Overview

HPE StoreVirtual 3000 Family of Storage Systems

StoreVirtual 3200

The StoreVirtual 3000 series of storage systems was designed from the ground up to address challenges commonly faced by IT administrators in small-to-medium business environments:

- Limited budget - Need peak performance and feature set within a specified budget target
- Time availability - Setup and configuration must be simple and intuitive for rapid deployment
- Investment protection - Flexible performance and storage scalability options to grow as your needs change

The new StoreVirtual 3200 storage delivers low-cost, next-generation storage that scales with you:

- Start at $6k* and add flash when you are ready

    - Designed for traditional spinning or newer hybrid configurations with option to upgrade at any time

    - Adaptive optimization reacts to real-time I/O fluctuations as workloads change

- 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

- Ensure constant access to business applications

    - Resiliency across systems and sites

    - Built-in, unlimited snapshots for rapid, granular recovery

- Grow without worry

    - Seamlessly scale to meet changing performance and/or capacity needs

    - Utilize tools to simplify and de-risk workload migrations to the new modern architecture

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 array, 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

Overview

HPE StoreVirtual 3200 Storage At a Glance:

- Support for the following front-end host connectivity:
    - 1GbE iSCSI (4 and 8 RJ45 ports)
    - 10GbE iSCSI (4 SFP+ ports)
    - 8/16Gb FC (4 SFP+ ports, speed determined by SFP+ module utilized)

- Multiple 12Gb SAS drive options:
    - SFF/LFF SSDs
    - 15K/10K/7.2K[1] (MDL) RPM SFF HDDs
    - 7.2K (MDL)[1] RPM LFF HDDs

- Rackmount 2U form factor
- Feature-rich StoreVirtual OS features including:
    - Thin Provisioning and Space Reclamation
    - Application Aware Snapshots
    - Hardware RAID levels 5, 6, and 10
    - Network RAID 0, 10 (selectable by volume)
    - Remote Support utilizing STaTS

- Simplified licensing strategy with one optional software suite:
    - Advanced Data Services Suite featuring:
        · Adaptive Optimization
        · Remote Copy (Asynchronous 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

[1]7.2K drives are commonly referred to as MDL or Midline drives

StoreVirtual 3200 SAN Storage

Array

Number of controllers per array	2
Number of processors per controller	1x 6-core processor
Total array 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 (8/16Gb FC)	4 ports 8/16Gb (speed determined by SFP+, ordered separately)

Enclosures

Expansion drive enclosures	Up to 3
LFF/SFF array/enclosure mixing	Supported

Overview

Maximum number of drives per array enclosure or drive enclosure	25 SFF / 12 LFF
Drive enclosure interface type	12Gb SAS3

Drives

Maximum total drives	100 SFF / 48 LFF
Maximum raw capacity	288TB
Maximum SSDs per array	25
Drive RAID levels	5, 6, 10
Minimum number of drives per tier[1]	4 (RAID 10), 6 (RAID 5), 8 (RAID 6)
Number of RAID devices per array[1] (logical groups of drives with a common RAID type applied)	1 to 32
Maximum number of spare drives per enclosure	1
Maximum LUN size	128TiB

Supported Drive Capacities (all 12Gb SAS)

SFF SSDs	400GB, 800GB, 1.6TB, 3.2TB
LFF SSDs	400GB, 800GB
SFF HDDs	15K RPM: 300GB, 600GB 10K RPM: 300GB, 600GB, 900GB, 1.2TB, 1.8TB 7.2K RPM (MDL): 2.0TB
LFF HDDs	7.2K RPM (MDL): 2TB, 4TB, 6TB

Software Features

Thin Technologies	Thin Provisioning, Space Reclamation (T10 UNMAP)
Network RAID	0, 10 (selectable per volume)
Replication	Remote Copy[2], Application Consistent Snapshots, SmartClone Technology
Sub-LUN tiering	Auto-tiering via Adaptive Optimization[2]
Maximum tiers supported	2

Additional Features

Maximum number of volumes	1,024
Maximum number of snapshots	2,048
Maximum number of initiators	512
Maximum queue depth per host port	128
Customer self-installable	Yes
Supported languages (locales)	English (United States), Simplified Chinese, Japanese, Korean, Spanish (Latin America)

Overview

Base hardware support	3/0/0 (Three-year next business day parts exchange)
Base software support	3 years Standard Phone Support and 30 day defective media
Additional support options	Available via Support Services

NOTE:
[1]RAID devices must be configured in pairs of identical drive types and capacities.
[2]Features licensed through the purchase of the Advanced Data Services Suite.

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 array 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.
- 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 array 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.

