Overview

HPE Primera 600 Storage

HPE Primera is a Tier-0 enterprise storage solution that delivers the extreme resiliency and performance of high-end storage with the agility of the cloud. Built upon proven resiliency and 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. Ensure always-fast and always-on storage for all mission-critical applications.

HPE Primera comprises three models: HPE Primera 630, HPE Primera 650, and HPE Primera 670. Each model is available as an all-flash version (A630, A650 and A670) or converged flash version* (C630, C650, C670). Future proof, and NVMeoF ready, HPE Primera, can be configured as an All-NVMe or as a SAS/ NVMe flash array.

HPE Primera comes standard with HPE Proactive Care and a 100% data availability guarantee without requiring special contracts or onerous terms. Ensure no disruptions are ever felt with app-aware resiliency, guaranteed across all models of HPE Primera. If you experience less than 100% availability, Hewlett Packard Enterprise works with you to resolve the issue and provide financial credit to apply toward a future purchase of HPE Primera products.

Notes:

- For more information about the value of HPE Primera 600 visit **hpe.com/storage/hpeprimera**
- * Subject to select availability

Host OS Support

Citrix® Hypervisor | HPE HP-UX® | IBM® AIX® | IBM Virtualization | Microsoft® Windows® Server and Microsoft® Hyper-V™ | | Oracle® Linux® | Oracle® Solaris | Oracle VM | Red Hat® Enterprise Linux® | SUSE® Linux Enterprise Server (SLES) | VMware ESX and ESXi | VSI OpenVMS

For the latest information on supported operating systems refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK): **http://www.hpe.com/storage/spock.**

HPE Primera 600
(2-Node Storage Base)

HPE Primera 600
(4-Node Storage Base)

Standard Features

HPE Primera 600 Storage			
Summary	**630**	**650**	**670**
Number of Controller Nodes	2	2 or 4	2 or 4
CPUs per node	1	2	2
Cache Per Node	128GiB	256GiB	512GiB/ 1TiB
Max System Cache	256GiB	1TiB	2TiB/ 4TiB
Maximum Host Ports	16 ports	48 ports	48 ports
16Gb/s or 32Gb/s Fibre Channel Host Ports	0 - 16 ports	0 - 48 ports	0 - 48 ports
10Gb/s or 25Gb/s Ethernet Host Ports	0 – 16 ports	0 – 48 ports	0 – 48 ports
Built-in 10GbE Ports per node	2	2	2
Max Number of NVMe SSDs	8	16	16
Max Number of SAS SSDs	144	384	576
Max Number of HDDs	240	576	960
Max Raw Capacity (SSD only)	250 TiB	800 TiB	1600 TiB
Max Raw Capacity (SSD_HDD)*	750TiB	2000TiB	4000 TiB
Max Effective Capacity (SSD Only)#	700 TiB	2200 TiB	4900 TiB
Max number of Add-on Drive Enclosures	5 enclosures (A630) 9 enclosures (C630)*	14 enclosures (A650) 22 enclosures (C650)*	22 enclosures (A670) 38 enclosures (C670)*

Notes:

- Subject to select availability
- # Effective capacity assumes 4:1 estimated data compaction rate (including: thin provisioning, deduplication, compression, and copy technologies) in a RAID 6 (6+2, 8+2, 10+2) configuration. Note TB vs TiB. Actual ratios will vary based on workload. See HPE StoreMore Guarantee for more information
- Max specifications assume maximum nodes configured. 2 controller node configurations support 50% of a 4-controller node, same-model, configuration

Service and Support

Warranty

HPE Primera has 3 years, parts only warranty. The warranty on all HPE Primera Solid State Drives is 5 years, parts only, and offers unconditional replacement in case of drive failure, media wear-out, or both. Hewlett Packard Enterprise warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery. For more information about Hewlett Packard Enterprise's Global Limited Warranty and Technical Support, visit: **http://www.hpe.com/storage/warranty**

Achieve maximum return from your IT investment

Get the expertise you need at every step of your 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 deployments globally. With **Advisory Services**, we focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

Consume IT on your terms

HPE GreenLake combines the simplicity, agility, and economics of public cloud with the security and performance benefits of on-premises IT. You determine your own "Right Mix" of Hybrid IT and workload placement without having to use.
With its agile pay-per-use service, HPE GreenLake can help your IT organization:

- Avoid IT expenses stemming from overprovisioning
- Improve time to market by maintaining a safe buffer of capacity, ready for use when you need it
- Keep capacity ahead of demand with regular monitoring—and a simple change order to replenish
- Pay for only the capacity used, not the capacity deployed
- Reduce IT risk with tailored support

Connect your devices

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise and registering with HPE Infosight. Improve availability, increase diagnostic accuracy and have a single consolidated view of your environment. By connecting your devices and using Infosight, you will receive 24x7 monitoring, predictive support, automatic call logging, automatic parts dispatch and automated software recommendations. Using Machine Learning and AI, HPE Infosight delivers preventive recommendations and together with HPE Proactive Care Service or HPE Datacenter Care Service you get closer to having an autonomous data center. Learn more about getting connected at
http://www.hpe.com/services/getconnected

Free up resources with Operational Services from HPE Pointnext

Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller are quoted using Hewlett Packard Enterprise order configuration tools.

HPE Datacenter Care

helps customers to address the pressing needs of IT today and smoothly transform to a more agile cloud-like IT operations model. We help run and monitor your IT by offloading the day to day routine tasks, helping customers be more predictive and proactive, and saving time with one place to call with for all of their IT.

