OneSphere deliver software-defined compute to accelerate application performance, infrastructure and application deployment, and improve server operations. Our wide selection of multicore, multiprocessor servers, and server blades meet needs ranging from those of cost-sensitive growing businesses to the performance and scalability demands of global enterprises. ProLiant servers support the industry's leading operating systems and applications for data centers of all sizes. [hpe.com/info/proliant-dl-servers](https://hpe.com/info/proliant-dl-servers), [hpe.com/info/towerservers](https://hpe.com/info/towerservers), [hpe.com/info/blades](https://hpe.com/info/blades)

**HPE BladeSystem**—HPE BladeSystem lets you transform legacy infrastructure and scale business performance while optimizing costs. With the powerful HPE OneView management, BladeSystem puts your business on an agile, secure foundation and on the path to a composable experience. [hpe.com/info/bladestystem](https://hpe.com/info/bladestystem)

**HPE Apollo**—The HPE Apollo high-density server family is built for the highest levels of performance, scale, and efficiency. They are rack-scale compute, storage, networking, power and cooling—massively scale-up and scale-out solutions, ideal for your Big Data analytics, object storage, high performance computing (HPC), and artificial intelligence (AI) workloads. [hpe.com/info/apollo](https://hpe.com/info/apollo)

**HPE Mission Critical Solutions**—When you need real-time business and maximum uptime, HPE Mission Critical Solutions are your ideal choice. This portfolio is unparalleled for its resiliency, availability, and security for mission-critical environments where business continuity is expected.

For industries that never stop, HPE NonStop Systems are uniquely designed for the very highest level of availability: an integrated solution stack with massive scalability, data integrity, and low TCO. [hpe.com/info/nonstop](https://hpe.com/info/nonstop). For your most demanding and critical SAP HANA®, Oracle and SQL Server workloads, HPE Superdome Flex delivers an unmatched combination of performance, availability, and reliability for mission-critical environments of any size. This is also an ideal platform to tackle AI and HPC workloads holistically. [hpe.com/superdome](https://hpe.com/superdome). For workloads vital to your enterprise, HPE Integrity ió servers with HP-UX are designed for always-on business: a highly integrated UNIX® system delivering mission-critical availability, stability, and predictable performance. [hpe.com/info/hpux](https://hpe.com/info/hpux).

**HPE Server Options**—Strengthen the foundation of your data center with high-caliber products that enhance system performance and functionality. HPE memory, drives, processors, racks, and power and cooling offerings are easy to manage and are tailored for ProLiant, Integrity, and HPE storage systems. With HPE Qualified Options, you can be confident in your whole infrastructure. [hpe.com/info/serveroptions](https://hpe.com/info/serveroptions)

**HPE Data Center Network solutions**—Built from HPE FlexNetwork Architecture, HPE Data Center Network solutions meet the demanding needs of today's highly virtualized, large-scale application environments. HPE FlexFabric Data Center is the network foundation for the servers, storage, and software of converged infrastructure. This robust networking foundation helps you improve service levels and agility, enhance business continuity, and reduce operating costs. [hpe.com/networking/datacenter](https://hpe.com/networking/datacenter)

**Partner Software**—HPE tests, certifies, and supports a broad range of partner OS and virtualization software on HPE ProLiant servers. HPE resells and provides service and support for Microsoft Windows Server, Red Hat® Enterprise Linux®, SUSE Linux Enterprise Server, Canonical Ubuntu Server, and VMware®. HPE also resells Cloudera, Hortonworks, Scality, and Cleversafe with support provided by the partner. For more information, visit the OS and Virtualization website. [hpe.com/info/ossupport](https://hpe.com/info/ossupport)

**HPE Server Management** is an agile infrastructure management solution for accelerating IT service delivery and support. We provide a comprehensive set of server management capabilities designed to manage the lifecycle for the HPE Server portfolio to reduce the time, complexity, and cost of everyday IT management. [hpe.com/us/en/servers/management](https://hpe.com/us/en/servers/management)

[hpe.com/info/rackservers](https://hpe.com/info/rackservers)

[hpe.com/info/towerservers](https://hpe.com/info/towerservers)

[Security](#)

[Benchmarks](#)

## HPE MOONSHOT SYSTEMS

HPE Moonshot is an integrated, workload-optimized, software-defined server system, delivered in a compact, energy efficient form factor. Moonshot infrastructure design delivers breakthrough efficiency and scale by replacing general purpose computing with more energy-efficient System-on-Chip (SoC) containing integrated accelerators tailored for specific workloads. This enables better resource efficiency, while reducing operational cost and improving IT set up and maintenance simplicity.

For more information: [hpe.com/info/moonshot](https://hpe.com/info/moonshot)

## HPE EDGELINE CONVERGED EDGE SYSTEMS

HPE Edgeline Converged Edge Systems is the industry first product category that combines uncompromised IT systems (Intel® Xeon® compute, storage and management) with Operational Technology (OT) Systems (control systems, data capture and industrial networks) in a ruggedized form factor capable to run analytics in virtually any edge environment. HPE Edgeline enable new applications and deliver dramatic improvements in operating cost, speed, reliability and security, while saving time, space, and energy.

For more information: [hpe.com/info/edgeline](https://hpe.com/info/edgeline)

## HPE POINTNEXT SERVICES

### Achieve maximum return from your IT investment

Get the expertise you need at every step of the IT journey with [HPE Pointnext Services and Support](#). We help you lower your risks and costs using proven best practices, automation, and methodologies that have been tested and refined by HPE experts through thousands of implementations and deployments globally. With Advisory Services, we focus on your business outcomes and goals, partnering with you to design your transformation and build a road map tuned to your unique challenges. Our professional, operational and technical services can be leveraged to speed up time-to-production, boost performance, and accelerate your business.

HPE Pointnext Services specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike. We collaborate with your IT team from technical design to implementation, build to migration, distribution, and finally to operational consulting and service.

- [Integration and performance services](#) provide resources to help you get your systems up and running quickly and augment your IT staff for projects.
- [HPE Foundation Care](#) provides fast problem resolution with comprehensive coverage and access to experts.
- [HPE Proactive Care](#) provides proactive problem prevention and an enhanced support experience for your systems.
- [HPE Datacenter Care](#) helps businesses run their IT operations by optimizing day-to-day tasks, integrating technology management and streamlining to a more agile cloud-like model.

Consume IT services on your terms, getting the specific value that you need for your business. [HPE GreenLake](#) enables you to scale easily by adding capacity in minutes, not months. You pay only for what you actually need, creating true pay-per-use outcomes. Simplify your IT planning, capacity forecasting, and cost allocation with [HPE GreenLake](#).

Learn more about [HPE Pointnext Services and Solutions](#) for your business.

<sup>1</sup> Based on external firm conducting cybersecurity penetration testing of three server products from three manufacturers, September 2019

# HPE PROLIANT SERVERS—10, 100, 300, 500 SERIES

HPE ProLiant servers



**MicroServer Gen10 Plus**



**MicroServer Gen10**

**ML/DL10 series:** Small scale server: Easy to buy and deploy



**ML30 Gen10**



**DL20 Gen10**

**ML/DL100 series:** Right-sized server: Balance of performance, efficiency, and manageability



**ML110 Gen10**



**DL160 Gen10**



**DL180 Gen10**

	MicroServer Gen10 Plus	MicroServer Gen10	ML30 Gen10	DL20 Gen10	ML110 Gen10	DL160 Gen10	DL180 Gen10
<b>Number of processors</b>	1	1	1	1	1	1 or 2	1 or 2
<b>Cores per processor</b>	2/4	2/4	2/4/6	2/4/6	4/6/8/10/12/14/16	4/6/8/10/12/14/16/18/20/22/24	4/6/8/10/12/14/16/18/20/22/24
<b>Processors supported</b>	Intel Xeon E2200 series Intel® Pentium® G5400 series	AMD Opteron X3421 AMD Opteron X3216	Intel Xeon E-2100 series; Intel® Core™ i3-8300; Intel Pentium G5400	Intel Xeon E-2100 Series; Intel Core i3-8300; Intel Pentium G5400	Intel Xeon Scalable processor 5200, 4200, and 3200 series; Intel Xeon Scalable processor 5100, 4100, and 3100 series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 4100 and 3100 series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 4100 and 3100 series
<b>Maximum processor frequency</b>	3.8 GHz	3.4 GHz	3.8 GHz	3.8 GHz	3.8 GHz	3.8 GHz	3.8 GHz
<b>Cache</b>	Up to 8 MB L3	2 MB L2	Up to 12 MB L3	Up to 12 MB L3	Up to 22 MB	Up to 35.75 MB	Up to 35.75 MB
<b>Maximum memory</b>	32 GB (2 DIMM slots)	32 GB (2 DIMM slots)	64 GB (4 DIMM slots)	64 GB (4 DIMM slots)	192 GB (6 DIMM slots)	1 TB (16 DIMM slots)	1 TB (16 DIMM slots)
<b>Persistent memory</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Maximum storage drive bays</b>	4 NHP LFF or 4 NHP SFF HDD/SSD	(4) LFF SATA Non-hot plug	(8) SFF SAS/SATA hot plug (4) LFF SAS/SATA hot plug (4) LFF SATA Non-hot plug (1) M.2 NVMe SSD	(4) SFF + (2) SFF (2) LFF hot plug (2) LFF Non-hot plug	(16) SFF SAS/SATA HDD/SSD, (8) LFF SAS/SATA HDD/SSD, or (8) NHP LFF SATA HDD	8 + 2 SFF or 4 LFF HDD/SSD + M.2 SATA support	(8) + (24) SFF or (12) LFF SAS/SATA HDD/SSD + (2) SFF rear enablement kit + M.2 SATA support
<b>Maximum internal storage</b>	16 TB	16 TB	61.44 TB	91.8 TB	96 TB	48 TB	144 TB
<b>I/O slots</b>	Up to 1 PCIe 3.0	Up to 2 PCIe 3.0	Up to 4 PCIe 3.0	Up to 2 PCIe 3.0	Up to 5 PCIe 3.0	Up to 3 PCIe 3.0	Up to 6 PCIe 3.0
<b>GPU</b>	Optional Radeon Pro WX 2100	Optional AMD Radeon Pro WX 2100	NVIDIA® P2000 or AMD WX 2100	N/A	NVIDIA Quadro P2000 and AMD Radeon Pro WX 2100	N/A	NVIDIA P2000
<b>Operating systems and virtualization software supported</b>	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), VMware, Hyper-V, and ClearOS	ClearOS, Microsoft Windows Server	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, Hyper-V, and ClearOS	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, and Hyper-V	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, and Hyper-V
<b>Management</b>	HPE iLO 5, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE InfoSight	N/A	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, HPE InfoSight, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight
<b>Form factor/chassis depth</b>	Ultra Micro Tower/9.65"	Ultra Micro Tower/10"	Micro ATX Tower (4U)/18.71"	Rack (1U)/15.05"	Tower (4.5U)/< 19"	Rack (1U)/24.1"	Rack (2U)/24.99"
<b>Warranty—year(s) (parts/labor/on-site)</b>	1/1/1	1/1/1	3/1/1 or 3/3/3 (depending on region)	3/3/3	3/3/3	3/3/3	3/3/3



# HPE PROLIANT SERVERS—10, 100, 300, 500 SERIES (CONTINUED)

## HPE ProLiant servers

	ML/DL300 series: Versatile server: Industry-leading portfolio offering flexible choices for multiworkload compute and storage							DL500 series: Scalable performance for business-critical workloads	
									
