

HP Modular Network Storage Solutions

ESG2069LG0306

lab
guide



HP Modular Network
Storage Solutions

ESG2069LG0306



training

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4.7.10—HP StorageWorks Virtual Array 7000 Family

Introduction

Note: Due to the rebranding, “HP Surestore Virtual Array” is now “HP StorageWorks Virtual Array.”

The HP StorageWorks VA7000 Family consists of the VA7100 and VA7400 arrays. Where sections are specific to the VA7100 or VA7400 arrays, they are called out. If a section is not specifically called out, it is common to all.

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

Overview

VA7100 Overview

The HP StorageWorks Virtual Array 7100 is a disk storage system that holds from four to 15 disk drives. The array has scalable capacities from 72 GB to 270 GB (211 GB usable) with all 18-GB disk drives and from 144 GB to 540 GB (428 GB usable) with all 36-GB disk drives and from 292 GB to 1.1 TB with 73-GB disk drives. Capacities and spindle speeds can also be mixed. The array can be ordered with a single controller for non-redundant data storage, or with dual controllers for redundancy. Each controller has two DIMM slots available to hold NVRAM. The NVRAM is used for read/write caching and for storing array memory maps.

The Virtual Array 7100 can operate in either RAID 1+0 mode or AutoRAID mode, which eliminates the requirement for the system administrator to understand and configure RAID levels. AutoRAID dynamically adapts to the system's workload, optimizing performance and cost. Users will find configuration significantly easier than other array products, since RAID levels don't need to be configured or managed. The VA7100 supports one redundancy group, and all drives belong to that group. Using Virtual Storage Array (VSA) technology, when configured in AutoRAID mode the array controller automatically selects RAID 1+0 (disk striping and mirroring) or RAID 5DP (RAID 5 Double Parity) depending on the usage patterns of the data. RAID 5DP provides superior data redundancy by protecting against the simultaneous failure of two member disks by using independent error correction schemes.

The VA7100 is designed to communicate with multiple hosts and multiple systems, otherwise known as heterogeneous support. Any combination of the supported operating systems—HP-UX, Windows NT, Solaris, AIX, NetWare, Windows 2000, and Linux can be used. Two different protocols, or host port behaviors, are used by the array to communicate with the operating systems: one protocol for Windows/Linux/other and another for HP-UX. The Windows/Linux host port behaviors must be configured in the array for communication to take place with any or all four supported operating systems on a controller. When changing the port protocol to Windows/Linux it does support concurrent operation with Windows/Linux and HP-UX. The VA7100 provides simultaneous access by all of the supported operating systems on a LUN-by-LUN basis. Each LUN operates appropriately given the description of the operating system requirements.

The VA7100 can be configured to utilize an active hot spare feature. An active hot spare is a portion of the disk array capacity reserved to perform a rebuild. This feature requires the use of two additional disk units in the array. An active hot spare ensures that the disk array can maintain data redundancy if one or two disks fails. Until it is needed, the disk array uses the active hot spare storage space as RAID 1+0 capacity, which improves array performance. The active hot spare storage capacity does not sit idle; it is used to increase the disk array performance until the storage is needed.

The chassis will accommodate up to 15 low-profile 3.5-inch hard disk drives loaded from the front. The array requires three EIA units (3U) in height, which allows ten units to be placed in a standard 1.6-meter rack. The rear of the three EIA rack mountable chassis also includes two 1-GB fibre channel controllers, dual power supplies and dual fan modules. The redundant power supply and fan components are combined into a single module. All modules are hot swappable.

The array can be connected to one or more hosts, hubs, or switches via an optical fibre channel (FC) interface with 1 gigabit per second transfer rates. It can be ordered in factory-racked, field-rackable, or desk-side configurations. Factory-racked products are pre-configured in the HP Rack/System E racks. Field-rackable products can be racked in HP racks or in Compaq 9000 racks.

The VA7100 is supported by HP's Instant Support Enterprise Edition (ISEE). HP's online diagnostic and resolution capability securely delivers remote reactive services that quickly resolve problems, proactive service that anticipate and prevent downtime due to computing issues, and value-added services to help monitor, manage and maintain global IT networks. A minimum level hardware support upgrade of same day is required. It is included with the VA for the first year.

