

### Overview

## HPE StoreVirtual 3000 Family of Storage Systems



### HPE StoreVirtual 3200

A next-gen, multi-controller architecture built for multi-dimensional scalability, the StoreVirtual 3000 Storage series is a cost-optimized platform built to address small to midsize business (SMB) challenges by providing:

- **App acceleration on a budget:** Start at \$6k\* and accelerate performance in multiple ways. Supercharge all workloads with a small amount of flash and Adaptive Optimization software. Increase performance by adding more drives or double performance with a second system.
- **Management that's simple:** Deploy in minutes with zero learning curve. Consumer-driven user experience with built-in best practices engine. Powerful, proactive cloud-based analytics to make storage optimization a snap.
- **Built-in resiliency:** 5 9's availability when and where you need it. App-integrated, app-aware snapshots simplify disaster recovery. Synchronous replication between systems and sites lets you balance cost and resiliency.
- **The ability to grow with your business:** Start small and grow along multiple dimensions, adding performance, capacity, resiliency, and file protocol support as your needs change.

HPE StoreVirtual 3200 provides a virtualized pool of storage resources to deliver enterprise-level storage functionality that enhances virtual environments, simplifies management, and reduces costs. Easy to deploy, grow and maintain, HPE StoreVirtual 3200 ensures that critical business data remain available. The innovative approach to storage provides a unique data protection level across the entire system, reducing vulnerability without driving up costs the way traditional SANs can.

**NOTE:** \*Estimated entry street price (US\$) for 1.2TB configuration with hardware and software

### HPE StoreVirtual 3200 Storage At a Glance:

- Support for the following front-end host connectivity:
  - 1GbE iSCSI (4 or 8 RJ45 ports)
  - 10GbE iSCSI (4 SFP+ ports)
  - 10GBase-T iSCSI (4 RJ45 ports)
  - 8/16Gb FC (4 SFP+ ports, speed determined by SFP+ module utilized)
- Multiple 12Gb SAS drive options:
  - SFF/LFF SSDs
  - 15K/10K RPM (SAS) SFF HDDs
  - 7.2K<sup>1</sup> (MDL) RPM SFF HDDs
  - 7.2K (MDL)<sup>1</sup> RPM LFF HDDs
- Rackmount 2U form factor
- StoreVirtual 3000 File Controller option to support file data
- Feature-rich StoreVirtual OS features including:
  - Thin Provisioning and Space Reclamation
  - Application Aware Snapshots

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- Hardware RAID levels 5, 6, and 10
- Network RAID 0, 10 (selectable by volume)
- Remote Support utilizing StoreFront Remote and STaTS

- Simplified licensing strategy with one optional software suite:
  - Advanced Data Services Suite featuring:
    - ↻ Adaptive Optimization
    - ↻ Remote Copy (Asynchronous Replication)
    - ↻ Multi-site stretch cluster (Synchronous Replication)
- Storage Controllers: Dual active/active controllers per system
  - Single storage pool accessible by both controllers and managed centrally
- Hardware Availability features
  - Hot-pluggable drives
  - Hot spare drives
  - Hot-pluggable and redundant power supplies and fan modules
  - Cache backed by NVDIMM and battery backup

<sup>1</sup>7.2K drives are commonly referred to as MDL or Midline drives

	<b>StoreVirtual 3200 SAN Storage</b>	
<b>Number of systems per Storage Pool</b>	2 (in scale-out <sup>6</sup> configuration)	
Number of controllers per system	2	
Number of processors per controller	1x 6-core processor	
Total system cache	16GB (8GB per controller)	
Storage ports (1GbE iSCSI)	4 or 8 ports	RJ45 (no SFP+ required)
Storage ports (10GbE iSCSI)	4 ports	SFP+ (ordered separately)
Storage ports (10GBase-T)	4 ports	RJ45 (no SFP+ required)
Storage ports (8/16Gb FC)	4 ports	8/16Gb (speed determined by SFP+, ordered separately)
<b>Enclosures</b>		
Expansion drive enclosures per array	Up to 6 (in scale-out <sup>6</sup> configuration)	
Expansion drive enclosures per system	Up to 3	
LFF/SFF system/enclosure mixing	Supported	
Maximum number of drives per system enclosure or drive enclosure	25 SFF / 12 LFF	
Drive enclosure interface type	12Gb SAS3	
<b>Drives</b>		
Maximum total drives	200 SFF / 96 LFF (in scale-out <sup>6</sup> configuration)	
Maximum raw capacity	336TB (in scale-out <sup>6</sup> configuration)	
Maximum raw capacity per system	168TB <sup>5</sup>	
Maximum SSDs per system	25	
Drive RAID levels	5, 6, 10	
Minimum number of drives per tier <sup>1</sup>	4 (RAID 10), 6 (RAID 5), 12 (RAID 6)	

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Number of RAID devices per system <sup>1</sup> (logical groups of drives with a common RAID type applied)	1 to 32
Maximum number of hot spare drives per tier per enclosure	1
Maximum LUN size	128TiB
<b>Supported Drive Capacities (all 12Gb SAS)</b>	
SFF SSDs (Mixed Used) <sup>4</sup>	400GB, 800GB, 1.6TB, 3.2TB
SFF SSDs (Write Intensive) <sup>4</sup>	200GB, 400GB, 800GB
LFF SSDs (Mixed Used) <sup>4</sup>	400GB, 800GB
LFF SSDs (Write Intensive) <sup>4</sup>	400GB, 800GB
SFF HDDs	15K RPM: 300GB, 600GB 10K RPM: 300GB, 600GB, 900GB, 1.2TB, 1.8TB 7.2K RPM (MDL): 2.0TB <sup>3</sup>
LFF HDDs <sup>3</sup>	7.2K RPM (MDL): 2TB, 4TB, 6TB, 8TB
<b>Software Features</b>	
Thin Technologies	Thin Provisioning, Space Reclamation (T10 UNMAP)
Network RAID	0, 10 (selectable per volume)
Replication	Remote Copy <sup>2</sup> (Asynchronous Replication), Application Consistent Snapshots, SmartClone Technology, Multi-site stretch cluster with FOM <sup>2</sup> (Synchronous Replication)
Sub-LUN tiering	Auto-tiering via Adaptive Optimization <sup>2</sup>
Maximum tiers supported	2
<b>Additional Features</b>	
Maximum number of volumes	1,024
Maximum number of snapshots	2,048
Maximum number of initiators	512
Maximum LUNs per host	127
Maximum queue depth per host port	128
Customer self-installable	Yes
Supported languages (locales)	English (United States), Simplified Chinese, Japanese, Korean, Spanish (Latin America)
Base hardware support	3/0/0 (Three-year next business day parts exchange)
Base software support	1 years Standard Phone Support and 30 day defective media
Additional support options	Available via Support Services

**NOTE:**

<sup>1</sup>RAID devices must be configured in pairs of identical drive types and capacities.

<sup>2</sup>Features licensed through the purchase of the Advanced Data Services Suite.

