

Overview

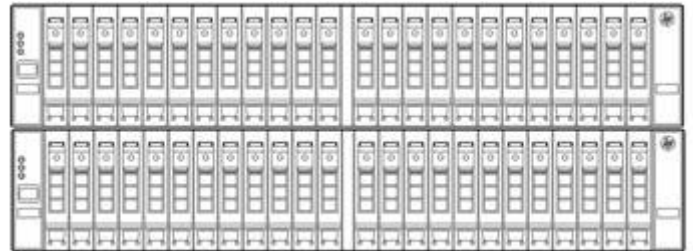
HPE 3PAR StoreServ 7000 Storage

HPE 3PAR StoreServ 7000 Storage offers enterprise Tier 1 storage at a midrange price. Spend less time managing storage, get more features for less money, and do it all without sacrificing performance or future scalability. HPE 3PAR StoreServ 7000 Storage provides high performance and guarantees to double your virtual machine density. With hardware assisted thin storage it is the only platform that guarantees a 50% reduction in capacity requirements. HPE 3PAR StoreServ is also the first product family with a common architecture capable of six nines availability that meets SMB needs and spans to the largest global enterprise giving you access to the same features as the world's largest service providers. You can start small and grow without painful upgrades down the road.

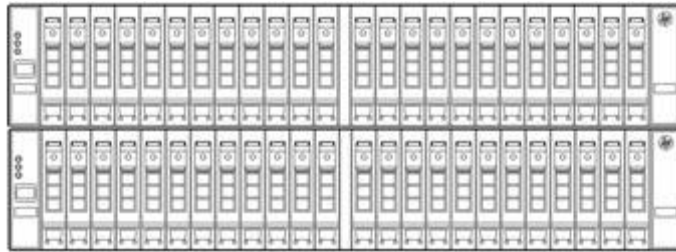
HPE 3PAR StoreServ 7000 is storage made effortless.



HPE 3PAR StoreServ 7200c



HPE 3PAR StoreServ 7400c Storage



HPE 3PAR StoreServ 7440c Storage

What's New

NOTE: The term “HPE 3PAR StoreServ 7000 Storage” refers to the whole 7000 family, including both the new HPE 3PAR StoreServ 7000 Storage Converged Controller models (7200c, 7400c, 7440c) as well as the legacy HPE 3PAR StoreServ 7000 Storage models (7200 and 7400).

| Summary | 3PAR StoreServ 7200c | 3PAR StoreServ 7400c | 3PAR StoreServ 7440c | 3PAR StoreServ File Controller v2 |
|----------------------------|----------------------|----------------------|----------------------|-----------------------------------|
| Number of Controller Nodes | 2 | 2 or 4 | 2 or 4 | Up to 8 |

Overview

| | | | | |
|--|-------------------------|-------------------------|------------------------|--|
| HPE 3PAR Gen4 ASICs | 2 | 2 or 4 | 2 or 4 | Not Applicable |
| Processors | 2 six-core 1.8 GHz | 2-4 six-core 1.8 GHz | 2-4 eight-core 2.3 GHz | 1-16 four-core 2.4 GHz |
| Total Cache | 808 GiB | 1596 GiB | 3192 GiB | Not Applicable |
| Flash Cache (optional) | 768 GiB | 1500 GiB | 3000 GiB | Not Applicable |
| On-Node Cache | 40 GiB | 96 GiB | 192 GiB | None |
| Total Cache per controller node pair | 808 GiB | 816 GiB | 1596 GiB | Not Applicable |
| Flash Cache per node pair | 768 GiB | 768 GiB | 1500 GiB | Not Applicable |
| On-Node Cache per node pair | 40 GiB | 48 GiB | 96 GiB | None |
| Maximum Host Ports | 12 ports | 24 ports | 24 ports | 4 – 128 |
| 8Gb/s Fibre Channel Host Ports | 4 - 12 ports | 4 - 24 ports | 4 - 24 ports | Not Applicable |
| 16Gb/s Fibre Channel Host Ports | 0 - 4 ports | 0 - 8 ports | 0 - 8 ports | Not Applicable |
| 10Gb/s iSCSI Host Ports | 0 - 4 ports | 0 - 8 ports | 0 - 8 ports | Not Applicable |
| 10Gb/s Ethernet Adapter | 0 - 4 ports | 0 - 8 ports | 0 - 8 ports | Not Applicable |
| 1Gb/s Ethernet Adapter | 0 - 8 ports | 0 - 16 ports | 0 - 16 ports | Not Applicable |
| 1GbE/10GbE Network Ports | Not Applicable | Not Applicable | Not Applicable | 4 – 128 |
| Maximum Initiators Supported | 1024 | 1024 or 2048 | 1024 or 2048 | Not Applicable |
| Built-in 1GbE Ports ⁷ | 2 | 2 - 4 | 2 - 4 | 2 - 4 |
| 2U Controller Enclosure SAS Drive Capacity | 24 | 24 | 24 | Not Applicable |
| Number of Disk Drives ⁸ | 6 – 240 | 6 – 576 | 6 – 960 | 2 (per node) |
| Number of Solid State Drives | 6 – 120 | 6 – 240 | 6 – 240 | None |
| Max Raw Capacity (approx.) ¹ | 500 TiB | 1600 TiB | 2000 TiB | Not Applicable |
| Usable File Capacity | 2 - 128TiB ⁶ | 2 - 256TiB ⁶ | 2-256TiB ⁶ | Depends on the usable capacity from the 3PAR array |

| Capacity Details | 3PAR StoreServ 7200c | 3PAR StoreServ 7400c | 3PAR StoreServ 7440c | 3PAR StoreServ File Controller v2 |
|---|--|----------------------|----------------------|--|
| RAID Levels | RAID 0, 1, 5, 6 | | | RAID 0, 1, 5, 6 ⁵ |
| RAID 5 Data to Parity Ratios | 2:1 - 8:1 | | | 2:1 - 8:1 ⁵ |
| RAID 6 Data to Parity Ratios | 4:2, 6:2, 8:2, 10:2, 14:2 | | | 4:2, 6:2, 8:2, 10:2, 14:2 ⁵ |
| Drive Capacities (approximate GB ²) (RAID levels, parity ratios, and drive capacities all mixable within the same Storage System) | 480 SSD ³ , 920 SSD ³ , 480GB cMLC SSD, 1.92TB cMLC SSD, 3.84TB cMLC SSD, 300 15K SAS, 450 10K SAS, 600 10K SAS, 600 15K SAS, 900 10K SAS, 1200 10K SAS, 1000 7.2K NL, 1800 10K SAS, 2000 7.2K NL ⁴ , 3000 7.2K NL ⁴ , 4000 7.2K NL ⁴ , 6000 7.2K NL ⁴ | | | Not Applicable |
| Number of Add-on Drive Enclosures (Each Drive Enclosure holds up to 24 drives in 2U for small form factor drives and 4U for large form factor drives) | 0 - 9 enclosures | 0 - 22 enclosures | 0 - 38 enclosures | Not Applicable |

Overview

NOTE: Specifications are subject to change without notice.

¹ Maximum raw capacity currently supported with any and all drive types. The minimum supported raw capacity is equal to 6 * Min drive size available.

² For storage capacity, 1 GiB = 1024³ bytes and 1 TiB = 1024 GiB.

³ SSDs are Solid State Drives.

⁴ NL drives are 7200 RPM Enterprise SAS drives.

⁵ Applies to the array storage assigned to 3PAR StoreServ File Controller for file services

⁶ Usable file capacity supported for HPE 3PAR File Persona Software Suite.

⁷ Two built-in 1GbE ports per node pair can be used either for Remote Copy (RCIP) (or for File Persona only on 7000c models).

⁸ Not applicable to HPE 3PAR StoreServ 7200c All-Flash Starter Kit

Host OS Support

Citrix® XenServer® | HPE-UX® | IBM® AIX®

Microsoft® Windows® Server, including Microsoft® Hyper-V™

Open VMS | Oracle® Linux® (UEK and RHEL compatible kernels) | Oracle® Solaris

Red Hat® Enterprise Linux® | Red Hat® Enterprise Virtualization

SUSE® Linux Enterprise | Ubuntu | VMware vSphere™

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>

Standard Features

Efficient

Get thin and stay thin - Thin technologies unique to the HPE 3PAR StoreServ family can reduce capacity requirements by 50%. Purchase only what you need, as you need it so you can focus resources on growing your business, not maintaining your storage. Additionally, the HPE 3PAR ASIC with Thin Built In features an efficient, silicon-based zero-detection mechanism. This unique hardware capability gives HPE 3PAR StoreServ Storage the power to remove allocated but unused space without impacting performance.

Data center virtualization - Increase virtualization return on investment. Double virtual machine density on your physical servers, spend up to 90 percent less time managing your storage, and support your virtualization deployment with 50 percent less storage capacity. HPE 3PAR StoreServ is built from the ground up to deliver performance that exceeds the demands of virtualized data centers along with transformative levels of simplicity, agility, and efficiency.

Service levels - With policy-based autonomic sub-LUN tiering, you can balance the cost of capacity and the cost of performance and put the right data on the right storage tier at the right time.

Do more with less - With HPE 3PAR StoreServ Storage you can purchase up to 75 percent less capacity-meaning less equipment to house, fewer disks to power and cool, less hardware to retire after it has reached its end of life, and a reduced carbon footprint.

HPE 3PAR Express Writes - HPE 3PAR Express Writes is a write acceleration feature built in to HPE 3PAR OS version 3.2.1 and later to optimize CPU utilization and, depending on workload, deliver greater throughput, up to 30 percent more IOPS, and 20 percent reduced latency¹. All currently supported HPE 3PAR StoreServ Storage HBAs and hosts also support the HPE 3PAR Express Writes feature, and its benefits extend to both spinning drives and flash-based media.

¹Based on a random, 100 percent write workload with an 8K block size.

The HPE 3PAR StoreServ 7200 and StoreServ 7400 (2-node and 4-node) storage systems are US Environmental Protection Agency (EPA) ENERGY STAR certified. Details about the specific configurations that are certified are available at the US EPA web site at:

<https://data.energystar.gov/Active-Specifications/ENERGY-STAR-Certified-Data-Center-Storage/gqtf-hp7x?>

Autonomic

It's like breathing-you don't even have to think about it. Simplify, automate, and expedite storage management by handling storage provisioning, tiering, and change management autonomically-intelligently, at a sub-system level, and without administrator intervention.

SmartStart Software - software designed to get you off to a quick start with your new HPE 3PAR StoreServ 7000 system.

Common architecture - Access the same features as the world's largest service providers with a common architecture that meets SMB needs and spans to the largest global enterprise.

Resilient

Secure multi-tenancy - Consolidate with confidence. Achieve higher service levels for more users and applications with less infrastructure. HPE 3PAR StoreServ Storage is designed to support massive consolidation by supporting mixed workloads and secure administrative segregation of users, hosts, and application data. Deliver higher performance levels, six-nine availability, and next-generation functionality to multiple user groups and applications from a single storage system.

Scalable - HPE 3PAR StoreServ 7000 provides affordable entry pricing and unique, non-disruptive scalability to four nodes.

High Availability - With the Get 6-Nines Guarantee, Hewlett Packard Enterprise ensures 99.9999% data availability with all HPE 3PAR StoreServ 7400 systems with four nodes giving you the peace of mind to

Standard Features

expand deployment of mission critical applications to midrange storage. Intelligent data striping across all available enclosures provides HA Cage, the ability to maintain availability even when a whole drive enclosure fails. HPE 3PAR Persistent Cache in four node configurations eliminates performance impacts that result from unplanned component failures, making it a must-have for maintaining service levels in the virtual data center—a feature that you can't get from any other midrange storage platform.

Storage federation - Meet the needs of today's data center with the ability to move data and workloads between arrays without impact to applications, users, or services. Simply and non-disruptively shift data between any model HPE 3PAR StoreServ system without additional management layers or appliances. Storage federation on HPE 3PAR StoreServ Storage can also help you improve availability in clustered VMware environments.

Mixed workload - Mixed workload support serves transactional and throughput-intensive workloads from a single device. The purpose-built HPE 3PAR ASIC delivers mixed workload support to alleviate performance concerns and cut traditional array costs. Transaction- and throughput-intensive workloads run on the same storage resources without contention, thereby cutting array purchases in half.

Data at Rest Encryption - enables the encryption for all the data that is stored on the internal drives of the 3PAR StoreServ Storage. The 3PAR StoreServ Data Encryption solution encrypts and decrypts all data written to and read from the media automatically. The 3PAR StoreServ Data Encryption solution encrypts the data so that data cannot be read off a drive that is removed from the 3PAR Storage. In the event of a failure of the drive or the theft of a drive, the proper authentication key is required to be entered to gain access to the data stored within the drive. This method of encryption allows the user the comfort knowing all data contained on the drive is protected against internal and external risks.

HP 3PAR StoreServ 7200 All-Flash Starter Kit

HPE 3PAR StoreServ 7200c All-Flash Starter Kit

HPE 3PAR StoreServ 7200c All-Flash Starter Kit is an all-flash version of the HPE 3PAR StoreServ 7200c that provides all-flash acceleration at entry-level price. The kit includes the HPE 3PAR StoreServ 7200c Storage System Base equipped with 8 x 480GB SFF cMLC SSD drives and also includes the Reporting Suite and Virtual Copy software.

What's New

- HPE 3PAR StoreServ 7200c All-Flash Starter Kit

HPE 3PAR StoreServ 7200c All-Flash Starter Kit

The HPE 3PAR StoreServ 7200c All-Flash Starter Kit is the solution for mid-range customers that need all-flash acceleration at an affordable price. The kit is an orderable part number that includes, in addition to the HPE 3PAR StoreServ 7200c Storage System Base, cMLC SSD drives and Reporting Suite and Virtual Copy software.

The HPE 3PAR StoreServ 7200c All-Flash Starter Kit has the same Drive LTUs cap and maximum number of SSDs as the HPE 3PAR StoreServ 7200c. The Drive LTUs cap for HPE 3PAR StoreServ 7200c All-Flash Starter Kit is 48. After reaching the cap, you do not need to purchase any more Drive LTUs for that title. The maximum number of SSDs is 120.

Model

HPE 3PAR StoreServ 7200c All-Flash Starter Kit

K7W06A

The HPE 3PAR StoreServ 7200c All-Flash Starter Kit is an orderable part number that includes the following individual parts.

| Quantity | Component | |
|----------|--|--------|
| 1 | HP 3PAR StoreServ 7200c 2-node Field Integrated Storage Base | E7X67A |
| 8 | HP M6710 480GB 6G SAS 2.5in cMLC SSD | E7Y55A |
| 1 | HP 3PAR 7200 Operating System Software Suite Base LTU | BC745B |
| 8 | HP 3PAR 7200 Operating System Software Suite Drive LTU | BC746A |
| 1 | HP 3PAR 7200 Reporting Suite Base LTU | BC767B |
| 1 | HP 3PAR 7200 Virtual Copy Base LTU | BC753A |
| 8 | HP 3PAR 7200 Virtual Copy Drive LTU | BC754A |

NOTE: Users can add more SSDs, drive enclosures (and any other 7000 accessory), and software to the HPE 3PAR StoreServ 7200 All-Flash Starter Kit quote. Each of the nested components will appear as separate parts on the quote and will be priced accordingly

Service and Support, HP Care Pack, and Warranty Information

Warranty

3 Year, On-site Warranty Service for hardware components. 7x24 4-hour remote response with next business day on-site response

The warranty on the following HPE 3PAR StoreServ 7000 SSD product numbers is 5 years, parts only:

HP 3PAR StoreServ M6710 480GB 6G SAS SFF(2.5in) MLC 5yr Wty Solid State Drive E7W54B

HP 3PAR StoreServ M6710 920GB 6G SAS SFF(2.5in) MLC 5yr Wty Solid State Drive E7W24B

HP 3PAR StoreServ M6710 920GB 6G SAS SFF(2.5in) FIPS Encrypted MLC Solid State Drive E7Y52A

HP 3PAR StoreServ M6710 480GB 6G SAS SFF(2.5in) cMLC Solid State Drive E7Y55A

HP 3PAR StoreServ M6720 480GB 6G SAS LFF(3.5in) cMLC Solid State Drive E7Y56A

HP 3PAR StoreServ M6710 1.92TB 6G SAS SFF(2.5in) cMLC Solid State Drive E7Y57A

HP 3PAR StoreServ M6710 1.92TB 6G SAS SFF(2.5in) FIPS Encrypted cMLC Solid State Drive K0F27A

HP 3PAR StoreServ M6710 3.84TB 6G SAS SFF(2.5in) cMLC Solid State Drive K2Q91A

HPE 3PAR StoreServ 7000 drive (SAS performance and Nearline and SSDs excluding the ones listed above) warranty is 3 years, parts only. 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 comprehensive portfolio's Global Limited Warranty and Technical Support, visit this [link](#).