Partner with an assigned account team backed by local and global experts, access HPE enhanced call experience with priority access, use specialized support for complex, technologies, choose hardware and software support for your devices, implement proactive monitoring to stay ahead of issues, and access HPE IT best practices and IP.
https://www.hpe.com/us/en/services/datacenter-hybrid-services.html

Service and Support

HPE Proactive Care

Gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice.

This Service combines both reactive support when there is a problem with an enhanced call experience and start to finish case management with proactive reporting and advice.
https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf

HPE Proactive Care Advanced

Incorporates all the deliverables of HPE Proactive Care plus includes personalized support from a local, assigned Account Support Manager who will share best practice advice and personalized recommendations designed to help improve availability and performance to help increase stability and reduce unplanned downtime.

Leverage your system's ability to connect to HPE for pre-failure alerts, automatic call logging and parts dispatch. For business critical incidents, Proactive Care Advanced offers critical event management to help reduce mean time to resolution. HPE Service Credits are included to redeem for technical and operational services.
https://www.hpe.com/h20195/v2/getdocument.aspx?docname=4AA5-3259ENW

Other related services from HPE Pointnext

Timeless Storage for HPE Primera and the HPE Technology Refresh Service

The HPE Technology Refresh Service for HPE Primera is an optional service available in conjunction with HPE Proactive Care, HPE Proactive Care Advanced, or HPE Datacenter Care for eligible HPE Primera hardware and software configurations. This service offers HPE Primera all-flash storage array customers all the benefits of Timeless Storage for HPE Primera, including an ownership experience with a simple path to keeping their storage technology current through periodic, non-disruptive technology updates.

This ownership experience offers customers a more predictable cost structure as compared to traditional storage ownership since it incorporates costs associated with future technology updates into a renewable service. Together, Timeless Storage for HPE Primera and the HPE Technology Refresh Service not only extend the useful life of the customer's storage assets, but create a more sustainable approach to storage ownership.
https://h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00074518enw

Parts and Materials

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

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

Defective Media Retention is an option available with HPE Datacenter Care, HPE Proactive Care, Proactive Care Advanced, and HPE Foundation Care and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Defective Media Retention

Is an option available with HPE Datacenter Care, HPE Proactive Care, Proactive Care Advanced, and HPE Foundation Care and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

HPE Service Credits offers flexible services and technical skills to meet your IT demands as your business evolves. With a menu of services, you can access additional resources and specialist skills to help you maintain peak performance of your IT. HPE Service Credits help you proactively respond to your dynamic IT and business needs.

Service and Support

HPE Education Services
Provides comprehensive training designed to expand the skills of your IT staff and keep them up to speed with the latest technologies.

HPE Storage SSD Extended Replacement Program
Provides for the post warranty replacement of eligible HPE Primera SSDs under active HPE support coverage at no additional cost in the event the SSD has reached its maximum usage limit based upon the HPE Primera SSD Life-Left reading.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/a00000122ENW.pdf

HPE Primera Storage Installation and Startup Service
Provides onsite deployment of your HPE Primera Storage array into your storage environment.
https://h20195.www2.hpe.com/v2/GetPDF.aspx/a00075377ENW.pdf

HPE Primera Replication Software Installation and Startup Service
Provides deployment of HPE Remote Copy, Peer Motion, and Peer Persistence functionality of HPE Primera storage. The service helps you get HPE Primera replication related software up and running quickly and provides a demonstration of the product's key features using sample or test data only.
https://h20195.www2.hpe.com/v2/GetPDF.aspx/a00075374ENW.pdf

HPE Primera Base Software Installation and Startup Service provides deployment of Dynamic Optimization, Priority Optimization, System Reporter, Virtual Copy, and an overview of Virtual Domain and Virtual Lock. For Virtual Copy, the service provides a demonstration of the product's key features using sample or test data only.
https://h20195.www2.hpe.com/v2/GetPDF.aspx/a00075376ENW.pdf

HPE Storage Software Installation and Startup Service
Provides deployment of individual HPE Primera storage software features, helping to ensure proper installation in your storage environment as well as helping you increase the benefit from your storage investment.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA5-8036ENW.pdf

HPE Storage Transformation Workshop
Explore data management to business-aligned visions, covering cloud, object, end to end data protection and BC/DR.

HPE Storage Data Migration
Proven methodology, expertise and tools to help you migrate data across your data center or around the globe.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA5-3759ENW.pdf

HPE Storage Modernization Service
Modernize your storage environment to take better advantage of physical or virtualized server environments, all flash, cloud, and object storage solutions.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA5-8498ENW.pdf

HPE Backup and Recovery Efficiency Analysis Service
Rapid health check of your current backup environment, focusing on operational stability, problem identification, and capacity constraints. The output of this service provides clear metrics and high-level recommendations for your backup environment.
https://h20195.www2.hpe.com/V2/getpdf.aspx/4AA3-9104ENW.pdf

Service and Support

HPE Data Profiling Service

Assesses your current file storage and identify redundant, obsolete and trivial data – simplifying your transformation to HPE Primera storage and reducing migration costs.
https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=A00027500ENW

HPE Storage Integration Service

Integrate your new HPE Primera storage so that it is agile, performs effectively, and scales to rapid growth.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-9254ENW.pdf

HPE Storage Online Import Quick Start Service

Choose the most effective, appropriate methods for configuring and migrating to a HPE Primera storage platform.
http://h20195.www2.hpe.com/v2/getpdf.aspx/4AA6-0422ENW.pdf

HPE SAN Deployment Service

Delivers complete design and implementation services for Fibre Channel, FCoE, FCIP, SAS, and iSCSI SAN connectivity components.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/5981-8527ENW.pdf
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=5981-8527enw

HPE Data Replication Solution Service for Virtual Copy

Enables snapshots and mirroring to facilitate data restores, minimize downtime for backups, perform application testing and support data mining use with decision-support tools.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA3-8107ENW.pdf