VA7400 Overview

The HP StorageWorks Virtual Array 7400 is a fibre channel (FC) disk storage system that supports from ten to 105 disk drives. The VA7400 is comprised of two types of enclosures, each three EIA units high: the virtual array controller enclosure (A6183A/AZ) and the disk system enclosure (A6250A/AZ) also referred to as the disk enclosure or the JBOD (Just a Bunch Of Disks) enclosure. In addition, pre-defined SKUs are available to facilitate integrated arrays. The array consists of one controller enclosure and one to six disk enclosures, with scalable capacities from 181 GB to 1.90 TB (using 18-GB 15k rpm disk drives), 364 GB to 3.82 TB (using 36-GB 10k rpm disk drives), or 720 GB to 7.67 TB (using 73-GB 10k rpm disk drives). Capacities and spindle speeds can also be mixed throughout the array.

Both enclosures include dual power supplies with built-in dual blowers, and accommodate up to 15 low-profile 3.5-inch native fibre channel (FC) disk drives in the front. The controller enclosure also includes dual redundant 2-Gbit/sec FC capable array controller cards and the disk enclosure also includes dual redundant 1-Gbit/sec link controller cards for back-end connections to the controllers. All field replaceable units are hot swappable. The array controller cards, however, must be replaced offline if the OS does not support controller failover.

The VA7400 can operate in either RAID 1+0 mode or AutoRAID mode. These data protection levels are user selectable at the time of initial array installation. Using Virtual Storage Array (VSA) technology, when configured in AutoRAID mode the array controller automatically selects RAID 1+0 (disk striping and mirroring) or RAID 5DP (RAID 5 Double Parity) depending on the usage patterns of the data. This protection scheme eliminates the requirement for the system administrator to understand and configure RAID levels. RAID 5DP provides superior data redundancy by protecting against the simultaneous failure of two member disks by using independent error correction schemes. Users will find configuration significantly easier than other array products, since RAID levels don't need to be configured or managed. The VA7400 supports two redundancy groups, which provides for physical data path separation of the two groups of LUNS.

The VA7400 is architected to communicate with multiple hosts and operating systems, otherwise known as a simultaneous heterogeneous environment. Any combination of the following supported operating systems can be supported simultaneously: HP-UX, Windows NT, Windows 2000, Linux, NetWare, AiX, and Solaris. One host port behavior is initially set in controller firmware, and then heterogeneous support for all other operating systems is enabled through software in a host port behavior table. The controller default host port behavior is set for HP-UX. The VA7x00 products are managed by the HP Command View SDM host-resident software. A one-host license to use for HP StorageWorks Command View SDM is included with each VA7400. Currently HP StorageWorks Command View SDM runs native on HP-UX, Windows NT, Windows 2000 and Red Hat Linux 6.2, 7.1. Installations on any of the other supported operating systems will require a dedicated management station running one of the aforementioned operating systems to be in the data path of the VA7400 (i.e. in the switched fabric).

The VA7400 can be configured to use an active hot spare feature. An active hot spare is a portion of the array capacity reserved to perform a rebuild. This feature requires the use of additional disk drives in the array. Users can select from 0, 1, or 2 active hot spares. An active hot spare ensures that the array can maintain data redundancy if one or two disks fail. Until it is needed, the array uses the active hot spare storage space as RAID 1+0 capacity, which improves array performance. The active hot spare storage capacity does not sit idle; it is used to increase the array performance until the storage it is needed.

The VA7400 can be connected to one or more hosts, hubs, or switches via an optical fibre channel (FC) interface with OS-dependant, 1- or 2-Gbit/sec transfer rates. The default factory setting is 1-Gbit/sec. It can be ordered in factory-racked and field-rackable configurations. Factory-racked products are pre-configured in the HP Rack/System E racks. Field-rackable products can be racked in HP racks or in Compaq 9000 racks.

The VA7400 is supported by HP's Instant Support Enterprise Edition (ISEE). HP's online diagnostic and resolution capability securely delivers remote reactive services that quickly resolve problems, proactive service that anticipate and prevent downtime due to computing issues, and value-added services to help monitor, manage and maintain global IT networks. A minimum level hardware support upgrade of same day is required.