NOTE: SSDs have a limited number of writes that can occur before reaching the SSD's write endurance limit. This limit is generally high enough so wear out will not occur during the expected service life of an HPE 3PAR StoreServ under the great majority of configurations, IO patterns, and workloads. HPE 3PAR StoreServ tracks all writes to SSDs and can report the percent of the total write endurance limit that has been used. This allows any SSD approaching the write endurance limit to be proactively replaced before they are automatically spared out. An SSD has reached the maximum usage limit once it exceeds its write endurance limit. Following the product warranty period, SSDs that have exceeded the maximum usage limit will not be repaired or replaced under Hewlett Packard Enterprise support contracts.

Service and Support

Technology Services for increased uptime, productivity and ROI

Trust HPE storage technology experts for every level of service and support. Our integrated portfolio of services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. Capitalizing on HPE Storage Systems' capabilities requires a service partner who understands your increasingly complex environment. Team with the people who know HPE infrastructure hardware and software best—the experienced professionals at HPE Services.

Protect your business beyond warranty

Warranty protects against manufacturer defects, however warranty uplifts, such as HPE Care Pack Services protect the business—by reducing downtime risks and providing operational consistency for mission-critical and standard business computing.

What HPE Storage Technology Services can do for you

HPE Storage Technology Services can help you design, deploy, test, integrate, support, and manage IT

Service and Support, HP Care Pack, and Warranty Information

and infrastructure solutions. HPE storage lifecycle support services offers a full spectrum of customer care—from technology support to complex migrations to complete managed services.

Choose the right level of support, deployment and integration services

Hewlett Packard Enterprise support recommendations are designed to help you enhance technology operations and lower risk—and make it easier for you to seek the right balance between affordability and service-level commitments. Depending on your individual support needs, choose from three levels of care that cover the entire lifecycle to better address your needs—Optimized Care, Standard Care, and Basic Care. If none of our support recommendations meet your needs, we can tailor a service solution for your unique support requirements. Only Hewlett Packard Enterprise brings together deep expertise, proactive and business critical support and a strong partner network—together with a full set of infrastructure services designed to power a Converged Infrastructure

Optimized Care - delivers best performance and stability through deployment and proactive management practices

HPE Proactive Care Advanced - This service builds and incorporates on Proactive Care Service and also gives customers personalized technical and operational advice from an assigned, local Account Support Manager for personalized technical collaboration, flexible access to specialist skills to help optimize business critical IT, and enhanced Critical Incident Management to help so the business is not affected if there is a system or device outage.

Additional Option:

3 Year (or) 1 Year HPE Proactive Select Credits, HPE Data Sanitization Tier 1 Service

Standard Care - maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support

HPE Proactive Care 24x7 - for a higher return on your storage investment, Proactive Care delivers hardware and software support services designed specifically for your technology; rapid access to Advanced Solution Center Specialists plus, Firmware/Software management and best practice advice. Customers can optimize the return on their IT investment and realize the advantage of running their business critical applications on virtualized infrastructure. Plus, HPE Proactive Select 20 credits per year, select from an extensive menu of consultancy and technical services, such as onsite firmware upgrades, health checks, assessments, and education.

Additional Option:

3 Year (or) 1 Year HPE Proactive Select Credits, HPE Data Sanitization Tier 1 Service

Basic Care - Minimum recommended support

HPE Proactive Care 24x7 - for a higher return on your storage investment, Proactive Care delivers hardware and software support services designed specifically for your technology; rapid access to Advanced Solution Center Specialists plus, Firmware/Software management and best practice advice. Customers can optimize the return on their IT investment and realize the advantage of running their business critical applications on virtualized infrastructure. Plus, 10 credits per year, select from an extensive menu of consultancy and technical services, such as onsite firmware upgrades, health checks, assessments, and education.

Additional Option:

3 Year (or) 1 Year HPE Proactive Select Credits, HPE Data Sanitization Tier 1 Service

HPE Proactive Select is a flexible way to purchase services to fit your particular environment or situation. Working with an Hewlett Packard Enterprise Account Support Manager, you select a package of services in the form of services credits that include proactive services spanning many technologies and processes, such as on-site firmware upgrades, health checks, assessments, and education. You tailor the service delivery to improve time to production, optimize performance, or build in continuous improvements.

Implementation

Installation:

Whichever level of care you select, consider our Installation and Startup Services for a smooth

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implementation.

HPE 3PAR StoreServ 7000 Storage Installation and Startup Service - For smooth startup, this service provides you with deployment of your HPE 3PAR StoreServ 7000 Storage, ensuring proper installation into your storage environment and helping you realize the maximum benefit from your storage investment.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-2568ENW.pdf>

Related Services

HPE Storage Transformation Workshop - Explore data management transformation journey to business-aligned visions, aligning your specific situation and Hewlett Packard Enterprise's comprehensive portfolio's experiences. <http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-9541ENW.pdf>

HPE 3PAR StoreServ Data Migration - Proven expertise and tools help you migrate data across your data center or around the globe.

[HPE 3PAR StoreServ Data Migration Service data sheet - US English \(A4\)](#)

HPE Storage Modernization Service - Modernize your storage to take better advantage of physical or virtualized server environments. <http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-4620ENW.pdf>

HPE StoreServ Integration Service - Integrate your new HPE 3PAR StoreServ system so that it is agile, performs effectively, and scales to rapid growth.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-9254ENW.pdf>

HPE EVA to 3PAR Acceleration Service - The HPE EVA to 3PAR Acceleration Service can help guide you or even execute data migration activities on your behalf that can not only optimize, but provide OPEX and CAPEX savings as a result of your journey from EVA to 3PAR. This service provides customers with an alternative DIY ("do-it-yourself") data migration option with guidance from TS Storage migration specialists. With the help of migration experts, this service allows customers to execute an EVA to 3PAR data migration at their own pace and lowered cost.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4234ENW.pdf>

HPE SAN Deployment Service - Hewlett Packard Enterprise delivers complete design and implementation services for Fibre Channel, FCoE, FCIP, SAS, and iSCSI storage area network (SAN) connectivity components. This service includes three levels of support based on the type of environment, ranging from simple to more complex. A trained service specialist guides the implementation of the storage switches in the SAN environment according to Hewlett Packard Enterprise quality standards.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/5981-8527EN.pdf>

HPE Data Replication Solution Service for 3PAR Virtual Copy - HPE Data Replication Solution Service for HPE 3PAR Virtual Copy Software helps create, manage and configure local replication data mirroring and snapshot capabilities of 3PAR storage systems. This service enables snapshots and mirroring to facilitate data restores, minimize downtime for backups, perform application testing, support data mining use with decision-support tools.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-0217ENW.pdf>

HPE Data Replication Solution Service for 3PAR Remote Copy - HPE Data Replication Solution Service for 3PAR Remote Copy Software configures real-time data mirroring between local and remote

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3PAR storage systems to safeguard critical business information. Provides scalable deployment of HPE Remote Copy Software real-time data mirroring between a local and a remote 3PAR storage system.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-8627ENW.pdf>

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA0-9431ENW.pdf>

HPE 3PAR 7000 Replication Software Suite Installation and Startup Service - Provides implementation of the HPE 3PAR 7000 Replication Software Suite product. Replication Suite includes 3PAR Remote Copy, 3PAR Virtual Copy, and 3PAR Peer Persistence. The service is designed to help get HPE 3PAR 7000 Replication Software Suite up and running quickly and to provide a demonstration of the product's key features using sample or test data only.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-2570ENW.pdf>

HPE 3PAR Peer Persistence Software Installation and Startup Service - Provides implementation of the HPE 3PAR Peer Persistence Software product. The service is designed to help get HPE 3PAR Peer Persistence up and running quickly and to provide a demonstration of the product's key features using sample or test data only.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-2772ENW.pdf>

HPE 3PAR Adaptive Optimization Policy Implementation Service - HPE 3PAR Adaptive Optimization Policy Implementation Service provides analysis, recommendations, and implementation of HPE 3PAR Adaptive Optimization policies to enable storage tiering using data collected from the HPE 3PAR Storage system over time. With the assistance of a designated IT storage administrator, a service specialist works with the customer to implement Adaptive Optimization policies on the HPE 3PAR Storage system to help deliver service level optimization for virtual and cloud data centers while reducing cost, increasing agility and minimizing risk.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA2-3842ENW.pdf>

HPE Storage Virtual Volume Design and Implementation Service - When redeploying an HPE StorageWorks Disk Array, the HPE Virtual Volume Design and Implementation Service provides the necessary activities required to design and implement a new virtual volume configuration.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA2-3764ENN.pdf>

HPE Thin Volume Conversion Service - Provides evaluation and execution of conversion from standard to thin provisioned virtual volumes for HPE 3PAR Storage. A service specialist advises the customer on Hewlett Packard Enterprise thin provisioning best practices, provides evaluation of potential disk capacity savings if target virtual volumes are converted, and plans and implements thin conversion processing. The service leverages 3PAR thin provisioning capabilities to help optimize storage capacity, reduce cost, increase agility and maintain performance.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA2-3842ENW.pdf>

HPE Performance Analysis Service for HPE Disk Arrays - The service provides data collection, detailed I/O analysis and enhancement recommendations for HPE 3PAR StoreServ Storage disk arrays, HPE EVA P6000 Storage disk arrays and HPE XP P9000 Storage disk arrays. HPE Performance Analysis Service for HPE Storage Disk Arrays provides a single engagement concerning the performance of a single HPE 3PAR StoreServ Storage disk array, HPE EVA P6000 Storage disk array and HPE XP P9000 Storage disk array

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/5982-6668EN.pdf>

HPE 3PAR Health Check Service - The HPE 3PAR Health Check service is delivered as a single

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engagement, providing data collection, analysis, report creation, and a briefing session concerning the performance of a single HPE 3PAR StoreServ Storage System. This health check service is best for HPE 3PAR StoreServ Storage Systems that have been installed and are in normal production mode. It can also be used to establish a baseline for future reference to improve the effective use of your storage system.

<http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-3225ENW.pdf>

HPE 3PAR Storage Rebalance Service - The HPE 3PAR Rebalance Service helps balance data across your HPE 3PAR StoreServ Storage 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>

HPE 3PAR Adaptive Optimization I&S - For Adaptive Optimization, design, creation, and implementation of Adaptive Optimization policies; policy design, creation, and implementation can be accommodated using the HPE 3PAR Adaptive Optimization Policy Implementation Service, which is available via HPE Proactive Select.

The Service has further been described in the HPE 3PAR 7000 Software Installation and Startup Service Datasheet: <http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-2569ENW.pdf>

HPE 3PAR Dynamic Optimization I&S - For Dynamic Optimization, implementation by Hewlett Packard Enterprise of tasks required to balance the HPE 3PAR storage system; the service provides the Customer with a product overview, advice, and suggested strategies for use of Dynamic Optimization, and extended/ongoing analysis and/or implementation of Dynamic Optimization strategies can be accommodated at additional cost

The Service has further been described in the HPE 3PAR 7000 Software Installation and Startup Service Datasheet: <http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-2569ENW.pdf>

Get connected and get back to business

HPE Storage Technology Services provide the path to get your HPE Storage solutions and your business connected to by Hewlett Packard Enterprise. Once connected, our experts are able to scan your system and run health checks, then use that data to create personalized reports and recommendations for actions to take to prevent problems and downtime.

For more information <http://www.hpe.com/services/storage>

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner

HPE Care Pack 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 Care Pack Services at:

<http://www.hpe.com/go/lookuptool>

Configuration Information

Step 1 - Choose a Base configuration

HPE 3PAR StoreServ 7000 configurations start with the selection of the Base. The Base includes controller nodes, bays for small form factor drives, and PCIe slots for host adapter cards. SAN Kits are also considered base configurations. The SAN Kits simplify ordering for SAN configurations with the array and extend the switch warranty to 3-years by including switches with an HPE 3PAR StoreServ 7000 Storage Base.

HPE 3PAR StoreServ 7000 Base Configurations

| | | |
|--|--|--------|
| Factory Integrated in HPE rack | HP 3PAR StoreServ 7200c 2-node Storage Base | QR511A |
| | HP 3PAR StoreServ 7400c 2-node Storage Base | QR512A |
| | HP 3PAR StoreServ 7400c 4-node Storage Base | QR513A |
| | HP 3PAR StoreServ 7440c 2-node Storage Base | E7X76A |
| | HP 3PAR StoreServ 7440c 4-node Storage Base | E7X81A |
| | HP 3PAR StoreServ 7200 2-node Storage Base | QR482A |
| | HP 3PAR StoreServ 7400 2-node Storage Base | QR483A |
| | HP 3PAR StoreServ 7400 4-node Storage Base | QR485A |
| Factory Integrated in HPE rack in a Storage Centric Configuration | HP 3PAR StoreServ 7200c 2-node Storage Base for Storage Centric Rack | E7X65A |
| | HP 3PAR StoreServ 7400c 2-node Storage Base for Storage Centric Rack | E7X69A |
| | HP 3PAR StoreServ 7400c 4-node Storage Base for Storage Centric Rack | E7X73A |
| | HP 3PAR StoreServ 7440c 2-node Storage Base for Storage Centric Rack | E7X78A |
| | HP 3PAR StoreServ 7440c 4-node Storage Base for Storage Centric Rack | E7X84A |
| | HP 3PAR StoreServ 7200 2-node Storage Base for Storage Centric Rack | E7W49A |
| | HP 3PAR StoreServ 7400 2-node Storage Base for Storage Centric Rack | E7W50A |
| | HP 3PAR StoreServ 7400 4-node Storage Base for Storage Centric Rack | E7W51A |
| Field Integrated | HP 3PAR StoreServ 7200c 2-node Field Integrated Storage Base | E7X67A |
| | HP 3PAR StoreServ 7400c 2-node Field Integrated Storage Base | E7X71A |
| | HP 3PAR StoreServ 7400c 4-node Field Integrated Storage Base | E7X75A |
| | HP 3PAR StoreServ 7400c 2-node Field Integrated Storage Base | E7X80A |
| | HP 3PAR StoreServ 7400c 4-node Field Integrated Storage Base | E7X86A |
| | HP 3PAR StoreServ 7200 2-node Storage Base | QR482A |
| | HP 3PAR StoreServ 7400 2-node Storage Base | QR483A |
| | HP 3PAR StoreServ 7400 4-node Storage Base | QR485A |
| | HP 3PAR StoreServ 7200 Storage System Flash Starter Kit | K2Q09A |
| | HP 3PAR StoreServ 7200 8Gb H-series Base System SAN Kit | QR488A |
| | HP 3PAR StoreServ 7200 16Gb Virtualization Base System SAN Kit | QR489A |
| | HP 3PAR StoreServ 7400 16Gb Virtualization Base System SAN Kit | QR510A |

- A minimum of one (1) configuration base must be ordered.