HPE Data Replication Solution Service for Remote Copy

Configures real-time data mirroring between local and remote storage systems to safeguard critical business information.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-8627ENW.pdf

HPE Performance Analysis Service for HPE Storage

Provides data collection, detailed I/O analysis and enhancement recommendations for HPE Storage arrays.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/5982-6668ENW.pdf

HPE Data Sanitization Storage and Server Services

Provides the skilled resources and tools to help your organization address the need to protect data when your organization is retiring systems, upgrading storage and servers, returning leased equipment, or redeploying data storing devices. The service helps ensure that data cannot be reconstructed or retrieved from hard disk media in your server and storage devices. These services offer you a smart alternative or augmentation to physical hardware destruction.
https://www.hpe.com/h20195/v2/GetPDF.aspx/5981-9510ENW.pdf

HPE Storage Rebalance Service

Helps balance data across an HPE Primera Storage array to take advantage of the capabilities of the array architecture. The service provides analysis, planning, and implementation of data movement and/or physical movement of drive magazines within the array.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-0280ENW.pdf

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and support options

Configuration Information

Step 1: Choose a Storage Base and Controller Nodes

HPE Primera configuration starts with the selection of the Storage Base and Controller Nodes. The Storage Base includes the chassis and bays for small form factor drives, and it does not include any controller node or Power Supplies. The controller SKUs includes 2 or 4 nodes and 2 or 4 Power Supplies with Fan and Batteries.

HPE Primera Storage Base Configurations

Description	SKU
HPE Primera 600 2-way Storage Base	N9Z46A
HPE Primera 600 4-way Storage Base	N9Z47A

- One (1) Storage Configuration Base SKU must be ordered for each array.
- The 2-way Storage Configuration Base can host 2 controller nodes and up to 24 small form factor drives in 2U. All 24 drive slots are SAS, the 8 rightmost slots are dual personality SAS/NVMe.
- The 4-way Storage Configuration Base can host 2 or 4 controller nodes and up to 48 small form factor drives in 4U. All 48 drive slots are SAS, the 16 rightmost slots are dual personality SAS/NVMe.
- The Storage Configuration Base does not include any controller nodes or Power Supplies

HPE Primera Controller Nodes

	HPE Primera A630 2-node Controller	N9Z55A
*	HPE Primera C630 2-node Controller	N9Z56A
	HPE Primera A650 2-node Controller	N9Z60A
	HPE Primera A650 4-node Controller	N9Z61A
*	HPE Primera C650 2-node Controller	N9Z62A
*	HPE Primera C650 4-node Controller	N9Z63A
	HPE Primera A670 2-node Controller	N9Z64A
	HPE Primera A670 4-node Controller	N9Z65A
*	HPE Primera C670 2-node Controller	N9Z66A
*	HPE Primera C670 4-node Controller	N9Z67A
	HPE Primera A670 1TB 2-node Controller	N9Z68A
	HPE Primera A670 1TB 4-node Controller	N9Z69A
*	HPE Primera C670 1TB 2-node Controller	N9Z70A
*	HPE Primera C670 1TB 4-node Controller	N9Z71A

Notes:* Subject to select availability

- Only one Controller SKU can be ordered per array. Each Controller SKU includes either two (2) nodes or four (4) nodes, two (2) or four (4) Power Supplies with Fan and Batteries, and Locking Power Cords.
- All controllers in an HPE Primera array need to be of the same type, Different controller types cannot be mixed in the same Storage Base.
- Each Node has two (2) built-in 10 Gigabit Ethernet ports for Remote Copy over IP, one (1) management port, one (1) service port and, depending on the model, two (2) SAS ports (630) or four (4) SAS ports (650 and 670).
- Each Node contains PCIe slots for adapters: two (2) slots on Primera 630 controllers, or three (3) slots on Primera 650/670 controllers.
- HPE Primera 630/650/670 are supported in the 2-way Storage Base and in the 4-way Storage Base
- When the HPE Primera 630 is configured in the 4-way Storage Base, slots 2 & 3 will remain empty
- When the HPE Primera 650/670 is configured in the 2-way Storage Base, upgrading to 4-nodes is not supported

Configuration Information

HPE Primera 600 DC Power Supply Battery Kits

HPE Primera supports AC and DC Power configurations. Use the HPE Primera 600 1700W -48VDC Power Supply Battery Kit to install the HPE Primera 600 controller in a DC Power environment. Use the HPE Primera 600 800W Power Supply kit to install the SAS Drive Enclosures in a DC Power environment. DC Power support is available on any HPE Primera 600 model.

Description	SKU
HPE Primera 600 1700W -48VDC Power Supply Battery Kit	R4V53A

- A 2-way base enclosure requires two DC 1700W power supply battery kits.
- A 4-way base enclosure requires four-DC 1700W power supply battery kits.

HPE Primera 600 800W -48VDC Power Supply Kit	R4V54A

- The SFF/ LFF SAS drive enclosure requires two-800W power supply kits per drive enclosure.

Notes: DC Power is supported on Primera OS 4.2 or later.

The following DC Breaker Panel and Grounding bar can be ordered with DC PCM as an option:

E-T-A S541 2x16 Output DC Breaker Panels	G2H95A
E-T-A 6401 Two Grounding Bars w/ screws	Q9N54A

The following DC Power Cable Kits can be ordered with the DC PCM as an option:

HPE Primera -48VDC 1.5m 2-pack Power Cable	R4X83A
HPE Primera -48VDC 2.3m 2-pack Power Cable	R4X84A
HPE Primera -48VDC 3.0m 2-pack Power Cable	R4X85A

- Each DC power cable kit includes 2 cables.
- A 2-way base enclosure requires qty 1 of the 2pk cable kit. A 4-way base enclosure requires qty 1 of the 2pk cable kit. A drive enclosure requires one DC Power Cable kit.
- These DC Power Cable Kits are only compatible with the DC Breaker Panel G2H95A at the source end.