The DS2405 disk enclosure replaces the DS2400, however, the DS2400 will be available for repair and replacement (on the VA7410 only the DS2405 is supported). The HP StorageWorks Command View SDM software (version 1.04 or later) **and** array controller firmware (HP14 or later) is **required** for the DS2405 (HP14 is not supported on VA7410). Earlier version of controller firmware will not recognize the DS2405, and may cause the array to generate a Phantom Enclosure warning state. Additional information is contained in the service note located at <http://snsrver.mayfield.hp.com/products/A6206A>. (**Note:** This is an internal URL.) Additionally, if the disk enclosure being added is a DS2405 Disk System, set the FC Loop Speed switch on each LCC controller to 1 GB/s (refer to the VA7xxx User Guide).

The following rules should be followed when ordering a DS2400/DS2405 disk enclosure:

- If a disk enclosure is ordered with a **new order**—only a DS2405 disk enclosure should be ordered.
- If a disk enclosure is ordered for **replacement or repair**—either a DS2400 or DS2405 can be ordered.
- If a disk enclosure is ordered for **storage expansion**—Either a DS2400 or a DS2405 disk enclosure can be ordered. However, if the customer is running HP13 or lower, a DS2400 should be ordered for expansion or the customer should evaluate a firmware upgrade. If a customer is running HP14 or greater, a DS2405 should be ordered for expansion.

VA7410 Overview

The HP StorageWorks Virtual Array 7410 is a fibre channel (FC) disk storage system that supports from ten to 105 disk drives. The VA7410 is comprised of two types of enclosures, each three EIA units high: the virtual array controller enclosure (A6183A/AZ) and the disk system enclosure (A6214A/AZ) also referred to as the disk enclosure or the JBOD (Just a Bunch Of Disks) enclosure. In addition, pre-defined SKUs are available to facilitate integrated arrays. The array consists of one controller enclosure and one to six disk enclosures, with scalable capacities from 181 GB to 1.90 TB (using 18-GB 15k rpm disk drives), 364 GB to 3.82 TB (using 36-GB 10k rpm disk drives), or 720 GB to 7.67 TB (using 73-GB 10k rpm disk drives). Capacities and spindle speeds can also be mixed throughout the array.

Both enclosures include dual power supplies with built-in dual blowers, and accommodate up to 15 low-profile 3.5-inch native fibre channel (FC) disk drives in the front. The controller enclosure also includes dual redundant 2-Gbit/sec FC capable array controller cards and the disk enclosure also includes dual redundant 1-Gbit/sec link controller cards for back-end connections to the controllers. All field replaceable units are hot swappable. The array controller cards, however, must be replaced offline if the OS does not support controller failover.

The VA7410 can operate in either RAID 1+0 mode or AutoRAID mode. These data protection levels are user selectable at the time of initial array installation. Using Virtual Storage Array (VSA) technology, when configured in AutoRAID mode the array controller automatically selects RAID 1+0 (disk striping and mirroring) or RAID 5DP (RAID 5 Double Parity) depending on the usage patterns of the data. This protection scheme eliminates the requirement for the system administrator to understand and configure RAID levels. RAID 5DP provides superior data redundancy by protecting against the simultaneous failure of two member disks by using independent error correction schemes. Users will find configuration significantly easier than other array products, since RAID levels don't need to be configured or managed. The VA7410 supports two redundancy groups, which provides for physical data path separation of the two groups of LUNS.

The VA7410 is architected to communicate with multiple hosts and operating systems, otherwise known as a simultaneous heterogeneous environment. Any combination of the following supported operating systems can be supported simultaneously: HP-UX, Windows NT, Windows 2000, Linux, AiX, and Solaris (NetWare and MPE/iX are expected to be added 1-3 months after introduction of the VA7410. Contact your HP Sales Representative for more details). One host port behavior is initially set in controller firmware, and then heterogeneous support for all other operating systems is enabled through software in a host port behavior table. The controller default host port behavior is set for HP-UX. The VA7x00 products are managed by the HP Command View SDM host-resident software. A one-host license to use for HP StorageWorks Command View SDM is included with each VA7410. Currently HP StorageWorks Command View SDM runs native on HP-UX, Windows NT, Windows 2000 and Red Hat Linux 6.2, 7.1. Installations on any of the other supported operating systems will require a dedicated management station running one of the aforementioned operating systems to be in the data path of the VA7410 (i.e. in the switched fabric).