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- The HPE 3PAR StoreServ 7200c base configuration includes (2) controller nodes, 40 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (1) mounting rail kit, and power cords.
- The HPE 3PAR StoreServ 7400c 2N base configuration includes (2) controller nodes, 48 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (2) 1U rack filler panels to reserve 2U of rack space above the 2-node Storage Base for a future upgrade to a 4-node configuration, (1) mounting rail kit, and power cords.
- The HPE 3PAR StoreServ 7400c 4N base configuration includes (4) controller nodes, 96 GB of cache, (48) small form factor drive bays, (8) built-in 8 Gb/sec FC ports, (8) 8Gb shortwave FC SFP, (4) PCIe adapter slots for host adapter cards - one slot per node, (4) 2m SAS cables, (4) node link cables, (2) mounting rail kits, and power cords.
- The HPE 3PAR StoreServ 7440c 2N base configuration includes (2) controller nodes, 96 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (2) 1U rack filler panels to reserve 2U of rack space above the 2-node Storage Base for a future upgrade to a 4-node configuration, (1) mounting rail kit, and power cords.
- The HPE 3PAR StoreServ 7440c 4N base configuration includes (4) controller nodes, 192 GB of cache, (48) small form factor drive bays, (8) built-in 8 Gb/sec FC ports, (8) 8Gb shortwave FC SFP, (4) PCIe adapter slots for host adapter cards - one slot per node, (4) 2m SAS cables, (4) node link cables, (2) mounting rail kits, and power cords.
- The HPE 3PAR StoreServ 7200 base configuration includes (2) controller nodes, 24 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (1) mounting rail kit, and power cords.
- The HPE 3PAR StoreServ 7400 2-node base configuration includes (2) controller nodes, 32 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (2) 1U rack filler panels to reserve 2U of rack space above the 2-node Storage Base for a future upgrade to a 4-node configuration, (1) mounting rail kit, and power cords.
- The HPE 3PAR StoreServ 7400 4-node base configuration includes (4) controller nodes, 64 GB of cache, (48) small form factor drive bays, (8) built-in 8 Gb/sec FC ports, (8) 8Gb shortwave FC SFP, (4) PCIe adapter slots for host adapter cards - one slot per node, (4) 2m SAS cables, (4) node link cables, (2) mounting rail kits, and power cords.
- The HPE 3PAR StoreServ 7200 8Gb H-Series Base System SAN Kit includes the QR482A HPE 3PAR StoreServ 7200 2-node Storage Base, (2) BK780B HPE SN6000 Stackable 8 Gb/s 8 Active Port Single Power Supply FC Switches and (4) TA821A 4-port FC Switch Upgrade LTUs. Each switch comes with serial cable, mounting rail kits, power cords, and SAN

Configuration Information

Connection Manager software entitlement. Also included is a 3 year warranty for the switches.

NOTE: Requires optical transceivers and switch cabling which must be supplied separately.

- The HPE 3PAR StoreServ 7200 16Gb Virtualization Base System SAN Kit includes the HPE 3PAR StoreServ 7200 2-node Storage Base and (2) QK753B HPE SN6000B 16 Gb/s 48-port/24-port Active FC Switches - dual power. Each switch comes with rack mount kit (including rails, mounting hardware, and plenum), RJ-45 serial cable with adaptor for RJ-45 to DB9, power cords, and SAN Network Advisor DVD. Also included is a 3 year warranty for the switches.

NOTE: Requires optical transceivers and switch cabling which must be supplied separately.

- The HPE 3PAR StoreServ 7400 16Gb Virtualization Base System SAN Kit includes the HPE 3PAR StoreServ 7400 2-node Storage Base and (2) QK753B HPE SN6000B 16 Gb/s 48-port/24-port Active FC Switches -dual power. Each switch comes with rack mount kit (including rails, mounting hardware, and plenum), RJ-45 serial cable with adaptor for RJ-45 to DB9, power cords, and SAN Network Advisor DVD. Also included is a 3 year warranty for the switches.

NOTE: Requires optical transceivers and switch cabling which must be supplied separately.

- All base configurations include (1) built-in 1GbE port for management and (1) 1GbE port for either Remote Copy over IP or File Persona, per node (support for File Persona only on 7000c models).

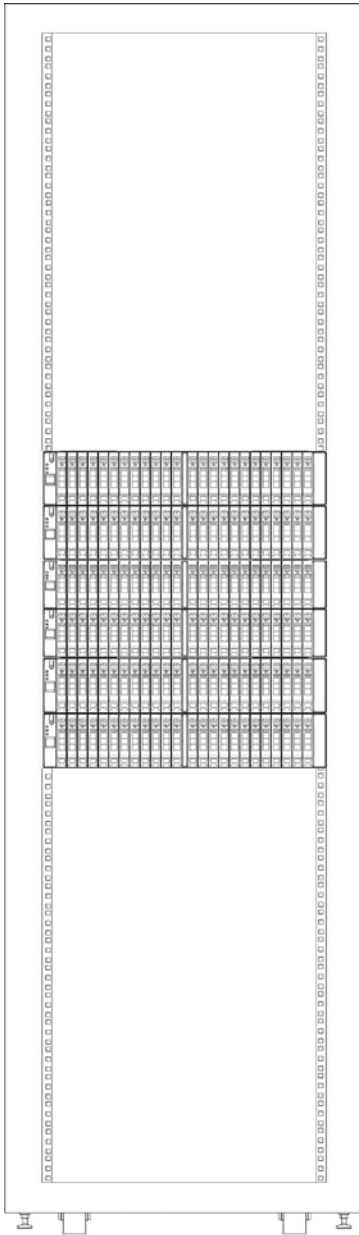
- **NOTE: *Storage Centric Configuration**

The Storage Centric rack versions of HPE 3PAR StoreServ 7200 and 7400 are for CTO (factory Configure-To-Order) only. With a Storage Centric configuration, the storage system gets placed in the center of the rack so that future expansion of that storage system becomes easier.

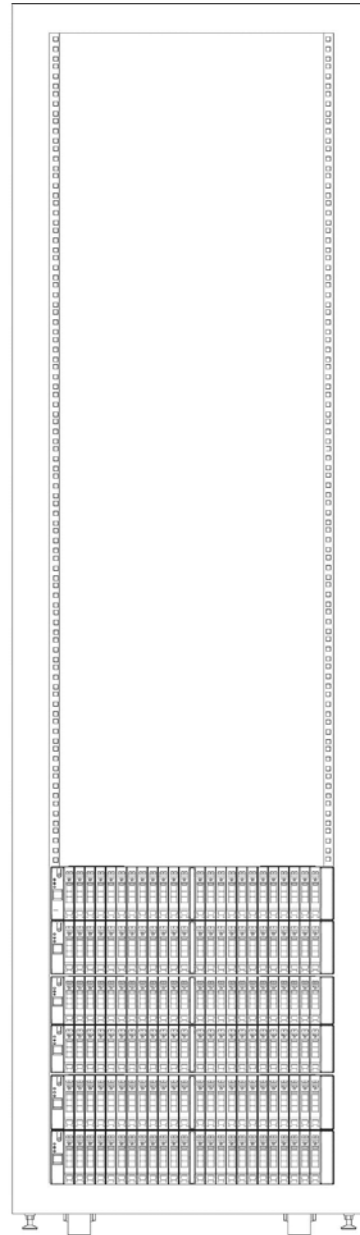
In Storage Centric configurations, non-3PAR components, with the exception of certain StoreFabric Storage Networking switches, if added to the same order, get placed in a separate rack.

The following diagrams show a HPE 3PAR StoreServ 7400c 4N Storage System in Storage Centric and non-Storage Centric configurations

Configuration Information



StoreServ 7400c 4N Storage system in a storage centric configuration in a HPE Intelligent Series Rack



StoreServ 7400c 4N Storage system in a non-storage centric configuration in a HPE Intelligent Series Rack

HPE 3PAR StoreServ 7000 Upgrade Controller Node Pair

Use the HPE 3PAR StoreServ 7400c Upgrade Node Pair to convert an existing previously installed HPE 3PAR StoreServ 7400c 2N Storage Base into a 4-node configuration.

HP 3PAR StoreServ 7400c Upgrade Node Pair

QR515A

- Used to upgrade the E7X71A HPE 3PAR StoreServ 7400c 2N Storage Base to a 4-node configuration.
- One (1) pair of controller nodes beyond the base configuration is supported on the 3PAR StoreServ 7400c.
- The 3PAR StoreServ 7400c Upgrade Node Pair includes (2) controller

Configuration Information

nodes, 48 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (4) node link cables, (1) mounting rail kit, and power cords

- The upgrade node pair includes (1) built-in 1GbE port for management and (1) 1GbE port for either Remote Copy over IP or File Persona, per node.

Use the HPE 3PAR StoreServ 7440c Upgrade Node Pair to convert an existing previously installed HPE 3PAR StoreServ 7440c 2N Storage Base into a 4-node configuration.

HP 3PAR StoreServ 7440c Upgrade Node Pair E7X83A

- Used to upgrade the E7X80A HPE 3PAR StoreServ 7440c 2N Storage Base to a 4-node configuration.
- One (1) pair of controller nodes beyond the base configuration is supported on the 3PAR StoreServ 7440c.
- The 3PAR StoreServ 7440c Upgrade Node Pair includes (2) controller nodes, 48 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (4) node link cables, (1) mounting rail kit, and power cords
- The upgrade node pair includes (1) built-in 1GbE port for management and (1) 1GbE port for either Remote Copy over IP or File Persona, per node.

Use the HPE 3PAR StoreServ 7400 Upgrade Node Pair to convert an existing previously installed HPE 3PAR StoreServ 7400 2N Storage Base into a 4-node configuration.

HP 3PAR StoreServ 7400 Upgrade Node Pair QR484A

- Used to upgrade the QR483A HPE 3PAR StoreServ 7400 2N Storage Base to a 4-node configuration.
- One (1) pair of controller nodes beyond the base configuration is supported on the 3PAR StoreServ 7400.
- The 3PAR StoreServ 7400 Upgrade Node Pair includes (2) controller nodes, 32 GB of cache, (24) small form factor drive bays, (4) built-in 8 Gb/sec FC ports, (4) 8Gb shortwave FC SFP, (2) PCIe adapter slots for host adapter cards - one slot per node, (2) 2m SAS cables, (4) node link cables, (1) mounting rail kit, and power cords
- The upgrade node pair includes (1) built-in 1GbE port for management and (1) 1GbE port for either Remote Copy over IP, per node.

Step 2 - Choose Host Adapter

Host adapters can be ordered separately to be installed in the field or they can be factory configured into controller nodes. Host adapter cards provide the array with additional FC ports or with 10Gb/sec iSCSI/FCoE ports. The additional FC ports can be used for connection to hosts or used to connect to other HPE 3PAR StoreServ Storage systems in a Remote Copy relationship. The iSCSI/FCoE ports permit host connection in iSCSI and FCoE environments.

NOTE: Ethernet Adapters can be used only with the HPE 3PAR File Persona Software Suite for File services connectivity.

HPE 3PAR StoreServ 7000 Host Adapters

| | |
|---|--------|
| HP 3PAR StoreServ 7000 4-port 8Gb/sec Fibre Channel Adapter | QR486A |
| HP 3PAR StoreServ 7000 2-port 10Gb/sec iSCSI/FCoE Adapter | QR487A |
| HP 3PAR StoreServ 7000 2-port 16Gb/s Fibre Channel Adapter | E7X47A |
| HP 3PAR StoreServ 7000 2-port 10Gb/s Ethernet Adapter | E7X96A |

Configuration Information

HP 3PAR StoreServ 7000 4-port 1Gb/s Ethernet Adapter

E7X97A

- Fibre Channel (QR486A, E7X47A) and iSCSI/FCoE Adapters (QR487A) are used in the Storage Base products (E7X67A, E7X71A, E7X75A, E7X80A, E7X86A, QR482A, QR483A, and QR485A) and the Upgrade Node Pair (QR515A, E7X83A, and QR484A).
- Ethernet Adapters (E7X96A, E7X97A) can be used exclusively with the HPE 3PAR File Persona Software Suite on the HPE 3PAR StoreServ 7200c, 7400c, and 7440c Storage Base products (E7X67A, E7X71A, E7X75A, E7X80A, E7X86A) and Upgrade Node Pair (QR515A, E7X83A).
- The 10Gb/s Ethernet Adapter (E7X96A) includes the the 10Gb/s SR SFP+
- Direct Attach Copper (DAC) is not supported with the 10Gb/s Ethernet Adapter (E7X96A)
- Because the Storage Base products and the Upgrade Node Pair include built-in FC ports, the host adapter cards are optional.
- QR486A and QR487A include one adapter card each. Adapters must be purchased in pairs.
- The QR486A includes (4) 8 Gb/s shortwave FC SFPs. The QR487A includes (2) 10 Gb/s SFPs. The E7X47A includes (2) 16 Gb/s shortwave FC SFPs.
- Each node in a node pair (a node pair is composed of the two controller nodes in a single 2U enclosure) must have the same number and type of adapters. FC, iSCSI/FCoE, and GbE adapters may not be intermixed in a node pair.
- The 4 ports of the FC adapter can be individually configured to connect to a host or to a remote array in an RC configuration.
- The two ports of the iSCSI/FCoE adapter can be individually configured by the user as iSCSI or FCoE.

| Adapter Configurations permitted on all HPE 3PAR StoreServ 7000 systems | | | | | | | | | | |
|--|------------------|----------------|----------|--------------------------|----------------|----------------|----------|--------------------------|----------|--------------------------|
| Product | Nodes | A* | B* | C* | D | E | F* | G | H* | I* |
| E7X67A E7X71A E7X80A QR482A QR483A QR511A QR512A E7X76A QR482A QR483A E7X65A E7X69A E7X78A E7W49A E7W50A | Node 0 Node 1 | Empty Empty | FC FC | iSCSI/FCoE iSCSI/FCoE | | | | | | |
| QR515A E7X83A QR484A | Node 2 Node 3 | Empty Empty | FC FC | iSCSI/FCoE iSCSI/FCoE | | | | | | |
| E7X75A E7X86A | Node 0 Node 1 | Empty Empty | FC FC | iSCSI/FCoE iSCSI/FCoE | Empty Empty | Empty Empty | FC FC | iSCSI/FCoE iSCSI/FCoE | FC FC | iSCSI/FCoE iSCSI/FCoE |

Configuration Information

| | | | | | | | | | | |
|--------|--------|-------|-------|-------|----|------------|------------|----|----|------------|
| QR485A | Node 2 | Empty | Empty | Empty | FC | iSCSI/FCoE | iSCSI/FCoE | FC | FC | iSCSI/FCoE |
| QR513A | Node 3 | Empty | Empty | Empty | FC | iSCSI/FCoE | iSCSI/FCoE | FC | FC | iSCSI/FCoE |
| E7X81A | | | | | | | | | | |
| QR485A | | | | | | | | | | |
| E7X73A | | | | | | | | | | |
| E7X84A | | | | | | | | | | |
| E7W51A | | | | | | | | | | |

NOTE: * Factory default configurations for given quantities of adapters.

If the configuration includes Remote Copy over Fibre Channel it is recommended that optional Fiber Channel HBAs are purchased as the built in ports will not offer sufficient connectivity.

| Ethernet Adapter Configurations permitted on HPE 3PAR StoreServ 7200c, 7400c, 7440c | | | | | | | | | |
|---|--------|-------|-------|-------|-----|------------|-----|------------|-----|
| Product | Nodes | A* | B* | C | D | E | F* | G* | H* |
| E7X67A | | | | | | | | | |
| E7X71A | | | | | | | | | |
| E7X80A | | | | | | | | | |
| QR511A | Node 0 | Empty | Eth | | | | | | |
| QR512A | Node 1 | Empty | Eth | | | | | | |
| E7X76A | | | | | | | | | |
| E7X65A | | | | | | | | | |
| E7X69A | | | | | | | | | |
| E7X78A | | | | | | | | | |
| QR515A | Node 2 | Empty | Eth | | | | | | |
| E7X83A | Node 3 | Empty | Eth | | | | | | |
| E7X75A | | | | | | | | | |
| E7X86A | Node 0 | Empty | Eth | Empty | Eth | Eth | FC | iSCSI/FCoE | Eth |
| QR513A | Node 1 | Empty | Eth | Empty | Eth | Eth | FC | iSCSI/FCoE | Eth |
| E7X81A | Node 2 | Empty | Empty | Eth | FC | iSCSI/FCoE | Eth | Eth | Eth |
| E7X73A | Node 3 | Empty | Empty | Eth | FC | iSCSI/FCoE | Eth | Eth | Eth |
| E7X84A | | | | | | | | | |

NOTE: * Factory default configurations for given quantities of adapters.