When considering alternative DC Power cable/ breaker panels solutions, consider the following:

- Use 6 AWG Conductor Cable for -48VDC, return, and earth ground connections.
- The recommended compression lug for the 6AWG Conductor Cable is a T&B Two-Hole, 90° Long Barrel Compression Lug. Please use T&B Part Number 54852BEUBPH.

Step 2: Choose Adapters

Host adapters are used for connection to hosts. They can be ordered standalone to be installed in the field or they can be factory integrated into controller nodes. HPE Primera arrays don't have any built-in host ports therefore any configuration needs to have at least one host adapter per node.

HPE Primera Host Adapters

Description	SKU
HPE Primera 600 16Gb 4-port Fibre Channel Host Bus Adapter	N9Z38A
HPE Primera 600 32Gb 4-port Fibre Channel Host Bus Adapter	N9Z39A
HPE Primera 600 10/25GbE 4-port Host Bus Adapter	N9Z37A
HPE Primera 600 10GBASE-T 4-port Host Bus Adapter	N9Z40A

Host Bus Adapter SFP Kits

HPE Primera 600 25GbE SFP 2-pack Upgrade Adapter Kit	N9Z42A
HPE Primera 600 10GbE SFP 2-pack Upgrade Adapter Kit	N9Z43A

- Each node must have at least one host adapter. A node without any host adapters is not a supported configuration.
- Each node in a node pair (node 0/1 or node 2/3) must be configured with the same adapters.
- The best practice is to have all the nodes configured with the same adapters. However, in a - node system, nodes in different node pairs can have different adapters.
- The 16Gb Fiber Channel Adapter includes four- 16Gb shortwave FC SFP+ and does not support 32Gb SFP+.

Configuration Information

- The 32Gb Fiber Channel Adapter includes four-32Gb shortwave FC SFP+ and does not support 16Gb SFP+
- The 10Gb/ 25Gb Ethernet adapters support both 10GbE SFP+ & 25GbE SFP28.
- The 10Gb/ 25Gb Ethernet Adapters do not include SFPs. A minimum qty of 1 SFP Kit (containing 2 SFPs) must be ordered per Host Bus Adapter.
- Mixing of 10Gb and 25Gb SFPs in a single HBA is supported.
- The 32Gb/s Fiber Channel and 25Gb Ethernet host adapter are NVMe-oF capable.

HPE Primera SAS Adapters

Description	SKU
HPE Primera 600 12Gb SAS 4-port Host Bus Adapter	N9Z41A

- The HPE Primera SAS adapter is an optional adapter that provides additional SAS ports for drive enclosure connectivity.
- The adapter is supported only on HPE Primera 650 and 670 models and must be installed in the third PCIe slot (slot 5).
- An array with SAS adapters must have one SAS adapter per node.
- The use of the SAS adapter does not increase the max supported number of drive enclosures.

Step 3: Choose Drive Enclosures

Add drive enclosures to expand the configuration and add more drives to the configuration. Drive enclosures can be ordered separately for installation in the field, or they can be factory integrated in a rack. Drive enclosures are optional because the Storage Base products include small form factor drive bays. Each SFF drive enclosure includes 24 drive bays in 2U, each LFF drive enclosure includes 12-drive bays in 2U. The two drive enclosure types can be intermixed in a single array and only support SAS drives. LFF drive enclosure are only supported on HPE Primera C6xx models.

Drive Enclosures

HPE Primera 600 2U 24-disk SFF Drive Enclosure	N9Z50A
HPE Primera 600 2U 12-disk LFF Drive Enclosure	N9Z51A

- Each SFF drive enclosure includes 24 SAS SFF drive bays, (2) IO modules, (2) power and cooling modules, (1) mounting rail kit, and power cables.
- Each LFF drive enclosure includes 12 SAS LFF drive bays, (2) IO modules, (2) power and cooling modules, (1) mounting rail kit, and power cables.
- Depending on the number of drive enclosures and the HPE Primera model, drive enclosures are either directly connected to the SAS ports of the controllers or daisy chained to the SAS ports of other drive enclosures.
- The best practice is to balance the drive enclosures across all the SAS ports, remembering that the Storage Base includes (24) drives per node pair and counts as an enclosure.
- When including LFF and SFF drive enclosures in the same array, the best practice is to arrange them in the rack so that all of the SFF enclosures that belong to one node pair are together and all of the LFF drive enclosures for that node pair are together.
- With a four-node configuration, the best practice is to attach the same number of drive enclosures and drive types to each node pair.
- To achieve the highest availability in multi-enclosure configurations, configure a minimum of six (6) enclosures (including the Storage Base) per node pair.
- Drive bays that are not filled with a drive must be covered with a drive blank to preserve proper air flow
- If future capacity upgrades are expected, include enough Drive Enclosures so that there are some empty bays in each enclosure after all drives are added.

The following SKU is required to give stability to a factory-integrated HPE Primera 600 storage array during shipment when an LFF Drive Enclosure is in the bottommost in the rack:

HPE Primera 600 LFF Drive Enclosure Bracket	N9Z79A

- The bracket is only required during shipment and uses 1U of rack space.
- HPE recommends to keep the bracket installed if there is no immediate need to utilize the 1U space below the bottommost.
- LFF Drive Enclosure or if there is a plan to relocate the rack in a near future.