	<b>ML350 Gen10</b>	<b>DL325 Gen10</b>	<b>DL325 Gen10 Plus</b>	<b>DL360 Gen10</b>	<b>DL380 Gen10</b>	<b>DL385 Gen10</b>	<b>DL385 Gen10 Plus</b>	<b>DL560 Gen10</b>	<b>DL580 Gen10</b>
<b>Number of processors</b>	1 or 2	1	1	1 or 2	1 or 2	1 or 2	1 or 2	1, 2, or 4	1, 2, 3, or 4
<b>Cores per processor</b>	4/6/8/10/12/14/16/18/20/22/24/26/28	8/16/24/32/64	8/16/24/32/64	4/6/8/10/12/14/16/18/22/24/26/28	4/6/8/10/12/14/16/18/20/22/24/26/28	8/16/24/32/64	8/16/24/32/64	4/6/8/10/12/14/16/18/20/22/24/26/28	4/6/8/10/12/14/16/18/20/22/24/26/28
<b>Processors supported</b>	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series;* Intel Xeon Scalable processor 8100, 6100, 5100, 4100, and 3100 series	AMD EPYC 7000 series processors	AMD EPYC 7000 Series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 8100, 6100, 5100, 4100, and 3100 series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 8100, 6100, 5100, 4100, and 3100 series	AMD EPYC 7000 series processors	AMD EPYC 7000 Series	Intel Xeon Scalable processor 8200, 6200, 5200 series; Intel Xeon Scalable processor 8100, 6100, and 5100 series	Intel Xeon Scalable processor 8200, 6200, and 5200 series; Intel Xeon Scalable processor 8100, 6100, and 5100 series
<b>Maximum processor frequency</b>	3.8 GHz	3.4 GHz	3.4 GHz	3.8 GHz	3.8 GHz	3.4 GHz	3.4 GHz	3.8 GHz	3.8 GHz
<b>Cache</b>	Up to 38.5 MB	Up to 256 MB L3	Up to 256 MB	Up to 38.5 MB	Up to 38.5 MB	Up to 256 MB L3	Up to 256 MB	Up to 38.5 MB	38.5 MB
<b>Maximum memory</b>	3 TB (24 DIMM slots)	2 TB (16 DIMM slots)	4 TB/3200 MT/s	3 TB (24 DIMM slots)	3 TB (24 DIMM slots)	4 TB (32 DIMM slots)	8 TB/3200 MT/s	6 TB (48 DIMM slots)	6 TB (48 DIMM slots)
<b>Persistent memory</b>	N/A	N/A	N/A	Up to (12) 16 GB NVDIMMs option (192 GB max.)**	Up to (24) 16 GB NVDIMMs option (384 GB max.)**	N/A	N/A	Up to (24) 16 GB NVDIMMs option (384 GB max.)**	Up to (24) 16 GB NVDIMMs option (384 GB max.)**
<b>Maximum storage drive bays</b>	(24) SFF SAS/SATA HDD/SSD, (12) LFF SAS/SATA HDD/SSD, (8) NVMe SSD option, or (12) NHP LFF SATA HDD	(4) LFF SAS/SATA HDD/SSD, (8) SFF SAS/SATA HDD/SSD + (2) SFF SAS/SATA HDD/SSD (10) SFF NVMe	Up to 12 LFF/24 SFF/24 NVMe	(10) NVMe + (1) SFF or (8) + (2) + (1) SFF or (4) LFF + (1) SFF SAS/SATA HDD/SSD M.2 SATA/PCIe enabled, optional dual uFF M.2 Enablement Kits	(24) + (6) SFF SAS/SATA HDD/SSD or (12) + (4) + (3) LFF + (2) SFF SAS/SATA HDD/SSD or 20 NVMe PCI SSD, M.2 enabled, optional dual uFF M.2 Enablement Kits	(8) LFF SAS/SATA HDD/SSD + UMB (12) LFF SAS/SATA/SSD + (4) LFF mid-plane + (3) LFF + (2) SFF rear drive bay (total 19 LFF + 2 SFF drives) (8) SFF SAS/SATA/SSD + optional UMB, SFF, or NVMe drive bay options (24) SFF SAS/SATA HDD/SSD + (6) SFF rear drives (total of 30 SFF drives) (24) NVMe PCI	38 SFF/20 LFF + 2 SFF max. HDD/SSD, 32 NVMe (x4) PCIe SSD	(24) SFF SAS/SATA HDD/SSD or (12) NVMe PCI SSD (optional), M.2 enabled, optional dual uFF enablement kits	(48) SFF SAS/SATA HDD/SSD (2) SFF SAS/SATA/NVMe, and (20) NVMe SSD option kits (optional)
<b>Maximum internal storage</b>	184 TB	154 TB	Up to 2 Single Width Active only	42+ TB	197+ TB	459 TB		184 TB	368 TB
<b>I/O slots</b>	Up to 8 PCIe 3.0	3 PCIe 3.0	Up to 3 PCIe 4.0	Up to 3 PCIe 3.0	Up to 8 PCIe 3.0	8 PCIe 3.0	Up to 8 PCIe 4.0 + M.2 support in PCIe slot	Up to 8 PCIe 3.0	16 PCIe 3.0
<b>GPU</b>	FL/FH double-wide and single-wide active and passive (4)	N/A	Up to 2 Single Width Active only	Single-wide and active to 9.5" (2) in length, up to 150W each	Single-wide (5)/double-wide (3) and active/passive up to 10.5"	Single-wide (5)/double-wide (3) and active/passive up to 10.5 cards	Single-/double-wide (8) and active/passive up to 10.5" (3)	HL/FH (2)	FL/FH double-wide (4)
<b>Operating systems and virtualization software supported</b>	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, Hyper-V, and ClearOS	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware
<b>Management</b>	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, HPE iLO Amplifier Pack Optional: HPE InfoSight HPE iLO Advance, HPE OneView Advanced HPE OneSphere	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, HPE iLO Amplifier Pack Optional: HPE InfoSight HPE iLO Advance, HPE OneView Advanced, HPE OneSphere	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight
<b>Form factor/chassis depth</b>	Tower (4U)/25.5" or Rack (5U)/25.5"	Rack (1U)/24.2"	1U, 31.8" (Up to 8 LFF/20 SFF) or 39.3" (12 LFF/24 SFF)	Rack (1U)/27.81" (SFF), 29.5" (LFF)	Rack (2U)/26.75" (SFF), 28.75" (LFF)	Rack (2U)/28.75"	Rack (2U)/26.75" (SFF), 28.75" (LFF)	Rack (2U)/29.75" (SFF)	Rack (4U)/29.75"
<b>Warranty—year(s) (parts/labor/on-site)</b>	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3

\* Intel Speed Select, 1-socket Optimized, NFV Optimized and VM Density Optimized processors.

\*\* Supported on first generation Intel Xeon Scalable processors.



# HPE SYNERGY AND BLADESYSTEM COMPUTE AND STORAGE MODULES

Compute Modules				Storage Modules		Frames	
							
<b>SY480 Gen10*</b>		<b>SY660 Gen10*</b>		<b>D3940 Storage Module</b>		<b>HPE Synergy 12000 Frame</b>	
<b>Number of processors</b>	1 or 2		2 or 4		<b>Max. Drive quantity supported</b>	1 to 40 small form factor (SFF) drives	
<b>Processors supported</b>	Intel Xeon Scalable processors family—1st Generation****	Intel Xeon Scalable processors family—2nd Generation*****	Intel Xeon Scalable processors family—1st Generation****	Intel Xeon Scalable processors family—2nd Generation*****	<b>Fabric</b>	Supports 6G SATA and 12G SAS	
<b>Processors—Cores available</b>	4 to 28		4 to 28		<b>Controller model</b>	HPE Smart Array P416ie-m 12G SAS Mezzanine Controller	
<b>Processors—Frequency</b>	1.7 to 3.6 GHz	1.8 to 3.8 GHz	2.0 to 3.6 GHz	1.8 to 3.8 GHz	<b>Controller RAID options</b>	RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM, 10 ADM, and HBA mode	
<b>Memory slots</b>	24	24	48	48	<b>Interconnect module</b>	HPE Synergy 12 Gb SAS Connection Module with 12 internal ports	
<b>Memory capacity—Per socket</b>	Up to 1.5 TB***	Up to 1, 2, or 4.5 TB***	Up to 6 TB***	Up to 1, 2, or 4.5 TB***	<b>Drive mix</b>	Choice to mix and match SAS/SATA, SSD/HDDs in each storage module, provisioned with servers in the same Synergy frame	
<b>Memory speed</b>	DDR4 @ 2666 MT/s***	DDR4 @ 2933 MT/s***	DDR4 @ 2666 MT/s***	DDR4 @ 2933 MT/s***	<b>Logical array limitation</b>	Must be composed with a single drive type	
<b>Persistent memory</b>	N/A	Intel (256 GB, 512 GB, 1 TB)***	N/A	Intel (256 GB, 512 GB, 1 TB)***	<b>Max. SAS storage capacity per module</b>	612 Terabytes (with 40 x 15.3 TB SAS RI SSDs)	
<b>Operating systems supported**</b>	MS Win, RHEL, SLES**		MS Win, RHEL, SLES**		<b>Max. storage capacity per frame</b>	3 Petabytes	
<b>Network ports</b>	Up to 3 Mezzanine Slots for SAS, Ethernet, or Fibre Channel depending on configuration		Up to 6 Mezzanine Slots for SAS, Ethernet, or Fibre Channel depending on configuration		<b>Max. drives per frame</b>	200 drives	
<b>Drives supported</b>	2 SFF SAS/SATA or 2 SFF NVMe (optional) or 2 M.2 SATA and 2 Dual uFF, hot plug, depending on model		0 to 4 SFF SAS/SATA/NVMe SSDs and/or up to 8 uFF Flash and/or up to 4 internal M.2 drives		<b>Max. storage modules per frame</b>	5 HPE Synergy D3940 storage modules	
<b>Maximum internal storage</b>	Up to 2 Drives + 40 w/ D3940 (up to 5 storage modules per frame) 204 max. drives per frame		Up to 4 Drives + 40 w/ D3940 (up to 4 storage modules per frame) 168 max. drives per frame		<b>Composable storage</b>	HPE OneView	
<b>I/O slots</b>	Up to 3 available		Up to 6 available		<b>Recommended HA storage/fault tolerance</b>	SAS SFF redundant paths require additional I/O module and SAS connection module. (SATA drives have a single port limitation, making them more vulnerable to failure than SAS drives.)	
<b>Management</b>	HPE OneView		HPE OneView		<b>RAID</b>	Support of RAID 0, 1, 5, 6, 10, 60, 1 ADM, 10 ADM presentation to OS as a volume and Software RAID	
<b>Form factor</b>	Half-height, 12 per enclosure (mixing allowed)		Full-height, 6 per enclosure (mixing allowed)				
<b>Warranty—year(s) (parts/labor/on-site)</b>	3/3/3		3/3/3				

\* For more details please review QuickSpecs at [hpe.com/v2/GetDocument.aspx?docname=a00008520enw](http://hpe.com/v2/GetDocument.aspx?docname=a00008520enw) and [hpe.com/v2/GetDocument.aspx?docname=a00008522enw](http://hpe.com/v2/GetDocument.aspx?docname=a00008522enw).  
 \*\* For more information on HPE's certified and supported ProLiant servers for OS and Virtualization software and latest listing of software drivers available for your server, please visit our Support Matrix at [hpe.com/info/ossupport](http://hpe.com/info/ossupport).  
 \*\*\* Capacity and Speed of Memory is highly dependent on version #, number of slots occupied and processor selected. See Memory Population Tables in individual Compute QuickSpecs for details.  
 \*\*\*\* Intel Xeon Scalable Family 100 Series (s1##aa) Bronze, Silver, Gold, and Platinum shelves.  
 \*\*\*\*\* Intel Xeon Scalable Family 200 Series (s2##aa) Bronze, Silver, Gold, and Platinum shelves.

BladeSystem		HPE storage blades		Enclosures	
				 	
<b>BL460c Gen10*</b>		<b>HPE D2500sb Storage Blade</b>		<b>HPE BladeSystem c3000 Platinum Enclosure</b> <b>HPE BladeSystem c7000 Platinum Enclosure</b>	
<b>Number of processors</b>	1 or 2		<b>Processors supported</b>	N/A	
<b>Processors supported</b>	4 to 26	4 to 26	<b>Drives supported</b>	Up to 12 hot plug SFF SAS or SATA HDDs or SAS/SATA SSDs	
<b>Processors—Cores available</b>	Intel Xeon Scalable processors family—1st Generation****	Intel Xeon Scalable processors family—2nd Generation*****	<b>Maximum capacity</b>	12 drives per storage blade and up to 8 storage blades in an enclosure provides an additional 368.64 TB maximum capacity to the HPE ProLiant BL460c Gen10 server blades	
<b>Processors—Frequency</b>	1.7 to 3.6 GHz	1.8 to 3.8 GHz	<b>RAID support</b>	RAID 0, 1, 5, 6, 10, 50, 60, 1 Advanced Data Mirroring (ADM), and 10 ADM	
<b>Memory slots</b>	16	16	<b>Form factor</b>	Half-height, single-wide storage blade	
<b>Memory capacity—Per socket</b>	Up to 1 TB***	Up to 1 TB***	<b>Warranty—year(s) (parts/labor/on-site)</b>	3/0/0 with warranty upgrade options	
<b>Memory speed</b>	DDR4 @ 2666 MT/s***	DDR4 @ 2933 MT/s***			
<b>Persistent memory</b>	N/A	N/A			
<b>Operating systems supported**</b>	MS Win, RHEL, SLES**				
<b>Network ports</b>	Up to 2 Mezzanine Slots for SAS, Ethernet, or Fibre Channel depending on configuration				
<b>Drives supported</b>	2 SFF SAS/SATA or 2 SFF NVMe (optional) or 2 M.2 SATA and 2 Dual uFF, hot plug, depending on model				
<b>Maximum internal storage</b>	Up to 2 Drives + 12 w/Expansion Drive				
<b>I/O slots</b>	Up to 2 available				
<b>Management</b>	OA, HPE OneView				
<b>Form factor</b>	Half-height, 16 per enclosure (mixing allowed)				
<b>Warranty—year(s) (parts/labor/on-site)</b>	3/3/3				

\* For more details please review QuickSpecs at [h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00008517enw](http://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00008517enw).  
 \*\* For more information on HPE's certified and supported ProLiant servers for OS and Virtualization software and latest listing of software drivers available for your server, please visit our Support Matrix at [hpe.com/info/ossupport](http://hpe.com/info/ossupport).  
 \*\*\* Capacity and Speed of Memory is highly dependent on version #, number of slots occupied and processor selected. See Memory Population Tables in individual Compute QuickSpecs for details.  
 \*\*\*\* Intel Xeon Scalable Family 100 Series (s1##aa) Bronze, Silver, Gold, and Platinum shelves.  
 \*\*\*\*\* Intel Xeon Scalable Family 200 Series (s2##aa) Bronze, Silver, Gold, and Platinum shelves.