If the configuration includes Remote Copy over Fibre Channel it is recommended that optional Fiber Channel HBAs are purchased as the built in ports will not offer sufficient connectivity.

Ethernet Adapters can be used only with the HPE 3PAR File Persona Software Suite for File services connectivity available on HPE 3PAR StoreServ 7200c, 7400c, 7440c

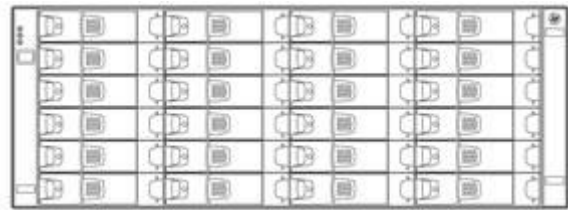
Step 3 - Choose Drive Enclosures

Add drive enclosures to expand the configuration and to add large form factor drives to the configuration. Drive enclosures can be ordered separately for installation in the field, or they can be factory configured in a rack. Drive enclosures are optional. Because the Storage Base products and the Upgrade Node Pair include small form factor drive bays, the minimum configuration does not require any additional drive enclosures. For larger configurations, attach drive enclosures. Each drive enclosure includes 24 drive bays. The HPE 3PAR StoreServ 7200 and 7200c support up to nine (9) added drive enclosures. The HPE 3PAR StoreServ 7400 supports up to eighteen (18) added drive enclosures. The HPE 3PAR StoreServ 7400c supports up to twenty-two (22) added drive enclosures. The HPE 3PAR StoreServ 7440c supports up to thirty-eight (38) added drive enclosures. The two drive enclosure types can be intermixed in a single array.

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HPE M6710 2.5 inch 2U SAS Drive Enclosure



HPE M6720 3.5 inch 4U SAS Drive Enclosure

Drive Enclosures

| | |
|--|--------|
| HP M6710 2.5 inch 2U SAS Drive Enclosure | QR490A |
| HP M6720 3.5 inch 4U SAS Drive Enclosure | QR491A |
| HP M6710 SFF(2.5in) SAS Field Integrated Drive Enclosure | E7X64A |
| HP M6720 LFF(3.5in) SAS Field Integrated Drive Enclosure | E7X66A |

- Each drive enclosure includes 24 drive bays, (2) IO modules, (2) 1m SAS cables, (1) mounting rail kit, and power cables.
- The M6710 2U drive enclosure provides 24 SFF drive bays arranged in a single row.
- The M6720 4U drive enclosure provides 24 LFF drive bays, arranged in four (4) columns of six (6) slots each.
- Minimum of zero (0) drive enclosures, maximum of five (5) attached to QR482A.
- Minimum of zero (0) drive enclosures, maximum of nine (9) attached to QR483A.
- Minimum of zero (0) drive enclosures, maximum of (18) attached to QR485A.
- Drive enclosures are connected in daisy chains from the SAS ports of the controller nodes.
- The best practice is to balance the drive enclosures across the SAS ports, remembering that the controller node enclosures include (24) drives attached to the SAS port labeled DP-1.
- The best practice when including LFF and SFF drive enclosures in the same array is to arrange them in the rack so that all of the 2U enclosures that belong to one node pair are together and all of the 4U enclosures for that node pair are together. When connecting the backend SAS cables, intermix the M6710 and M6720 enclosures on each SAS port.
- With a four node configuration, the best practice is to attach the same number of drive enclosures to each node pair.
- To achieve highest availability in multi-enclosure configurations, configure a minimum of two (2) enclosures per node pair for RAID 1, a minimum of four (4) enclosures per node pair if RAID 5 is included, and a minimum of three (3) enclosures per node pair if RAID 6 is included. Include enclosures containing node pairs in the count with the M6710 enclosures.
- 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.

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. Unlike other HPE 3PAR StoreServ Storage systems where drives are sold in magazines of four, HPE 3PAR StoreServ 7000 drives are sold

Configuration Information

as single drives. Note that these drives are only compatible with the M6710 and M6720 drive enclosures.

HPE 3PAR StoreServ 7000 SAS Drives

| | | |
|----------------------|---|--------|
| HPE 3PAR SSDs | HP 3PAR StoreServ M6710 480GB 6G SAS SFF(2.5in) MLC 5yr Wty Solid State Drive | E7W54B |
| | HP 3PAR StoreServ M6710 480GB 6G SAS SFF(2.5in) MLC 5yr Wty Solid State Drive | E7W54B |
| | HP 3PAR StoreServ M6710 480GB 6G SAS SFF(2.5in) cMLC Solid State Drive | E7Y55A |
| | HP 3PAR StoreServ M6720 480GB 6G SAS LFF(3.5in) cMLC Solid State Drive | E7Y56A |
| | HP 3PAR StoreServ M6710 920GB 6G SAS SFF(2.5in) MLC 5yr Wty Solid State Drive | E7W24B |
| | HP 3PAR StoreServ M6710 1.92TB 6G SAS SFF(2.5in) cMLC Solid State Drive | E7Y57A |
| | HP 3PAR StoreServ M6710 3.84TB 6G SAS SFF(2.5in) cMLC Solid State Drive | K2Q91A |

| | | |
|---|--|--------|
| HPE 3PAR SAS HDDs (Performance HDDs) | HP M6710 300GB 6G SAS 15K rpm SFF (2.5-inch) Hard Drive | QR492A |
| | HP M6710 450GB 6G SAS 10K rpm SFF (2.5-inch) Hard Drive | QR494A |
| | HP 3PAR StoreServ M6710 600GB 6Gb SAS 10K SFF(2.5-inch) HDD | C8R72A |
| | HP 3PAR StoreServ M6710 600GB 6G SAS 15K SFF(2.5in) Hard Drive | K0F23A |
| | HP M6710 900GB 6G SAS 10K rpm SFF (2.5-inch) Hard Drive | QR496A |
| | HP 3PAR StoreServ M6710 1.2TB 6G SAS 10K SFF(2.5in) Hard Drive | E7X49A |
| | HP 3PAR StoreServ M6710 1.8TB 6G SAS 10K SFF(2.5in) Hard Drive | K0F26A |

| | | |
|-----------------------------|---|--------|
| HPE 3PAR NL SAS HDDs | HP 3PAR StoreServ M6710 1TB 6Gb SAS 7.2K SFF(2.5-inch) Nearline HDD | QR498A |
| | HP M6720 2TB 6G SAS 7.2K LFF (3.5-inch) Nearline Hard Drive | QR499A |
| | HP 3PAR StoreServ M6710 2TB 6G SAS 7.2K SFF(2.5in) Nearline Hard Drive | M0S91A |
| | HP 3PAR StoreServ M6720 4TB 6G 7.2K LFF(3.5-in) SAS Nearline Hard Drive | H6Z87A |
| | HP 3PAR StoreServ M6720 6TB 6G SAS 7.2K LFF(3.5in) Nearline Hard Drive | K0F28A |

- For each drive type installed in the array, the minimum recommended initial quantity is
 - SSD and SAS performance HDDs - eight (8) drives* per node pair
 - Nearline HDDs - twelve (12) drives per node pair
- Minimum upgrade quantity is 4 drives per node pair or 2 drives per enclosure, whichever is larger. Best practice is to run Autonomic Rebalance (also known as tunesys) after adding the drives.
- RAID 6 is strongly recommended for Nearline drives.
- All node enclosures must contain either zero (0) or an even number of drives. All drive enclosures must contain an even number of drives, with a minimum of two.
- Minimum raw capacity is 1.2TB per node pair.
- A best practice is to add equal numbers of drives to all enclosures compatible with the drive type being added.
- With a four node configuration, the best practice is to attach the same number and type of drives to each node pair.
- Small Form Factor (SFF)-specific configuration practices
 - SFF drives may be loaded into the Storage Base enclosures, the Upgrade Node Pair enclosure and the M6710 drive enclosure.
 - 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

Configuration Information

slots between drives.

- Large Form Factor (LFF)-specific configuration practices
 - LFF drives may be loaded into the M6720 drive enclosure.
 - LFF drives must be loaded in pairs of identical drives starting at the bottom of a column, leaving no empty slots between drives in the column. Columns of drives in the M6720 enclosure must be of the same type (SSD or NL) and, for HDDs, the same rotational speed. Drives of different types may not be mixed in a single column. It is permitted to have empty columns between columns containing drives. Different columns do not have to contain the same number of drives.
 - An all LFF drive configuration is permitted, leaving the Storage Base Enclosure empty.
- SSD specific configuration practices
 - SSD-only configurations are permitted.
 - Maximum of 120 SSDs per node pair.
 - The SFF and LFF SSDs allow the user to create SSD volumes that stripe across SFF and LFF enclosures.
- E7Y55A and E7Y56A (480GB cMLC SSD) don't support Adaptive Flash Cache
- * 8 drives support RAID 1 and RAID 5. For RAID 6 choose 12 drives.

HPE 3PAR Encryption SSD/HDD/LTU

| | |
|--|----------|
| HP 3PAR StoreServ M6710 920GB 6G SAS SFF(2.5in) FIPS Encrypted MLC Solid State Drive | E7Y52A |
| HP 3PAR StoreServ M6710 1.92TB 6G SAS SFF(2.5in) FIPS Encrypted cMLC Solid State Drive | K0F27A |
| HP 3PAR StoreServ M6710 600GB 6G SAS 15K SFF(2.5in) FIPS Encrypted Hard Drive | K0F24A |
| HP 3PAR StoreServ M6710 450GB 6G SAS 10K SFF(2.5in) FIPS Encryption Hard Drive | C8R59B |
| HP 3PAR StoreServ M6710 900GB 6G SAS 10K SFF(2.5in) FIPS Encryption Hard Drive | C8R60B |
| HP 3PAR StoreServ M6710 1.2TB 6G SAS 10K SFF(2.5in) FIPS Encrypted Hard Drive | K0F25A |
| HP 3PAR StoreServ M6720 2TB 6G SAS 7.2K LFF(3.5in) Nearline FIPS Encryption HDD | H6Z84A |
| HP 3PAR StoreServ M6720 6TB 6G SAS 7.2K LFF(3.5in) Nearline FIPS Encryption Hard Drive | K0F29A |
| HP 3PAR StoreServ 7200 Data at Rest Encryption LTU | BC983A |
| HP 3PAR StoreServ 7200 Data at Rest Encryption E-LTU | BC983AAE |
| HP 3PAR StoreServ 7400 Data at Rest Encryption LTU | BC984A |
| HP 3PAR StoreServ 7400 Data at Rest Encryption E-LTU | BC984AAE |
| HP 3PAR 7440c Data Encryption LTU | BD406A |
| HP 3PAR 7440c Data Encryption E-LTU | BD406AAE |

NOTES:

- **An encrypted HPE 3PAR StoreServ array, i.e. any HPE 3PAR StoreServ array that has the HPE 3PAR Data at Rest Encryption license activated or intended to be activated, must have only self-encrypted drives installed.**
- **A non-encrypted HPE 3PAR StoreServ array can have a mix of encrypted and non-encrypted drives.**
- **Customers have option to turn on encryption, non-disruptively, at any**

Configuration Information

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 1.1 for key management communications
- Supports HPE Enterprise Secure Key Manager 4.0 and SafeNet KeySecure k460 and k150 centralized key management
- A data encryption license (LTU) is required to enable encryption on the array. One encryption license is required for each encrypted array.
- Once encryption is enabled on the HPE 3PAR StoreServ Storage, it cannot be disabled.
- The local key manager is included in the HPE 3PAR OS. There is not a separately orderable part number for the local key manager.
- The HPE 3PAR 7200/7400 Data at Rest Encryption LTU are valid for both the HPE 3PAR StoreServ 7200/7400 and HPE 3PAR StoreServ 7200c/7400c Storage systems.
- The HPE 3PAR 7440c Data at Rest Encryption LTU are valid only for the HPE 3PAR StoreServ 7440c Storage system.

Step 5 - Choose Service Processor Implementation

The HPE 3PAR Service Processor remotely monitors the HPE 3PAR StoreServ 7000 and enables remote servicing of the array. The key capabilities of the Service Processor are to:

- Enable rapid, proactive responses to issues
- Provide a secure communication channel between the customer's data center and HPE 3PAR Central for:
 - Remote Online Software Upgrade --Upgrade software with no application disruption
 - Remote Diagnostics --Maintain key diagnostic information centrally on a historical basis
 - Remote Serviceability--Provide fast predictive response and remediation

Each HPE 3PAR StoreServ 7000 requires its own Service Processor. The Service Processor functions as the communication interface between a customer's IP network and HPE 3PAR Central by managing all service-related communications. The Service Processor leverages the industry-standard HTTP over Secure Sockets Layer (HTTPS) protocol to secure and encrypt data communication.

The Service Processor can be deployed either as a virtual Service Processor (VSP) or a physical Service Processor. A virtual Service Processor is included free with the base HPE 3PAR Operating System. The virtual Service Processor can be installed on a customer-provided VMware or Microsoft Hyper-V system that meets the following specifications:

- Virtualization operating system
 - VMware vSphere ESXi 4.1, 5.0, 5.1, 5.5
 - Microsoft Hyper-V Server 2008 R2, 2012 or 2012 R2
 - Server features
 - 2 GB RAM (minimum for the VSP Virtual Machine)
 - 256 GB free disk space (minimum for the VSP Virtual Machine)
- NOTE: VSP storage must not reside on the array it is managing.**
- DVD ROM or DVD RW
 - 1 Gb Ethernet port
 - For VSP on VMware, the server must be listed in the VMware Compatibility Guide
 - For VSP on Hyper-V, the server must be listed on the Windows Server Catalog

Configuration Information

If a physical Service Processor is desired, order the following product.

Physical Service Processor

HP 3PAR 7000 Service Processor

QR516B

The physical Service Processor is a dedicated storage appliance located within the storage rack providing close proximity to the HPE 3PAR StoreServ 7000 Storage. The physical Service Processor is fully supported and maintained by HPE Services. The physical Service Processor has serial port connectivity that provides maintenance access for trouble shooting capabilities. If a VMware server is not available to run the virtual Service Processor, the physical Service Processor is the alternative choice for remote monitoring and remote service.

HPE 3PAR Policy Server

HPE 3PAR Policy Server works to implement customer-configurable remote service access policies. Installed on a customer-provided host, Policy Server provides the customer with ultimate flexibility and control to allow or deny outbound communication or remote service connections to and from an HPE 3PAR StoreServ Storage system. Policy Server also serves as the centralized point for collecting and storing audit logs of all diagnostic data transfers and authorized remote service connections to and from all configured HPE 3PAR Storage systems. HPE 3PAR Policy Server provides the

- The customer has complete control over policy administration.
- A centralized policy administration for all HPE 3PAR Storage systems is provided.
- A centralized audit log to facilitate security audits is provided.
- Up to 100 3PAR systems can be managed with a single 3PAR Policy Server license
- Policy Server 6.1.5 can be run on a Virtual Machine. For the latest information on supported hypervisors, refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK): <http://www.hpe.com/storage/spock>

HP 3PAR Policy Manager Software LTU

TE400B

Step 6 - Choose Cables for host connection and remote copy connection

The optical cables listed below support 8 Gb/s FC and 10 Gb/s iSCSI/FCoE for host connect (FC and iSCSI/FCoE) and for Remote Copy connections (FC only). The copper1GbE cables are used for Remote Copy over IP (or File Persona only for 7000c models) and for connection to the Management Port.