Configuration Information

The bracket can be removed if another enclosure is installed below the bottommost Drive Enclosure or if there is no plan to relocate the rack

Step 4: Choose Drives

Drives are orderable at the time the array is purchased or can be added in the future when additional capacity is required. HPE Primera 600 drives are sold as single drives. Note that NVMe SSDs are only supported in the HPE Primera 600 Base and that SAS drives are compatible with the HPE Primera 600 Base and SAS Drive Enclosures.

Description	SKU
HPE Primera NVMe SSDs	
HPE Primera 600 1.92TB NVMe SFF (2.5in) FIPS Encrypted SSD	R3B21A
HPE Primera 600 3.84TB NVMe SFF (2.5in) FIPS Encrypted SSD	R3B22A
HPE Primera 600 7.68TB NVMe SFF (2.5in) FIPS Encrypted SSD	R0Q16A
HPE Primera 600 15.36TB NVMe SFF (2.5in) FIPS Encrypted SSD	R0Q10A
HPE Primera 600 1.92TB NVMe SFF (2.5in) SSD	R3B24A
HPE Primera 600 3.84TB NVMe SFF (2.5in) SSD	R0Q07A
HPE Primera 600 7.68TB NVMe SFF (2.5in) SSD	R0Q08A
HPE Primera 600 15.36TB NVMe SFF (2.5in) SSD	R0Q09A
HPE Primera SAS SSDs	
HPE Primera 600 1.92TB SAS SFF (2.5in) FIPS Encrypted SSD	R3R39A
HPE Primera 600 3.84TB SAS SFF (2.5in) FIPS Encrypted SSD	R0P99A
HPE Primera 600 7.68TB SAS SFF (2.5in) FIPS Encrypted SSD	R0Q00A
HPE Primera 600 15.36TB SAS SFF (2.5in) FIPS Encrypted SSD	R0Q01A
HPE Primera 600 1.92TB SAS SFF (2.5in) SSD	R0P95A
HPE Primera 600 3.84TB SAS SFF (2.5in) SSD	R0P96A
HPE Primera 600 7.68TB SAS SFF (2.5in) SSD	R0P97A
HPE Primera 600 15.36TB SAS SFF (2.5in) SSD	R0P98A
HPE Primera SAS 10K HDDs*	
HPE Primera 600 2.4TB SAS 10K SFF (2.5in) FIPS Encrypted HDD	R0Q06A
HPE Primera 600 2.4TB SAS 10K SFF (2.5in) HDD	R0Q05A
HPE Primera NL SAS HDDs*	
HPE Primera 600 8TB SAS 7.2K LFF (3.5in) FIPS Encrypted HDD	R0Q04A
HPE Primera 600 8TB SAS 7.2K LFF (3.5in) HDD	R0Q03A
HPE Primera 600 14TB SAS 7.2K LFF (3.5in) FIPS Encrypted HDD	R3B70A
HPE Primera 600 14TB SAS 7.2K LFF (3.5in) HDD	R0Q15A
HPE Primera TAA Compliant FIPS Encrypted Drives	
NVMe SSDs	
HPE Primera 600 1.92TB NVMe SFF (2.5in) FIPS Encrypted TAA-compliant SSD	R4F94A
HPE Primera 600 3.84TB NVMe SFF (2.5in) FIPS Encrypted TAA-compliant SSD	R4F95A
HPE Primera 600 7.68TB NVMe SFF (2.5in) FIPS Encrypted TAA-compliant SSD	R4F96A
HPE Primera 600 15.36TB NVMe SFF (2.5in) FIPS Encrypted TAA-compliant SSD	R4F97A

Configuration Information

Description	SKU
SAS SSDs	
HPE Primera 600 1.92TB SAS FIPS Encrypted TAA-compliant SSD	R3B71A
HPE Primera 600 3.84TB SAS FIPS Encrypted TAA-compliant SSD	R3B72A
HPE Primera 600 7.68TB SAS FIPS Encrypted TAA-compliant SSD	R3B73A
HPE Primera 600 15.36TB SAS FIPS Encrypted TAA-compliant SSD	R3B74A
SAS HDDs	
HPE Primera 600 2.4TB SAS 10K FIPS Encrypted TAA-compliant HDD	R3B75A
HPE Primera 600 8TB SAS 7.2K FIPS Encrypted TAA-compliant HDD	R3B76A

- For each drive type installed in the array, the minimum supported initial quantity is eight (8) drives per node pair for SSD and SAS 10K HDDs and twelve (12) SAS 7.2K HDDs.NVMe SSDs can be configured in quantities of eight (8) drives per node pair only in slots 16-23.
  Notes: When mixing NVMe SSD and SAS SSD, a minimum quantity of sixteen (16) SAS SSD are required per node pair
- NVMe SSDs are supported in slots 16-23 (rightmost) on Primera A-controllers only.
- SAS HDDs are supported with Primera C-controllers only.
- NVMe SSDs are supported in slots 16-23 in the storage base (two-node or 4-node)
- Minimum upgrade quantity is 2 drives per node pair or 2 drives per enclosure, whichever is larger.
- HPE Primera only supports RAID 6 for all drive types.
- All drive enclosures (including the Storage Base) must contain an even number of drives, with a minimum of two. The storage base can be left empty if HPE Primera is configured only with the LFF drive enclosure and SAS 7.2K LFF drives.
- The best practice is to add an equal number of drives of the same type to each enclosure.
- In four node configurations, the best practice is to attach the same number and type of drives to each node pair.
- SFF drives must be loaded in pairs of identical drives, beginning with the leftmost slot, slot 0, and filling to the right leaving no empty slots between drives.
- If a system already has SAS SSD configured in slots 16-23 prior to adding NVMe SSD, the SAS SSD must be relocated using HPE Storage Rebalance Service. Contact your HPE Services Sales Specialist for more information.
- Trade Acts Agreement (TAA) compliant drives are sourced from TAA compliant Country of Origin (COO) build sites.
  Notes: * subject to select availability