# HPE APOLLO COMPUTE SYSTEMS

HPE Apollo 70		HPE Apollo 2000 Gen10 System		HPE Apollo 2000 Gen10 Plus System	
 <p><b>HPE Apollo 70 System</b></p>		 <p><b>HPE Apollo 2000 System</b></p>		 <p><b>HPE Apollo 2000 Gen10 Plus System</b></p>	
 <p><b>HPE AR44z server</b></p>		 <p><b>HPE ProLiant XL170r Gen10 server</b></p>		 <p><b>HPE ProLiant XL190r Gen10 server</b></p>	
 <p><b>HPE AR64z server</b></p>				 <p><b>HPE ProLiant XL225n Gen10 Plus server</b></p>	
<b>Density/Scale</b>	2U System, up to (4) 1U half width trays	<b>Density/Scale</b>	2U system, up to (4) 1U half width trays	<b>Density/Scale</b>	2U system, up to (4) 1U half width trays
<b>Processor</b>	Marvell Thunder X2 processor; 28 or 32 cores; 165W or 180W		<b>Processor</b>	Up to two Intel Xeon Scalable Processors per server node, up to 150W; -F support on CPU 0	
<b>Memory (type, channels, slots)</b>	Supports up to 2666 MT/s DDR4; 8 channels, 16 slots		<b>Memory (type, channels, slots)</b>	Supports up to 2666/2933 MT/s DDR4 SmartMemory; 6 channels, 16 slots	
<b>Storage</b>	Internal storage up to 8 LFF hot-plug SATA; 2 internal 2280 M.2	Internal storage up to 4 LFF hot-plug drives; 2 internal 2280 M.2	<b>Storage</b>	Dependent on chassis selection (r2200, r2600, or r2800) 6 SFF HDD/SSD or up to 2 NVMe SSD option, 3 LFF HDD; 2 internal 2280 M.2 optional kit	
<b>GPU Support</b>	N/A		<b>GPU Support</b>	N/A	
<b>System management</b>	HPE Performance Cluster Manager (HPCM)		<b>System management</b>	Up to (4) FH/FL HPE Performance Cluster Manager (HPCM), UEFI	
<b>OS Support</b>	SUSE Linux Enterprise Server (SLES), Red Hat Enterprise Linux (RHEL)		<b>OS Support</b>	Windows Server 2012 R2/2016/2019 (Most Recent Version), VMware ESXi™ 6.0 U3/6.5 U2/6.7 U1, Red Hat Enterprise Linux (RHEL) 7.6, SUSE Linux Enterprise Server (SLES) 12 SP4/15 SP1, CentOS	
<b>Power Supply—Hot Plug</b>	Two 1600W platinum power supplies		<b>Power Supply—Hot Plug</b>	Two 800W/1400W, 277 VAC/1600W, 2200W (2018) HPE Apollo Platform Manager option for rack level management	
<b>Interconnect</b>	choice of Ethernet (10 Gigabit), InfiniBand EDR/Ethernet 100 Gb		<b>Interconnect</b>	choice of 1 Gigabit, 10 Gigabit, 25 Gigabit, InfiniBand, Omni-Path or FlexibleLOM	
<b>Cooling</b>	(8) Single rotor fans (standard)		<b>Cooling</b>	(4) Single rotor fans (standard) and an additional 4 rotor fans can be added for redundancy	
<b>Security</b>	N/A		<b>Security</b>	iLO 5 Silicon Root of Trust, iLO Advanced (Optional)	
<b>Storage Controller</b>	Integrated SATA controller		<b>Storage Controller</b>	(1) HPE Smart Array S100; optional HPE Smart Array PCIe card	
<b>Warranty (parts, labor, on-site support)</b>	3/3/3		<b>Warranty (parts, labor, on-site support)</b>	3/3/3	
<b>QuickSpecs URL</b>	<a href="http://h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00039978enw">h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00039978enw</a>		<b>QuickSpecs URL</b>	<a href="http://h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00022816enw">h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00022816enw</a> <a href="http://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00022817enw">h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00022817enw</a> <a href="http://h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00019876enw">h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00019876enw</a>	
<b>QuickSpecs URL</b>			<b>QuickSpecs URL</b>	<a href="http://hpe.com/h20195/v2/GetDocument.aspx?docname=a00056110enw">hpe.com/h20195/v2/GetDocument.aspx?docname=a00056110enw</a>	



# HPE APOLLO COMPUTE SYSTEMS

# HPE SGI 8600 SYSTEM

## HPE Apollo 4200 Gen10 System

## HPE Apollo 4510 Gen10 System

## HPE Apollo 6000 Gen10 System

## HPE Apollo 6500 Gen10 System



**HPE Apollo 4200 Gen10 Server**



**HPE Apollo 4510 Gen10 System**



**HPE Apollo 6000 Gen10 System**



**HPE Apollo 6500 Gen10 System**



**HPE ProLiant XL230k Gen10 Server**



**HPE ProLiant XL270d Gen10 Server**



**HPE XA730i Gen10 Server**



**HPE XA780i Gen10 Server**



**HPE XA760i Gen10 Server**

<b>Form factor</b>	2U rack server
<b>Storage type</b>	Front: Up to 24 LFF or 48 SFF in the two front HDD Cages Optional Rear HDD Cages: 4 LFF, 2 SFF + 2 HHHL PCIe (supports [2] uFF Dual M.2), or 6 NVMe Optional M.2 kits
<b>Storage capacity</b>	Up to 392 TB (24 + 4 LFF 14 TB HDD) Up to 7.8 PB per 42U rack (20 servers 14 TB HDD)
<b>Storage controller</b>	(1) HPE Smart Array S100i; optional HPE Smart Array cards; Up to 3 HPE Smart Array Gen10 Controllers
<b>Processor family</b>	Intel Xeon Scalable processors (8100, 6100/6200, 5100/5200, and 4100/4200 series)
<b>Processor number</b>	One or two per server
<b>Processor cores available</b>	Up to 28 cores/165W
<b>Memory</b>	Supports up to 2933 MT/s DDR4 SmartMemory 1 TB max. with 64 GB LRDIMM @ 2933 MT/s, 16 DIMM slots
<b>Networking</b>	Embedded dual 1 Gb NIC PCIe Standup ([1] 16x PCIe Gen3 slots from each processor)
<b>Expansion slots</b>	Up to 5 Low Profile PCIe Slots or up to 6 slots including 2 FHHL PCIe from riser support (extended from Slot 2) with 2 processors
<b>Operating systems and virtualization SW</b>	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware
<b>Management Recommended for Management at scale</b>	HPE iLO 5 Management (standard), (2) iLO dedicated management ports; Intelligent Provisioning (standard), UEFI, iLO Advanced (optional), HPE OneView Advanced (optional)
<b>Chassis (series)</b>	HPE Apollo 4200
<b>Systems fans features</b>	Up to 10 fans with optional redundant fan kit (for redundancy)
<b>Power supply type</b>	(2) HPE 800W or 1600W, Flex Slot Power Supplies (AC/DC/277 VAC)
<b>Warranty</b>	3/3/3
<b>QuickSpecs URL</b>	<a href="https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00056091enw">h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00056091enw</a>

<b>Form factor</b>	4U shared infrastructure chassis
<b>Storage type</b>	(60) LFF in front (2) driver drawers, side loaded; (2) SFF SAS/SATA/NVMe/SSD or (2) uFF Dual M.2 front loaded; (2) M.2 supported by internal riser
<b>Storage capacity</b>	Up to 960 TB per server (60 x 16 TB HDD) Over 9 PB in 42U rack (10 servers 16 TB HDD)
<b>Storage controller</b>	(1) HPE Smart Array S100i; optional HPE Smart Array cards
<b>Processor family</b>	Intel Xeon Scalable processors (8100, 6100/6200, 5100/5200, and 4100/4200 series)
<b>Processor number</b>	One or two per server
<b>Processor cores available</b>	Up to 26 cores 150W
<b>Memory</b>	Supports up to 2933 MT/s DDR4 SmartMemory 1 TB max. with 64 GB LRDIMM @ 2933 MT/s, 16 DIMM slots
<b>Networking</b>	2 x 1GbE embedded + Choice of FlexibleLOM + Standup
<b>Expansion slots</b>	Up to (3) PCIe slots: (1) LP PCIe slot and (2) FHHL PCIe slots; Two riser options
<b>Operating systems and virtualization SW</b>	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware
<b>Management Recommended for Management at scale</b>	HPE iLO 5 Management (standard), (2) iLO dedicated management ports; Intelligent Provisioning (standard), UEFI, iLO Advanced (optional), HPE OneView Advanced (optional)
<b>Chassis (series)</b>	HPE Apollo 4510 Chassis
<b>Systems fans features</b>	Hot plug rear serviceable N + 1 redundant dual fan modules
<b>Power supply type</b>	(4) HPE 800W or 1600W, Flex Slot Power Supplies (AC/DC/277 VAC) HPE Apollo Platform Manager option for rack level management
<b>Warranty</b>	3/3/3
<b>QuickSpecs URL</b>	<a href="https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00021866enw">h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00021866enw</a>

<b>Density/Scale</b>	12U system, Up to (24) 1U half width trays
<b>Processor</b>	Up to two Intel Xeon Scalable Processors
<b>Memory (type, channels, slots)</b>	Supports up to 2666/2933 MT/s DDR4 SmartMemory, 16 DIMM slots
<b>Storage</b>	Up to 4 SAS/SATA/NVMe
<b>GPU Support</b>	N/A
<b>System management</b>	HPE Performance Cluster Manager (HPCM)
<b>OS Support</b>	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, CentOS
<b>Power Supply—Hot Plug</b>	HPE Apollo Power Shelf supports 1–3 HPE Apollo a6000 Chassis depending on power load; holds up to 6 power supplies: 2650W Platinum hot-plug (15.9 kW non-redundant) or 2400W Platinum hot-plug (14.4 kW non-redundant); power can be managed by an HPE Advanced Power Manager (APM) option at the server, chassis or power shelf level
<b>Interconnect</b>	Integrated 10 Gb Ethernet, EDR and Omni-Path fabric options
<b>Cooling</b>	(5) Dual rotor fans (standard)
<b>Security</b>	iLO 5 Silicon Root of Trust, iLO Advanced (Optional)
<b>Storage Controller</b>	Embedded chipset SATA (s114i); optional HPE Smart Array PCIe card
<b>Warranty (parts, labor, on-site support)</b>	3/3/3
<b>QuickSpecs URL</b>	<a href="https://h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00016634enw">h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00016634enw</a> <a href="https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016641enw">h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016641enw</a>

<b>Density/Scale</b>	4U system
<b>Processor</b>	Up to two Intel Xeon Scalable Processors
<b>Memory (type, channels, slots)</b>	Supports up to 2933 MT/s DDR4 SmartMemory 3 TB Max, 24 DIMM slots
<b>Storage</b>	Up to 16 SAS/SATA SSD, or up to 4 NVMe SSD (optional), M.21
<b>GPU Support</b>	Up to 8 PCIe or SXM-2 NVLink GPU, Now supporting NVIDIA Quadro RTX GPU
<b>System management</b>	HPE Performance Cluster Manager (HPCM), HPE Container Platform
<b>OS Support</b>	Ubuntu and Enterprise OS choice
<b>Power Supply—Hot Plug</b>	Up to 4 HPE 2200W Platinum 80 Plus (2+2)
<b>Interconnect</b>	4 x 1GbE embedded Choice of FlexibleLOM + Standup
<b>Cooling</b>	Air cooled, 5 fan modules per server. One 80 mm dual rotor fan on top, one 60 mm single rotor fan on bottom.
<b>Security</b>	iLO 5 Silicon Root of Trust, iLO Advanced (Optional)
<b>Storage Controller</b>	(1) HPE Smart Array S100i; optional HPE Flexible Smart Array and Smart Array PCIe card
<b>Warranty (parts, labor, on-site support)</b>	3/3/3
<b>QuickSpecs URL</b>	<a href="https://h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00039976enw">h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00039976enw</a>

<b>Processor</b>	Up to two Intel Xeon Scalable Processors	Up to two Intel Xeon Scalable Processors	One Intel® Xeon Phi™ Processor
<b>Memory (type, channels, slots)</b>	Supports up to 2933 MT/s DDR4 SmartMemory; 12 slots	Supports up to 2933 MT/s DDR4 SmartMemory; 16 slots	Supports up to 2400 MT/s DDR4 SmartMemory; 12 slots
<b>Storage</b>	Up to 2 SFF SATA HDD/SSD	Up to 4 SFF SATA HDD/SSD	Up to 2 SFF SATA HDD/SSD
<b>GPU Support</b>	N/A	Up to (4) NVIDIA Tesla GPUs with NVLink	N/A
<b>QuickSpecs URL</b>	<a href="https://h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00016640enw">h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00016640enw</a>		