<sup>3</sup>Either Drive RAID Level 6 or RAID Level 10 is supported with MDL-SAS 7.2K drives

<sup>4</sup>To make use of SSD drives customers must purchase Advanced Data Service Suites for each SV3200 system and enable AO

<sup>5</sup>Maximum supported raw capacity is 168TB per system irrespective of drive capacity.

<sup>6</sup>Scale-out functionality is currently supported only in iSCSI models (1GbE, 10GbE and 10GBase-T)

### HPE StoreVirtual 3000 File Controller, At a Glance:

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- With HPE StoreVirtual 3000 File Controller you get a low cost, powerful and simple way to provide file storage from HPE StoreVirtual 3200 Storage.
- The StoreVirtual 3000 File Controller saves you time and money by supporting hundreds to thousands of concurrent users and diverse file workload. It also has non-intrusive data deduplication that provides an average 50-60% in space savings.
- It provides security through features such as built-in encryption, sophisticated access controls, online snapshots, and the ability to run endpoint protection and backup software onboard so that data is protected at rest and in flight.
- HPE StoreVirtual 3000 File Controllers can be clustered to provide transparent failover and online rolling maintenance updates that deliver continuous availability of data to users, servers, and applications.
- With a straightforward and consistent management experience, it also provides robust capabilities for demanding 24 x 7 file storage environments

Specification	Description
Network Ports	6 x 1GbE standard - 4 x 1GbE for client connectivity and 2 x 1GbE for SV3000 File controller system connectivity; 6 x 1GbE for client connectivity if optional 10GbE or 8/16Gb FC used for system connectivity
Protocols	SMB/CIFS, NFS, FTP, FTPS, HTTP, HTTPS, WebDAV
Processor/Cache Memory	Intel® Xeon® E5-2603v4 (1.7GHz/6-core/15MB/85W) Processor
Memory	8GB standard (1 x 8GB DDR4-2400 DIMM); up to 64GB maximum (8 x 8GB)
Expansion Slots	2 x Low Profile PCIe 3 slots, x16 and x8
Internal Storage	2 x SATA Mixed Use SFF Solid State Disks (configured as a RAID1 pair and used for pre-installed WSS2016 Operating System)
System Connectivity	2 x 1GbE iSCSI standard; 10GbE iSCSI, 10GBase-T or 8/16Gb Fibre Channel optional
Power	2 x 900W AC 240VDC power supply, redundant
Cooling	5 hot plug fans, redundant
Software Features	Sub-file Deduplication, Snapshots (Volume Shadow Copy Service), Replication, File Classification Infrastructure, Storage Quotas, File Screening, Reporting
HW Management	Dedicated iLO port with iLO Advanced License including 1yr 24x7 Technical Support and Updates
Form Factor	1U rack mount
Warranty	3/0/0 (Three-year next business day parts exchange), 1 year 9 x 5 software telephone support

### Configuration Information

#### StoreVirtual 3200 Software

#### Base Software Features

##### Application Consistent Snapshots

- The StoreVirtual 3200 allows for the creation of application consistent snapshots of VMware and Hyper-V VMs and of Microsoft VSS enabled applications.
- Application consistent snapshots create instant application consistent copies of data on a per-volume basis. Snapshots can be created in a variety of ways to meet business or application requirements. Administrators can create them manually ad-hoc, on a scheduled or scripted basis, or via the Microsoft VSS framework, and can then access these snapshots to recover individual files or folders from the volume, or rollback an entire volume. StoreVirtual 3200 snapshots are always thinly provisioned for efficiency, only consuming storage space on the system for the data written to the snapshot, eliminating any upfront space reservation or guesswork that could lead to snapshot and backup job failures.

##### Network RAID

- Network RAID 0 and 10 are supported on the StoreVirtual 3200. Network RAID 0 is enabled by default and maintains data availability to applications in the event of a drive or controller failure.
- StoreVirtual Network RAID stripes and protects multiple copies of data across a storage pool of storage systems, eliminating any single point of failure in HPE StoreVirtual system. Applications have continuous data availability in the event of a power, network, disk, controller, entire storage system or site failure
- Network RAID 10 offers an optional additional layer of data protection by mirroring the data in the storage pool. Administrators can manage redundancy on a per-volume basis to optimize storage utilization and match the data protection of the volume to the application data on that volume.

##### Thin Provisioning

- The StoreVirtual 3200 software manages all the storage allocations underneath a given volume, and the Thin Provisioning feature allocates space only as data is actually written to that volume. Thin Provisioning allows customers to purchase only the storage needed today and then add more storage as application data grows. This raises the overall utilization and efficiency of the system and ultimately increases the ROI associated with the storage.

##### Space Reclamation

- Unused virtual disk space can be reclaimed where files have been deleted from virtual disks by hosts. Files must be permanently deleted (on the host) to be considered as unused space. The unused space is returned to the storage pool.
- The StoreVirtual 3200 can reclaim space automatically when the T10 UNMAP feature is turned-on in VMware vSphere and Microsoft Windows environments.

##### REST API

- The REST API provides a rich programmatic interface for configuring, managing, and maintaining your StoreVirtual 3200 storage system. By using an industry standard protocol, customers can easily develop scripts or programs in their favorite language to automate common storage management tasks. For the StoreVirtual 3200, the capability of the REST API was significantly expanded to enable system configuration and health monitoring, management of all storage entities (including volumes, snapshots, and SmartClone volumes), and maintenance operations.

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#### SmartClone Technology

- SmartClone technology allows customers to quickly and easily make multiple identical virtual copies (or "clones"?) of volumes without requiring additional storage space. The feature works by taking any volume or snapshot and making one or many clones in an instant. The cloning function makes a permanent, read/write volume on the system, pointing back to the original volume's blocks instead of duplicating the blocks. These space-efficient, thin-provisioned volume clones can be used to develop, test, and deploy new operating system versions and applications or implement a virtual desktop infrastructure, etc.

#### Optional Features

##### Remote Copy (included in the Advanced Data Services Suite)

- Remote Copy allows customers to replicate thin provisioned snapshots between primary and remote locations. Because remote copies are thin provisioned no space reservation at the remote location is required. Remote Copy is used for centralized backup and disaster recovery and can be set up on a per-volume basis. Remote copies placed on a recurring schedule allow customers to achieve point-in-time asynchronous replication of the data between locations, sites, or data centers.
- Integrated into the Remote Copy software is intelligent bandwidth management ensuring that the data traffic can be sent across shared WAN links without adversely impacting other network traffic. Administrators simply set the bandwidth limit for remote copies between the two sites and the StoreVirtual 3200 software holds that limit.
- Remote Copy leverages application consistent snapshots to enable VMware and Hyper-V VMs as well as Microsoft VSS applications to be replicated in a quiesced state, providing faster application recovery.