The VA7410 can be configured to use an active hot spare feature. An active hot spare is a portion of the array capacity reserved to perform a rebuild. This feature requires the use of additional disk drives in the array. Users can select from 0, 1, or 2 active hot spares. An active hot spare ensures that the array can maintain data redundancy if one or two disks fail. Until it is needed, the array uses the active hot spare storage space as RAID 1+0 capacity, which improves array performance. The active hot spare storage capacity does not sit idle; it is used to increase the array performance until the storage it is needed.

The VA7410 can be connected to one or more hosts, hubs, or switches via an optical fibre channel (FC) interface with OS-dependant, 1- or 2-Gbit/sec transfer rates. The default factory setting is 1-Gbit/sec. It can be ordered in factory-racked and field-rackable configurations. Factory-racked products are pre-configured in the HP Rack/System E racks. Field-rackable products can be racked in HP racks or in Compaq 9000 racks.

The VA7410 is supported by HP's Instant Support Enterprise Edition (ISEE). HP's online diagnostic and resolution capability securely delivers remote reactive services that quickly resolve problems, proactive service that anticipate and prevent downtime due to computing issues, and value-added services to help monitor, manage and maintain global IT networks. A minimum level hardware support upgrade of same day is required.

For the VA7410, the DS2405 disk enclosure replaces the DS2400, however, the DS2400 will be available for repair and replacement. The HP StorageWorks Command View SDM software (version 1.04 or later) **and** array controller firmware (HP14 or later) is **required** for the DS2405. Earlier versions of controller firmware will not recognize the DS2405, and may cause the array to generate a Phantom Enclosure warning state. Additional information is contained in the service note located at <http://snsrver.mayfield.hp.com/products/A6206A> (*note this is an internal URL*). Additionally, if the disk enclosure being added is a DS2405 Disk System, set the FC Loop Speed switch on each LCC controller to 1 GB/s (refer to the VA7xxx User Guide).

The following rules should be followed when ordering a DS2400/DS2405 disk enclosure:

- If a disk enclosure is ordered with a **new order**—only a DS2405 disk enclosure should be ordered.
- If a disk enclosure is ordered for **replacement or repair**—either a DS2400 or DS2405 can be ordered.
- If a disk enclosure is ordered for **storage expansion**—Either a DS2400 or a DS2405 disk enclosure can be ordered. However, if the customer is running HP13 or lower, a DS2400 should be ordered for expansion. If a customer is running HP14 or greater, a DS2405 should be ordered for expansion.

Product Features

The VA7100 array contains one (1) controller and the VA7400 and VA7410 arrays contain two (2) controllers. The array controllers contain the intelligence and functionality required to manage the operation of the entire array. The array functions include:

- Implementing HP Virtual Storage Technology to ensure optimum performance and cost-efficient data storage
- Managing all communication between the host and the disk drives via single or dual controller Fibre Channel arbitrated loops
- Maintaining data integrity by automatically correcting any data errors that occur
- Rebuilding the array in the event of a disk failure
- Monitoring the operation of all hardware components, including the controller itself
- Alerting the host in the event of a component failure

The use of two controllers protects the array against a single controller failure. Both controllers may be active, allowing a possible increase in performance, while providing data redundancy.

Each configured array controller includes the following components:

- One (1) or two (2) Dual Inline Memory Modules (DIMMs), purchased separately if an additional Virtual Array Controller is added
- One (1) Battery
- One (1) Early Warning Switch