# HPE MOONSHOT SYSTEMS AND EDGELINE CONVERGED EDGE SYSTEMS

## HPE Moonshot 1500



<b>Chassis size</b>	4.3U; 18.96 x 44.33 x 89.97 cm, holds up to olds up to forty-five (45) ProLiant Server Blades. Switches, uplinks, power supplies, fans, and a chassis management module are all designed to fit into the HPE Moonshot 1500 System.		
<b>Compute nodes</b>			
	<b>ProLiant m700p Blade</b>	<b>ProLiant m710x Server Blade</b>	<b>ProLiant m510 Server Blade</b>
<b>SoC</b>	4 processors x AMD Opteron X2170 APU, 2.4 GHz, (4) x86 cores	Intel Xeon E3-1585L v5 "Skylake-H" (3.0 GHz base, 3.7 GHz/all-core turbo) 8 MB shared level 3 Cache and 128 MB L4 cache (eDRAM)	Intel Xeon D "Broadwell-DE" D-1584, 8-Core, 2.0 GHz base, 2.3 GHz all-core turbo D-1587, 16-Core, 1.7 GHz base, 2.1 GHz all-core turbo 12 MB L3 Cache
<b>GPU</b>	Integrated GPU with AMD Radeon HD 8000 Series Graphics Base Frequency: 655 MHz Boost Frequency: 800 MHz	Integrated Intel Iris Pro P580 GT4e GPU with 72 execution unit iLO 4 Remote Console	iLO 4 Remote Console
<b>Network controller</b>	Broadcom BCM5720 Ethernet Controller	Mellanox ConnectX-3 Pro, Dual 10GbE NIC with RoCE	Mellanox ConnectX-3 Pro, Dual 10GbE NIC, supports RoCE
<b>Memory</b>	SDRAM DDR3 PC3-12800 (1600 MHz), four (4) SODIMM 32 or 64 GB (8 or 16 GB per SoC)	(4) DDR4 ECC SODIMMs (2133/2400 MHz) (8 GB, 16 GB) Maximum Configuration 64 GB (4 x 16 GB)	(4) DDR4 ECC RDIMMs (2133/2400 MHz) (8 GB, 16 GB, 32 GB) Maximum Configuration 128 GB (4 x 32 GB)
<b>Onboard storage</b>	64 GB, 120 GB, or 240 GB M.2 industrial grade SSD Maximum internal storage: 960 GB (1 x 240 GB per SoC)	Five (5) M.2 Modules (1)—SATA M.2 (2242)—120 GB or 240 GB (4)—NVMe M.2 (2280): up to 2 TB each, 8 TB maximum	Three (3) M.2 Modules (1)—SATA M.2 (2242)—64 GB, 120 GB (2)—x4 NVMe M.2 (2280): up to 1 TB each—2 TB total
<b>Eternal storage</b>	iSCSI with iSER acceleration		
<b>Workload</b>	Hosted Desktop Infrastructure	Workspace Application Delivery, Video Transcoding, Big Data Analytics	All Purpose Compute Workhorse: Video Streaming, Big Data Analytics, Media Processing, and more!
<b>Server blade management</b>	Moonshot iLO chassis manager	HPE iLO 4 (Remote Console with vKVM and vMedia) HPE Trusted Platform Module (TPM) embedded	HPE iLO 4 (Remote Console with vKVM and vMedia) HPE Trusted Platform Module (TPM) embedded
<b>Server blade power</b>	Maximum: 90W	Maximum: 90W	Typical: 90W
<b>Compatible OS</b>	Windows 7/8.1/10	Windows 7/8.1/10, Windows Server 2012/2012 R2/2016 RHEL/CentOS, Ubuntu, SLES Hyper-V, XenServer, RHEL KVM, VMware ESXi	Ubuntu 15.04, Ubuntu 14.04.3 LTS, RHEL/CentOS 6.7/7.2, SLES 12, Windows Server 2012/2012 R2 VMware ESXi 6.0
<b>Chassis networking</b>	Comware Switches: Moonshot-45Gc Switch, Moonshot-45XGc Switch, Moonshot-180XGc Switch		
<b>Switches</b>			
<b>Moonshot-45G Switch Module</b>	N/A	45 port—1 GB switch for Moonshot 1500, Fast Path Firmware, supports single only single node blades—m510 and m710x	
<b>Moonshot-45XGc Switch Module</b>	N/A	45 port—10 GB switch for Moonshot 1500, 10 GB blades can run on 10 GB or 1 GB, and 1 GB blades will run at 1 GB only, Comware 7 firmware	
<b>Moonshot-180XGc Switch Module</b>	m700p blades will run on 1 GB, for 10 blades 710x or m510 the networking bandwidth can be set to 10 GB, Comware 7 firmware, supports all blades		
<b>Uplinks</b>			
<b>Moonshot-6SFP Uplink Module</b>	Use up to two 4-port HPE Moonshot-4QSFP+ Uplink Modules with four 40GbE QSFP+ ports. Each uplink module delivers 160GbE of aggregate bandwidth to connect the HPE Moonshot System to an external network. Supports Moonshot-45Gc Switch.		
<b>Moonshot-4QSFP+ Uplink Module</b>	The 45XGc Switch Module is a performance 45 port—10 Gb switch for the Moonshot 1500 chassis. 10 Gb blades can run at 1 Gb or 10 Gb and 1 Gb blades will run at 1 Gb. This switch uses Comware 7 firmware. Supports Moonshot-180XGc Switch.		
<b>Moonshot-16SFP+ Uplink Module</b>	Use up to two 16-port HPE Moonshot-16SFP+ Uplink Modules with sixteen 10GbE SFP+ ports. Each uplink module delivers 160GbE of aggregate bandwidth to connect the HPE Moonshot system to an external network. Supports Moonshot-180XGc Switch.		
<b>Chassis management</b>	iLO Chassis Management, supports the HPE RESTful Interface Tool		
<b>Chassis power</b>	1500W redundant power supply		
<b>Chassis warranty</b>	Chassis Warranty includes 3-Year Parts, 3-Year Labor, 3-Year On-site support		

## HPE Edgeline

New



	<b>HPE Edgeline EL300 Converged Edge System</b>	<b>HPE Edgeline EL1000 Converged Edge System</b>	<b>HPE Edgeline EL4000 Converged Edge System</b>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>Operating temp: -30 to 70°C</li> <li>Shock and Vibration tested</li> <li>Passively cooled, IP50 rated</li> <li>MIL-STD-810G</li> </ul>	<ul style="list-style-type: none"> <li>Operating temp: 0 to 55°C</li> <li>Shock and Vibration tested</li> <li>NEBS Level 3</li> </ul>	<ul style="list-style-type: none"> <li>Operating temp: 0 to 55°C</li> <li>Shock and Vibration tested</li> <li>MIL-STD-810G</li> <li>NEBS Level 33</li> </ul>
<b>Compute</b>	<ul style="list-style-type: none"> <li>One Intel® Core™ i5</li> <li>Up to 4 x86 cores per system</li> <li>VPU Option for vision processing</li> </ul>	<ul style="list-style-type: none"> <li>One HPE m510 (Intel Xeon D "Broadwell-DE" 8C/16C) or m710x (Intel Xeon E3-1585L v5 "Skylake-H" + workstation GPU) compute blade</li> <li>Up to 16 Xeon cores per system</li> <li>Hot-swappable</li> <li>VPU Option for vision processing</li> <li>Additional GPU options from NVIDIA and AMD</li> </ul>	<ul style="list-style-type: none"> <li>Four HPE m510 (Intel Xeon D "Broadwell-DE" 8C/16C) or m710x (Intel Xeon E3 4C + workstation GPU) compute blades</li> <li>Up to 64 Xeon cores per system</li> <li>Mix-and-match, hot-swappable</li> <li>VPU Option for vision processing</li> <li>Additional GPU options from NVIDIA and AMD</li> </ul>
<b>Memory</b>	Up to 32 GB per system	Up to 128 GB per system	Up to 512 GB per system (across four compute blades)
<b>Storage</b>	Up to 3 TB using M.2 SSDs	<ul style="list-style-type: none"> <li>Up to 16 TB on compute blades and extended storage adapters</li> <li>Up to 22 TB using two SFF drives</li> </ul>	Up to 48 TB on four compute blades and four extended storage adapters
<b>Networking</b>	Up to six 1GbE ports, with Time Sensitive Network (TSN)	Up to two 10GbE ports with RDMA over Converged Ethernet (RoCE)	Up to eight 10GbE ports with RDMA over Converged Ethernet (RoCE), and optional 25 Gb, 100 Gb Ethernet NICs
<b>Converged OT and other I/O interfaces</b>	<ul style="list-style-type: none"> <li>HPE Edgeline OT Link</li> <li>One daughter card option supporting CAN bus, GbE TSN, GPIO or Modbus etc., for Converged OT</li> <li>Two M.2 slots, each with a SIM slot for Wi-Fi, BT and LTE connectivity</li> </ul>	<ul style="list-style-type: none"> <li>HPE Edgeline OT Link</li> <li>Two full-height half-length (FHHL) PCIe cards or PXI/PXle modules for Converged OT</li> <li>Two mini-PCIe slots, each with a SIM slot Wi-Fi, BT and LTE connectivity</li> </ul>	<ul style="list-style-type: none"> <li>HPE Edgeline OT Link</li> <li>Four full-height half-length (FHHL) PCIe cards or PXle modules for Converged OT</li> </ul>
<b>Security</b>	Silicon Root of Trust Trusted Platform Module (TPM)	Trusted Platform Module (TPM)	Trusted Platform Module (TPM)
<b>Systems management</b>	<ul style="list-style-type: none"> <li>HPE Edgeline iSM, EIM</li> <li>Redfish, CLI, WebGUI</li> </ul>	<ul style="list-style-type: none"> <li>HPE iLO 4, EIM</li> <li>Redfish, CLI, WebGUI</li> </ul>	<ul style="list-style-type: none"> <li>HPE iLO 4, EIM</li> <li>Redfish, CLI, WebGUI</li> </ul>
<b>Power</b>	Typical: 30W AC (with external AC power supply) and DC input options	Typical: 100–150W, AC and DC input options	Typical: 400–600W, AC and DC input options



# HPE MISSION CRITICAL SOLUTIONS

## HPE Mission Critical x86 Servers



**HPE Superdome Flex**

<b>Processors supported</b>	Intel Xeon Scalable processors family—1st Generation Gold and Platinum	Intel Xeon Scalable processors family—2nd Generation—Gold and Platinum
<b>Number of processors</b>	Four Intel Xeon Scalable Platinum or Gold processors per chassis, 1–8 chassis, 4–32 processors single system	
<b>Maximum number of cores</b>	896 (Max. 112 per 4-socket chassis)	
<b>Scalable processor chipset</b>	HPE Superdome Flex ASIC	
<b>Operating system supported</b>	Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Linux, Oracle VM, VMware, Microsoft Windows Server	
<b>Maximum memory</b>	48 TB shared memory (Max. 6 TB per 4-socket chassis)	
<b>Memory speed</b>	DDR4 @ 2666 MT/s	DDR4 @ 2933 MT/s
<b>Persistent memory</b>	N/A	HPE DC Persistent Memory (128, 256, and 512 GB)
<b>I/O slots</b>	128 max. (16 or 12 LP PCIe I/O slots per 4-socket chassis)	
<b>Internal hard disk drives</b>	Per 4-socket chassis: 4x HDD/SSD bays and 1x DVD-R/DVD-RW bay	
<b>Hard partitions (nPars)</b>	Multiple 4, 8, 12, or 16-socket electrically isolated HPE nPartitions (HPE nPars) supported per rack	
<b>Management</b>	Rack Management Controller (RMC), Redfish API, HPE OneView	
<b>Rack height (EIA unit)</b>	Multiple size racks supported depending on configuration. Refer to <a href="#">QuickSpecs</a> for details. 5U per 4-socket Base or Expansion Chassis.	

For more information on HPE Superdome Flex, please visit: [hpe.com/superdome](http://hpe.com/superdome)

## HPE Integrity Servers with HP-UX



**HPE Integrity BL860c i6 blade**



**HPE Integrity BL870c i6 blade**



**HPE Integrity BL890c i6 blade**



**HPE Integrity rx2800 i6 blade**



**Superdome 2-8s**



**Superdome 2-16s**



**Superdome 2-32s**

	Intel Itanium® 9700 (i6)	Intel Itanium 9700 (i6)	Intel Itanium 9700 (i6)	Intel Itanium 9700 (i6)	Intel Itanium 9760 (i6) Intel Itanium 9740 (i6) Intel Itanium 9560 (i4) Intel Itanium 9540 (i4)	Intel Itanium 9760 (i6) Intel Itanium 9740 (i6) Intel Itanium 9560 (i4) Intel Itanium 9540 (i4)	Intel Itanium 9760 (i6) Intel Itanium 9740 (i6) Intel Itanium 9560 (i4) Intel Itanium 9540 (i4)
<b>Number of processors</b>	1–2	2–4 processors	4–8 processors	1–2 processors	2–16	2–16	2–32
<b>Maximum number of cores</b>	16 cores	32 cores	64 cores	16 cores	128 (64 max. per nPar)	128	256
<b>Scalable processor chipset</b>	N/A	N/A	N/A	Intel 7500 IOH	sx3000	sx3000	sx3000
<b>Operating system supported</b>	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3*	HP-UX 11i v3*	HP-UX 11i v3*
<b>Maximum memory</b>	384 GB (2.4 TB Maximum Internal Storage)	768 GB (4.8 TB Maximum Internal Storage)	1.5 TB (9.6 TB Maximum Internal Storage)	384 GB	4 TB DDR3 (256 x 16 GB)	4 TB DDR3 (256 x 16 GB)	8 TB DDR3 (512 x 16 GB)
<b>Memory speed</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Persistent memory</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>I/O slots</b>	3 mezzanine slots	6 mezzanine slots	12 mezzanine slots	6 Gen2 PCIe	48 external PCIe x8 Gen2	96 external PCIe x8 Gen2	96 external PCIe x8 Gen2
<b>Internal hard disk drives</b>	2 SFF hot plug SAS	4 SFF hot plug SAS	8 SFF hot plug SAS	Up to 8	N/A	N/A	N/A
<b>Hard partitions (nPars)</b>	Supported	Supported	Supported	N/A	1–8	1–8	1–16
<b>Management</b>	HPE Insight Online, HPE Systems Insight Manager, HPE Integrity iLO 3	HPE Insight Online, HPE Systems Insight Manager, HPE Integrity iLO 3	HPE Insight Online, HPE Systems Insight Manager, HPE Integrity iLO 3	HPE Systems Insight Manager, HPE Integrity iLO 3	Superdome Onboard Administrator (OA), HPE Systems Insight Manager	Superdome Onboard Administrator (OA), HPE Systems Insight Manager	Superdome Onboard Administrator (OA), HPE Systems Insight Manager
<b>Rack height (EIA unit)</b>	Full-height server blade; 8 per 10U enclosure; 4 per 6U enclosure	Double width, full-height server blade; 4 per 10U enclosure; 2 per 6U enclosure	Quad width, full-height server blade; 2 per 10U enclosure; 1 per 6U enclosure	2U	18U enclosure; 4U I/O expansion enclosure; standard rack door	1 x 18U enclosures; 4U I/O expansion enclosure; door active display	2 x 18U enclosures; 4U I/O expansion enclosure; door active display

For more information on HPE's Mission Critical Integrity servers, please refer [hpe.com/info/integrity](http://hpe.com/info/integrity) \* HP-UX 11i v3 2017 update and above required for i6 server

## HPE NonStop systems

Ultra-robust systems that deliver 24x7 continuous availability, unrivaled data integrity, and the capacity to handle the most-demanding processing-intensive workloads.