##### Adaptive Optimization (included in the Advanced Data Services Suite)

- The StoreVirtual 3200 Adaptive Optimization feature is an innovative technology that greatly increases the efficient use of faster storage devices (such as SSDs) by intelligently moving data between tiers of storage with different performance characteristics within a single storage system.
- Without the Advanced Data Services suites license, SSDs tiers will not be used until HDDs tiers fills completely. To enable Adaptive optimization, please purchase Advanced Data Suite license for each SV3200 system.
- Adaptive Optimization reduces planning complexity by utilizing innovative algorithms to pinpoint hot data at a highly granular level and re-provision data in real time while maintaining a balance between background IO operations and application IO requirements. The result is an effective solution that increases performance substantially without administrator intervention.
- Adaptive Optimization is configurable on a per volume basis, and requires no tuning or specialized configuration to implement.
- Performance benefits are available immediately, as the Adaptive Optimization engine constantly monitors the IO demands placed on the StoreVirtual 3200 system and reacts in near real-time. There is no need to wait for a scheduled operation to move data to the proper tier.
- Pages are migrated between tiers automatically such that I/O's are optimized in real-time

##### Multi-site Stretch Cluster<sup>7</sup> (with FOM) (included in the Advanced Data Services Suite)

- The Multi-Site stretch cluster feature enables to mirror data synchronously between logical or physical sites automatically. Sites for a Multi-Site SAN can be

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geographically disparate, such as a primary data site and a back-up site in another building or on another campus. Sites can exist within the same building on different floors or in different labs on the same floor. Sites can be two different racks in the same server room or even two groups of storage systems in the same rack.

- A failover manager is required (FOM) to support for automatic failover/failback.

**NOTE:**

<sup>7</sup>Multi-site Stretch Cluster feature is supported only with iSCSI models (1GbE, 10GbE and 10GBase-T)

### HPE Multi-pathing

- **DSM for iSCSI:** It can reduce latency and improve performance in Microsoft Windows environments. The DSM also optimizes data-path traffic in multi-site (or stretch-cluster) configurations. Once the StoreVirtual DSM is installed on the Windows server, all supported StoreVirtual iSCSI volume connections made to an iSCSI SAN will be claimed by the StoreVirtual DSM. There is no need to configure the connections manually. When the StoreVirtual DSM is installed, all load balancing is automatically managed by path selection plug-in.

### HPE SV3200 Scalable Design

- **Purchase only what you need today**  
Avoid up-front cost and purchase only what is needed today, then grow the capacity of your StoreVirtual 3200 system online as storage requirements evolve. Buying storage capacity only when needed simplifies planning and relieves budget pressures.
- **Scale-up options**  
Up to three additional SFF and/or LFF drive enclosures may be added to a single SV3200 system to further increase capacity as needed. In 2-system scale-out<sup>1</sup> configuration, total six additional drive enclosures can be added.
- **Scale-out<sup>6</sup> options**  
A management group may consist of up to two StoreVirtual 3200 systems and their respective drive enclosures, and create a bigger storage pool out of the two StoreVirtual 3200 systems together.
- **Avoid disruptive upgrades**  
Add capacity to the StoreVirtual 3200 non-disruptively as requirements increase. Applications remain online during maintenance events (adding drives, updating software or firmware) for best in class availability.

**NOTE:**

<sup>6</sup>Scale-out functionality feature is currently supported only with iSCSI models (1GbE, 10GbE and 10GBase-T)

### Easy to manage SANs

- **New Web-based User Interface**  
The StoreVirtual 3200 is managed from an all-inclusive "single pane-of-glass" via a web-based user interface accessed directly from your browser for simple, easy-to-manage storage.
- **Business continuity with integrated HA and DR**  
Simplified management of high availability/fault tolerant and disaster recovery storage solutions.

### HPE StoreVirtual 3000 File Controller

#### Base Software Features

The StoreVirtual 3000 File Controller is powered by Windows Storage Server 2016, Standard Edition with:

#### Sub-file Deduplication

- Deduplication uses variable size chunking and compression, which deliver optimization ratios of 2:1 for general file serving and up to 20:1 for virtualization data. Evaluate your deduplication savings with the

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included deduplication evaluation tool.

#### Snapshots (Volume Shadow Copy Service):

- Point-in-time copies (snapshots) of files and folders at predetermined time intervals that can then be accessed from client computers.

#### Replication

- Distributed File System Replication (DFS-R) enables efficient replication of folders across multiple servers and sites. Detects changes to the data in a file and replicates only the changed file blocks instead of the entire file.

#### File Classification Infrastructure

- Classify and apply policies to files. Some applicable policy examples are restricting access to files with sensitive data, encrypting file data and file expiration. Classification can be automated with rules or manually by modifying the properties of a selected file or folder.

#### Storage Quotas

- Quotas limit the storage space that is allowed for a volume or folder. Quotas can be set as hard or soft limits. Create quota templates that can be applied to new volumes or folders.

#### File Screening

- File screens can restrict certain file extensions such as MP3, AVI, etc., from being stored.

#### Reporting

- Reports identify trends in disk usage and how your data is classified. Also monitor attempts to access or save unauthorized files.

## HPE StoreVirtual 3200 Storage Product Information

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#### Host OS Support

- The StoreVirtual 3200 supports a wide variety of Operating Systems. For a complete list of supported operating systems, please visit HPE Storage SPOCK at <http://www.hpe.com/storage/spock>

#### Interconnects

- SKUs for the following interconnects are offered:
  - 1GbE iSCSI (4 ports, RJ45)
  - 1GbE iSCSI (8 ports, RJ45)
  - 10GbE iSCSI (4 ports, SFP+ module)
  - 10GBase-T iSCSI (4 ports, RJ45)
  - 8/16Gb FC (4 ports, speed determined by SFP+ module used)

#### Management

#### The Web-based user interface is supported on the following browsers:

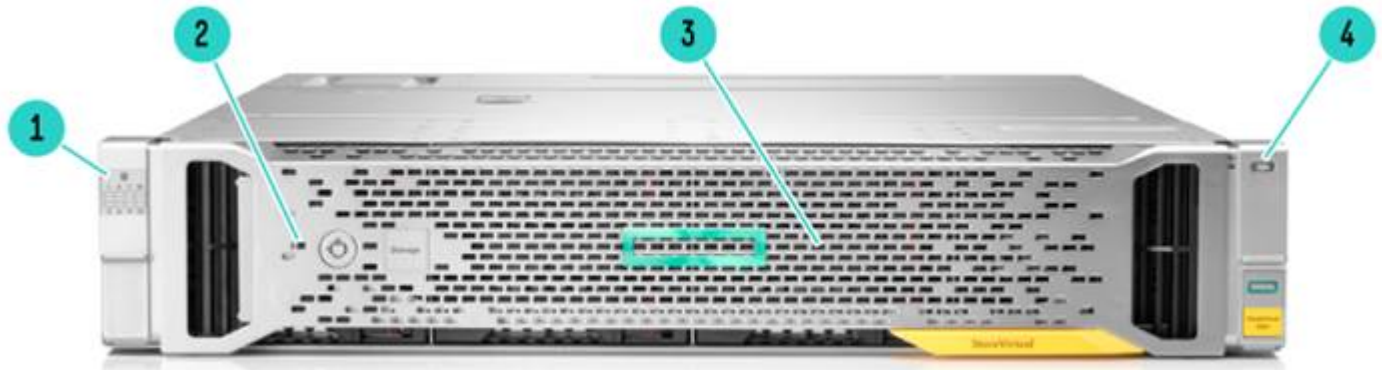
- Mozilla Firefox (version 47 or later)
- Google Chrome (version 51 or later)
- Microsoft Internet Explorer 11