SmartClone Technology

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Features and Benefits

- 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 array, 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 Software 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.
- 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 array 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

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 array online as storage requirements evolve. Buying storage capacity only when needed simplifies planning and relieves budget pressures.
- **Scale-up options**

Features and Benefits

Up to three additional SFF and/or LFF drive enclosures may be added to further increase capacity as needed.

- **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.

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.

StoreVirtual 3200 Storage Product Information

Overview

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 https://spock.corp.int.hpe.com/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)
- 8/16Gb FC (4 ports, speed determined by SFP+ module used)
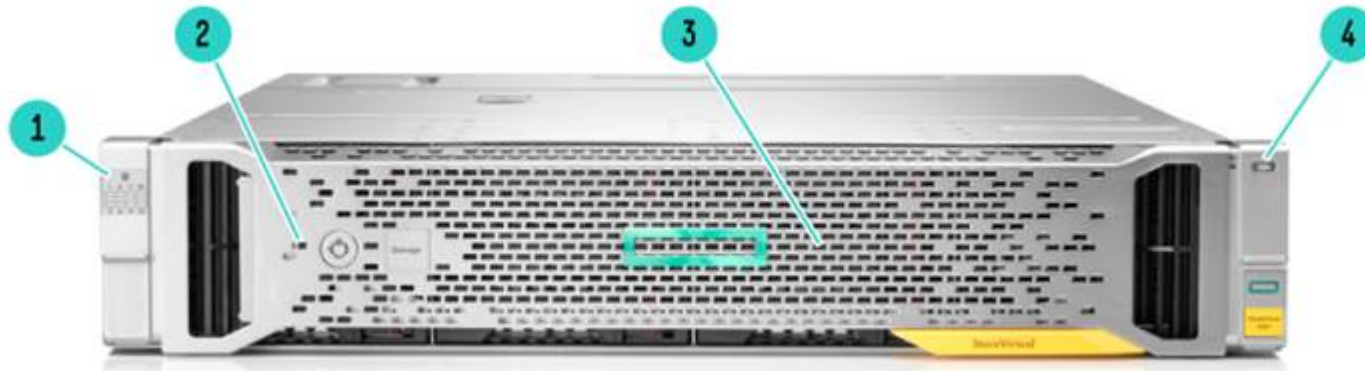
Management   The Web-based user interface is supported on the following browsers:

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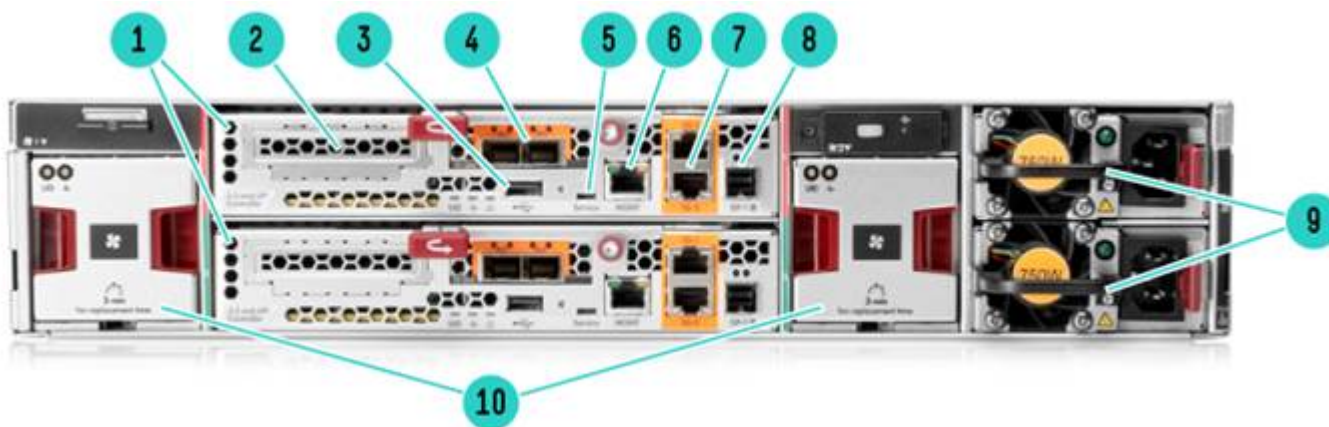
Configuration Information