	New <b>NonStop X Powered by Intel® Xeon® Gold and Silver Series processors (Gen10)</b>	New <b>NonStop X NS7 X3 system</b>
<b>Processor Supported</b>	Intel® Xeon® Silver 4100 series processors	Intel Xeon Gold 6100 series processors
<b>NonStop CPUs per system</b>	Minimum: 2 Maximum: 4	Minimum: 2 Maximum: 16
<b>Software licensing</b>	1 or 2-core software licensing	2, 4, or 6-core software licensing
<b>RAM</b>	Per CPU: • Minimum 32 GB • Maximum 64 GB Per system: • Maximum 256 GB	Per CPU: • Minimum 64 GB • Maximum 192 GB Per system: • Maximum 3.0 TB
<b>NonStop OS</b>	L-series	L-series
<b>System interconnect</b>	InfiniBand	InfiniBand
<b>Clustering</b>	Expand-over-IP	NonStop X Cluster Solution (NSXCS), Expand-over-IP
<b>I/O controllers (Maximum number of CLIMs)</b>	8	56
<b>Telco industry hardware choices</b>	-48 VDC, seismic rack	-48 VDC, seismic rack NEBS level 3 certified

For more information on HPE's Integrity NonStop systems, please refer [hpe.com/info/nonstop](http://hpe.com/info/nonstop)

## HPE NonStop servers for Telco-use



**NS3 DC X2**



**NS7 CG X2**

<b>Number of processors</b>	2–4	2–16
<b>Maximum number of cores</b>	8	96
<b>Processors supported</b>	E5-2600 series processor	E5-2600 series processor
<b>Maximum memory</b>	256 GB (per node)	3.0 TB (per node)
<b>Drives supported</b>	Up to 100	Up to 2,700
<b>Maximum internal storage</b>	40 TB	1,000 TB
<b>Rack height</b>	Delivered in 36U CG seismic rack(s)	Delivered in 36U CG seismic rack(s)
<b>Operating systems supported</b>	NonStop OS (L-series)	NonStop OS (L-series)
<b>Blades per enclosure</b>	4	16



# THE HPE STORAGE FAMILY

HPE delivers an intelligent data platform that predicts and prevent issues across your full IT stack with the ability to learn and self-adjust in real time. Hybrid by design, it makes your data accessible and usable across all cloud environments, turning your data challenges into business opportunities.

The Intelligent Data Platform by HPE is AI-driven, built for the cloud and delivered as a service:

**AI-driven:** Reduce the burden of managing infrastructure and gain context-awareness of your data throughout its lifecycle.

**Built for cloud:** Run any workload, anywhere you need it with seamless data mobility and native integration to public cloud.

**As a service:** Pay-per-use elastic capacity that grows ahead of your business, delivered as a service on-premises.

Explore how your enterprise might take advantage of intelligent storage to meet the dynamic challenges ahead.

- **(New) HPE Primera:** The world's most intelligent storage for mission-critical apps<sup>2</sup> that delivers extreme resiliency and performance with the agility of the cloud. Powered by the intelligence of HPE InfoSight, HPE Primera delivers instant access to data with storage that sets up in minutes, upgrades transparently, and is delivered as a service. Plus, it's backed by a 100% availability guarantee.<sup>3</sup>
- **(New) HPE Nimble Storage dHCI:** HPE Nimble Storage dHCI is an intelligent platform with the flexibility of converged and the simplicity of HCI. Built with HPE ProLiant and HPE Nimble Storage, this platform provides the flexibility to scale compute and storage independently for unpredictable growth and the data resiliency and performance needed for business-critical apps.
  - Hardware consists of HPE Nimble Storage AF and HF platforms, and HPE ProLiant DL360 and DL 380. Please refer to the HPE Nimble Storage and HPE ProLiant sections for more information.
- **HPE MSA Storage:** Flash-enabled arrays that raise the entry storage bar, making application acceleration possible for a wide range of budgets.
- **HPE StoreEasy:** A leading NAS product family under \$15K USD, which is an easy-to-manage centralized, space for securely storing documents, images, audio, and video files.
- **HPE Nimble Storage:** HPE Nimble Storage leverages flash storage and predictive analytics to eliminate the gap and guarantee 99.9999% availability, delivering the best all-flash capacity per TB in the industry—and future-proofing design for value today and tomorrow.
- **HPE SimpliVity:** An enterprise-grade hyperconverged platform that speeds application performance, improves efficiency and resiliency, and restores VMs in seconds.
- **HPE 3PAR StoreServ Storage:** Tier 1 all-flash data storage array that can scale from midsize to the largest enterprises and service providers, enabling high service levels and instant application provisioning.
- **HPE XP8:** Designed for applications requiring 100% data availability, the HPE XP8 Storage combines a seven-nines platform (99.99999%) of fully online, scalable, and redundant hardware, with ultra-high-performance, and advanced data replication, and disaster recovery (DR) along with online data migration capabilities.
- **HPE StoreOnce:** Intelligent storage that transforms your hybrid cloud data protection with greater simplicity, performance and agility at lower cost than traditional solutions.
- **HPE StoreEver:** As your business's data continues to grow, trust HPE proven tape solutions to retain your valuable data for longer and for less.
- **HPE StoreFabric:** HPE StoreFabric modernizes your storage network with a broad selection of trusted products focused on performance, SAN automation, and resiliency solutions.



## All-Flash and Hybrid Storage

All-flash and hybrid storage with intelligence that makes it smarter and simpler to use.



## Data Protection and Archive Storage

Flash storage-integrated, built-for-cloud data protection delivering unparalleled backup, archive, and disaster recovery for your enterprise apps.



## File-based Storage

Secure, tailored, and economic solutions to address storage requirements for NAS and file-based storage.



## Storage Networking

A superior storage networking experience with a broad selection of trusted HPE StoreFabric products focused on performance, SAN automation, and resiliency solutions.

<sup>2</sup> HPE Storage Substantiation

<sup>3</sup> HPE 100% Availability Guarantee



# HPE PRIMERA

New

The HPE Primera 600 series redefines what's possible in mission-critical storage by delivering the agility of the cloud while raising the bar on resiliency and performance. Built upon proven resiliency and powered by HPE InfoSight, HPE Primera delivers instant access to data with storage that sets up in minutes, upgrades transparently, and is delivered as a service.

## Hardware summary



HPE Primera A630



HPE Primera A650



HPE Primera A670

	HPE Primera A630	HPE Primera A650	HPE Primera A670
<b>Number of Controller Nodes</b>	2	2 or 4	2 or 4
<b>CPUs per node</b>	1	2	2
<b>Maximum Host Ports</b>	16 ports	48 ports	48 ports
<b>16 GB or 32 Gb/s Fibre Channel Host Ports</b>	0–16 ports	0–48 ports	0–48 ports
<b>Built-in 10GbE Ports per node</b>	2	2	2
<b>Max. number of SSDs</b>	144	384	576
<b>Max. Raw Capacity (SSD only)</b>	250 TiB	800 TiB	1600 TiB
<b>Max. number of Add-on Drive Enclosures</b>	5 enclosures (A630)	14 enclosures (A650)	22 enclosures (A670)
<b>Capacity</b>	250 TiB (SSD only)	800 TiB (SSD only)	1600 TiB (SSD only)
<b>Cache</b>	128 GiB	256 GiB	512 GiB/1 TiB
<b>Storage Controller</b>	HPE Primera A630 Controller	HPE Primera A650 Controller	HPE Primera A670 Controller
<b>Minimum dimensions</b>	HPE Primera 630: 483 x 839 x 87.5 cm (W/D/H)	HPE Primera 650: 483 x 839 x 174 cm (W/D/H)	HPE Primera 670: 483 x 839 x 174 cm (W/D/H)
<b>Weight (weight includes chassis, controllers, and PCBM, no drives or adapters)</b>	HPE Primera 630: 33.6 kg	HPE Primera 650 2N: 47.3 kg HPE Primera 650 4N: 67.3 kg	HPE Primera 670 2N: 47.3 kg HPE Primera 670 4N: 67.3 kg
<b>Product number (SKU)</b>			N9Z46A (2-way Storage Base) N9Z47A (4-way Storage Base)
<b>Drive description</b>			SAS SFF FIPS Encrypted SSD; SAS SFF SSD;
<b>Enclosures</b>			HPE Primera 2U24 SFF SAS Drive Enclosure
<b>Maximum drives per enclosure</b>			HPE Primera 600 2-way Storage Base: 24; HPE Primera 600 4-way Storage Base: 48; HPE Primera 2U24 SFF SAS Drive Enclosure: 24
<b>Host interface</b>			32 Gb/s Fibre Channel; 16 Gb/s Fibre Channel
<b>Availability features</b>			Redundant power and cooling modules with battery and fans; A minimum of dual redundant controllers, max. of four controllers for added redundancy; RAID 6 for data protection
<b>Compatible operating systems</b>			Microsoft Windows Server 2012; Microsoft Windows Server 2012 R2; Microsoft Windows Server 2016; Microsoft Windows Server 2019; Microsoft Windows Hyper-V; HP-UX; SUSE Linux Enterprise Server (SLES); Red Hat Enterprise Linux (RHEL); VMware ESX® and ESXi; Oracle Solaris; Oracle UEK; Oracle Linux; Citrix® XenServer; IBM AIX; HPE OpenVMS; Apple OS X; HPE OpenVMS is a registered release only
<b>Warranty</b>			3/0/0 (3-year parts only); 5/0/0 (for SSDs)



## HPE MODULAR SMART ARRAY (MSA)

New



**HPE MSA 1050 SAN Storage**



**HPE MSA 2050/2052 SAN Storage**

<b>Description</b>	The HPE MSA 1050 SAN Storage brings affordable flash storage down to the most price sensitive customers	The HPE MSA 2050 SAN Storage is a flash ready system designed for affordable application acceleration ideal for small and remote office deployments	The HPE MSA 2052 SAN Storage is a hybrid flash system designed for affordable application acceleration for small and remote office deployments
<b>Capacity</b>	307 TB SFF or 576 TB LFF maximum raw capacity, depending on model	614 TB SFF or 1152 TB LFF, maximum raw capacity, depending on model	
<b>Drive description</b>	96 SFF or 48 LFF maximum including expansion, depending on model	192 SFF SAS/MDL SAS/SSD or 96 LFF SAS/MDL SAS/SSD, maximum including expansion, supported, depending on model	
<b>Host interface</b>	8 Gb Fibre Channel, 4-ports per system or 1 Gb iSCSI, 4-ports per system or 10 Gb iSCSI, 4-ports per system or 12 Gb SAS, 4-ports per system depending on model	16 Gb/8 Gb Fibre Channel 8-ports per system or 1GbE/10GbE iSCSI 8-ports per system or 12 Gb SAS 8-ports per system are supported	
<b>Storage controller</b>	2 HPE MSA 1050 2-port 8 Gb FC Controllers or 2 HPE MSA 1050 2-port 1 Gb iSCSI Controllers or 2 HPE MSA 1050 2-port 10 Gb iSCSI Controllers or 2 HPE MSA 1050 2-port 12 Gb SAS Controllers, depending on model	Two HPE MSA 2050 SAN controllers or two HPE MSA 2050 SAS controllers, supported, depending on model	
<b>Storage expansion options</b>	HPE MSA 2050 SFF Disk Enclosure or HPE MSA 2050 LFF Disk Enclosure	HPE MSA 2050 LFF Disk Enclosure or HPE MSA 2050 SFF Disk Enclosure or the HPE MSA 2050 SAN DC-Power Carrier Grade SFF Disk Enclosure	HPE MSA 2050 LFF Disk Enclosure or HPE MSA 2050 SFF Disk Enclosure
	N/A	Clustering support	
	N/A	Windows, Linux, HP-UX	
<b>SAN backup support</b>	Yes	Yes	
<b>Systems Insight Manager support</b>	Yes	Yes	
<b>Compatible operating systems</b>	Microsoft Window Server 2019, Microsoft Window Server 2016, Microsoft Windows Server 2012, Red Hat Linux, SUSE SLES Linux (2 versions of Linux OS), VMware, HP-UX. Detailed information available at: <a href="http://hpe.com/storage/spock">hpe.com/storage/spock</a>		
<b>Form factor</b>	2U rack height	2U	
<b>Minimum dimensions (H x W x D)</b>	8.9 x 49.5 x 44.7 cm	8.9 x 49.5 x 44.7 cm	
<b>Weight</b>	17.55 kg	18.4 kg	
<b>Warranty</b>	Three-year limited warranty, parts exchange next business day delivery. For more warranty information, refer to <a href="http://h20564.www2.hpe.com/hpsc/wc/public/home">h20564.www2.hpe.com/hpsc/wc/public/home</a> .		