## HPE StoreVirtual 3200 Storage

### Front View

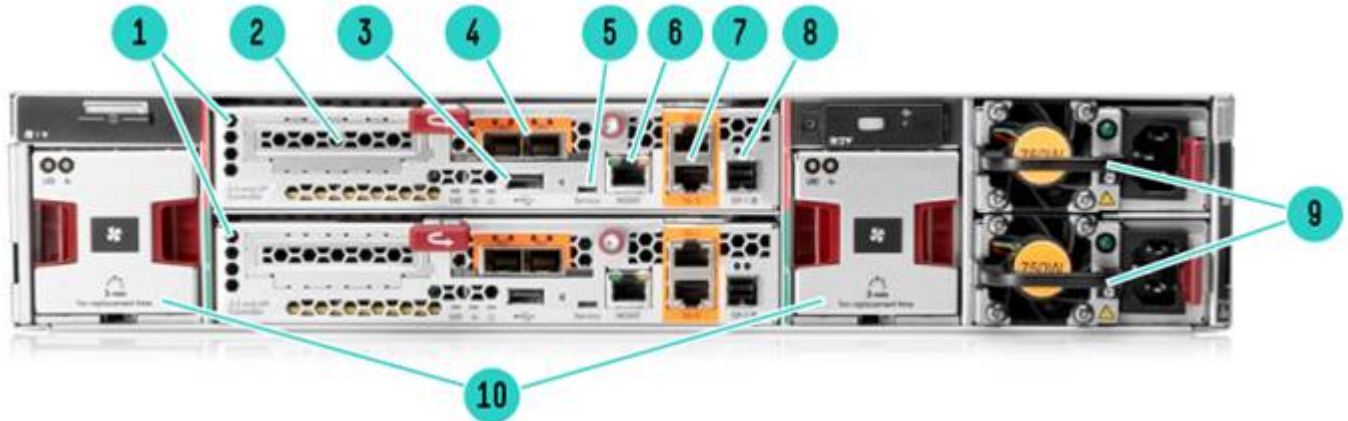


### Configuration Information



1. Drive placement diagram (LFF only)
2. Bezel lock
3. Removable bezel
4. Locator (UID) LED

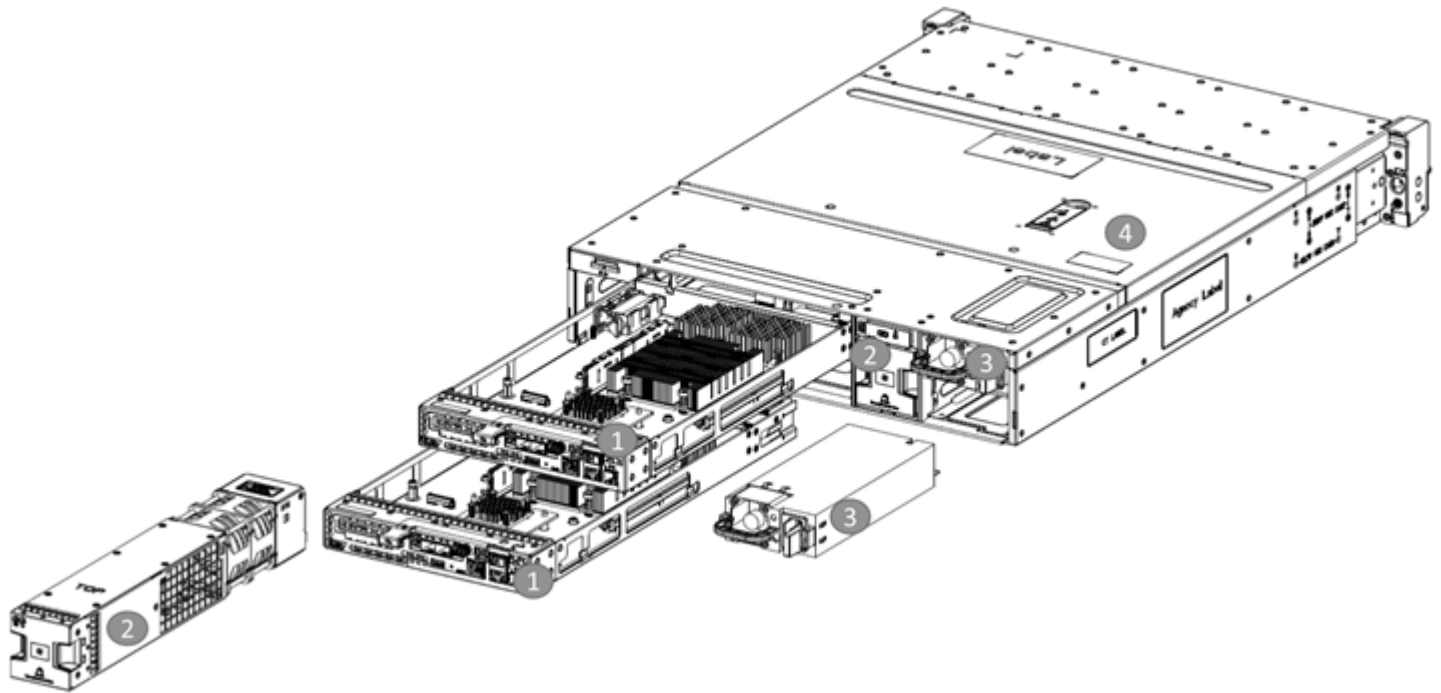
### Rear View



1. Controller
2. Fibre Channel SFP+ ports (Fibre Channel systems only)
3. USB port
4. 10GbE iSCSI LOM (2 10GbE SFP+ ports, 2 10GBase-T RJ45 ports or 2 1GbE ports) (iSCSI systems only)
5. Micro USB Service port
6. Management (MGMT) port
7. 1GbE iSCSI RJ45 ports (active only on 8-port and 4-port 1GbE iSCSI systems)
8. External Drive Enclosure SAS ports
9. Hot-swappable power supply
10. Hot-swappable fan module

### Exploded View

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1. Controller
2. Hot-swappable fan module
3. Hot-swappable power supply module
4. Top cover

## Models

All models include the following system hardware:

- Two controllers
- Two 6-core processors
- 16GB total RAM
  - 2 8GB total NVDIMM battery-back cache
- Drive slots (25 for SFF and 12 for LFF systems)
- Redundant hot-swappable power supplies
- Redundant hot-swappable fan modules
- Dedicated Management port

What's in the Box:

- HPE StoreVirtual 3200 Storage system
- Rackmount kit
- Two power cables



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HPE StoreVirtual 3200 4-port 1GbE iSCSI SFF Storage	N9X16.
HPE StoreVirtual 3200 4-port 1GbE iSCSI LFF Storage	N9X17.
HPE StoreVirtual 3200 8-port 1GbE iSCSI SFF Storage	N9X18.
HPE StoreVirtual 3200 8-port 1GbE iSCSI LFF Storage	N9X19.
HPE StoreVirtual 3200 4-port 10GbE iSCSI SFF Storage	N9X20.
HPE StoreVirtual 3200 4-port 10GbE iSCSI LFF Storage	N9X21.
HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage	N9X24.
HPE StoreVirtual 3200 4-port 16Gb FC LFF Storage	N9X25.
HPE StoreVirtual 3200 4-port 10GBase-T SFF Storage	N9X22.
HPE StoreVirtual 3200 4-port 10GBase-T LFF Storage	N9X23.