HPE Primera Encryption License

HPE Primera 600 Data Encryption LTU	R1P29A
HPE Primera 600 Data Encryption E-LTU	R1P29AAE

- A data encryption license (LTU) is required to enable encryption on the HPE Primera array. One encryption license is required for each encrypted array. Once encryption is enabled on the HPE Primera array, it cannot be disabled.
- An encrypted HPE Primera array (i.e. any HPE Primera array that has the Data Encryption license activated or intended to be activated), must have only self-encrypted drives installed.
- A non-encrypted HPE Primera array can have a mix of encrypted and non-encrypted drives.
- Encryption can be turned on, non-disruptively, at any time, even after data has been written to the system.
- FIPS 140-2 Validated Self-Encrypting Drives (SEDs) have been certified by the U.S. National Institute of Standards and Technology (NIST) and Canadian Communications Security Establishment (CSE) as meeting the Level 2 security requirements for cryptographic modules as defined in the Federal Information Processing Standards (FIPS) 140-2 Publication
- Strengthen the DAR solution with an optional FIPS 140-2 Level-2 validated external key manager. Supports KMIP 1.3 and 1.4 for key management communications
- Supports Utimaco® Enterprise Secure Key Manager (ESKM) 4.0, 5.0 and Gemalto® SafeNet KeySecure k460 centralized key management

The local key manager is included in the HPE Primera OS. There is not a separately orderable part number for the local key manager

Configuration Information

Description	SKU
HPE Primera Capacity E-RTU*	
HPE Primera 1TB Capacity E-RTU	R4U27AAE

- In select regions, an electronic right to use (E-RTU) is required for each raw TB of capacity.
- The per-drive quantity of E-RTU required is equal to the RAW capacity of the individual drive rounded up to the nearest TB.

In the selected regions, the configuration tool (OCA), will automatically configure the necessary E-RTU quantity.

Notes: *This SKU is only available in select regions.

Step 5: Choose Cables for host connection, drive enclosure connection, and remote copy connection

HPE Primera 600 requires cables for drive enclosure connections and for host connectivity. SAS Copper cables are required for connecting the drive enclosures to the nodes on the same rack and for daisy chaining between adjacent drive enclosures. Storage Base products and drive enclosures do not include any Copper SAS cables, they are added to the configuration by the configurator tool (OCA). SAS Active Optical Cables are required to expand an HPE Primera 600 into an adjacent rack, to connect drive enclosures in adjacent racks to the nodes in the base rack. OM4 Fiber Cables are required for host connectivity, Remote Copy and Peer Motion.

Cables

SAS Active Optical Cables	
HPE 10m Mini SAS High Density Active Optical Cable	E7V95A
HPE 25m Mini SAS High Density Active Optical Cable	E7V96A
SAS Copper Cables	
HPE External Mini SAS High Definition to Mini SAS High Definition 4-lane 0.6m Cable	P11582-B21
HPE External 1.0m (3ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable	716195-B21
HPE External 2.0m (6ft) Mini-SAS HD 4x to Mini-SAS HD 4x Cable	716197-B21
HPE External Mini SAS High Definition to Mini SAS High Definition 4-lane 3m Cable	P11583-B21
OM4 Cables	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
Direct Attach Copper Cables for host Connectivity	
10GbE Speed	
HPE FlexFabric	
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
Aruba Networks, a Hewlett Packard Enterprise Company	
Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D
Aruba 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285D

Configuration Information

Description	SKU
Cisco	
HPE C-series 3M Passive Copper SFP+ Cable	K2Q21A
HPE C-series 5M Passive Copper SFP+ Cable	K2Q22A
HPE C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A
HPE BladeSystem	
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21
Broadcom	
HPE B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable	AP819A
HPE B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable	AP820A
25GbE Speed	
HPE StoreFabric	
HPE 25GbE SFP28 to SFP28 3m Smart Active Optical Cable	Q9S67A
HPE 25GbE SFP28 to SFP28 5m Smart Active Optical Cable	Q9S68A
HPE	
HPE 25Gb SFP28 to SFP28 3m Direct Attach Copper Cable	844477-B21
HPE 25Gb SFP28 to SFP28 7m Active Optical Cable	844483-B21
HPE 100Gb QSFP28 to 4x25Gb SFP28 3m Direct Attach Copper Cable	845416-B21

Notes:

- DAC support is available on HPE Primera 600 Storage series beginning with the OS release 4.2.
- DAC speeds of 25GbE are not supported on Primera 10GbE onboard ports.
- Primera DAC direct connect to a host is not supported. You must connect to a switch.
- SKUs 487655-B21, 537963_B21, AP819A and AP820A are not supported on Primera on-board 10GbE ports.
- For the latest information refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK): **http://www.hpe.com/storage/spock.**

Step 6: Choose Racking Options

HPE Primera 600 is compatible with most industry standard 4-post EIA 19 inch racks with square mounting holes. HPE Primera 600 can be factory configured and shipped in a rack or shipped without a rack for field integration into an existing rack. The racks used for factory integration are the HPE G2 Advanced Series Racks or the HPE G2 Enterprise Series Racks.

Factory Integration

HPE Primera 600 can be factory integrated in an HPE Intelligent Series Rack. The array will be configured into the HPE Intelligent Series Rack with the appropriate power distribution units (PDUs). Other products such as servers or back-up products can be factory integrated in the rack and different PDUs can be added (if needed) only via HPE Factory Express Services.. Additional HPE Primera 600 controller node enclosures and drive enclosures may be ordered for multiple subsystem integration at the factory.