## HPE SIMPLIVITY

New



**HPE SimpliVity 380 Gen10 At-a-Glance**



**HPE SimpliVity 325 At-a-Glance**



**HPE SimpliVity 2600 At-a-Glance**

<b>Description</b>	HPE SimpliVity 380, based on the HPE ProLiant DL380 Gen10 Servers, is a compact, scalable 2U rack-mounted building block that delivers server, storage, and storage networking services.	HPE SimpliVity 325 Gen10, based on the HPE ProLiant DL325 Gen10 Servers, is a compact, scalable, 1U rack-mounted building block that delivers integrated server, storage, and storage networking services. The HPE SimpliVity 325 Gen10 Server is the secure and versatile single socket server for virtualization and I/O intensive workloads is ideal for remote office or space-constrained locations.	The HPE SimpliVity 2600 VDI solution dramatically simplifies IT by combining infrastructure and advanced data services for virtualized workloads into a building block that delivers server, storage, and storage networking services.
<b>Node/Chassis size</b>	2U	1U	2U, up to 4 nodes per chassis
<b>Processors</b>	2x Intel Xeon Scalable processors are 8 to 28 cores selectable, 1 or 2 CPU options	1x AMD EPYC 7000 Processor Family 16 to 32 cores selectable, 1 CPU option slot	2x Intel Xeon Scalable processors 12 to 22 cores selectable, 1 or 2 CPU options
<b>Memory</b>	144 GB to 1536 GB per node selectable	256 GB to 2048 GB per node selectable	128 GB to 768 GB per node selectable
<b>Storage</b>	Two All Flash Storage Options (4000/6000 Series) and 5 Capacity Points: Extra Small—5 x 960 GB SSD Kit Small—5 x 1.92 TB SSD Kit Medium—9 x 1.92 TB SSD Kit Large—12 x 1.92 TB SSD Kit Extra Large—12 x 3.84 TB SSD Kit (Series 4000 only)	Extra Small—4 x 1.92 TB SSD Kit (4.6 TB usable) Small—6 x 1.92 TB SSD Kit (7.5 TB usable)	6 x 1.92 TB SSD Kit (1 kit per node)
<b>Network ports</b>	Ethernet 1 Gb LOM embedded, choice of 2 x 10 Gb FLOM	Embedded Ethernet 4 x 1GbE LOM embedded, 10 Gb FLOM	Dual port 1GbE Media Module Adapter dual port 10GbE PCI NIC
<b>Power supplies</b>	Dual power supplies provide highly available power HPE 800W FS Universal Ht Plg Pwr Supply Kit HPE 1600W FS Plat Ht Plg LH Pwr Supply Kit HPE 800W FS Plat Ht Plg Pwr Supply Kit HPE 800W FS -48 VDC Ht Plg Pwr Supply Kit HPE 800W FS Ti Ht Plg Pwr Supply Kit	Dual power supplies provide highly available power HPE 500W FS Plat Hot Plug LH Power Supply Kit HPE 800W FS Plat Hot Plug Power Supply Kit HPE 800W FS -48 VDC Hot Plug Power Supply Kit HPE 800W FS Titanium Hot Plug Power Supply Kit HPE 800W FS Universal Hot Plug Power Supply Kit HPE 1600W FS Platinum Hot Plug LH Power Supply Kit	Dual power supplies provide highly available power HPE 1600W Flex Slot Platinum hot plug LH Power Supply Kit HPE 1800W-2200W Flex Slot Platinum hot plug LH Power Supply Kit
<b>Hardware warranty</b>	Server Warranty includes 3-year Parts, 3-year Labor, 3-year On-site support with next business day response	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year On-site support with next business day response	Server Warranty includes 3-year Parts, 3-year Labor, 3-year On-site support with next business day response
<b>Hardware support</b>	3-year HPE SimpliVity 380 Gen10 solution support (required)	3-year HPE SimpliVity 325 Gen10 solution support (required)	3-year HPE SimpliVity 2600 solution support (required)

## HPE NIMBLE STORAGE

New



**AF-Series Arrays:** HPE Nimble Storage All Flash Arrays combine a flash-efficient architecture with HPE InfoSight predictive analytics to achieve fast, reliable access to data and 99.9999% guaranteed availability.



**HF-Series Arrays:** The HPE Nimble Storage Adaptive Flash array is a Hybrid Flash array for mixed, primary workloads, where cost-efficient flash performance is important. It is a Secondary Flash array for backup and DR while allowing you to put your backup data to work.

	AF20Q	AF20	AF40	AF60	AF80	Scale-out 4X AF80	HF20	HF20H	HF20C	HF40	HF40C	HF60	HF60C	Scale-out 4X HF60
<b>Raw capacity (TB/TiB)</b>	6-46/5-42	11-46/10-42	11-184/10-167	11-553/10-502	23-1106/21-1005	4423/4023	21-210/19-191	11-211/10-192	21-1260/19-1146	21-504/19-458	21-1260/19-1146	21-1260/19-1146	21-1260/19-1146	5040/4584
<b>Usable capacity (TB/TiB)</b>	3-25/2-23	17-33/15-30	8-136/7-124	8-407/7-370	17-815/15-741	3260/2965	16-169/14-153	7-164/6-149	16-1016/14-924	16-406/14-369	16-1016/14-924	16-1016/14-924	16-1016/14-924	4065/3697
<b>Effective capacity (TB/TiB)</b>	14-128/13-116	82-168/75-153	40-682/36-620	40-2037/36-1853	82-4075/75-3706	16303/14827	81-845/74-768	34-821/31-746	32-2032/29-1848	81-2030/74-1846	32-2030/28-1846	81-5080/74-4621	32-2030/28-1846	326-20324/297-18484
<b>Max. # of expansion shelves</b>	1	1	1	2	2	8	6	6	6	6	6	6	6	24
<b>Flash capacity (TB/TiB)</b>	N/A	N/A	N/A	N/A	N/A	N/A	1.4-28/1.3-25	0.9-28/0.8-25	0.7-28/0.6-25	1.4-60/1.3-54	1.4-60/1.3-54	1.4-156/1.3-142	1.4-156/1.3-142	624/567
<b>RAID level</b>	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity
<b>Onboard iSCSI/Mgmt. 1 Gb/10 Gb ports per array</b>	4	4	4	4	4	16	4	4	4	4	4	4	4	16
<b>Optional iSCSI 1 Gb ports per array</b>	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
<b>Optional iSCSI 10 Gb ports per array</b>	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
<b>Optional FC 8 Gb/16 Gb ports per array</b>	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
<b>Max. power requirement (watts/kVA)</b>	600/0.667	650/0.722	800/0.889	850/0.944	1200/1.333	4800/5.332	750/0.833	650/0.722	750/0.833	850/0.944	850/0.944	900/1.000	900/1.000	3600/4.000
<b>Thermal (BTU)</b>	1968	2132	2624	2788	3936	15744	2460	2132	2460	2788	2788	2952	2952	11,808



# HPE 3PAR STORESERV STORAGE

New



**HPE 3PAR StoreServ 8000 Storage:** Enterprise Tier 1 storage at a midrange price. HPE 3PAR StoreServ 8000 Storage delivers the performance advantages of a purpose-built, flash-optimized architecture without compromising resiliency, efficiency, or data mobility.



**The HPE 3PAR StoreServ 9000 Storage:** Enterprise-class flash array that helps you consolidate primary storage workloads—for file, block, and object—without compromising performance, scalability, data services, or resiliency.



**The HPE 3PAR StoreServ 20000 Storage:** Enterprise flash arrays for massive consolidation of demanding workloads with greater than 3 million IOPS, sub-millisecond latencies, a 4x density advantage, and scalability to 24 PB of usable capacity.

Model	8200	8400	8440	8450	9450	20450	20800	20850	20840
Number of Controller Nodes	2	2 or 4	2 or 4	2 or 4	2 or 4	2 or 4		2, 4, 6, or 8	
HPE 3PAR Gen5 ASICs	2	2 or 4	2 or 4	2 or 4	4 or 8	4 or 8		4, 8, 12, or 16	
Processors	2 x 6-core 2.2 GHz	2-4 x 6-core 2.2 GHz	2-4 x 10-core 2.4 GHz	2-4 x 10-core 2.4 GHz	4-8 x 10-core 2.4 GHz	4-8 x 8-core 2.5 GHz	4-16 x 8-core 2.5 GHz	4-16 x 10-core 2.4 GHz	
Total Cache	832 GiB	1664 GiB	8384 GiB	384 GiB	896 GiB	0.9-1.8 TiB	0.6-34.5 TiB	0.9-3.6 TiB	0.9-51.6 TiB
Flash Cache (optional)	768 GiB	1536 GiB	8000 GiB	N/A		N/A	0-32 TiB	N/A	0-48 TiB
On-Node Cache	64 GiB	128 GiB	384 GiB	384 GiB		896-1792 GiB	640-2560 GiB	896-3584 GiB	896-3584 GiB
Total Cache per node pair	832 GiB	832 GiB	4192 GiB	192 GiB	448 GiB				
Flash Cache per node pair	768 GiB	768 GiB	4000 GiB	N/A					
On-Node Cache per node pair	64 GiB	64 GiB	192 GiB	192 GiB					
Maximum Host Ports	12 ports	24 ports	24 ports	24 ports	80 ports	80 ports		160 ports	
16 Gb/s Fibre Channel Host Ports	4-12 ports	4-24 ports	4-24 ports	4-24 ports	0-80 ports	0-80 ports		0-160 ports	
10 Gb/s iSCSI Host Ports	0-4 ports	0-8 ports	0-8 ports	0-8 ports	0-40 ports	0-40 ports		0-80 ports	
10 Gb/s FCoE Host Ports	0-4 ports	0-8 ports	0-8 ports	0-8 ports					
10 Gb/s Ethernet Ports for File Persona	N/A	N/A	N/A	N/A	0-24 ports	0-24 ports		0-48 ports	
1 Gb/s Ethernet Adapter	0-8 ports	0-16 ports	0-16 ports	0-16 ports		N/A	N/A	N/A	N/A
10 Gb/s Ethernet Adapter	0-4 ports	0-8 ports	0-8 ports	0-8 ports		N/A	N/A	N/A	N/A
Maximum Initiators Supported	2048	4096	4096	4096		N/A	N/A	N/A	N/A
Built-in 1GbE Ports	2	2-4	2-4	2-4	2-4 ports	N/A	N/A	N/A	N/A
Built-in 10GbE Ports	N/A	N/A	N/A	N/A	N/A	2-4 ports		2-8 ports	
2U Controller Node Drive Capacity	24	24	24	24	N/A	N/A	N/A	N/A	N/A
Number of Hard Disk Drives	6-240	6-576	6-960	N/A	N/A	N/A	6-2304 drives	N/A	6-2304 drives
Number of Solid State Drives	6-120	6-240	6-480	6-480	6-576	6-576	6-1152	6-1152	6-1152
Max. Raw Capacity (approx.)	1000 TiB	2400 TiB	4000 TiB	3351 TiB	6000 TiB	1.925-4021 TiB	1.925-9600 TiB	1.925-8043 TiB	1.925-9600 TiB
Max. Raw Capacity (SSD only)	838 TiB	1676 TiB	3351 TiB	3351 TiB		1.925-4021 TiB	1.925-8043 TiB	1.925-8043 TiB	1.925-8043 TiB
Usable File Capacity	2-256 TiB	2-512 TiB	2-512 TiB	2-512 TiB	2-512 TiB	2-512 TiB		2-1024 TiB	

Capacity details	8200	8400	8440	8450	9450	20450	20800	20850	20840
RAID Levels	RAID 0, 1, 5, 6					RAID 0, 1, 5, MP			
RAID 5 Data to Parity Ratios	2:1-8:1					2:1-8:1			
RAID 6 Data to Parity Ratios	4:2, 6:2, 8:2, 10:2, 14:2					4:2, 6:2, 8:2, 10:2, 12:2, 14:2			
Drive Capacities (SSDs)	400 GB SSD, 920 GB SSD, 1.92 TB SSD, 3.84 TB SSD, 7.68 TB SSD, 15.36 TB SSD					400 GB SSD, 1.92 TB SSD, 3.84 TB SSD, 7.68 TB SSD, 15.36 TB SSD			
Drive Capacities (HDDs)	300 15K SAS, 600 15K SAS, 600 10K SAS, 1200 10K SAS, 1800 10K SAS, 2000 7.2K NL7, 4000 7.2K NL, 6000 7.2K NL, 8000 7.2K NL				N/A		N/A		300 15K SAS, 600 15K SAS, 600 10K SAS, 1200 10K SAS, 1800 10K SAS, 2000 7.2K SAS NL, 4000 7.2K SAS NL, 6000 7.2K SAS NL, 8000 7.2K SAS NL
Number of Add-on Drive Enclosures	0-9 enclosures	0-22 enclosures	0-38 enclosures	0-18 enclosures	2-48 enclosures	2-48 enclosures	2-96 enclosures		
Support for HPE 3PAR StoreServ File Controller v3	Yes								

## Gateway



The HPE 3PAR StoreServ File Controller provides an efficient, bulletproof, and effortless way to provide file services from any model of HPE 3PAR StoreServ Storage.