### Ordering Guidelines

#### Step 1 - StoreVirtual 3200 Base Configuration: Choose Your host interconnect

Host Interconnect	Description	Part Number
	HPE StoreVirtual 3200 4-port 1GbE iSCSI SFF Storage	N9X16.
	HPE StoreVirtual 3200 4-port 1GbE iSCSI LFF Storage	N9X17.
	HPE StoreVirtual 3200 8-port 1GbE iSCSI SFF Storage	N9X18.
	HPE StoreVirtual 3200 8-port 1GbE iSCSI LFF Storage	N9X19.
	HPE StoreVirtual 3200 4-port 10GbE iSCSI SFF Storage	N9X20.
	HPE StoreVirtual 3200 4-port 10GbE iSCSI LFF Storage	N9X21.
	HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage	N9X24.
	HPE StoreVirtual 3200 4-port 16Gb FC LFF Storage	N9X25.
	HPE StoreVirtual 3200 4-port 10GBase-T SFF Storage	N9X22.
	HPE StoreVirtual 3200 4-port 10GBase-T LFF Storage	N9X23.

**NOTE:** All StoreVirtual 3200 Storage systems are available factory racked: just add "#0D1" as a suffix to the Part Numbers listed above when ordering.

#### Step 2 - Choose Your SFP+ module

SFP+ Modules	Description	Part Number
	HPE StoreVirtual 3000 8Gb 2-pack Short Wave Fibre Channel SFP+ Transceiver	N9X01.
	HPE StoreVirtual 3000 16Gb 2-pack Short Wave Fibre Channel SFP+ Transceiver	N9X02.
	HPE StoreVirtual 3000 10Gb 2-pack Short Range iSCSI SFP+ Transceiver	N9X03.

**NOTE:** All StoreVirtual 3200 1GbE iSCSI and 10GBase-T Storage systems are equipped with RJ45 ports and do not require SFP+ modules. Also 10GbE iSCSI using DAC cables as will not require SFP+ modules.

#### Step 3 - Select Your Drives

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	Description	Part Number
<b>SFF 15K SFF HDDs</b>	HPE StoreVirtual 3000 300GB 12G SAS 15K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X14A
	HPE StoreVirtual 3000 600GB 12G SAS 15K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X15A
<b>SFF 10K SFF HDDs</b>	<b>Description</b>	<b>Part Number</b>
	HPE StoreVirtual 3000 300GB 12G SAS 10K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X04A
	HPE StoreVirtual 3000 600GB 12G SAS 10K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X05A
	HPE StoreVirtual 3000 900GB 12G SAS 10K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X06A
	HPE StoreVirtual 3000 1.2TB 12G SAS 10K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X07A
<b>SFF 7.2K SFF HDDs</b>	<b>Description</b>	<b>Part Number</b>
	HPE StoreVirtual 3000 2TB 12G SAS 7.2K SFF (2.5in) Midline 512n 1yr Warranty Hard Drive	N9X09A
	<b>Description</b>	<b>Part Number</b>
<b>LFF 7.2K LFF HDDs</b>	HPE StoreVirtual 3000 2TB 12G SAS 7.2K LFF (3.5in) Midline 512e 1yr Warranty Hard Drive	N9X10A
	HPE StoreVirtual 3000 4TB 12G SAS 7.2K LFF (3.5in) Midline 512e 1yr Warranty Hard Drive	N9X11A
	HPE StoreVirtual 3000 6TB 12G SAS 7.2K LFF (3.5in) Midline 512e 1yr Warranty Hard Drive	N9X12A
	HPE StoreVirtual 3000 8TB 12G SAS 7.2K LFF (3.5in) Midline 512e 1yr Warranty Hard Drive	N9X13A
<b>SFF SSDs</b>	<b>Description (Mixed Use)</b>	<b>Part Number</b>
	HPE StoreVirtual 3000 400GB 12G SAS Mixed Use SFF (2.5in) 3yr Warranty Solid State Drive	N9X84A
	HPE StoreVirtual 3000 800GB 12G SAS Mixed Use SFF (2.5in) 3yr Warranty Solid State Drive	N9X85A
	HPE StoreVirtual 3000 1.6TB 12G SAS Mixed Use SFF (2.5in) 3yr Warranty Solid State Drive	N9X86A
<b>LFF SSDs</b>	HPE StoreVirtual 3000 3.2TB 12G SAS Mixed Use SFF (2.5in) 3yr Warranty Solid State Drive	N9Z13A
	<b>Description (Mixed Use)</b>	<b>Part Number</b>
	HPE StoreVirtual 3000 400GB 12G SAS Mixed Use (3.5in) Converter Carrier 3yr Wty Solid State Drive	N9Z14A
	HPE StoreVirtual 3000 800GB 12G SAS Mixed Use (3.5in) Converter Carrier 3yr Wty Solid State Drive	N9Z15A

#### NOTES:

All StoreVirtual 3200 drives are available factory installed: just add "#0D1" as a suffix to the Part Numbers listed above when ordering.

In tiered solutions, the system supports one or two tiers of storage. For example, up to two tiers using the following drives: Tier 0 (SSD), Tier 1 (10K SAS), Tier 2 (7.2K MDL-SAS).

While configuring RAID, all drives of the same type (SSD, 10K SAS, and 7.2 K MDL-SAS) must have the same capacity.

While configuring RAID, all drives of the same type (SSD, 10K SAS, and 7.2 K MDL-SAS) must use the same RAID level: RAID5, RAID6, or RAID10.

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While configuring RAID, all drives of the same type (SSD, 10K SAS, and 7.2 K MDL-SAS) must have the same number of drives in each RAID device.

RAID devices must be configured as identical pairs. A single RAID device cannot be configured.

Warranty on all SSDs does not include wear-out.

A storage tier supports at least one hot spare. The maximum supported number of hot spares for a storage tier equals the number of enclosures in that storage system (one hot spare per tier per enclosure).