Table 4.7.10.1 Performance, Throughput and Capacity

Item	Value
Throughput Host Interface VA7100	100 MB/s FC
Throughput Host Interface VA7400	200 MB/s FC
Throughput Host Interface VA7410	200 MB/s FC
Drive Interface	100 MB/s FC
Disk System Capacity VA7100	1095 GB raw capacity
Disk System Capacity VA7400	7.6 TB GB raw capacity
Disk System Capacity VA7410	7.6 TB GB raw capacity
Storage Controller	High-performance Virtual Array Controller
Disk Drive Capacity	18 GB, 36.4 GB and 73 GB (18GB is for VA7100 and VA7400 only)
Rotational Velocity	10K RPM and 15K RPM
Disk Drive Transfer Rate	10K = 26 MB/s (or better) 15K = 38 MB/s (or better)
Disk Drive Average Seek Time	10K = 4.7 ms (or better) Read, 5.2 ms (or better) Write 15K = 3.6 ms (or better) Read, 4.2 ms (or better) Write
Disk Drive Average Latency	10K = 2.99 ms, 15K = 2.00 ms

Instant Support Enterprise Edition Support (ISEE)

What is Instant Support Commercial

HP Instant Support is a unique combination of web-based self-service diagnostics and knowledge base access and is offered as a free value-added service for HP desktop computers, mobile computers, technical workstations, and PC servers.

ISC Value Proposition

HP Instant Support automates and speeds the resolution of computing problems, freeing customers from time-consuming diagnostic chores and returning them to more productive business-critical tasks.

Links of Interest

- Instant Support Commercial (European server)—
<http://instantsupport.europe.hp.com/motivedocs/hpinstantsupport.html>
- www.hp.com/go/instantsupport
- Instant Support (desktop/printers)—WW Marketing Page <http://www.hp.com/go/instantsupport>
- HPCS eDelivery EMEA—<http://hpsedelivery.europe.hp.com/>
- HP Business Support—<http://h20000.www2.hp.com/bizsupport/index.jsp>
- Troubleshooting Resources—http://www.hp.com/hps/itsol/suppt_troubleshooting.html

Specifications

VA7100 Specifications

Racked Product Physical Specifications

Height	Width	Depth	Net Weight Minimum
5.0 in	17.6 in	26 in	75 lbs
128 mm	448 mm	660 mm	34 kg

Deskside Product Physical Specifications

Height	Width	Depth	Net Weight Minimum
19 in	16.5 in (box (6.5) + base (10))	26 in	105 lbs
483 mm	419 mm	660 mm	47.6 kg

Deskside and Racked Product Electrical Specifications

Parameter	Value
Voltage	100-127 and 200-240 VAC (auto-ranging)
Frequency	50/60 Hz
Current (Maximum)	7.2 Amps RMS (2 power inputs)
Inrush Current (Peak)	36 Amps
Power Consumption	670 Watts
Heat Dissipation	196 BTU
VA Rating (Maximum Configuration)	720 VA

Deskside/Racked Product Environmental Specifications

Parameter	Operating Range	Recommended Range	Non-Operating
Temperature	5° to 35° C	20° C to 25.5° C (68° F to 78° F)	–40° to 70° C
Temperature Gradient	20° C (36° F) per hour	20° C (36° F) per hour	20° C per hour
Relative Humidity (non-condensing)	10% to 80% @ 28° C (wet bulb)	30% to 50% @ 28° C (wet bulb)	10% to 90% @ 28° C (wet bulb)
Shock	4 g, 11 ms half sine	N/A	4 g, 11 ms half sine
Vibration	0.21g rms, 5- to 500-Hz random	N/A	2.09 g rms, 5- to 500-Hz random 0.5-g peak, 5- to 500-Hz swept sine
Altitude	0 ft to 10,000 ft	0 ft to 10,000 ft	0 ft to 15,000 ft
Acoustic (ISO 9296)	8.0 bels	8.0 bels	N/A

Deskside/Racked Product Regulatory Compliance

Parameter	Specification
Radiated and Conducted Emissions	FCC Class A, EN 55022: 1998, CISPR-22: 1997 Level A, and GB9254: 1998
Immunity	EN 55024: 1998/CISPR-24: 1997
Harmonic Current	IEC 61000-3-2: 1998/EN 61000-3-2: 1995 + A14
Voltage Fluctuations and Flicker	IEC 61000-3-3: 1994/EN 61000-3-3: 1995
Product Safety	EN 60950: 1991, Second Edition + A1, A2, A3, and A4 CAN/CSA - C22.2 No. 60950-00, Third Edition UL 1950: Third Edition IEC 60825-1: 1993 + A1/EN 60825-1: 1994 + A11 Class 1 (Laser/LED) GB4943: 1995