HPE Intelligent Series Racks

HPE 42U 600mmx1075mm G2 Enterprise Shock Rack	P9K38A
HPE G2 Rack 42U 1075mm Side Panel Kit	P9L15A
HPE 42U 600mmx1200mm G2 Enterprise Shock Rack	P9K40A
HPE G2 Rack 42U 1200mm Side Panel Kit	P9L16A
HPE 42U 600mmx1075mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K08A
HPE 42U 600mmx1200mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K10A

Notes:

- The number of components that will fit in a rack varies and is determined by the interior U-space of the rack.
- For more information on rack options, see: **http://www.hpe.com/products/rackoptions**.

Configuration Information

– PDUs For more information on PDUs, see:
https://www.hpe.com/us/en/product-catalog/servers/power-distribution-units.html

Non-HPE rack and power requirements

The HPE Primera Storage Base and Drive Enclosures include mounting rails that are compatible with industry standard 4-post EIA 19 inch racks with square mounting holes. For detailed information on determining compatibility of a non-HPE rack, please review the information included in the HPE Primera 600 Site Planning Guide.

Step 7: Choose Software

Hewlett Packard Enterprise provides an extensive selection of features for HPE Primera 600 arrays. For convenient ordering all the software (including Recovery Manager Central, Smart SAN, and Cluster Extension for Windows and IBM AIX) is offered as part the array and does not require any additional license. The only license that is offered separately is the Data Encryption LTU.

Step 8: Choose File Controller

Add optimized, secure, and reliable Microsoft-powered file services to your HPE Primera 600 with one or more pre-configured HPE Storage Performance File Controllers. Augmenting an HPE Primera 600 with a file controller or highly-available file controller cluster creates a unified block/file solution for your Microsoft environment that maximizes your total storage investment. Each HPE Storage File Controller is built on HPE ProLiant DNA and Microsoft Windows Storage Server 2016, and can serve thousands of concurrent users and multiple diverse workloads while providing a straightforward and familiar management experience for IT generalists or storage administrators.

Description	SKU
HPE Storage Perf File Controller	Q9D44A

Notes:

– HPE Storage File Controllers have 4 x 1GbE ports and are pre-configured with Windows Storage Server 2016, which includes a software iSCSI initiator. Other array connections require adding at least one HBA or Ethernet adapter plus cables.
– For two-node clusters, an Ethernet interconnect cable is required. For three- or more node clusters, a network switch plus one Ethernet cable per node is required.

For more information about configuring and connecting an HPE Storage File Controller, please visit:
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00047729enw

Self-Installation

HPE Primera 600 offers customers the option to self-install the storage array, which means that the system will not be installed via an HPE service. Self-installation is available for HPE Primera 600 storage arrays that fit in a single rack and meet the following requirements:

Self-installation eligible configurations		
Model	**Factory Integrated (CTO)**	**Field Integrated (BTO/sCTO)**
HPE Primera 630	All configurations	All single rack configurations
HPE Primera 650	All configurations	Max 7 drive enclosures per node pair, no SAS HBAs
HPE Primera 670	All configurations	Max 7 drive enclosures per node pair, no SAS HBAs

In order to successfully install the HPE Primera 600 array the installer should:

- Have a good understanding and knowledge of Storage Area Networks, Fiber Channel fundamentals and a basic understanding of TCP/IP and other networking protocols (DNS/NTP).
- Have experience creating Storage LUNs, presenting/exporting LUNs to a server and formatting the LUNs to make them usable for applications.
- Be able to troubleshoot hardware and software issues using logs and documentation.

Configuration Information

If the installer doesn't meet the profile or is not comfortable with the self-installation process, Hewlett Packard Enterprise recommends engaging the Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Channel Partner to purchase HPE deployment services.

Customer responsibilities

The Customer will:

- Ensure that the host and SAN environment is supported and compliant with HPE recommendations and best practices. Host and SAN Implementation Guides are available at **https://support.hpe.com/hpesc/public/home**. Support Matrix are available on SPOCK (HP Storage Single Point of Connectivity Knowledge) **http://www.hpe.com/storage/spock**.
- Resolve any problems with their SAN and host environment, prior to installing the HPE Primera 600.

Notes: Customers performing a self-install (according to rules identified above) will not void their warranties and will be fully supported.

Technical Specifications

HPE Primera 600 Storage Specifications				
Physical Dimensions	**Width in/mm**	**Depth in/mm**	**Height in/mm/U**	**Weight lb/kg**
HPE 42U 1075mm G2 Advanced Series Rack	23.50 / 597	43.78 / 1111	78.99 / 2006	281 / 127
HPE 42U 1075mm G2 Enterprise Series Rack	23.54 / 598	44.30 / 1125	78.98 / 2007	230 / 105
HPE 42U 1200mm G2 Advanced Series Rack	23.50 / 597	50.65 / 1286	78.99 / 2006	311 / 141
HPE 42U 1200mm G2 Enterprise Series Rack	23.54 / 598	51.19 / 1300	78.98 / 2007	251 / 114
HPE Primera 630(2-way Storage Base, two controllers, two 800W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	3.44 / 87.5 / 2	74.0 / 33.6
HPE Primera 650 2-nodes (4-way Storage Base, two controllers, two 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	104 / 47.3
HPE Primera 650 4-nodes (4-way Storage Base, four controllers, four 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	148 / 67.3
HPE Primera 670 2-nodes (4-way Storage Base, two controllers, two 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	104 / 47.3
HPE Primera 670 4-nodes (4-way Storage Base, four controllers, four 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	148 / 67.3
HPE Primera 600 2U24 SFF Drive Enclosure (two IOMs, two 500W PCMs, no drives)	19.00 / 483	31.55 / 801	3.44 / 87.5 / 2	47.0 / 21.4
SFF NVMe SSD with carrier	3.15 / 80	6.69 / 170	0.58 / 14.7	0.50 / 0.23
SFF SAS SSD with carrier	3.15 / 80	6.69 / 170	0.58 / 14.7	0.50 / 0.23
SFF SAS HDD with carrier*	3.15 / 80	6.69 / 170	0.58 / 14.7	0.50 / 0.23
LFF SAS HDD with carrier*	4.24 / 108	6.69 / 170	0.95 / 24.2	1.50 / 0.68
HPE Primera 600 16Gb 4p FC HBA (with four SFPs)	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23
HPE Primera 600 32Gb 4p FC HBA (with four SFPs)	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23
HPE Primera 600 10/ 25Gb 4-port Ethernet Host Bus Adapter	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23
HPE Primera 600 10GBASE-T 4-port Host Bus Adapter	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23
HPE Primera 600 12Gb SAS 4p HBA	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23