Cables

| | | | |
|--|--|---|--------|
| FC and 10GbE | HP 3PAR 4m 50/125 (LC-LC) Fiber Cable | QL281B | |
| | HP 3PAR 6m 50/125 (LC-LC) Fiber Cable | QR631A | |
| | HP 3PAR 10m 50/125 (LC-LC) Fiber Cable | QL266B | |
| | HP 3PAR 25m 50/125 (LC-LC) Fiber Cable | QR593A | |
| | HP 3PAR 50m 50/125 (LC-LC) Fiber Cable | QL267B | |
| | HP 3PAR 100m 50/125 (LC-LC) Fiber Cable | QL268B | |
| | HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable | QK732A | |
| | HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable | QK733A | |
| | HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable | QK734A | |
| | HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable | QK735A | |
| | HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable | QK736A | |
| | HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable | QK737A | |
| | 1GbE | HP 4.3m/14ft CAT5 RJ45 M/M Ethernet Cable | C7536A |
| | | HP 7.6m/25ft CAT5 RJ45 M/M Ethernet Cable | C7537A |
| HP 15.2m/50ft CAT5 RJ45 M/M Ethernet Cable | | C7542A | |
| Direct Attach Copper | HPE 3COM | | |

Configuration Information

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|--|---|--------|
| Cables* | HP X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable | JD095C |
| | HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable | JD096C |
| | HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable | JD097C |
| | HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable | JG081C |
| | HP X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable | JC784C |
| HPE ProCurve | | |
| | HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable | J9281B |
| | HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable | J9283B |
| | HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable | J9285B |
| | HP X242 10G SFP+ to SFP+ 10m Direct Attach Copper Cable | J9286B |
| | HP X242 10G SFP+ to SFP+ 15m Direct Attach Copper Cable | J9287B |
| Brocade | | |
| | HP B-series SFP+ to SFP+ Active Copper 1.0m Direct Attach Cable | AP818A |
| | HP B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable | AP819A |
| | HP B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable | AP820A |
| Cisco | | |
| | HP C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable | QK701A |
| NOTE: The Direct Attach Support is available only for iSCSI protocol and is available only with HPE 3PAR OS version 3.1.3 and later | | |

Step 7 - Choose Racking Options

The HPE 3PAR StoreServ 7000 is compatible with most industry standard 4-post EIA 19 inch racks with square mounting holes, including the HPE Intelligent Series Rack and the HPE 10000 G2 Series Rack. The HPE 3PAR StoreServ 7000 can be factory configured and shipped in a rack or shipped without a rack for field integration into an existing rack. The rack used for factory integration is the HPE Intelligent Series Rack.

HPE Rack and Rack Options

| | |
|-------------------------------------|--|
| Factory Integration | Select a rack to house your HPE 3PAR StoreServ 7000. NOTE: The HPE Intelligent Series Rack is the only series supported for factory configuration. |
| Primary Configuration Rules | The HPE 3PAR StoreServ 7000 will be configured into an HPE Intelligent Series Rack with the appropriate power distribution units (PDUs). If other products such as servers or back-up products are included in the cab, a different PDU will be added (if required) or can be chosen from a list of appropriate offerings shown in the configuration tool. The HPE Intelligent Series Rack must be purchased for factory configuration. Additional 3PAR StoreServ 7000 controller node enclosures and drive enclosures may be ordered for multiple subsystem integration at the factory. The 3PAR StoreServ 7000 is also supported in HPE 10000 G2 Series racks for field installation. When calculating available U-space, assume that no space will be placed between the mounted components. For redundancy, order PDUs in quantities of two. Refer to the Configuration and User Guide in the Information Library at the Rack Solutions webpage. |
| HPE Intelligent Series Racks | NOTE: The number of components that will fit in a rack varies and is determined by the interior U-space of the rack. HP 47U 600mm x 1075mm Enterprise Shock Rack |

Configuration Information

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|---|--------|
| HP 47U 1075mm Side Panel Kit | BW915A |
| HP 42U 600mm x 1075mm Enterprise Shock Rack | BW904A |
| HP 42U 1075mm Side Panel Kit | BW906A |
| HP 36U 600mm x 1075mm Enterprise Shock Rack | BW896A |
| HP 36U 1075mm Side Panel Kit | BW898A |
| HP 42U 600mm x 1200mm Enterprise Shock Rack | BW908A |
| HP 42U 600mm x 1200mm Enterprise Shock Network Rack | BW966A |
| HP 42U 800mm x 1200mm Enterprise Shock Network Rack | BW968A |

For more information on the HPE rack offerings, please see the following URL:

<http://h18004.www1.hpe.com/products/servers/platforms/rackandpower.html>.

For more information on rack options, see:

<http://www.hpe.com/products/rackoptions>.

For more information on PDUs, see:

<http://h18004.www1.hpe.com/products/servers/proliantstorage/power-protection/pdu.html>.

HPE PDU Pivot Kit

HP EVA PDU Pivot Kit

AG730A

Used to reclaim 2U of space in an HPE Intelligent Series Rack with HPE 3PAR StoreServ 7000 configurations. This kit allows the PDUs to be placed in the back of the rack without requiring any rack U space.

NOTE: The use of the PDU Pivot Kit is strongly recommended and is the default option when orders are configured, as it will save 2U of valuable rack space.

NOTE: OD1 will appear after this part number to indicate factory integration where appropriate.

Performance Optimized Data Centers

HPE 3PAR StoreServ 7000 Storage is qualified for use in HPE Performance Optimized Data Centers. Go to <http://www.hpe.com/go/POD> for more information.

Non-HPE rack and power requirements

The Storage Bases, the Upgrade Node Pair, and the 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 3PAR StoreServ 7000 Site Planning Guide

Expansion Options

Hewlett Packard Enterprise provides a variety of SAS cable kits to allow expansion of the HP3PAR StoreServ 7000. Note that the Storage Base products, the Upgrade Node Pair and the Drive Enclosures all include SAS cables. Most configurations will not require a SAS expansion cable kit.

SAS expansion cable kit

HP 6 Meter Expansion Cable Kit

AP879A

If an HPE 3PAR StoreServ 7000 needs to be expanded into an adjacent rack, one 6 meter SAS expansion cable kit is required for every node pair that must access drive enclosures in the expansion rack. Each 6 meter SAS expansion cable kit contains four 6 meter SAS cables.

HP 2 Meter Expansion Cable Kit

AW566A

If an HPE 3PAR StoreServ 7000 needs to be expanded within the same rack, but the new drive enclosure must be located some distance from the nearest existing drive enclosure

Configuration Information

within the same rack, one or two 2 meter SAS expansion cable kits is needed, depending on configuration. Each 2 meter SAS expansion cable kit contains two 2 meter SAS cables.

HP 1 Meter SAS Expansion Cable Kit

QR514A

The 1 meter SAS expansion cable kit is provided for cases where a shorter SAS cable is required. Each 1 meter SAS expansion cable kit contains two 1 meter SAS cables.

NOTE: The 2-node Storage Bases and Upgrade Node Pair come with four 2 meter SAS cables each and the 4-node Storage Base comes with eight 2 meter SAS cables. The Drive Enclosures come with two 1 meter SAS cables each.

Step 8 - Choose Software

Hewlett Packard Enterprise provides an extensive selection of features for HPE 3PAR StoreServ Storage. All of the features available on the HPE 3PAR StoreServ 10000 Storage system are also available on the HPE 3PAR StoreServ 7000 Storage system, the result of a common architecture that spans from small and medium businesses to the largest global enterprise. For convenient ordering, the 3PAR StoreServ 7000 provides the features in Suites.

Two types of software licensing methods are employed with the HPE 3PAR StoreServ 7000. Some software titles are licensed per system; other titles are licensed by drive. With system-based licensing one license covers the whole array, independent of configuration or capacity. Drive-based licensing, in contrast, is licensed per installed drive. A software title with drive-based licensing includes two Licenses to Use (LTU), a Base LTU that enables the software feature for the system and a Drive LTU that licenses the use of one drive. For each software title, purchase one Base LTU per title per array, and one Drive LTU, up to a cap, for every drive, that is installed in the array, independent of drive type. For the HPE 3PAR StoreServ 7200 the Drive LTUs cap at 48. For the HPE 3PAR StoreServ 7400 the Drive LTUs cap at 168. For the HPE 3PAR StoreServ 7440c the Drive LTUs cap at 320. After reaching the cap, you do not need to purchase any more Drive LTUs for that title.

NOTE: All the HPE 3PAR 7200 Software LTU are valid for both the HPE 3PAR StoreServ 7200 and HPE 3PAR StoreServ 7200c Storage systems, all the HPE 3PAR 7400 Software LTU are valid for both the HPE 3PAR StoreServ 7400 and HPE 3PAR StoreServ 7400c Storage systems. The HPE 3PAR 7440c Software LTU are valid only for the HPE 3PAR StoreServ 7440c Storage system.

For more information regarding HPE 3PAR software see

<http://h18006.www1.hpe.com/storage/solutions/3par/software.html>

HPE 3PAR 7000 Operating System Software Suite (Required)

HPE 3PAR OS SW Suite - 3PAR Operating System, System Setup, and Management Software HPE 3PAR 7000 Operating System Software Suite is the foundation software of HPE 3PAR StoreServ 7000 Storage, combining advanced virtualization capabilities with simple storage management, high efficiency, and world class performance. The included comprehensive thin provisioning capabilities allow your storage to start thin, get thin and stay thin. System Tuner and Autonomic Rebalance help maintain high performance over time. Migrating your existing data from HPE EVA, EMC CX4 or EMC VNX Storage and 3PAR systems to HPE 3PAR StoreServ 7000 is easy with the included 1 year Online Import license. HPE 3PAR SmartStart Software, included in the suite, guides you through the configuration of the service processor, HPE 3PAR StoreServ Storage and the application hosts - making storage setup quick and easy. HPE 3PAR 7000 Operating System Software Suite is a required purchase. It uses drive-based licensing. For more information see

<http://h18006.www1.hpe.com/storage/software/3par7000/oss/index.html>

HP 3PAR 7200 Operating System Software Suite Base LTU

BC745B

HP 3PAR 7200 Operating System Software Suite Base E-LTU

BC745BAE

HP 3PAR 7200 Operating System Software Suite Drive LTU

BC746A

HP 3PAR 7200 Operating System Software Suite Drive E-LTU

BC746AAE

Configuration Information

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|--|----------|
| HP 3PAR 7400 Operating System Software Suite Base LTU | BC773B |
| HP 3PAR 7400 Operating System Software Suite Base E-LTU | BC773BAE |
| HP 3PAR 7400 Operating System Software Suite Drive LTU | BC774A |
| HP 3PAR 7400 Operating System Software Suite Drive E-LTU | BC774AAE |
| HP 3PAR 7440c Operating System Suite Base LTU | BD374A |
| HP 3PAR 7440c Operating System Suite Base E-LTU | BD374AAE |
| HP 3PAR 7440c Operating System Suite Drive LTU | BD381A |
| HP 3PAR 7440c Operating System Suite Drive E-LTU | BD381AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR 7000 Replication Software Suite

HPE 3PAR 7000 Replication Software Suite - Local Replication, Remote Replication and Transparent Failover

The HPE 3PAR Replication Software Suite offers automatic replication, transparent failover and Point-in-Time (PIT) copies enabling seamless disaster recovery for critical data. These features provide an agile, efficient and simple solution to protect against the unpredictable. This suite is ideal for virtualized data centers demanding data availability and business continuity 24x7. HPE 3PAR 7000 Replication Software Suite consists of HPE 3PAR Remote Copy Software, HPE 3PAR Peer Persistence Software and HPE 3PAR Virtual Copy Software, which are also available separately. Replication Software Suite uses drive-based licensing. For more information see

<http://h18006.www1.hpe.com/storage/software/3par7000/drs/index.html>.

NOTE: The Peer Persistence feature provides transparent failover in VMware cluster environments and requires the Remote Copy feature as a prerequisite.

| | |
|---|----------|
| HP 3PAR 7200 Replication Software Suite Base LTU | BC747A |
| HP 3PAR 7200 Replication Software Suite Base E-LTU | BC747AAE |
| HP 3PAR 7200 Replication Software Suite Drive LTU | BC748A |
| HP 3PAR 7200 Replication Software Suite Drive E-LTU | BC748AAE |
| HP 3PAR 7400 Replication Software Suite Base LTU | BC775A |
| HP 3PAR 7400 Replication Software Suite Base E-LTU | BC775AAE |
| HP 3PAR 7400 Replication Software Suite Drive LTU | BC776A |
| HP 3PAR 7400 Replication Software Suite Drive E-LTU | BC776AAE |
| HP 3PAR 7440c Replication Suite Base LTU | BD382A |
| HP 3PAR 7440c Replication Suite Base E-LTU | BD382AAE |
| HP 3PAR 7440c Replication Suite Drive LTU | BD383A |
| HP 3PAR 7440c Replication Suite Drive E-LTU | BD383AAE |

NOTE: If the configuration includes Remote Copy over Fibre Channel it is recommended that optional Fiber Channel HBAs are purchased as the built in ports will not offer sufficient connectivity

* Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR 7000 Security Software Suite

HPE 3PAR 7000

HPE 3PAR 7000 Security Software Suite provides secure administrative segregation of users and hosts, allowing individual user groups and applications to confidently share a

Configuration Information

Security Software Suite

3PAR StoreServ 7000 system. It also allows you to secure volumes and copies so they cannot be deleted, even by a 3PAR StoreServ 7000 user with the highest level privileges. When coupled with reservation less, non-duplicative, read-only virtual copies (snapshots), the Virtual Lock feature enables you to retain frozen, point-in-time copies of your data to assist internal data retention and simplify compliance with internal governance procedures. HPE 3PAR 7000 Security Software Suite consists of HPE 3PAR Virtual Domains Software and HPE 3PAR Virtual Lock Software, which are also available separately. Security Software Suite uses drive-based licensing. For more information see <http://h18006.www1.hpe.com/storage/software/3par7000/ss/index.html>.

| | |
|--|----------|
| HP 3PAR 7200 Security Software Suite Base LTU | BC751A |
| HP 3PAR 7200 Security Software Suite Base E-LTU | BC751AAE |
| HP 3PAR 7200 Security Software Suite Drive LTU | BC752A |
| HP 3PAR 7200 Security Software Suite Drive E-LTU | BC752AAE |
| HP 3PAR 7400 Security Software Suite Base LTU | BC779A |
| HP 3PAR 7400 Security Software Suite Base E-LTU | BC779AAE |
| HP 3PAR 7400 Security Software Suite Drive LTU | BC780A |
| HP 3PAR 7400 Security Software Suite Drive E-LTU | BC780AAE |
| HP 3PAR 7440c Security Suite Base LTU | BD384A |
| HP 3PAR 7440c Security Suite Base E-LTU | BD384AAE |
| HP 3PAR 7440c Security Suite Drive LTU | BD385A |
| HP 3PAR 7440c Security Suite Drive E-LTU | BD385AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR 7000 Data Optimization Software Suite

Ensure Quality of Service with dynamic data mobility

The HPE 3PAR Data Optimization Software Suite v2 combines capabilities that provide autonomic storage tiering and dynamic data mobility with assured quality of service. Adaptive Optimization provides highly reliable, non-disruptive, cost-optimized storage tiering at the sub-volume level to deliver the right QoS to the right data at the right time on a large scale and Dynamic Optimization delivers it at the volume level. Peer Motion software enables seamless technology refresh and cost-optimized asset lifecycle management, and lowers technology refresh capital expenditure. Priority Optimization software allows customers to ensure quality of service on HPE 3PAR StoreServ Storage Systems. With Priority Optimization, customers can guarantee service levels in multi-tenant environments

The Data Optimization Suite v2 bundles the following products:

- HPE 3PAR Adaptive Optimization
- HPE 3PAR Dynamic Optimization
- HPE 3PAR Peer Motion
- HPE 3PAR Priority Optimization

For more information see

<http://h18006.www1.hpe.com/storage/software/3par7000/dos/index.html>

| | |
|---|----------|
| HP 3PAR 7200 Data Optimization Software Suite V2 Base LTU | BD268A |
| HP 3PAR 7200 Data Optimization Software Suite V2 Base E-LTU | BD268AAE |
| HP 3PAR 7200 Data Optimization Software Suite V2 Drive LTU | BD269A |

Configuration Information

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| HP 3PAR 7200 Data Optimization Software Suite V2 Drive E-LTU | BD269AAE |
| HP 3PAR 7400 Data Optimization Software Suite V2 Base LTU | BD270A |
| HP 3PAR 7400 Data Optimization Software Suite V2 Base E-LTU | BD270AAE |
| HP 3PAR 7400 Data Optimization Software Suite V2 Drive LTU | BD271A |
| HP 3PAR 7400 Data Optimization Software Suite V2 Drive E-LTU | BD271AAE |
| HP 3PAR 7440c Data Optimization Suite v2 Base LTU | BD404A |
| HP 3PAR 7440c Data Optimization Suite v2 Base E-LTU | BD404AAE |
| HP 3PAR 7440c Data Optimization Suite v2 Drive LTU | BD405A |
| HP 3PAR 7440c Data Optimization Suite v2 Drive E-LTU | BD405AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR File Persona Software Suite

HPE 3PAR File Persona Software Suite – Converged Block, File and Object Access The HPE 3PAR File Persona Software Suite is a licensed feature of the 3PAR OS that enables a rich set of file protocols and core file data services on a 3PAR StoreServ system. As a feature of the 3PAR OS, the File Persona inherits the industry leading architecture and Block Persona benefits of 3PAR StoreServ. It extends the spectrum of primary storage workloads natively addressed by 3PAR StoreServ from virtualization, databases, and applications via the Block Persona to also include client workloads such as home directory consolidation, group/department shares, and corporate shares via the File Persona – all with truly Converged Controllers, truly agile capacity, and truly unified management. The File Persona is supported on the 3PAR StoreServ 7200c, 7400c, and 7440c. It requires the installation of 1GbE (E7X97A) or 10GbE (E7X96A) network cards.