### Step 4 - Options

Drive Enclosures	Description	Part Number
	HPE StoreVirtual 3000 LFF Drive Enclosure	N9W99A
	HPE StoreVirtual 3000 SFF Drive Enclosure	N9X00A
	<b>NOTE:</b> HPE best practice is to order additional drives that are the same capacity and type as the existing drives (SSD, 10K SAS, 7.2K MDL-SAS).	
	Each drive enclosure includes two 0.5m MiniSAS HD to MiniSAS HD cables	
Optional Licensed Software	Description	Part Number
	HPE StoreVirtual 3200 Advanced Data Services Suite LTU	N9Y66A
	HPE StoreVirtual 3200 Advanced Data Services Suite E-LTU	N9Y66AAE
	<b>NOTE:</b> The Advanced Data Services Suite enables Adaptive Optimization, Remote Copy and Multi-site stretch cluster feature. In a scale-out configuration, all the SV3200 systems part of a same storage pool must be licensed identically.	
	HPE StoreVirtual 3200 Migration Manager LTU	P9V08A
	HPE StoreVirtual 3200 Migration Manager E-LTU	P9V08AAE
	<b>NOTE:</b> The Migration Manager license is for use in conjunction with the StoreVirtual Migration Manager tool to migrate from StoreVirtual 4000 series systems to StoreVirtual 3200. In a scale-out configuration, all the SV3200 systems part of a same storage pool must be licensed.	
Rack Options	Please refer to the HPE Infrastructure products page for more information on HPE racks and rack options <a href="https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html">https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html</a>	
Cables	10GbE Cables	
	<b>NOTE:</b> The 10GbE SFP+ ports support Direct Attach Copper Cables and Optical Fiber cables. The system must be orderable and configured with Direct Attach Copper Cables or Optical Transceivers with optional Fiber cables and switch transceivers or left empty. Optical Transceivers must not be included if Direct Attached Copper cables are ordered.	
	DAC Cables for 10GbE	J9281E
		J9283E

### Configuration Information

<b>NOTE:</b> The HPE DAC cables do not work with Cisco switches.	J9285E
HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	JD095C
HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD096C
HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	JD097C
HPE X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JG081C
HPE X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JC784C
HPE X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	
HPE X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	
HPE X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	

#### Optical Cables for 10GbE

<b>NOTE:</b> 10GbE and Fibre channel use the same optical cables but different transceivers.	AJ833A
	AJ834A
HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ835A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ837A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ838A
HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ839A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	QK732A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	QK733A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	QK734A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	QK735A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	QK736A
HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	QK737A
HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	

#### AMS Regional Bundle SKUs

HPE SV3200 1GbE iSCSI 600GB Bdl/S-Buy	P9M66SE
<b>NOTE:</b> This SKU consists of HPE SV3200 1GbE iSCSI system and 6 600GB SFF 10K HDDs	
HPE SV3200 1GbE iSCSI 900GB Bdl/S-Buy	P9M67SE
<b>NOTE:</b> This SKU consists of HPE SV3200 1GbE iSCSI system and 6 900GB SFF 10K HDDs	
HPE SV3200 1GbE iSCSI 1.2TB Bdl/S-Buy	P9M68SE
<b>NOTE:</b> This SKU consists of HPE SV3200 1GbE iSCSI system and 6 1.2TB SFF 10K HDDs	
HPE SV3200 10GbE iSCSI 900GB Bdl/S-Buy	P9M69SE
<b>NOTE:</b> This SKU consists of HPE SV3200 10GbE iSCSI system, 2 packs 10GbE SFP+ and 6 900GB SFF 10K HDDs	
HPE SV3200 10GbE iSCSI 1.2TB Bdl/S-Buy	P9M70SE
<b>NOTE:</b> This SKU consists of HPE SV3200 10GbE iSCSI system, 2 packs 10GbE SFP+ and 6 1.2TB SFF 10K HDDs	
HPE SV3200 8Gb FC 900GB Bdl/S-Buy	P9M71SE
<b>NOTE:</b> This SKU consists of HPE SV3200 8GB FC system, 2 packs 8Gb SFP+ and 6 900GB SFF 10K HDDs	
HPE SV3200 8Gb FC 1.2TB Bdl/S-Buy	P9M72SE

### Configuration Information

	<p><b>NOTE:</b> This SKU consists of HPE SV3200 8GB FC system, 2 packs 8Gb SFP+ and 6 1.2TB SFF 10K HDDs</p> <p>HPE SV3200 Adv Data LTU/SSD Bdl/S-Buy</p> <p><b>NOTE:</b> This SKU consists of HPE SV3200 Advanced Data Services SKU with 4 400GB Mixed Used SFF SSD</p>	P9M73SE
<b>EMEA Regional Bundle SKUs</b>	HPE SV3200 1Gb iSCSI 6x600 Bndl/TVlite	Q0F22/
	<p><b>NOTE:</b> This SKU consists of HPE SV3200 1GbE iSCSI system and 6 600GB SFF 10K HDDs</p> <p>HPE SV3200 10Gb iSCSI 6x900 Bndl/TVlite</p> <p><b>NOTE:</b> This SKU consists of HPE SV3200 10GbE iSCSI system and 6 900GB SFF 10K HDDs</p>	Q0F23/
	HPE SV3200 FC 6x900 no SFP Bndl/TVlite	Q0F25/
	<p><b>NOTE:</b> This SKU consists of HPE SV3200 16GB FC system and 6 900GB SFF 10K HDDs</p> <p>HPE SV3200 FC Flash no SFP Bndl/TVlite</p> <p><b>NOTE:</b> This SKU consists of HPE SV3200 16GB FC system, 6 400GB Mixed Used SFF SSD and HPE SV3200 Advanced Data Services Suite license</p>	Q0F24/
<b>StoreVirtual 3000 File Controller</b>	<p><b>Description</b></p> <p>HPE StoreVirtual 3000 File Controller</p> <p><b>NOTE:</b> User must select minimum of one Q0F66A or at least two Q0F66A if clustered for high availability. If two or more Q0F66A are selected they must be configured exactly the same.</p>	Q0F66/
<b>Options for StoreVirtual 3000 File Controller</b>	<p><b>Description</b></p> <p>HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit</p> <p><b>NOTE:</b> Up to 7 additional DIMMs can be added to a Q0F66A</p>	805347-B21
	HP Ethernet 10Gb 2P 561T Adptr	716591-B21
	HPE Ethernet 10Gb 2-port 562SFP+ Adptr	727055-B21
	HPE SN1100E 16Gb 2P FC HBA	C8R39/
	HPE 82E 8Gb Dual-port PCI-e FC HBA	AJ763E
	HP TPM Module Kit	488069-B21
	HPE StoreVirtual 3000 File Controller Recovery Software Kit	Q0F67/
	<p>The HPE StoreVirtual 3000 File Controller Recovery Software Media Kit contains a System Recovery DVD that is used to re-install the factory operating system image. Booting the system from the System Recovery DVD will restore the operating system image and logical drive to the factory default state. This enables recovery of the system if all other means to boot the system fail. Refer to the StoreVirtual 3000 File Controller Administrator Guide for more information on performing a System Recovery.</p> <p><b>NOTE:</b> If desired the StoreVirtual 3000 File Controller Recovery Software is available as a free download HPE's Software Depot at no charge to allow you to create your own System Recovery DVD or System Recovery USB flash drive. The StoreVirtual 3000 File Controller Administrator's Guide provides instruction on creating recovery media from the downloaded software.</p> <p>HPE's software depot can be accessed <a href="#">here</a></p>	

### Service and Support, HPE Care Pack, and Warranty Information

## Service and Support, HPE Proactive Care, and Warranty Information

### Warranty

Three-year limited warranty, parts exchange Next Business day delivery

Enclosures, Hard drives, and Options carry their own warranty. Refer to Hewlett Packard Enterprise Limited Warranty Statement for more information.