<b>Processor/Cache Memory</b>		Intel Xeon E5-2609 v3 (1.9 GHz/6-core/15 MB/85W) Processor (SKU K2R67A) Intel Xeon E5-2609 v4 (1.7 GHz/8-core/15 MB/85W) Processor (SKU Q0F57A)
<b>Memory</b>	<b>Type Standard</b>	DDR4 Registered (RDIMM) standard 32 GB (4 x 8 GB)
	<b>DIMM Sockets</b>	16
<b>Network Controller</b>	<b>NIC Ports</b>	2 x 1GbE
<b>Storage Controller</b>	<b>Controller(s)</b>	HPE Dynamic Smart Array B140i Controller
	<b>RAID</b>	0, 1, 1+0, and 5
<b>Storage</b>	<b>Hard Drives (Internal)</b>	24 x 2.5" (Small Form Factor) hot plug bays in the HPE 3PAR StoreServ File Controller v3 System chassis 2 x 6G SATA Solid State Drives containing factory installed OS. Configured as RAID 1 mirrored pair
	<b>Hard Drives (External)</b>	Designed for attach to Fibre Channel (HBA required), SAS (HBA required), or iSCSI (iSCSI initiator included) arrays
<b>Power Supply</b>		2 x 800W Platinum hot plug Power Supply (located in HPE 3PAR StoreServ File Controller v3 System chassis)
<b>Power Cords</b>		Note: The HPE 3PAR StoreServ File Controller v3 Systems are primarily connected to PDUs in data center racks and ship standard with a PDU 6-foot C14 to C13 power cord (142258-001)
<b>System Fans</b>		8 (4+4 redundancy) non-hot plug in HPE 3PAR StoreServ File Controller v3 System chassis
<b>Form Factor</b>		HPE 3PAR StoreServ File Controller v3 System—2U rack mount chassis
		HPE 3PAR StoreServ File Controller v3 Single Node—2U single slot tray (one or two nodes per chassis)
		HPE 3PAR StoreServ File Controller WSS2016 v3 Single Node—2U single slot tray (one or two nodes per chassis)

## HPE XP8 Storage

**HPE XP8 Storage:** Resilient mission critical storage for enterprise applications at scale that enables you to optimize and deploy with extreme confidence.



XP8

<b>Drive</b>	SAS SFF SSD and HDD, LFF HDD, FMD (Flash Module Device) NVMe SFF
<b>Storage Capacity</b>	69 PB Raw, ~60 PB Usable, 255 PB External Storage
<b>Host interface</b>	16 Gb FICON SW FC (192 Ports), 16 Gb FICON LW FC (192 Ports), 16/32 Gb FC HBA (192 Ports), 10G iSCSI (96 Ports)
<b>Cache</b>	6 TB Maximum supported cache capacity 32 GiB or 64 GiB Memory with Back-up Modules
<b>Compatible Operating Systems</b>	VMware, HP-UX, IBM AIX, Linux, Mainframe, Microsoft Windows, Oracle Solaris
<b>Availability Features</b>	All active components are redundant, and hot-swappable. On-line scalable fully redundant hardware platform with unique High Availability SW solutions for complete business continuity and data protection. Supports multiple RAID levels for data protection.
<b>RAID Support</b>	RAID 1 (2D + 2P), RAID 1 (4D + 4P), RAID 5 (3D + 1P), RAID 5 (7D + 1P), RAID 6 (6D + 2P), RAID 6 (14D + 2P)
<b>Warranty Standard Statement</b>	Warranty level of hardware reactive support is 3-years, 24x7, with 4-hour on-site response.
<b>Weight (imperial)</b>	326.5 lb. HPE XP8 Performance Disk Controller Chassis Pair (includes chassis, controllers, PCB, no drives or adapters).
<b>Weight (metric)</b>	148.1 kg HPE XP8 Performance Disk Controller Chassis Pair (includes chassis, controllers, PCB, no drives or adapters).
<b>Product Dimensions (imperial)</b>	HPE XP8 Performance Disk Controller Chassis 19 x 30 x 17.1 in. (W/D/H)
<b>Product Dimensions (metric)</b>	HPE XP8 Performance Disk Controller Chassis 483 x 763 x 434 mm (W/D/H)



# HPE STOREONCE

Hardware						Software				
New						New				
<b>Description</b>	HPE StoreOnce 3620 delivers entry-level disk-based backup and disaster recovery that's ideal for smaller remote or branch offices and data centers.	HPE StoreOnce 3640 delivers scalable backup and restore for small to midsized data centers, and provides an ideal replication target device for up to 36 remote and branch offices.	HPE StoreOnce 5200 delivers scalable backup and restore for small to midsized data centers, and provides an ideal replication target device for up to 64 remote and branch offices.	HPE StoreOnce 5250 offers disk-based backup with deduplication for longer term on-site data retention and off-site disaster recovery with best-in-class scalability and performance for larger midsize and enterprise data centers.	HPE StoreOnce 5650 offers disk-based backup with deduplication for longer term on-site data retention and off-site disaster recovery with best-in-class scalability and performance for larger midsize and enterprise data centers.	<b>HPE StoreOnce VSA Backup:</b> As a software defined backup target, StoreOnce VSA can be configured to provide the capacity and performance needed to meet the data protection requirements.				
<b>Overview product specifications</b>	3620	3640	5200	5250	5650	<b>Min. config.    Max. config.    To scale from minimum configuration</b>				
<b>Form factor</b>	2U Rack	2U Scalable Rack	4U Scalable Rack	7U to 12U Scalable Rack	7U to 22U Scalable Rack	<b>Performance</b>	Local capacity	4 TB	500 TB	100 MB vRAM per TB
<b>Total capacity (raw)</b>	48 TB	Up to 144 TB	Up to 288 TB	Up to 1120 TB	Up to 2240 TB		Cloud Bank Storage capacity	N/A	1 PB	100 MB vRAM per TB
<b>Local usable capacity</b>	Up to 31.5 TB	Up to 108 TB	Up to 216 TB	Up to 864 TB	Up to 1.7 PB		Max. backup performance	2 TB/hr	36 TB/hr	1 vCPU + 300 IOPS per TB/hr
<b>Effective local usable capacity</b>	Up to 630 TB (with 20:1 deduplication)	2.16 PB (with 20:1 deduplication)	4.32 PB (with 20:1 deduplication)	17.3 PB (with 20:1 deduplication)	34 PB (with 20:1 deduplication)		Max. concurrency	16 streams	256 streams	500 MB vRAM per stream
<b>Maximum Cloud Bank Storage usable capacity</b>	63 TB	216 TB	432 TB	1.7 PB	3.5 PB		Maximum backup targets	4 stores	32 stores	1 GB vRAM per store
<b>Effective Cloud Bank Storage capacity</b>	1.26 PB (with 20:1 deduplication)	4.32 PB (with 20:1 deduplication)	8.6 PB (with 20:1 deduplication)	34 PB (with 20:1 deduplication)	70 PB (with 20:1 deduplication)	<b>Resource Requirements</b>	Fan-in ratio	8 sources	8 sources	N/A
<b>Effective total usable capacity</b>	1.9 PB (with 20:1 deduplication)	6.48 PB	13 PB	51 PB (with 20:1 deduplication) Maximum write performance	104 PB (with 20:1 deduplication)		Minimum vRAM	24 GB	320 GB	N/A
<b>Maximum write performance</b>	6 TB/hour	7 TB/hour	17 TB/hour	22 TB/hour	27 TB/hour		Minimum CPU	2	36	N/A
<b>Maximum catalyst write performance</b>	14 TB/hour	18 TB/hour	33 TB/hour	41 TB/hour	47 TB/hour	IOPS	600	10,800	N/A	
<b>Maximum fan-in/backup targets</b>	24	24	32	32/64	50/192	Dedicated hard drives	4	72	N/A	

# HPE STOREEVER

Autoloader		MSL			Enterprise tape libraries		
New		New			New		
							
<b>HPE StoreEver MSL 1/8 0-drive</b>					<b>HPE T950</b>	<b>HPE TFinity ExaScale</b>	
<b>Maximum number of tape drives (Half-height)</b>	1	<b>Maximum number of tape drives (Half-height)</b>	2	21	42	120 (Full-height)	144 (Full-height)
<b>Drives type</b>	LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000	<b>Drives type</b>	LTO-8 Ultrium 30750; LTO-7 Ultrium 15000; LTO-6 Ultrium 6250; LTO-5 Ultrium 3000	LTO-8 Ultrium 30750; LTO-7 Ultrium 15000; LTO-6 Ultrium 6250	LTO-8 Ultrium 30750; LTO-7 Ultrium 15000; LTO-6 Ultrium 6250; LTO-5 Ultrium 3000	LTO-8, LTO-7 and LTO-6, or TS11xx	LTO-8, LTO-7 and LTO-6, or TS11xx
<b>Maximum number of tape slots (Half-height)</b>	8	<b>Maximum number of tape slots (Half-height)</b>	24	280	560	10,020 LTO 7,614 TS11xx	53,460 LTO 40,680 TS11xx
<b>Maximum capacity (2.5:1 compression with LTO-8)</b>	240 TB	<b>Maximum capacity (2.5:1 compression with LTO-8)</b>	720 TB	8.4 PB	16.8 PB	300.6 PB (using LTO-8 drives and media)	1.6 EB (using LTO-8 drives and media)
<b>Maximum sustained transfer rate (native)</b>	Up to 1.08 TB/hr per drive	<b>Maximum sustained transfer rate (native)</b>	Up to 2.16 TB/hr with 2 LTO-8 drives	Up to 22.5 TB/hr with 21 LTO-8 drives	Up to 45.4 TB/hr with 42 LTO-8 drives	Up to 155.52 TB/hour with maximum configuration of LTO-8 drives	186.6 TB/hour with maximum configuration of LTO-8 drives
<b>Form factor</b>	1U	<b>Form factor</b>	2U	3U-21U	6U-42U	47U (Full-height)	47U (Full-height)
<b>Interface</b>	8 Gb Native Fibre Channel; 6 Gb/s SAS	<b>Interface</b>	8 Gb Fibre Channel; 6 Gb/s SAS;	8 Gb Fibre Channel; 6 Gb/s SAS	8 Gb Fibre Channel; 6 Gb/s SAS	8 Gb/s FC	8 Gb/s FC
<b>Warranty—year(s) (parts/labor/on-site)</b>	1/0/0	<b>Warranty—year(s) (parts/labor/on-site)</b>	1/0/0	1/1/1	1/1/1	Refer to Spectra Logic	Refer to Spectra Logic

# HPE STORAGE MEDIA

New				
Category	LTO Ultrium	LTO Ultrium	LTO Ultrium	LTO Ultrium
Product Line	7A	7A	7A	7A
Product Name	HPE LTO-8 Ultrium 30 TB RW 20 Data Cartridges	HPE LTO-7 Ultrium 15 TB RW 20 Data Cartridges	HPE LTO-6 Ultrium 6.25 TB MP RW 20 Data Cartridges	HPE LTO-5 Ultrium 3 TB RW 20 Data Cartridges
Product No. with Option	Q2078AA	C7977AN	C7976AN	C7975AN
SAP® (Yes/No)	Yes	Yes	Yes	Yes
Single Unit UPC	1 90017 34459 1	1 90017 34460 7	1 90017 34461 4	1 90017 34462 1
Unit JAN code	4 549821 271184	4 549821 271191	4 549821 271207	4 549821 271214
Unit Dimensions (inches)	L 12.36 x W 10.03 x H 5.8	L 12.36 x W 10.03 x H 5.8	L 12.36 x W 10.03 x H 5.8	L 12.36 x W 10.03 x H 5.8
Unit Dimensions (cm)	L 31.4 x W 25.5 x H 14.8	L 31.4 x W 25.5 x H 14.8	L 31.4 x W 25.5 x H 14.8	L 31.4 x W 25.5 x H 14.8
Unit Weight (lbs)	12.67	12.67	12.67	12.67
Unit Weight (grams)	5747.00	5747.00	5747.00	5747.00
30 Word Description	HPE LTO-8 Ultrium 30 TB RW 20, Data Cartridges, 20 Pk	HPE LTO-7 Ultrium 15 TB RW 20, Data Cartridges, 20 Pk	HPE LTO-6 Ultrium 6.25 TB MP RW 20, Data Cartridges, 20 Pk	HPE LTO-5 Ultrium 3 TB RW 20, Data Cartridges, 20 Pk
Warranty (if not included in data sheet)	A142—2X (limited lifetime)	A142—2X (limited lifetime)	A142—2X (limited lifetime)	A142—2X (limited lifetime)



**HPE StoreEasy 1x60 Storage:** Whether you are a small, medium, or large distributed organization with remote offices, you need reliable, cost-efficient storage that can keep pace with users and growing volumes of file data without getting in the way of how your organization operates.

**HPE Storage File Controller:** An optimized, efficient, secure, and highly available file services gateway to address the file storage challenges of customers' medium to large organizations and their SAN environments.