HPE StoreVirtual 3200 Storage

Front View

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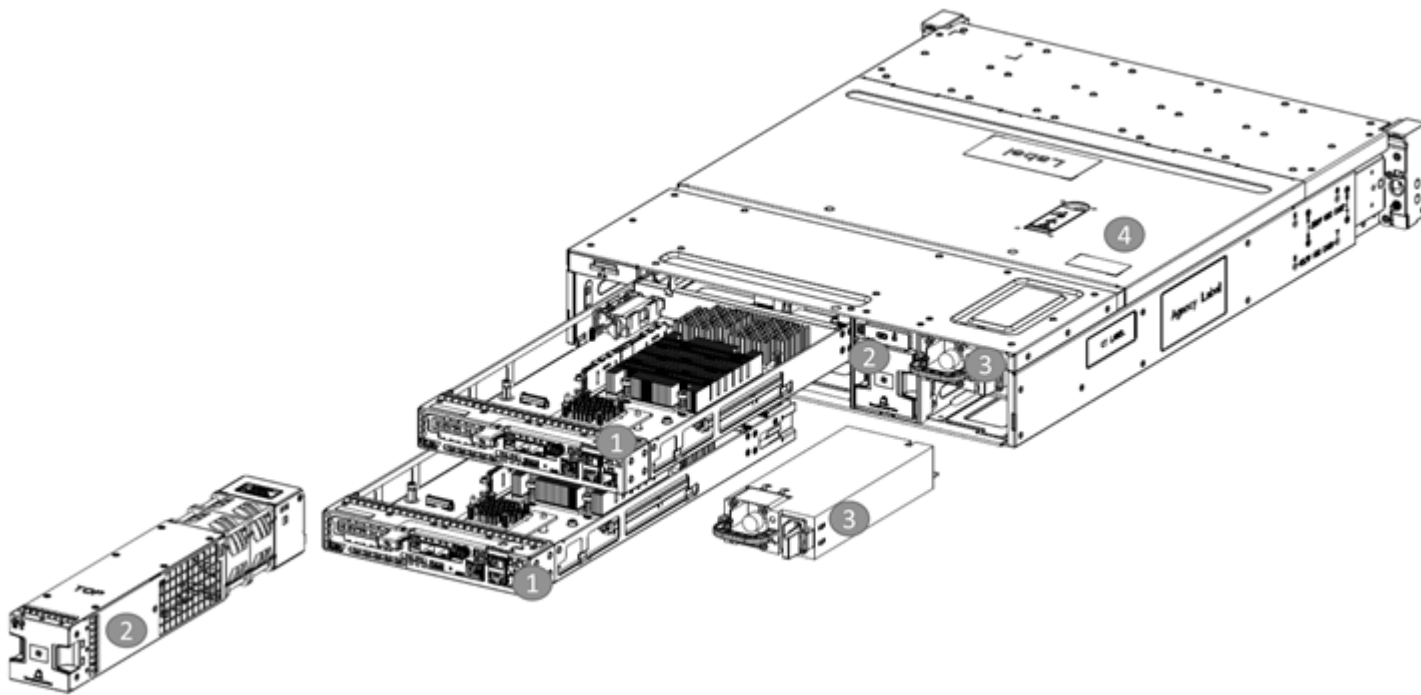3. Locator (UID) LED
4. Drive placement diagram (LFF only)

Rear View

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

Exploded View

Configuration Information

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
    - 2GB 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
- Support for disk RAID 5, 6, 10
- Dedicated Management port

What's in the Box:

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

HPE StoreVirtual 3200 4-port 1GbE iSCSI SFF Storage   N9X16A

Configuration Information

HPE StoreVirtual 3200 4-port 1GbE iSCSI LFF Storage	N9X17A
HPE StoreVirtual 3200 8-port 1GbE iSCSI SFF Storage	N9X18A
HPE StoreVirtual 3200 8-port 1GbE iSCSI LFF Storage	N9X19A
HPE StoreVirtual 3200 4-port 10GbE iSCSI SFF Storage	N9X20A
HPE StoreVirtual 3200 4-port 10GbE iSCSI LFF Storage	N9X21A
HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage	N9X24A
HPE StoreVirtual 3200 4-port 16Gb FC LFF Storage	N9X25A

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	N9X16A
	HPE StoreVirtual 3200 4-port 1GbE iSCSI LFF Storage	N9X17A
	HPE StoreVirtual 3200 8-port 1GbE iSCSI SFF Storage	N9X18A
	HPE StoreVirtual 3200 8-port 1GbE iSCSI LFF Storage	N9X19A
	HPE StoreVirtual 3200 4-port 10GbE iSCSI SFF Storage	N9X20A
	HPE StoreVirtual 3200 4-port 10GbE iSCSI LFF Storage	N9X21A
	HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage	N9X24A
	HPE StoreVirtual 3200 4-port 16Gb FC LFF Storage	N9X25A

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	N9X01A
	HPE StoreVirtual 3000 16Gb 2-pack Short Wave Fibre Channel SFP+ Transceiver	N9X02A
	HPE StoreVirtual 3000 10Gb 2-pack Short Range iSCSI SFP+ Transceiver	N9X03A

NOTE: All StoreVirtual 3200 1GbE iSCSI Storage systems are equipped with RJ45 ports and do not require SFP+ modules.