VA7400 and VA7410 Controller Enclosure Specifications

Physical Specifications

Height	Width	Depth	Net Weight Max	Shipping Weight Max
5 in	17.6 in	26 in	34 lbs	130.1 lbs
128 mm	448 mm	660 mm	41.8 kg	59.0 kg

Electrical Specifications

Parameter	Value
Voltage (Auto-Ranging)	100-127 VAC, 200-240 VAC
Frequency	50/60 Hz
Current (Maximum; 2 power inputs)	8.2 A @ 100 VAC, 3.6 A @ 200 VAC
Inrush Current (Peak)	36 A
Power Consumption	670 W
Heat Dissipation	196 BTU/hr
VA Rating (Maximum Configuration)	720 VA

Environmental Specifications

Parameter	Operating Range	Recommended Range	Non-Operating
Temperature	5° to 35° C (41° to 95° F)	20° to 25.5° C (68° to 78° F)	-40° to 70° C (-40° to 158° F)
Temperature Gradient	20° C (36° F) per hour	20° C (36° F) per hour	20° C (36° F) per hour
Relative Humidity	15% to 80% @ 28° C (dry bulb)	30% to 50% @ 28° C (dry bulb)	10% to 90% @ 28° C (dry bulb)
Shock	4 g, 11 ms half sine	N/A	4 g, 11 ms half sine
Vibration	0.21 g rms, 5- to 500-Hz random	N/A	2.09 g rms, 5- to 500-Hz random 0.5 g peak, 5- to 500-Hz swept sine
Altitude	0 ft to 10,000 ft (0 to 3,048 m)	0 ft to 10,000 ft (0 to 3,048 m)	0 ft to 15,000 ft (0 to 4,572 m)
Acoustic (ISO 9296)	8.0 bels	8.0 bels	N/A

Regulatory Compliance

Parameter	Specification
Radiated and Conducted Emissions	FCC Class A, EN 55022: 1998, CISPR-22: 1997 Level A, and GB9254: 1998
Immunity	EN 55024: 1998/CISPR-24: 1997
Harmonic Current	IEC 61000-3-2: 1998/EN 61000-3-2: 1995 + A14
Voltage Fluctuations and Flicker	IEC 61000-3-3: 1994/EN 61000-3-3: 1995
Product Safety	EN 60950: 1991, Second Edition + A1, A2, A3, and A4 CAN/CSA - C22.2 No. 60950-00, Third Edition UL 1950: Third Edition IEC 60825-1: 1993 + A1/EN 60825-1: 1994 + A11 Class 1 (Laser/LED) GB4943: 1995

VA7400 Disk Enclosure Specifications

Physical Specifications

Height	Width	Depth	Net Weight Max	Shipping Weight Max
5 in	17.6 in	20 in	84.5 lbs	101.5 lbs
128 mm	448 mm	508 mm	38.3 kg	46 kg

Electrical Specifications

Parameter	Value
Voltage (Auto-Ranging)	100-127 VAC; 200-240 VAC
Frequency	50/60 Hz
Current (Maximum; 2 power inputs)	8.2 A @ 100 VAC, 3.4 A @ 200 VAC
Inrush Current (Peak)	3.92 A @ 269 VAC
Power Consumption	473 W @ 120 VAC, 457 W @ 240 VAC
Heat Dissipation	1443 BTU/hr
VA Rating (Maximum Configuration)	473 VA @ 120 VAC, 457 VA @ 240 VAC

Environmental Specifications

Parameter	Operating Range	Recommended Range	Non-Operating
Temperature	5° to 35° C (41° to 95° F)	20° to 25.5° C (68° to 78° F)	–40° to 70° C (–40° to 158° F)
Temperature Gradient	20° C (36° F) per hour	20° C (36° F) per hour	20° C (36° F) per hour
Relative Humidity (Non-Condensing)	15% to 80% @ 28° C (dry bulb)	30% to 50% @ 28° C (dry bulb)	5% to 95% @ 65° C (149° F)
Shock	4 g, 11 ms (20 low-impulse pulses)	N/A	20 g, 30 ms trapezoidal (non-transport) 1-inch edge drops per side (transport)
Vibration	0.21 g rms, 5- to 500-Hz random	N/A	2.09 g rms, 5- to 500-Hz random 0.5 g peak, 5- to 500-Hz swept sine
Altitude	0 ft to 10,000 ft (0 to 3,048 m)	0 ft to 10,000 ft (0 to 3,048 m)	0 ft to 15,000 ft (0 to 4,572 m)
Acoustic (ISO 9296)	8.0 bels	8.0 bels	N/A