For more information see <http://www.hpe.com/go/3PAR/FilePersona>

NOTE: The File Persona feature requires HPE 3PAR 7000 Operating System Software Suite as a prerequisite.

| | |
|---|----------|
| HP 3PAR 7200c File Persona Software Suite 1TB LTU | BD408A |
| HP 3PAR 7200c File Persona Software Suite 1TB E-LTU | BD408AAE |
| HP 3PAR 7400c File Persona Software Suite 1TB LTU | BD409A |
| HP 3PAR 7400c File Persona Software Suite 1TB E-LTU | BD409AAE |
| HP 3PAR 7440c File Persona Software Suite 1TB LTU | BD410A |
| HP 3PAR 7440c File Persona Software Suite 1TB E-LTU | BD410AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR Reporting Software Suite

HPE 3PAR Reporting Software Suite - Historical Performance and Capacity Management Tool The HPE 3PAR Reporting Software Suite includes System Reporter, a historical performance and capacity management tool for storage reporting, monitoring, and troubleshooting. Also included is 3PARInfo, a command line tool that allows you to view HPE 3PAR StoreServ Storage configuration information. Reporting Software Suite uses system-based licensing. For more information see

<http://h18006.www1.hpe.com/storage/software/3par7000/rs/index.html>

| | |
|------------------------------------|----------|
| HP 3PAR 7200 Reporting Suite LTU | BC767B |
| HP 3PAR 7200 Reporting Suite E-LTU | BC767BAE |
| HP 3PAR 7400 Reporting Suite LTU | BC795B |

Configuration Information

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|-------------------------------------|----------|
| HP 3PAR 7400 Reporting Suite E-LTU | BC795BAE |
| HP 3PAR 7440c Reporting Suite LTU | BD375A |
| HP 3PAR 7440c Reporting Suite E-LTU | BD375AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR Application Software Suite for Oracle

HPE 3PAR Application Software Suite for Oracle - Application Protection The HPE 3PAR Application Software Suite for Oracle provides everything you need for protecting Oracle databases, including Recovery Manager for Oracle and Oracle Space Reclamation capabilities. Recovery Manager for Oracle is an extension to 3PAR Virtual Copy that intelligently creates, manages, and presents time-consistent snapshot images of Oracle® databases for rapid application recovery, near-continuous data protection, data sharing, and non-disruptive backup. Application Software Suite for Oracle uses system-based licensing. For more information see <http://h18006.www1.hpe.com/storage/software/3par7000/as-oracle/index.html>.

NOTE: HPE 3PAR Virtual Copy Software is a prerequisite, purchased independently or in the HPE 3PAR Replication Software Suite.

| | |
|--|----------|
| HP 3PAR 7200 Application Suite for Oracle LTU | BC771B |
| HP 3PAR 7200 Application Suite for Oracle E-LTU | BC771BAE |
| HP 3PAR 7400 Application Suite for Oracle LTU | BC799B |
| HP 3PAR 7400 Application Suite for Oracle E-LTU | BC799BAE |
| HP 3PAR 7440c Application Suite for Oracle LTU | BD379A |
| HP 3PAR 7440c Application Suite for Oracle E-LTU | BD379AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR Application Software Suite for SQL

HPE 3PAR Application Software Suite for SQL - Application Protection The HPE 3PAR Application Software Suite for SQL protects Microsoft® SQL databases with Recovery Manager for Microsoft® SQL and the 3PAR VSS Provider software. 3PAR Recovery Manager for Microsoft® SQL Server is an extension to 3PAR Virtual Copy that eases costs and administration by providing rapid, affordable online recovery of Microsoft® SQL Server databases from multiple, highly granular point-in-time snapshots. Quickly recover a database to a known point in time, speeding up a variety of operations including rapid recovery of the production SQL server. Application Software Suite for SQL uses system-based licensing. For more information see <http://h18006.www1.hpe.com/storage/software/3par7000/as-sql/index.html>.

NOTE: HPE 3PAR Virtual Copy Software is a prerequisite, purchased independently or in the HPE 3PAR Replication Software Suite.

| | |
|--|----------|
| HP 3PAR 7200 Application Suite for Microsoft SQL LTU | BC770B |
| HP 3PAR 7200 Application Suite for Microsoft SQL E-LTU | BC770BAE |
| HP 3PAR 7400 Application Suite for Microsoft SQL LTU | BC798B |
| HP 3PAR 7400 Application Suite for Microsoft SQL E-LTU | BC798BAE |
| HP 3PAR 7440c Application Suite for SQL LTU | BD378A |

Configuration Information

HP 3PAR 7440c Application Suite for SQL E-LTU

BD378AAE

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR Application Software Suite for Exchange

HPE 3PAR Application Software Suite for Exchange - Application Protection The HPE 3PAR Application Software Suite for Exchange provides you the essentials for protecting your Microsoft Exchange data, including Recovery Manager for Exchange and the VSS Provider software. Recovery Manager for Exchange is an extension to 3PAR Virtual Copy that intelligently creates and manages snapshots that can be used to quickly restore Exchange instances or databases (or non-disruptively back them up to tape) for near-continuous data protection. Application Software Suite for Exchange uses system-based licensing. For more information see

<http://h18006.www1.hpe.com/storage/software/3par7000/as-exchange/index.html>

NOTE: HPE 3PAR Virtual Copy Software is a prerequisite, purchased independently or in the HPE 3PAR Replication Software Suite.

HP 3PAR 7200 Application Suite for Microsoft Exchange LTU

BC769B

HP 3PAR 7200 Application Suite for Microsoft Exchange E-LTU

BC769BAE

HP 3PAR 7400 Application Suite for Microsoft Exchange LTU

BC797B

HP 3PAR 7400 Application Suite for Microsoft Exchange E-LTU

BC797BAE

HP 3PAR 7440c Application Suite for Exchange LTU

BD377A

HP 3PAR 7440c Application Suite for Exchange E-LTU

BD377AAE

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR Application Software Suite for Microsoft Hyper-V

HPE 3PAR Application Software Suite for Hyper-V - Application Protection The HPE 3PAR Application Software Suite for Hyper-V provides you the essentials for protecting your Microsoft Hyper-V environment, including Recovery Manager for Hyper-V and the VSS Provider software. Recovery Manager for Hyper-V is an extension to 3PAR Virtual Copy that intelligently creates and manages snapshots that can be used to quickly restore Hyper-V VMs for near-continuous data protection. Application Software Suite for Hyper-V uses system-based licensing.

NOTE: HPE 3PAR Virtual Copy Software is a prerequisite, purchased independently or in the HPE 3PAR Replication Software Suite.

HP 3PAR 7200 Application Suite for Microsoft Hyper-V LTU

BD178B

HP 3PAR 7400 Application Suite for Microsoft Hyper-V LTU

BD179B

HP 3PAR 7200 Application Suite for Microsoft Hyper-V E-LTU

BD178BAE

HP 3PAR 7400 Application Suite for Microsoft Hyper-V E-LTU

BD179BAE

HP 3PAR 7440c Application Suite for Hyper-V LTU

BD380A

HP 3PAR 7440c Application Suite for Hyper-V E-LTU

BD380AAE

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR Application Software Suite for VMware

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HPE 3PAR Application Software Suite for VMware - Application Protection The HPE 3PAR Application Software Suite for VMware provides everything you need to make your VMware environment more agile and efficient-including Recovery Manager for VMware, Host Explorer for VMware, VASA support, and three essential plug-ins: the VMware Site Replication Manager (SRM) Adapter, the 3PAR VAAI plug-in, and the 3PAR management plug-in for VMware View. Application Software Suite for VMware uses system-based licensing. For more information see <http://h18006.www1.hpe.com/storage/software/3par7000/as-vmware/index.html>.

NOTE: HPE 3PAR Virtual Copy Software is a prerequisite, purchased independently or in the HPE 3PAR Replication Software Suite.

| | |
|--|----------|
| HP 3PAR 7200 Application Suite for VMware LTU | BC768B |
| HP 3PAR 7200 Application Suite for VMware E-LTU | BC768BAE |
| HP 3PAR 7400 Application Suite for VMware LTU | BC796B |
| HP 3PAR 7400 Application Suite for VMware E-LTU | BC796BAE |
| HP 3PAR 7440c Application Suite for VMware LTU | BD376A |
| HP 3PAR 7440c Application Suite for VMware E-LTU | BD376AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE Cluster Extension Software

HPE Cluster Extension Software- High Availability HPE Cluster Extension Software (CLX) offers protection against application downtime from fault, failure, or site disaster by extending a local cluster between data centers over metropolitan distance. CLX reinstates critical applications at a remote site within minutes or seconds after an adverse event. CLX integrates with the OS clustering software (such as MS Cluster Service in Windows) and the remote mirroring software on storage (such as HPE Continuous Access software on P6000 EVA/P9000 and HPE 3PAR Remote Copy Software on HPE 3PAR systems) to automate failover and failback between sites. This dual integration enables the cluster service to verify the status of the storage as well as the server cluster; thus allowing the correct failover and failback decisions to be made which minimize downtime, and accelerates recovery without human intervention. Thus the Cluster Extension Software can help customers achieve 'zero' RPO and RTO in minutes or seconds. For more information, including how Cluster Extension Software is licensed, see <http://h18006.www1.hpe.com/storage/software/ces/index.html>.

HPE StoreFront Remote SaaS Portal

HPE StoreFront Remote SaaS Portal The HPE StoreFront Remote SaaS Portal provides proactive tools and integrated data collection from the HPE 3PAR StoreServ Storage arrays that call home to deliver unique insights and analytics all in one dashboard. Identify capacity and performance issues early through intuitive capacity and performance trend analysis and forecasting. These valuable analytics help maximize asset utilization and optimize the datacenter with recommendations and remedial actions when issues arise. Users can log into <http://www.storefrontremote.com> to claim their arrays and get access for free.

Step 9 - Choose Options for Storage Networking

Hewlett Packard Enterprise's comprehensive portfolio of Storage Area Network infrastructure products and solutions are designed

Configuration Information

to meet a range of storage networking needs from small and midsized businesses to the largest corporate enterprises. HPE StoreFabric storage networking SAN Solutions deliver scalability, performance, and broad interoperability required for critical data and applications.

For additional details on SAN infrastructure components and options and storage compatibility information, please visit:

<http://hpe.com/go/san> or select from the part numbers below.

Fibre Channel

Brocade Fibre Channel HBAs

Host Bus Adapters

| | |
|---|--------|
| HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter | AP769B |
| HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter | AP770B |

Emulex Fibre Channel HBAs

| | |
|---|--------|
| HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter | AJ762B |
| HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter | AJ763B |

QLogic Fibre Channel HBAs

| | |
|---|--------|
| HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter | AK344A |
| HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter | AJ764A |

Fibre Channel Switches HPE B-series

8 Gb Fibre Channel Switches

| | |
|--|--------|
| HP 8/8 Base (0) e-port SAN Switch | AM866B |
| HP 8/8 (8) Full Fabric Ports Enabled SAN Switch | AM867B |
| HP 8/24 Base (16) Full Fabric Ports Enabled SAN Switch | AM868B |

16 Gb Fibre Channel Switches

| | |
|---|--------|
| HP SN3000B 16Gb 24-port/12-port Active Fibre Channel Switch | QW937A |
| HP SN3000B 16Gb 24-port/24-port Active Fibre Channel Switch | QW938A |
| HP SN6000B 16Gb 48-port/24-port Active Fibre Channel Switch | QK753B |
| HP SN6000B 16Gb 48-port/48-port Active Fibre Channel Switch | QR480B |
| HP SN6000B 16Gb 48-port/24-port Active Power Pack+ Fibre Channel Switch | QK754B |
| HP SN6000B 16Gb 48-port/48-port Active Power Pack+ Fibre Channel Switch | QR481B |
| HP StoreFabric SN6500B 16Gb 96/96 Power Pack+ FC Switch | C8R42A |
| HP StoreFabric SN6500B 16Gb 96/96 FC Switch | C8R43A |
| HP StoreFabric SN6500B 16Gb 96/48 Power Pack+ FC Switch | C8R44A |
| HP StoreFabric SN6500B 16Gb 96/48 FC Switch | C8R45A |

FCoE, Extension and Embedded Switches

| | |
|--|--------|
| HP 1606 FCIP 16-pt Enabled 8Gb FC 6-pt Enabled 1GbE Full Switch | AP863B |
| HP 1606 FCIP 4-pt Enabled 8Gb FC 2-pt Enabled 1GbE Base Switch | AP862B |
| HP 1606 FCIP 16-pt Enabled 8Gb FC 6-pt Enabled 1GbE Power Pack+ Switch | AP864B |
| Brocade 16Gb/16 SAN Switch for BladeSystem c-Class | C8S45A |
| Brocade 16Gb/28 SAN Switch for BladeSystem c-Class | C8S46A |
| Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class | C8S47A |
| Brocade 8/12c SAN Switch for BladeSystem c-Class | AJ820B |
| Brocade 8/24c SAN Switch for BladeSystem c-Class | AJ821B |
| Brocade 8/24c Power Pack+ SAN Switch for BladeSystem c-Class | AJ822B |

HPE H-series

| | |
|--|--------|
| HP 8/20q Fibre Channel 8-ports Active Switch | AQ233B |
|--|--------|

Configuration Information

NOTE: 8 device ports active, upgradeable to 20 device ports active

HP 8Gb Simple SAN Connection Kit

AK241B

NOTE: 8 device ports active, upgradeable to 20 device ports active

HP 8/20q Fibre Channel Switch

AK242B

NOTE: 16 switch ports active, upgradeable to 20 device ports active

HP SN6000 Stackable 8Gb 24-port Single Power Fibre Channel Switch

AW575B

NOTE: 20 device ports active/4 stacking (ISL) ports active

HP SN6000 Stackable 8Gb 24-port Dual Power Fibre Channel Switch

AW576B

NOTE: 20 device ports active/4 stacking (ISL) ports active

HP SN6000 Stackable 12-port Single Power FC Switch

BK780B

NOTE: 8 device ports/4 stacking (ISL) ports active, upgradeable to 20 device ports active

HPE C-series

HP SN6000C 8Gb 16-port Fibre Channel Switch

AW585A

Cisco MDS 8/12c Fabric Switch for HP BladeSystem c-Class

AW563A

Cisco MDS 8/24c Fabric Switch for HP BladeSystem c-Class

AW564A

Cisco MDS 9124 8-ports Active Fabric Switch

AG646A

Cisco MDS 9124 16-ports Active Fabric Switch

AG647A

HPE Intelligent

Infrastructure

Analyzer Software

(IIAS)

HP Intelligent Infrastructure Analyzer Software v2 LTU

TC472A

HP Intelligent Infrastructure Analyzer Software v2 E-LTU

TC472AAE

An online monitoring and diagnostic solution intended to manage the physical layer of a Storage Area Network (SAN) consisting of HPE B-series and/or H-series Fibre Channel switches and directors. It uses industry-standard protocols (such as SNMP, SMI-S, Telnet) to monitor the physical layer across the SAN and to diagnose changes/events in Small Form-factor Pluggable (SFP) transceiver states/characteristics. It also presents the SAN topology, inventory and diagnostic information to the user in real-time.