Notes: *Subject to select availability

Technical Specifications

Power Requirements

Input Voltage

AC PCM option

- HPE Primera 630 Node Enclosure: 100 to 240 VAC (50 to 60 Hz)
- HPE Primera 650 Node Enclosure: 200 to 240 VAC (50 to 60 Hz)
- HPE Primera 670 Node Enclosure: 200 to 240 VAC (50 to 60 Hz)
- HPE Primera 600 Drive Enclosure: 100 to 240 VAC (50 to 60 Hz)

Refer to the HPE Power Advisor online tool for power consumption, heat loading, and circuit sizing information:
https://paonline56.itcs.hpe.com

Environmental Specifications

Operating Temperature	41° to 95° F (5° to 35° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)	
Shipping Temperature	-30° to 60°C (-22 to 140°F). Maximum rate of change is 20°C/hr (36°F/hr)	
Operating Altitude (ft/m) max.	10,000 ft / 3,048 m	
Shipping Altitude (ft/m) max.	40,000ft/ 12,192 m	
Humidity	10% to 90% non-condensing	
Shipping Humidity	10% to 90% non-condensing	
Operating Vibration	0.25 G, Sine, 5-500 Hz; 0.25 GRMS, Random 5-500 Hz	
Non-operating Vibration	0.5 G, 5 - 500 Hz, Sine; 0.5 GRMS, Random, 5-500Hz	
Operating Shock	5G, 11ms, half-sine	
Non-operating Shock	10 G, 11ms, half-sine	
Maximum Exhaust Air Flow	HPE Primera 630 Node Enclosure: 275 CFM HPE Primera 650 Node Enclosure (with four nodes): 575 CFM HPE Primera 670 Node Enclosure (with four nodes): 575 CFM HPE Primera 600 SFF Drive Enclosure: 285 CFM HPE Primera 600 LFF Drive Enclosure: 230 CFM	
Acoustic Sound Pressure Level	**8500 RPM (typical) 60% Duty Cycle**	**14000 RPM (maximum) 100% Duty Cycle**
HPE Primera 630	70 dB	82 dB
HPE Primera 650 4-nodes	72 dB	83 dB
HPE Primera 670 4-nodes	72 dB	83 dB
HPE Primera SFF Drive Enclosure	68 dB	81 dB
HPE Primera LFF Drive Enclosure	68 dB	81dB
Acoustics Sound pressure level measured per ISO 7779 specifications		

Technical Specifications

Electromagnetic Compatibility

- CISPR 32/ EN 55032: 2015 Class A
- CISPR 24/ EN 55024:2010 +A1:2015
- IEC 61000-3-2/ EN 61000-3-2: 2014
- IEC 61000-3-3/ EN 61000-3-3: 2013
- AS/NZS CISPR 32:2013 Class A
- CNS 13438:2006 Class A
- 47 CFR Part 15 Subpart b Class A
- ICES-003 Issue 6 Class A
- VCCI-CISPR 32: 2016 Class A
- RRA Notice No. 2016-79 (2016.12.19) Class A
- RRA Notice No. 2016-26 (2016.12.19)

Safety

- IEC 60950-1:2005 (2nd Edition); +A1:2009 +A2:2013
- EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +A2:2013
- EN 62479:2010
- IEC 62368-1: 2014
- EN 62368-1:2014+A11:2017
- CNS 14336-1
- UL 62368-1 2nd Ed.
- CAN/CSA-C22.2 No. 62368-1-14

Certifications/Markings

- BIS
- BSMI
- cCSAus
- CE
- EAC
- EnergyStar
- FCC Class A
- GS
- IC Class A
- KCC
- Morocco
- RCM
- Ukraine
- VCCI
- WEEE
- China RoHS
- EU RoHS

Summary of Changes

Date	Version History	Action	Description of Change
02-Nov-2020	Version 10	Changed	Configuration Information section was updated
05-Oct-2020	Version 9	Changed	Overview, Service and Configuration Information sections were updated
17-Aug-2020	Version 8	Changed	Overview, Service and Configuration Information sections were updated
06-Jul-2020	Version 7	Changed	Standard Features and Configuration Information sections were updated.
01-Jun-2020	Version 6	Changed	Added NVMe, ISCSI, and Energy Star certification configuration options
02-Mar-2020	Version 5	Changed	Configuration Information and Technical Specifications sections were updated.
03-Feb-2020	Version 4	Changed	Configuration Information and Technical Specifications sections were updated.
21-Oct-2019	Version 3	Changed	Overview, Service and Support and Technical Specifications sections were updated
07-Oct-2019	Version 2	Changed	Added hybrid options
05-Aug-2019	Version 1	New	New QuickSpecs.

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