Regulatory Compliance

Parameter	Specification
Radiated and Conducted Emissions	FCC Class A, EN 55022: 1998, CISPR-22: 1997 Level A, and GB9254: 1998
Immunity	EN 55024: 1998/CISPR-24: 1997
Harmonic Current	IEC 61000-3-2: 1998/EN 61000-3-2: 1995 + A14
Voltage Fluctuations and Flicker	IEC 61000-3-3: 1994/EN 61000-3-3: 1995
Product Safety	EN 60950: 1991, Second Edition + A1, A2, A3, and A4 CAN/CSA - C22.2 No. 60950-00, Third Edition UL 1950: Third Edition IEC 60825-1: 1993 + A1/EN 60825-1: 1994 + A11 Class 1 (Laser/LED) GB4943: 1995

Warranty

Included with every VA7100 and VA7400:

- Warranty: 2-year, 8 x 5, same-day, 4-hour on-site response with HP StorageWorks Command View SDM phone-in assistance (PIA)
- First-year same-day hardware support upgrade (this upgraded level of support enables customers to access HP's remote support technology: "HP Instant Support Enterprise Edition (ISEE)."

First-year Remote Support Technology (in order for customer to continue with this service beyond year one, a minimum same-day hardware support contact must be purchased).

Required with Purchase

- VA Family Hardware and Software: Installation service—H4726A
- Pre-installation review
- Hardware installation
- Software enablement
- LUN Design and Implementation
- Customer documentation and orientation
- VA Family Software: 24x7 Phone-in-Assistance (0S6, Support Pack)