The StoreVirtual 3200 has been designed with customer self-repairable parts to minimize repair time and provide greater flexibility in performing defective parts replacement. Please refer to Hewlett Packard Enterprise limited warranty Statement and parts replacement instructions for further details.

[www.hpe.com/support/storage-warranties](http://www.hpe.com/support/storage-warranties)

Products included in various kits carry their own individual warranties.

**NOTE:** The warranty of the hard drive options purchased with the StoreVirtual 3200 models is different for SAS hard drives versus SAS MDL. SAS hard drive options have a three year warranty and SAS MDL have a one year warranty.

### Solid State Drives (SSD) Warranty

3/0/0 warranty; Customer Self Repair (CSR) subject to maximum usage and or maximum supported lifetime limitations, whichever occurs first. Maximum Supported Lifetime is the period in years set to equal the warranty for the device. Maximum usage limit is the maximum amount of data that can be written to the device before reaching the device's write endurance limit.

### Deployment Services

#### HPE StoreVirtual 3000 Startup Service

Designed to provide a smooth startup, HPE StoreVirtual 3000 Storage Installation and Startup Service provides deployment of your HPE StoreVirtual 3000 Storage, helping to ensure proper installation in your storage environment as well as helping you increase the benefit from your storage investment.

The service provides activities required to help you deploy your HPE StoreVirtual 3000 Storage into operation. When ordered with hardware upgrade products, the service also provides deployment of hardware upgrades to your existing HPE StoreVirtual 3000 Storage.

Ordering information: HA114A1#5ZK or U7VF7E

#### HPE StoreVirtual 3K File Controller Installation and Startup Service

HPE StoreVirtual 3000 File Controller Installation and Startup Service provides the necessary activities required to deploy the HPE StoreVirtual 3000 File Controller into your storage environment.

With the assistance of your designated IT storage administrator and using Hewlett Packard Enterprise best practices, a Hewlett Packard Enterprise service specialist will help plan, design, and deploy your HPE StoreVirtual 3000 File Controller. The Hewlett Packard Enterprise service specialist will also perform HPE installation verification tests and provide pre-delivery



### Service and Support, HPE Care Pack, and Warranty Information

planning and a brief customer orientation session.  
Ordering information: HA114A1#5BV and H2US9E

#### Service and Support

Protect your business beyond warranty with HPE Support Services. HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Our integrated portfolio of Services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new storage solution, giving you full entitlement for the support for need for your IT and business.

#### Optimized Care

##### **HPE Proactive Care with 6 hour call-to-repair commitment, three year Support Service**

HPE Proactive Care gives customers an enhanced call experience plus helps prevent problems and maintains IT stability by utilizing tailored, proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our highest level of hardware support - HPE's 24x7, six hour hardware call-to-repair. HPE is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable storage systems.

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

#### Standard Care

##### **HPE Proactive Care with 24x7 coverage, three year Support Service**

HPE Proactive Care gives customers an enhanced call experience plus helps preventing problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice when your products are connected to HPE. This Service combines three years' proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem.

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

#### Basic Care

##### **HPE Foundation Care 24x7, three-year Support Service**

HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

<http://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

#### Additional Service Offers

##### **HPE Proactive Care Advanced**

HPE Proactive Care Advanced builds on HPE Proactive Care, providing additional benefits such as the assignment of a dedicated, local account support manager (ASM) for collaboration and best practices and critical event management that provides 24x7 fast response and IT service restoration with incident follow-up to prevent a repeat. All of this is designed to give you an incredibly personalized, high-touch support experience that keeps your system fully available and running at peak performance.

##### **HPE Foundation Care Call-to-Repair Service**

### Service and Support, HPE Care Pack, and Warranty Information

Offers 24x7 service, including on Hewlett Packard Enterprise holidays, with a six-hour call-to-repair time, where our commitment is to have the hardware operational within six hours after your call is opened. Software support is 24x7 with a 2-hour response time.

#### **HPE Proactive Select**

Addresses on-going operational and staffing needs of Converged Systems environments. The customer can buy HPE Proactive Select credits upfront, and choose from around 100 services to consume the required level of expertise and resources throughout a year. A vast array of services health checks, optimization, performance, and security-help customers address their skills and staffing requirements with flexibility.

#### **Additional Information**

For more information <https://www.hpe.com/us/en/services.html>

To learn more on HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. HPE Proactive Care Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from Hewlett Packard Enterprise or an enterprise reseller are quoted using Hewlett Packard Enterprise order configuration tools.
- Customers purchasing from a commercial reseller can find HPE Support Services at <http://www.hpe.com/services/storage>

#### **HPE Services Awards**

HPE Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit:

<https://www.hpe.com/us/en/services.html>

#### **Additional Services Information**

For more information about HPE Pointnext operational services, please visit: <https://www.hpe.com/us/en/storage.html>

If you have specific questions, contact your local Hewlett Packard Enterprise representative. Contact information for a representative in your area can be found at "Contact Us" <http://www.hpe.com>

### Technical Specifications

<b>HPE StoreVirtual 3200 Storage</b>		
<b>Power Requirements</b>	Max Input Power	575 W
	Heat Dissipation	1962 BTU/hr
	UPS Operation	The SV32x0 supports using any online or double conversion UPS. The switch over time of an offline, standby or line-interactive UPS may be too long to provide consistent and reliable power.
<b>Temperature and Humidity Ranges</b>	Operating Temperature	50° to 95°F (10° to 35°C)
	Shipping Temperature	-22° to 149°F (-30° to 65°C)
	Operating Humidity	10% to 90%
	Non-Operating Humidity	0% to 95%
<b>Declared Acoustic Noise Levels</b>	Sound Power	6.3 Bels - 7.75 Bels
	Sound Pressure	51 dB - 67 dB
<b>Shock and Vibration</b>	Shock, Operational	5 G, 11 ms, half-sine
	Shock, Non-Operational	10 G, 11 ms, half-sine
	Vibration, Operational	.25 G, 5-500 Hz, Sine
	Vibration, Non-Operational	.5 G, 5-500 Hz, Sine
<b>Physical</b>	Height	88mm (3.5")
	Depth (excluding cables)	597mm (23.5"), to cam handle = 627mm (24.7")
	Width (body only)	448mm (17.6"), ear to ear = 483mm (19")
	Weight	Dual controller system with no HDD/SSDs LFF: 42 lbs. SFF: 43 lbs.  Dual controller system with 12 LFF HDD/SSDs: 62 lbs. Dual controller system with 25 SFF HDD/SSDs: 58 lbs.
<b>Regulatory Info</b>		
<b>Safety</b>		UL 60950-1 (USA)
		CAN/CSA-C22.2 No. 60950-1-07 (Canada)
		IEC 60950-1 (International)
		EN 60950-1 (European Union)
		IS 13252 (Part 1) (India)
		UL 60950-1 (USA)
<b>Electromagnetic Compatibility</b>		FCC Title 47, Part 15, Subpart B Class A (USA)
		ICES-003, Issue 5 Class A (Canada)
		VCCI V-3/2014.04 Class A (Japan)
		AS/NZS CISPR 22 Class A (Australia, New Zealand)
		EN 55022 & CISPR22 Class A (European Union, International)