HPE Virtual Connect

HPE 3PAR StoreServ 7000 Storage supports direct attach with HPE Virtual Connect FlexFabric. Please refer to SPOCK for HPE Virtual Connect information.

<http://h20272.www2.hpe.com/index.aspx>

PremierFlexOM4 cable options

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable

QK732A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable

QK733A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable

QK734A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable

QK735A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable

QK736A

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable

QK737A

OM3 FC LC-LC cables options

HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable

AJ833A

HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable

AJ834A

HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable

AJ835A

HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable

AJ836A

HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable

AJ837A

HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable

AJ838A

HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable

AJ839A

Configuration Information

Step 10 - Federation / Data Migration

HPE provides several ways to migrate your data from older arrays. Peer Motion provides federation with other 3PAR arrays, which includes the ability to migrate data to HPE 3PAR StoreServ 7000 Storage (Peer Motion is part of the HPE 3PAR 7000 Data Optimization Software Suite). Peer Motion Software is also available as a standalone license.

| | | |
|--------------------------------------|---|----------|
| HPE 3PAR Peer Motion Software | HP 3PAR 7200 Peer Motion Software Base LTU | BC761A |
| | HP 3PAR 7200 Peer Motion Software Drive LTU | BC762A |
| | HP 3PAR 7400 Peer Motion Software Base LTU | BC789A |
| | HP 3PAR 7400 Peer Motion Software Drive LTU | BC790A |
| | HP 3PAR 7440c Peer Motion Base LTU | BD394A |
| | HP 3PAR 7440c Peer Motion Base E-LTU | BD394AAE |
| | HP 3PAR 7440c Peer Motion Drive LTU | BD395A |
| | HP 3PAR 7440c Peer Motion Drive E-LTU | BD395AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

Online Import allows you to easily migrate data from HPE EVA, EMC CX4 or EMC VNX Storage arrays to the HPE 3PAR StoreServ 7000, a 180-day Online Import license is built into the HPE 3PAR 7000 Operating System Software Suite. Additional licenses are available to order.

| | | |
|--|---|----------|
| HPE 3PAR Online Import Software | HP 3PAR 7200 Online Import Software 180 day LTU | BD191A |
| | HP 3PAR 7400 Online Import Software 180 day LTU | BD192A |
| | HP 3PAR 7440c Online Import 180-day LTU | BD407A |
| | HP 3PAR 7440c Online Import 180-day E-LTU | BD407AAE |

NOTE: * Insert AE at the end of a part number for an electronic LTU (eg. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

In addition HPE supports the MPX200.

HPE MPX200 Multi-protocol and Heterogeneous Data Migration

The HPE MPX200 Multiprotocol Router provides support for HPE 3PAR StoreServ 7000 and 10000 as well as 3PAR F/T, including 1GbE iSCSI and 10GbE iSCSI and FCoE target support. MPX200 iSCSI provides an alternative option for HPE 3PAR storage systems if you don't want to dedicate native iSCSI ports on your array. The MPX200 also facilitates the sharing of iSCSI/FCoE connectivity simultaneously for HPE 3PAR storage systems from the same MPX200. For Data Migration the MPX200 provides high performance migration from P6000/EVA to HPE 3PAR storage systems and simplifies Data Migration from third party storage such as IBM and EMC to HPE 3PAR. The MPX200 is an ideal solution enabler for HPE 3PAR customers.

<http://www.hpe.com/go/mpx200>

| | | |
|--------------------------------|---|--------|
| FCIP Software | HP MPX200 Half Chassis FCIP License | TA766A |
| | HP MPX200 Full Chassis FCIP License | TA767A |
| Data Migration Software | HP MPX200 1TB Full Chassis Data Migration License | TA762A |
| | HP MPX200 5TB Full Chassis Data Migration License | TA763A |
| | HP MPX200 Full Chassis 1 Array Data Migration License | TA764A |

Step 11- HPE 3PAR StoreServ File Controller

With HPE 3PAR StoreServ File Controller you get an efficient, bulletproof, and effortless way to provide file storage from HPE 3PAR StoreServ Storage. 3PAR StoreServ File Controller saves you time and money by supporting hundreds to thousands of concurrent users and diverse file workloads. It also has non-intrusive data deduplication that provides an average 50-60% in space savings. It

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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 3PAR StoreServ File Controllers are clustered file gateway configurations with 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.

See the HPE 3PAR StoreServ File Controller QuickSpecs for more information on specifications and options at:

<http://www8.hpe.com/h20195/v2/GetHtml.aspx?docname=c04164476>

Add a Power Cord

The HPE 3Par StoreServ File Controller comes standard with at least one rack (IEC-IEC) PDU power cord. If you wish to use wall outlet power instead, you can choose a country- or region-specific power cord.

| | | |
|---------------------------------------|--|--------|
| 3Par StoreServ File Controller | HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord | AF556A |
| | HP C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord | AF557A |
| | HP C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord | AF558A |
| | HP C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord | AF559A |
| | HP C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord | AF560A |
| | HP C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord | AF561A |
| | HP C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord | AF562A |
| | HP C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord | AF569A |
| | HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord | AF565A |
| | HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord | AF566A |
| | HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord | AF568A |
| | HP C13 - SI-32 IL 250V 10Amp 1.83m Power Cord | AF564A |
| | HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord | AF571A |
| | HP C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord | AF572A |
| | HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord | AF570A |
| | HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord | AF567A |
| | HP C13 - NBR-14136 BR 250V 10Amp 1.83m Power Cord | AF591A |

Technical Specifications

HPE 3PAR StoreServ 7000 Product Dimensions, and Weight

| Physical Dimensions | Height in/mm/U | Width in/mm | Depth in/mm | Max Weight lb/kg |
|--|----------------|---------------|-------------|------------------------------|
| 42U Intelligent Series Rack | 79.0/2006.6 | 23.5/597.8 | 42.7/1125.2 | 243/110 (empty) |
| HP 3PAR StoreServ 7200c 2N Storage Base (no host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 47.7/21.6 |
| HP 3PAR StoreServ 7200c 2N Storage Base (with two host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 48.7/22.1 |
| HP 3PAR StoreServ 7400c 2N Storage Base (no host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 47.7/21.6 |
| HP 3PAR StoreServ 7400c 2N Storage Base (with two host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 48.7/22.1 |
| HP 3PAR StoreServ 7400c 4N Storage Base (no host adapters, no drives) | 6.925/175.9/4 | 19/483 | 26.6/676.1* | 97.8/44.4 |
| HP 3PAR StoreServ 7400c 4N Storage Base (with four host adapters, no drives) | 6.925/175.9/4 | 19/483 | 26.6/676.1* | 99.8/45.3 |
| HP 3PAR StoreServ 7440c 2Node Storage Base (no host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 47.7/21.6 |
| HP 3PAR StoreServ 7440c 2Node Storage Base (with two host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 48.7/22.1 |
| HP 3PAR StoreServ 7440c 4Node Storage Base (no host adapters, no drives) | 6.925/175.9/4 | 19/483 | 26.6/676.1* | 97.8/44.4 |
| HP 3PAR StoreServ 7440c 4Node Storage Base (with four host adapters, no drives) | 6.925/175.9/4 | 19/483 | 26.6/676.1* | 99.8/45.3 |
| HP M6710 2.5 inch 2U SAS Drive Enclosures (without drives) | 3.46/87.95/2 | 19/483 | 24.8/630.7 | 33.5/15.2 |
| HP M6720 3.5 inch 4U SAS Drive Enclosures (without drives) | 6.89/175/4 | 19/483 | 24.9/631.4 | 42.9/19.5 |
| SFF SAS drive with carrier | 3.42/86.85** | 0.78/19.9** | 896/227.7 | 0.7/0.32 (varies by type) |
| LFF SAS drive with carrier | 1.18/30.0** | 4.36/110.84** | 8.67/220.26 | 1.9/0.86 (varies by type) |

Technical Specifications

NOTE: * includes length of ejector handles

** includes RFI clips

Power Requirements

| | |
|---------------------|---------------|
| Input Voltage (VAC) | 100 - 240 VAC |
| Frequency (Hz) | 50 - 60 |

| Component | Idle (watts / BTU/hr) | Transactional (watts / BTU/hr) |
|--|--------------------------|-----------------------------------|
| Node Pair (7200/7200c or 7400/7400c), no drives, no add-on host adapters | 236 / 803 | 398 / 1357 |
| Node Pair (7440c), no drives, no add-on host adapters | 344 / 1173 | 363 / 1238 |
| 4-port 8Gb/s Fibre Channel Adapter | 24 / 81.7 | 32.6 / 111 |
| 2-port 16Gb/s Fibre Channel Adapter | 9.47 / 32.3 | 9.89 / 33.7 |
| 2-port 10Gb/s iSCSI/FCoE Adapter | 34 / 115.8 | 40 / 136.4 |
| 2-port 10Gb/s Ethernet Adapter | 5.69 / 19.4 | 5.71 / 19.5 |
| 4-port 1Gb/s Ethernet Adapter | 1.97 / 6.7 | 1.97 / 6.7 |
| HPE M6710 2.5 inch 2U SAS Drive Enclosure, no drives | 150 / 512 (average) | 150 / 512 (average) |
| HPE M6720 3.5 inch 4U SAS Drive Enclosure, no drives | 164 / 559 (average) | 164 / 559 (average) |
| 300GB 15K Small Form Factor HDD | 6.7 / 22.9 | 6.9 / 23.1 |
| 600GB 15K Small Form Factor HDD | 7.0 / 24.0 | 7.3 / 25.1 |
| 450GB 10K Small Form Factor HDD | 3.7 / 12.6 | 6.3 / 21.5 |
| 600 GB 10K Small Form Factor HDD | 6.3 / 21.4 | 7.4 / 25.2 |
| 900GB 10K Small Form Factor HDD | 4.8 / 16.4 | 6.2 / 21.1 |
| 1.2TB 10K Small Form Factor HDD | 6.2 / 21.1 | 8.2 / 27.9 |
| 1.8TB 10K Small Form Factor HDD | 7.3 / 24.8 | 7.5 / 25.6 |
| 1 TB 7.2k Small Form Factor NL HDD | 2.95/ 10.1 | 3.84 / 13.1 |
| 2TB 7.2K Large Form Factor NL HDD | 7.5 / 25.6 | 10.6 / 36.1 |
| 3TB 7.2K Large Form Factor NL HDD | 8.5 / 28.9 | 11.8 / 40.2 |
| 4TB 7.2K Large Form Factor NL HDD | 9.1 / 31.1 | 13.1 / 44.6 |
| 6TB 7.2K Large Form Factor NL HDD | 11.9 / 40.7 | 14.3 / 48.74 |
| 480GB MLC SSD | 2.2 / 7.5 | 5.5 / 18.7 |
| 920GB MLC SSD | 2.2 / 7.5 | 5.5 / 18.7 |
| 480GB cMLC SSD | 3.2 / 11 | 7.1 / 24.4 |
| 1920GB cMLC SSD | 3.5 / 11.9 | 8.9 / 30.5 |
| 3840GB cMLC SSD | 3.4 / 11.64 | 11.0 / 37.56 |

Environmental Specifications

| | |
|-----------------------|--|
| Operating Temperature | 41° to 104° F (5° to 40° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m) |
| Shipping Temperature | 32° to 140° F (0° to 60° C) |

Technical Specifications

| | | | | | | | |
|--|--|-----------------------------------|-----------------------------|-----------------------------|-----------------------------|--|--|
| 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, 0.1 Grms, Random 10-100Hz | | | | | | |
| Non-operating Vibration | 0.5 G, 5 - 500 Hz, Sine | | | | | | |
| Operating Shock | 2 G, 11ms, half-sine | | | | | | |
| Non-operating Shock | 10 G, 11ms, half-sine | | | | | | |
| Maximum Air Flow | Storage Base and Upgrade Node Pair - 109 CFM per enclosure M6710 Drive Enclosure - 105 CFM M6720 Drive Enclosure - 109 CFM | | | | | | |
| Electromagnetic Compatibility | CISPR 22:2008/ EN55022:2010 Class A CISPR 24:2010/ EN 55024:2010 IEC 61000-3-2:2005/ EN 61000-3-2:2006 +A1:2009 +A2:2009 IEC/ EN 61000-3-3:2008 AS/NZS CIPSR 22: 2009 Class A CNS 13438:2006 Class A 47 CFR Part 15 Subpart b Class A ICES-003 Issue 4 Class A V-3/2012.04 Class A RRA Notice No. 2011-24 (2011.12.23) Class A RRA Notice No. 2011-25 (2011.12.23) | | | | | | |
| Acoustics | Fan Speed (RPM) | 7200c/7400c 2N Storage Base | 7400c 4N Storage Base | 7440c 2N Storage Base | 7440c 4N Storage Base | M6710 2.5" 2U SAS Drive Enclosure | M6720 3.5" 4U SAS Drive Enclosure |
| Sound pressure level measured per ISO 7779 specifications during normal operating fan conditions, from a minimum of 3,000 RPM to a maximum of 10,000 RPM | Minimum | 63.8 | 67.2 | 72 | 74 | 62.6 | 61.3 |
| | Maximum | 93.4 | 96.5 | 93 | 97 | 85.4 | 88 |
| Safety | IEC 60950-1:2005 (2nd Edition) EN 60950-1:2006 +A11:2009 EN 62479:2010 CNS 14336-1 2nd Edition UL 60950-1 2nd Ed. CAN/CSA C22.2 No. 60950-1 | | | | | | |
| Certifications / Markings | cTUVus Mark TUV T-mark (EN 60950) CE Mark FCC Class A IC Class A VCCI Class A BSMI Class A KCC GOST-R C-Tick WEEE China RoHS EU RoHS | | | | | | |

Technical Specifications

NOTE: Specifications are subject to change without notice.

Appendix

Appendix

This Appendix includes the technical specification of the HPE 3PAR StoreServ 7200 and HPE 3PAR StoreServ 7400 Storage.

| Summary | 3PAR StoreServ 7200 | 3PAR StoreServ 7400 |
|--|----------------------------|-----------------------------|
| Number of Controller Nodes | 2 | 2 or 4 |
| HPE 3PAR Gen4 ASICs | 2 | 2 or 4 |
| Processors | 2 four-core 1.8 GHz | 2 - 4 six-core 1.8 GHz |
| Total Cache | 792 GiB | 1564 GiB |
| Flash Cache (optional) | 768 GiB | 1500 GiB |
| On-Node Cache | 24 GiB | 64 GiB |
| Total Cache per controller node pair | 792 GiB | 832 GiB |
| Flash Cache per node pair | 768 GiB | 768 GiB |
| On-Node Cache per node pair | 24 GiB | 64 GiB |
| Maximum Host Ports | 12 ports | 24 ports |
| 8Gb/s Fibre Channel Host Ports | 4 - 12 ports | 4 - 24 ports |
| 16Gb/s Fibre Channel Host Ports | 0 - 4 ports | 0 - 8 ports |
| 10Gb/s iSCSI Host Ports | 0 - 4 ports | 0 - 8 ports |
| 1GbE/10GbE Network Ports | Not Applicable | Not Applicable |
| Maximum Initiators Supported | 1024 | 1024 or 2048 |
| 2U Controller Enclosure SAS Drive Capacity | 24 | 24 |
| Number of Disk Drives | 6 - 240 drives | 6 - 480 drives |
| Number of Solid State Drives | 6 ¹ - 120 | 6 ¹ - 240 |
| Raw Capacity (approx.) ² | 1.2 - 400 TiB ³ | 1.2 - 1200 TiB ³ |

| Capacity Details | 3PAR StoreServ 7200 | 3PAR StoreServ 7400 |
|---|--|---|
| RAID Levels | RAID 0, 1, 5, 6 | RAID 0, 1, 5, 6 |
| RAID 5 Data to Parity Ratios | 2:1 - 8:1 | 2:1 - 8:1 |
| RAID 6 Data to Parity Ratios | 4:2, 6:2, 8:2, 10:2, 14:2 | 4:2, 6:2, 8:2, 10:2, 14:2 |
| Drive Capacities (approximate GB ³) (RAID levels, parity ratios, and drive capacities all mixable within the same Storage System) | 200 SSD ⁴ , 480 SSD ⁴ , 920 SSD ⁴ , 480GB cMLC SSD, 1.92TB cMLC SSD, 300 15K SAS, 450 10K SAS, 600 10K SAS, 900 10K SAS, 1200 10K SAS, 1000 7.2K NL, 2000 7.2K NL ⁵ , 3000 7.2K NL ⁵ , 4000 7.2K NL ⁵ | 200 SSD ⁴ , 400 SSD ⁴ , 480 SSD ⁴ , 920 SSD ⁴ , 480GB cMLC SSD, 1.92TB cMLC SSD, 300 15K SAS, 450 10K SAS, 600 10K SAS, 900 10K SAS, 1200 10K SAS, 1000 7.2K NL, 2000 7.2K NL ⁵ , 3000 7.2K NL ⁵ , 4000 7.2K NL ⁵ |
| Number of Add-on Drive Enclosures (Each Drive Enclosure holds up to 24 drives in 2U for small form factor drives and 4U for large form factor drives) | 0 - 9 enclosures | 0 - 18 enclosures |

NOTE: Specifications are subject to change without notice.