Step 3 - Select Your Drives

SFF 15K SFF HDDs	Description	Part Number
	HPE StoreVirtual 3000 300GB 12G SAS 15K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X14A

Configuration Information

	HPE StoreVirtual 3000 600GB 12G SAS 15K SFF (2.5in) Enterprise 3yr Warranty Hard Drive	N9X15A
SFF 10K SFF HDDs	**Description**	**Part Number**
	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
	HPE StoreVirtual 3000 1.8TB 12G SAS 10K SFF (2.5in) Enterprise 512e 3yr Warranty Hard Drive	N9X08A
SFF 7.2K SFF HDDs	**Description**	**Part Number**
	HPE StoreVirtual 3000 2TB 12G SAS 7.2K SFF (2.5in) Midline 512n 1yr Warranty Hard Drive	N9X09A
LFF 7.2K LFF HDDs	**Description**	**Part Number**
	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
SFF SSDs	**Description**	**Part Number**
	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
	HPE StoreVirtual 3000 3.2TB 12G SAS Mixed Use SFF (2.5in) 3yr Warranty Solid State Drive	N9Z13A
LFF SSDs	**Description**	**Part Number**
	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).

All drives of the same type (SSD, 10K SAS, 7.2K MDL-

Configuration Information

SAS) must have the same capacity.

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

All drives of the same type (SSD, 10K SAS, 7.2K 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.

The system supports one hot spare drive for each enclosure.

Step 4 - Options

Drive Enclosures	Description	Part Number
	HPE StoreVirtual 3000 LFF Drive Enclosure	N9W99A
	HPE StoreVirtual 3000 SFF Drive Enclosure	N9X00A

NOTE: 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

NOTE: The Advanced Data Services Suite enables Adaptive Optimization and Remote Copy features

| | HPE StoreVirtual 3200 Migration Manager LTU | P9V08A |
| | HPE StoreVirtual 3200 Migration Manager E-LTU | P9V08AAE |

NOTE: 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

Rack Options	Please refer to the HPE Infrastructure products page for more information on HPE racks and rack options https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html

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.
http://h18006.www1.hpe.com/products/storageworks/warranty.html
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

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.

Service and Support, HPE Care Pack, and Warranty Information

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

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

Service and Support, HPE Care Pack, and Warranty Information

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 Care Pack 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

Power Requirements	Max Input Power	575 W
	Heat Dissipation	1962 BTU/hr

Temperature and Humidity Ranges		
	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%

Declared Acoustic Noise Levels		
	Sound Power	6.3 Bels - 7.75 Bels
	Sound Pressure	51 dB - 67 dB

Shock and Vibration		
	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

Physical		
	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	LFF: 62 lbs.
		SFF: 58 lbs.

Regulatory Info

Safety	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)
Electromagnetic Compatibility	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)
	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)

RoHS and WEEE	Compliance	RoHS-6/6 Compliance, China RoHS, WEEE
	Exemptions	6(a);6(c); 7(a); 7(c)-I; 7(c)-II

Technical Specifications

Country Approvals		United States, Australia, New Zealand, Canada, European Union, Japan, Taiwan

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 Array Performance Protocol (host connect)	HPE StoreVirtual 3200 with HDD 16Gb Fibre Channel	HPE StoreVirtual 3200 with SSD 16Gb Fibre Channel
RAID 5 Performance Results		
Random Reads (IOPS)	5,788[1]	
Random Writes (IOPS)	2,724[1]	
Mixed Workload (60%R/40%W IOPS)	3,266[1]	
RAID 10 Performance Results[2]		
Random Reads (IOPS)		69,504[2]
Random Writes (IOPS)		21,045[3]
Mixed Workload (60%R/40%W IOPS)		22,780[3]

Benchmark Setup Configurations:

[1] HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage, RAID: 5, Network RAID: 0, Block size: 8k, Drives: (24) HPE SV3000 900GB 12G SAS 10K SFF HDD; 6 drives per RAID set, Host: DL360, Average Latency: 30ms

[2] HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage, RAID: 10, Network RAID: 10, Block size: 8k, Drives: (4) HPE SV3000 400GB 12G SAS 2.5in MU SSD; 2 drives per RAID set, Host: DL360, Average Latency: 7ms

[3] HPE StoreVirtual 3200 4-port 16Gb FC SFF Storage, RAID: 10, Network RAID: 0, Block size: 8k, Drives: (4) HPE SV3000 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
15-Aug-2016	Version 1	Created	Document Created

Hewlett Packard Enterprise