### Technical Specifications

		EN 55024 & CISPR24 Class A (European Union, International)
		EN 61000-3-2: Harmonics (European Union)
		EN 61000-3-3: Flicker (European Union)
		CNS 13438 Class A (Taiwan)
<b>RoHS and WEEE</b>	Compliance	RoHS-6/6 Compliance, China RoHS, WEEE
	Exemptions	6(a);6(c); 7(a); 7(c)-I; 7(c)-II
<b>Country Approvals</b>		United States, Australia, New Zealand, Canada, European Union, Japan, Taiwan
<b>HPE StoreVirtual 3000 File Controller</b>		
<b>Power Requirements</b>	Max Input Power	900W
	Heat Dissipation	3325 BTU/hr (maximum)
<b>Temperature and Humidity Ranges</b>	Operating Temperature	50° to 95°F (10° to 35°C)
	Shipping Temperature	-22° to 140°F (-30° to 60°C)
	Operating Humidity	8% to 90%
	Non-Operating Humidity	5% to 95%
<b>Operating Acoustic Noise</b>	L WAd	Entry 5.7 B Base 5.8 B
	L pAm	Entry 38.0 dBA Base 39.0 dBA
<b>Physical</b>	Height	4.29 cm (1.69 inches)
	Depth	60.76 cm (23.90 inches)
	Width	43.46 cm (17.11 inches)
	Weight	9.53kg (21 lbs)
<b>Emission Classification (EMC)</b>	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

## Performance

### Benchmark Performance Results

Single HDD and SSD tiers were tested in a laboratory setting to produce these results. Actual performance attained will vary due to several factors, including drive type, number of drives, RAID type, Network RAID type, host interconnect, block size, workload type, etc.

StoreVirtual 3200 hybrid configurations utilize the SSD RAID group as a very fast, low latency read/write tier in the storage pool. Adaptive Optimization will move pages to the fastest tier based on real-time I/O dynamics as workloads change. Performance testing of the SSD tier only as an all-flash array is not necessarily a good measure of the performance an application will have in a hybrid tiered system.

### Technical Specifications

<b>StoreVirtual 3200 Single System Performance</b>		
<b>Protocol (host connect)</b>	16Gb Fibre Channel	10GbE iSCSI
<b>HDD RAID 5 Performance Results<sup>1</sup></b>		
Random Reads (IOPS)	5,788	4,889
Random Writes (IOPS)	2,724	2,958
Mixed Workload (60%R/40%W IOPS)	3,266	3,127
<b>SSD RAID 10 Performance Results<sup>2</sup></b>		
Random Reads (IOPS)	19,800	19,873
Random Writes (IOPS)	18,600	19,995
Mixed Workload (60%R/40%W IOPS)	17,600	18,996

#### Benchmark Setup Configurations:

<sup>1</sup> HPE StoreVirtual 3200 4-port 16Gb FC/10GbE iSCSI SFF Storage, RAID: 5, Network RAID: 0, Block size: 8k, Drives: (24) HPE StoreVirtual 3000 900GB 12G SAS 10K SFF HDD; 6 drives per RAID set, Host: DL360, Average Latency: 30ms

<sup>2</sup> HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage, RAID: 10, Network RAID: 10, Block size: 8k, Drives: (4) HPE StoreVirtual 3000 400GB 12G SAS 2.5in MU SSD; 2 drives per RAID set, Host: DL360, Average Latency: 7ms

#### StoreVirtual 3200 Scale-out Performance:

StoreVirtual 3200 supports Scale-Out with SVOS 13.5 or later (iSCSI configurations only, Max of two arrays). In scale-out systems, Network RAID 0 or Network RAID 10 can be utilized to provide the appropriate balance between cost optimization, system performance and availability for each volume.


<b>StoreVirtual 3200 2-System Scale-Out Performance</b>		
<b>Protocol (host connect)</b>	10GbE iSCSI	
<b>Network RAID</b>	NR0	NR10
<b>HDD RAID 5 Performance Results<sup>1</sup></b>		
Random Reads (IOPS)	19,808	19,374
Random Writes (IOPS)	6,090	5,473
Mixed Workload (60%R/40%W IOPS)	9,589	6,260
<b>SSD RAID 10 Performance Results<sup>2</sup></b>		
Random Reads (IOPS)	36,191	50,444
Random Writes (IOPS)	32,497	6,348
Mixed Workload (60%R/40%W IOPS)	32,600	14,362

<sup>1</sup> HPE StoreVirtual 3200 4-port 10GbE iSCSI SFF Storage, RAID: 5, Block size: 8k, per system Drives: (48) HPE StoreVirtual 3000 900GB 12G SAS 10K SFF HDD; 6 drives per RAID set, Host: DL360, Average Latency: 30ms

<sup>2</sup> HPE StoreVirtual 3200 4-port 10GbE iSCSI SFF Storage, RAID: 5, Block size: 8k, per system Drives: (4) HPE StoreVirtual 3000 400GB 12G SAS 2.5in MU SSD; 2 drives per RAID set, Host: DL360, Average Latency: 7ms

### Summary of Changes

Date	Version History	Action	Description of Change
25-Sept-2017	From Version 6 to 7	Changed	Updated UPS requirements and scale-out applies to iSCSI tuning on performance benchmarks
19-May-2017	From Version 5 to 6	Changed	Added numbers and clarifications to the performance section
03-Apr-2017	From Version 4 to 5	Changed	Changes made to the entire document. Adding Scale-out, multi-site, Failover Manager and other elements from SVOS 13.5 release
13-Jan-2017	From Version 3 to 4	Changed	SV3000 File controller sustaining updates, Addition of Scale-out, Multi-site feature & Regional Bundles
28-Nov-2016	From Version 2 to 3	Changed	10GBase-T Host interface, SV3000 File Controller, New SSD/HDD support
26-Sept-2016	From Version 1 to 2	Changed	Various corrections
15-Aug-2016	Version 1	Created	Document Created

     
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