¹ The minimum drive quantity is permitted as long as the total raw capacity is at least 1.2 TB.

² Maximum raw capacity currently supported with any and all drive types.

Appendix

³ For storage capacity, 1 GB = 1,000,000,000 bytes and 1 TB = 1,000 GB.

⁴ SSDs are Solid State Drives.

⁵ NL drives are 7200 RPM Enterprise SAS drives.

HPE 3PAR StoreServ 7200 All-Flash Starter Kit

HPE 3PAR StoreServ 7200 All-Flash Starter Kit is an all-flash version of the HPE 3PAR StoreServ 7200 providing mid-range customers with all-flash acceleration at entry-level price. The kit includes the HPE 3PAR StoreServ 7200 Storage System Base equipped with 8 x 480GB SFF cMLC SSD drives, Reporting Suite and Virtual Copy software.

The HPE 3PAR StoreServ 7200 All-Flash Starter Kit has the same Drive LTUs cap and maximum number of SSDs as the HPE 3PAR StoreServ 7200. The Drive LTUs cap for HPE 3PAR StoreServ 7200 All-Flash Starter Kit is 48. After reaching the cap, you do not need to purchase any more Drive LTUs for that title. The maximum number of SSDs is 120.

Model

HP 3PAR StoreServ 7200 All-Flash Starter Kit

K2Q09A

The HPE 3PAR StoreServ 7200 All-Flash Starter Kit is an orderable part number that includes the following individual parts.

| Quantity | Component | |
|----------|--|--------|
| 1 | HP 3PAR StoreServ 7200 Storage System Base | QR482A |
| 8 | HP M6710 480GB 6G SAS 2.5in cMLC SSD | E7Y55A |
| 1 | HP 3PAR 7200 Operating System Software Suite Base LTU | BC745B |
| 8 | HP 3PAR 7200 Operating System Software Suite Drive LTU | BC746A |
| 1 | HP 3PAR 7200 Reporting Suite Base LTU | BC767B |
| 1 | HP 3PAR 7200 Virtual Copy Base LTU | BC753A |
| 8 | HP 3PAR 7200 Virtual Copy Drive LTU | BC754A |

NOTE: Users can add more SSDs, drive enclosures (and any other 7000 accessory), and software to the HPE 3PAR StoreServ 7200 All-Flash Starter Kit quote. Each of the nested components will appear as separate parts on the quote and will be priced accordingly

HPE 3PAR StoreServ 7000 Product Dimensions, and Weight

| Physical Dimensions | Height in/mm/U | Width in/mm | Depth in/mm | Max Weight lb/kg |
|--|----------------|-------------|--------------|------------------|
| 42U Intelligent Series Rack | 79.0/2006.6 | 23.5/597.8 | 44.30/1125.2 | 243/110 (empty) |
| HP 3PAR StoreServ 7200 2-node Storage Base (no host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 47.7/21.6 |
| HP 3PAR StoreServ 7200 2-node Storage Base (with two host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 48.7/22.1 |
| HP 3PAR StoreServ 7400 2-node Storage Base (no host adapters, no drives) | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 47.7/21.6 |
| HP 3PAR StoreServ 7400 | 3.46/87.95/2 | 19/483 | 26.6/676.1* | 48.7/22.1 |

Appendix

2-node Storage Base

(with two host adapters,
no drives)

| | | | | |
|------------------------|---------------|--------|-------------|-----------|
| HP 3PAR StoreServ 7400 | 6.925/175.9/4 | 19/483 | 26.6/676.1* | 97.8/44.4 |
|------------------------|---------------|--------|-------------|-----------|

4-node Storage Base (no
host adapters, no drives)

| | | | | |
|------------------------|---------------|--------|-------------|-----------|
| HP 3PAR StoreServ 7400 | 6.925/175.9/4 | 19/483 | 26.6/676.1* | 99.8/45.3 |
|------------------------|---------------|--------|-------------|-----------|

4-node Storage Base
(with four host adapters,
no drives)

| | | | | |
|--|--------------|--------|------------|-----------|
| HP M6710 2.5 inch 2U SAS Drive Enclosures (without drives) | 3.46/87.95/2 | 19/483 | 24.8/630.7 | 33.5/15.2 |
|--|--------------|--------|------------|-----------|

HP M6720 3.5 inch 4U
SAS Drive Enclosures
(without drives)

| | | | | |
|--|------------|--------|------------|-----------|
| HP M6720 3.5 inch 4U SAS Drive Enclosures (without drives) | 6.89/175/4 | 19/483 | 24.9/631.4 | 42.9/19.5 |
|--|------------|--------|------------|-----------|

SFF SAS drive with
carrier

| | | | |
|--------------|-------------|-----------|------------------------------|
| 3.42/86.85** | 0.78/19.9** | 896/227.7 | 0.7/0.32 (varies by type) |
|--------------|-------------|-----------|------------------------------|

LFF SAS drive with
carrier

| | | | |
|-------------|---------------|-------------|------------------------------|
| 1.18/30.0** | 4.36/110.84** | 8.67/220.26 | 1.9/0.86 (varies by type) |
|-------------|---------------|-------------|------------------------------|

NOTE: * includes length of ejector handles

** includes RFI clips

Environmental Specifications

Operating Temperature

41° to 104° F (5° to 40° C) - Reduce rating by 1° F for each 1000 ft
altitude (1.8° C/1,000 m)

Shipping Temperature

32° to 140° F (0° to 60° C)

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, 0.1 Grms, Random 10-100Hz

Non-operating Vibration

0.5 G, 5 - 500 Hz, Sine

Operating Shock

2 G, 11ms, half-sine

Non-operating Shock

10 G, 11ms, half-sine

Maximum Air Flow

Storage Base and Upgrade Node Pair - 109 CFM per enclosure

M6710 Drive Enclosure - 105 CFM

M6720 Drive Enclosure - 109 CFM

Electromagnetic Compatibility

CISPR 22:2008/ EN55022:2010 Class A

CISPR 24:2010/ EN 55024:2010

IEC 61000-3-2:2005/ EN 61000-3-2:2006 +A1:2009 +A2:2009

IEC/ EN 61000-3-3:2008

AS/NZS CIPSR 22: 2009 Class A

CNS 13438:2006 Class A

47 CFR Part 15 Subpart b Class A

ICES-003 Issue 4 Class A

V-3/2012.04 Class A

Appendix

| | | | | | |
|--|---|-------------------|---------------------|---------------------|------------------------|
| | RRA Notice No. 2011-24 (2011.12.23) Class A | | | | |
| | RRA Notice No. 2011-25 (2011.12.23) | | | | |
| Acoustics | Fan Speed | 7200/7400 2 | 7400 | M6710 2.5" 2U | M6720 3.5" |
| Sound pressure level measured per ISO 7779 specifications during normal operating fan conditions, from a minimum of 3,000 RPM to a maximum of 10,000 RPM | (RPM) | node Storage Base | 4 node Storage Base | SAS Drive Enclosure | 4U SAS Drive Enclosure |
| | Minimum | 63.8 | 67.2 | 62.6 | 61.3 |
| | Maximum | 93.4 | 96.5 | 85.4 | 88 |
| Safety | IEC 60950-1:2005 (2nd Edition) | | | | |
| | EN 60950-1:2006 +A11:2009 | | | | |
| | EN 62479:2010 | | | | |
| | CNS 14336-1 2nd Edition | | | | |
| | UL 60950-1 2nd Ed. | | | | |
| | CAN/CSA C22.2 No. 60950-1 | | | | |
| Certifications / Markings | cTUVus Mark | | | | |
| | TUV T-mark (EN 60950) | | | | |
| | CE Mark | | | | |
| | FCC Class A | | | | |
| | IC Class A | | | | |
| | VCCI Class A | | | | |
| | BSMI Class A | | | | |
| | KCC | | | | |
| | GOST-R | | | | |
| | C-Tick | | | | |
| | WEEE | | | | |
| | China RoHS | | | | |
| | EU RoHS | | | | |

NOTE: Specifications are subject to change without notice.

Summary of Changes

| Date | Version History | Action | Description of Change |
|--------------|-----------------------|---------|---|
| 01-Dec-2015 | From Version 40 to 41 | Changed | Minor edits |
| 02-Oct-2015 | From Version 39 to 40 | Added | Added The HPE StoreFront Remote SaaS Portal |
| 18-Sept-2015 | From Version 38 to 39 | Changed | Changes made to the Overview, Service and Support, and Appendix Sections. |
| 17-Aug-2015 | From Version 37 to 38 | Changed | Updated the usable file capacity for File Persona to max 256TiB and built-in RCIP port support for File Persona |
| 19-Jun-2015 | From Version 36 to 37 | Changed | Changes were made throughout the QuickSpecs |
| 05-Jun-2015 | From Version 35 to 36 | Changed | Changes made to the Configuration, Service and Support , Technical Specs, Appendix and Overview Sections |
| 01-Jun-2015 | From Version 34 to 35 | Added | New lower cost 3.84TB cMLC SSDs available New 1.92TB FIPS Encrypted cMLC SSD available New 1.2TB 10K, 2TB 7.2K SFF, 6TB 7.2K FIPS Encrypted HDD available |
| | | Changed | Changes made to the Configuration, Service and Support , Technical Specs and Overview Sections |
| | | Deleted | Removed all the File Controller Section since it now has its own QS. |
| 03-Apr-2015 | From Version 33 to 34 | Changed | Changes made to the Models Section. |
| 30-Mar-2015 | From Version 32 to 33 | Changed | Changes made to the Service and Support, Configuration Information and Technical Specifications Sections. |
| 09-Jan-2015 | From Version 31 to 32 | Changed | Changes made to the Overview and Technical Specifications Sections. |
| 1-Dec-2014 | From Version 30 to 31 | Changed | Added section about HPE 3PAR File Persona Software Suite |
| 20-Nov-2014 | From Version 31 to 30 | Changed | The document was reverted to version 30 at BU request. |
| 10-Nov-2014 | From Version 30 to 31 | Changed | Changes were made throughout the QuickSpecs. |
| 29-Sep-2014 | From Version 29 to 30 | Changed | Changes were made throughout the QuickSpecs. |
| 22-Aug-2014 | From Version 28 to 29 | Changed | Removed this entire bullet: "Encrypted and non-encrypted drives can be mixed in a non-encrypted array" |
| 20-Aug-2014 | From Version 27 to 28 | Changed | Changes made to the Overview section. Update some SKU descriptions. |
| 18-Aug-2014 | From Version 26 to 27 | Changed | Changes were made throughout the QuickSpecs. |
| 18-Jul-2014 | From Version 25 to 26 | Changed | Configuration section – WSS2012 R2 Upgrade section added (D4-T73A); Standard Features – Power Supply changed from 2x 460 W to 2 x 750 W; |
| 10-jun-2014 | From Version 24 to 25 | Changed | Overview table info, standard features resilient part; carepack information |
| 05-Jun-2014 | From Version 23 to 24 | Changed | Change made in Overview |
| 01-Jun-2014 | From Version 22 to 23 | Changed | Change made in step 5 |
| 11-apr-2014 | From Version 21 to 22 | Changed | Overview chart, Step 11 in Configuration, Models, and Technical Specifications chart were revised. |
| 04-apr-2014 | From Version 20 to 21 | Changed | Corrected the images in the Configuration section. |
| 31-mar-2014 | From Version 19 to 20 | Changed | Changes were made throughout. |
| 24-mar-2014 | From Version 18 to 19 | Changed | Image correction. |
| 17-Jan-2014 | From Version 17 to 18 | Changed | Maximum Initiators Supported was revised in the overview chart. |
| 10-dec-2013 | From Version 16 to 17 | Added | Added the missing image to Step 1. |
| 09-dec-2013 | From Version 15 to 16 | Changed | Overview and Configuration were revised. |

Summary of Changes

| | | | |
|-------------|-----------------------|-----------------|---|
| 30-sep-2013 | From Version 14 to 15 | Added | Proactive Select credits available for an additional price note was added to Service and Support, HPE Care Pack and Warranty Information HPE 3PAR StoreServ M6710 Midline 1TB 6Gb SAS 7.2K SFF Nearline HDD was added to Step 4 in Configuration Information |
| 19-aug-2013 | From Version 13 to 14 | Changed | Fibre Channel Switches and HPE Intelligent Infrastructure Analyzer Software (IIAS) were revised in Configuration Information HPE M6710 and 6720 400GB 6G SAS MLC Solid State Devices were added to HPE 3PAR SSDs in Configuration Information HPE M6710 400GB 6G SAS SFF MLC Encrypted Solid State Device was added to HPE 3PAR Encryption SSD/HDD/LTU in Configuration Information HPE 622 1075mm Pallet Intelligent Series Rack (22U) was removed from HPE Intelligent Series Racks in Configuration Information |
| 19-jul-2013 | From Version 12 to 13 | Changed | Superscript was added to the Overview chart. |
| 17-jul-2013 | From Version 10 to 12 | Changed/Removed | Superscripts were added to the Overview chart. Removed "600GB SAS 10K RPM Hard Disk Drive Encrypted (2.5 in)" from the What's New section. |
| 02-jul-2013 | From Version 9 to 10 | Changed | Internal Storage for HPE 3PAR StoreServ File Controller specifications was revised HPE 622 1075mm Pallet Intelligent Series Rack (22U) was removed from HPE Intelligent Series Racks |
| 14-jun-2013 | From Version 8 to 9 | Changed | Changes were made to the Service and Support Section- Note updated |
| 10-jun-2013 | From Version 7 to 8 | Changed | Changes were made throughout the entire QuickSpecs. Added the entire new HPE 3PAR StoreServ File Controller section. |
| 13-may-2013 | From Version 6 to 7 | Changed | Changes were made in the following sections: Configuration Information: Step 5 |
| 21-dec-2012 | From Version 4 to 5 | Changed | Changes were made in the following sections: Configuration: in Step 7 updated part description in Expansion Options. |
| 17-dec-2012 | From Version 3 to 4 | Changed | Changes were made in the following sections: Service and Support, HPE Care Pack and Warranty Information: change made in Related Services section Configuration: change made in Step 8 section. |
| 14-dec-2012 | From Version 2 to 3 | Changed | Changes were made in the following sections: Overview: in Summary changed text and changed "2013" to "a later release". Service and Support: added hyperlink and ordering information, in Related services added a new service item. Configuration: in Step 1 corrected title, in Step 5 & 7 changed 2013 to a later release, in Step 8 added new software items, in Step 9 deleted the row HPE Rack and Rack Options and added HPE Virtual Contact information. Added Step 10. |
| 05-dec-2012 | From Version 1 to 2 | Added | Added the EMEA version. |

Summary of Changes



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For drives, 1 TB = 1 trillion bytes. Actual formatted capacity is less.
c04164476 - 14433 - Worldwide - V41 - 1-December-2015