**StoreEasy 1460 (all models)**



**StoreEasy 1560 (all models)**



**StoreEasy 1660 Performance Model only**



**StoreEasy 1860 Performance Model only**



**HPE Storage File Controller**

Processor/Cache Memory		Intel® Xeon® Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Silver 4112 (2.6 GHz/4-core/85W) Processor	Intel Xeon Silver 4112 (2.6 GHz/4-core/85W) Processor	Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W); second processor optional
				<b>StoreEasy 1660 (all others models)</b>	<b>StoreEasy 1860 (all others models)</b>	<b>HPE Storage Performance File Controller</b>
				Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Silver 4110 (2.1 GHz/8-core/85W); second processor optional
<b>Memory</b>	Type	DDR4-2666 CAS-19-19-19 Registered (RDIMM)				DDR4-2666 CAS-19-19-19 Registered (RDIMM)
	Maximum (by O/S license)	24 TB (WSS2016)				
	Standard	8 GB (1 x 8 GB)	8 GB (1 x 8 GB)	16 GB (1 x 16 GB)	16 GB (1 x 16 GB)	16 GB-32 GB (1 x 16 GB or 1 x 32 GB)
	DIMM Sockets	24	6	24	24	24
<b>Network Controller</b>	NIC ports	4	2	4	4	4 x 1GbE ports plus FlexibleLOM expansion
	Controller	1 Gb Ethernet 4-port	1 Gb Ethernet 4-port	1 Gb Ethernet 4-port	1 Gb Ethernet 4-port	N/A
<b>Storage Controller</b>	Controller(s)	HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2 GB Cache/SmartCache) 12G SAS Modular Controller for data and OS drives	HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2 GB Cache/SmartCache) 12G SAS Modular Controller for data and OS drives	HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4 GB Cache/SmartCache) 12G SAS Modular Controller for data drives; HPE Smart Array S100i SR Gen10 SW RAID for OS drives only	HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4 GB Cache/SmartCache) 12G SAS Modular Controller for data drives; HPE Smart Array S100i SR Gen10 SW RAID for OS drives only	HPE Smart Array S100i SR Gen10 SW RAID
	RAID (for data drives using Smart Array controller)	RAID 0, 1, 5, 6, 10, 50, 60	RAID 0, 1, 5, 6, 10, 50, 60	RAID 0, 1, 5, 6, 10, 50, 60	RAID 0, 1, 5, 6, 10, 50, 60	0, 1, 1+0, and 5
		1 ADM, 10 ADM	1 ADM, 10 ADM	1 ADM, 10 ADM	1 ADM, 10 ADM	N/A
		(Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	(Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	(Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	(Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	N/A
	Internal SAS connectors	8 SAS lanes across 2 x4 internal Mini-SAS ports	8 SAS lanes across 2 x4 internal Mini-SAS ports	16 SAS lanes across 4 x4 internal Mini-SAS ports	16 SAS lanes across 4 x4 internal Mini-SAS ports	N/A
External SAS connectors	None	None	None	None	N/A	
<b>Storage</b>	Hard Drives Internal	4 LFF (3.5") hot plug bays in front	4 LFF (3.5") hot plug bays standard and 4 additional LFF (3.5") hot plug bays optional (total of 8 internal LFF bays maximum)	12 LFF (3.5") hot plug bays in front and optional 4 LFF hot plug bays in mid-chassis drive cage (total of 16 internal LFF bays maximum)	24 SFF (2.5") hot plug bays in front and optional 4 SFF hot plug bays in rear drive cage (total of 28 SFF internal bays maximum)	2 x 240 GB SATA SFF SSDs for Operating System (configured as RAID 1 mirrored pair)
	External	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Designed for attach to Fibre Channel (HBA required) or iSCSI (Microsoft iSCSI initiator included) arrays
<b>Maximum Storage Capacity (raw)</b>	Internal	32 TB	64 TB (with optional card cage and 4 x 12 TB LFF HDDs)	192 TB (with optional mid-chassis cage and 16 x 12 TB LFF HDDs)	67.2 TB (with optional rear cage and 28 x 2.4 TB SFF HDDs)	(Internal) N/A (External) depends on external array
	External	Depends on number of Smart Arrays with external ports and type of external storage enclosure used				
<b>Power Supply</b>	1 x 500 watts Platinum, hot plug (2nd redundant power supply optional)		1 x 500 watts Platinum, hot plug (2nd redundant power supply optional)	2 x 800 watts Platinum, hot plug	2 x 800 watts Platinum, hot plug	2 x 500W Platinum hot plug Power Supply
<b>Power Cords</b>	One high voltage power cords (IEC C13 to C14) standard; two if second power supply added			Two high voltage power cords (IEC C13 to C14) standard	Two high voltage power cords (IEC C13 to C14) standard	Note: The HPE Storage File Controllers are primarily connected to PDUs in data center racks and ship standard with a PDU 6-foot C14 to C13 power cord (142258-001)
<b>System Fans</b>	Single processor system includes 5 hot plug, redundant fans, standard dual processor system includes 7 hot plug redundant fans		2 non-hot plug redundant fans, standard	6 hot plug, high-performance, redundant fans, standard	6 hot plug, high-performance, redundant fans, standard	Single processor system includes 5 hot plug, redundant fans, standard. Dual processor system includes 7 hot plug redundant fans.
<b>Form Factor</b>	1U rack mount (includes rail kit)		Tower (4.5U)	2U rack mount (includes rail kit)	2U rack mount (includes rail kit)	1U rack mount (includes rail kit)
			<b>Note: Sliding Shelf—874578-B21 is optional to support rack form factor.</b>			



# HPE STOREFABRIC

## Enterprise-level Gen6 32 Gb Fibre Channel Director Switches

				
<b>Product name</b>	<b>HPE StoreFabric SN8600B 8-Slot Power Pack+ SAN Director Switch</b>	<b>HPE StoreFabric SN8600B 4-Slot Power Pack+ SAN Director Switch</b>	<b>HPE StoreFabric SN8500C 8-slot SAN Director Switch</b>	<b>HPE StoreFabric SN8500C 4-slot SAN Director Switch</b>
<b>Port speed/Performance</b>	Up to 32 Gb FC	Up to 32 Gb FC	Up to 64 Gb FC	Up to 64 Gb FC
<b>Ports</b>	Up to 384 ports (equivalent to 512 with ICLs) at 32 Gb. It can accommodate up to 8 HPE 48-port blades and comes pre-bundled with HPE Power Pack+ Software	Up to 192 ports (equivalent to 256 with ICLs) at 32 Gb. It can accommodate up to 4 HPE 48-port FC blades and comes pre-bundled with HPE Power Pack+ Software	Up to 384 ports (equivalent to 512 with ICLs) at 32 Gb. It can accommodate up to 8 HPE 48-port blades.	Up to 192 32 Gbps Fibre Channel or 10 Gbps FCoE ports. It can accommodate up to 4 HPE 48-port blades.
<b>Aggregate switch bandwidth</b>	16.2 Tbps aggregate chassis bandwidth 12.2 Tbps FC port bandwidth (384 ports x 32 Gb) 4.096 Tbps ICL bandwidth (32 x 128 Gbps) 1.5 Gb slot bandwidth	8.1 Tbps aggregate chassis bandwidth 6.1 Tbps FC port bandwidth (192 ports x 32 Gb) 2.048 Tbps ICL bandwidth (32 x 128 Gbps) 1.5 Gb slot bandwidth	Up to 24 Tbps front-panel, Fibre Channel switching bandwidth and 21 Tbps of FCoE bandwidth; per chassis: Up to 384 2/4/8 Gbps, 4/8/16 Gbps, 8/16/32 Gbps or 10 Gbps Fibre Channel ports	Up to 12 Tbps front-panel, Fibre Channel, line-rate, non-blocking system-level switching capacity
<b>Encryption capability</b>	AES 256-bit, data at rest and data in flight	AES 256-bit, data at rest and data in flight	AES 256-bit, data at rest and data in flight	AES 256-bit, data at rest and data in flight
<b>Protocol support</b>	FC, FCIP	FC, FCIP	FC, FCoE	FC, FCoE
<b>Frame/Enclosure supported</b>	N/A	N/A	N/A	N/A
<b>Availability</b>	Supports "five nines" availability (i.e., 99.999%), redundant hot-swappable components	Supports "five nines" availability (i.e., 99.999%), redundant hot-swappable components	Fully redundant components, including fabric modules, supervisors, and power supplies	Fully redundant components, including fabric modules, supervisors, and power supplies
<b>Media types</b>	N/A	N/A	N/A	N/A
<b>Form factor</b>	14U	9U	14U	9U
<b>Warranty</b>	(3–3–3 hardware warranty)	(3–3–3 hardware warranty)	(3–3–3 hardware warranty)	(3–3–3 hardware warranty)

## Entry-level switches

		
<b>Product name</b>	<b>HPE SN36600B 32 Gb FC Switch</b>	<b>HPE SN6610C 32 Gb FC Switch</b>
<b>Port speed/Performance</b>	32 Gb FC	32 Gb FC
<b>Ports</b>	8–24 FC Enabled device ports—24 max.	8–32 FC enabled device ports—32 max.
<b>Aggregate switch bandwidth</b>	256–768 Gb end-to-end full duplex	1024 end-to-end full duplex
<b>Encryption capability</b>	N/A	N/A
<b>Protocol support</b>	4/8/16/32 Gb FC	4/8/16/32 Gb FC
<b>Frame/Enclosure supported</b>	N/A	N/A
<b>Availability</b>	Integrated single power supply and 4 built-in cooling fans	Integrated single power supply and 2 built cooling fans
<b>Media types</b>	B-series 16 Gb, 32 Gb SFP+	C-series 32 Gb, 32 Gb SFP+
<b>Form factor</b>	1U	1U
<b>Warranty</b>	(3–3–3 hardware warranty)	(1–1–1 hardware warranty)

## Mid-level switches

		
<b>Product name</b>	<b>HPE StoreFabric SN6600B 32 Gb FC Switch</b>	<b>HPE SN6620C 32 Gb FC Switch</b>
<b>Port speed/Performance</b>	32 Gb FC	32 Gb FC
<b>Ports</b>	24–64 FC device ports	24–48 FC enabled device ports—48 max.
<b>Aggregate switch bandwidth</b>	2 Tb/s maximum	1536 end-to-end full duplex
<b>Encryption capability</b>	In-flight encryption	N/A
<b>Protocol support</b>	4/8/10/16/32 Gb FC	4/8/16/32 Gb FC
<b>Frame/Enclosure supported</b>	N/A	N/A
<b>Availability</b>	Two integrated redundant, hot-swappable power supplies with integrated cooling fans	Integrated single power supply and 2 built cooling fans
<b>Media types</b>	B-series 16 Gb SFP+, 32 Gb SFP+ <b>Note:</b> Some models come pre-bundled with Brocade-branded 32 Gb SW SFP+	C-series 16 Gb, 16 Gb SFP+, 32 Gb, 32 Gb SFP+
<b>Form factor</b>	1U	1U
<b>Warranty</b>	(3–3–3 hardware warranty)	(1–1–1 hardware warranty)

## Enterprise switch

		
<b>Product name</b>	<b>HPE StoreFabric SN6650B FC Switch</b>	<b>HPE SN6630C FC Switch</b>
<b>Port speed/Performance</b>	32 Gb FC	32 Gb FC
<b>Ports</b>	48–128 FC enabled device ports—32 max.	48–96 FC enabled device ports—96 max.
<b>Aggregate switch bandwidth</b>	4.096 Tbps end-to-end full duplex	3 Tbps end-to-end full duplex
<b>Encryption capability</b>	In-flight encryption	N/A (No Encryption)
<b>Protocol support</b>	4/8/16/32 GB FC	4/8/16/32 Gb FC
<b>Frame/Enclosure supported</b>	N/A	N/A
<b>Availability</b>	Integrated dual power supply and 2 built cooling fans	Integrated dual power supply and 2 built cooling fans
<b>Media types</b>	B-series 32 Gb, 32 Gb SFP+	C-series 16 Gb, 16 Gb SFP+, 32 Gb, 32 Gb SFP+
<b>Form factor</b>	2U	2U
<b>Warranty</b>	(1–1–1 hardware warranty)	(1–1–1 hardware warranty)

## Embedded switches

		
<b>Product name</b>	<b>Brocade 16 Gb FC Switch Module for HPE Synergy</b>	<b>Brocade 16 Gb SAN Switch for HPE BladeSystem c-Class</b>
<b>Port speed/Performance</b>	16 Gb FC	16 Gb FC
<b>Ports</b>	12–24 FC device ports depending on model (12 downlinks, 24 uplinks)	16–28 FC device ports depending on model (16 downlinks, 12 uplinks)
<b>Aggregate switch bandwidth</b>	384 Gbps maximum depending on model	448 Gbps depending on model
<b>Encryption capability</b>	N/A	N/A
<b>Protocol support</b>	FC	FC
<b>Frame/Enclosure supported</b>	HPE Synergy Frame	HPE BladeSystem c-Class
<b>Availability</b>	Hot pluggable, non-disruptive upgrades, redundant switches	Redundant switches per BladeSystem for high availability; hot-swappable; hot-code load activation
<b>Media types</b>	B-series 16 Gb SFP+ and 8 Gb SFP+ optical transceivers, Quad Small Form Pluggable (QSFP)	B-series 16 Gb SFP+ and 8 Gb SFP+ optical transceivers
<b>Form factor</b>	Embedded	Embedded
<b>Warranty</b>	(3–3–3 hardware warranty)	1-year parts, 1-year labor, 1-year on-site

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