Figure 4.7.10.1 VA 7000 Family—Front View



Figure 4.7.10.2 VA7100—Rear View

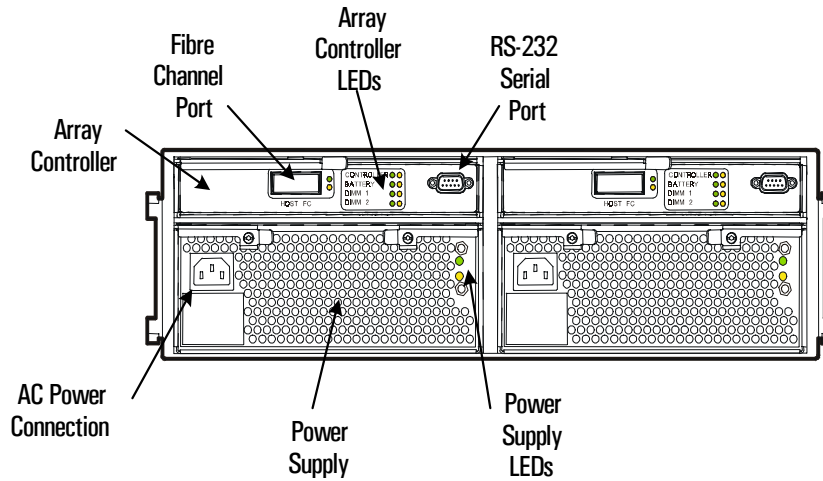


Figure 4.7.10.3 VA7400—Rear View

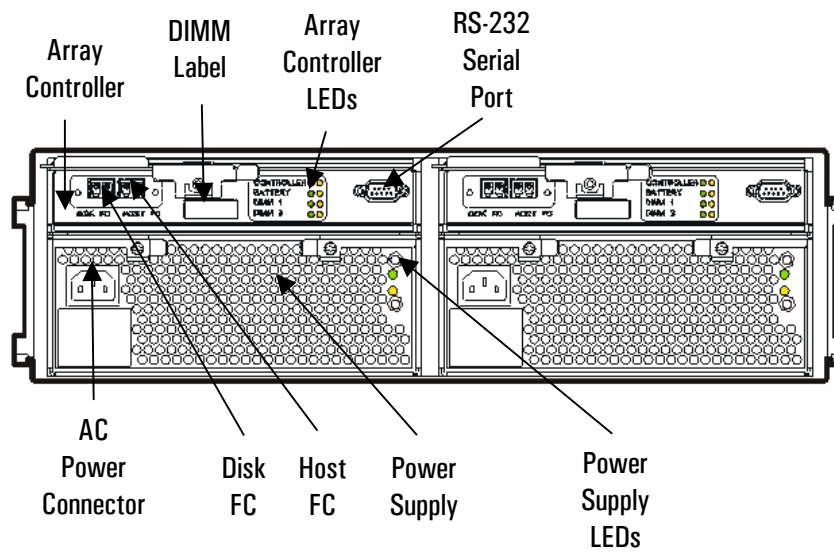


Figure 4.7.10.4 VA7410—Rear View

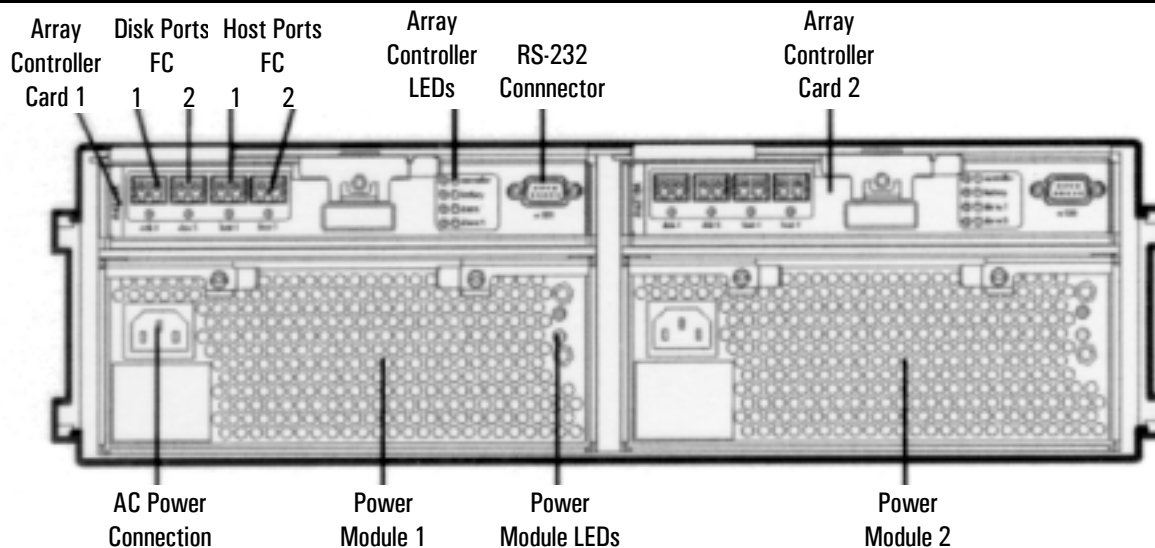


Figure 4.7.10.5 DS2400/DS2405—Rear View

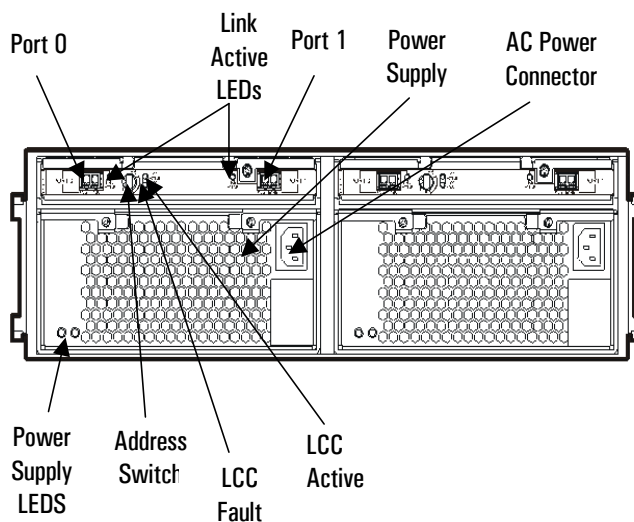
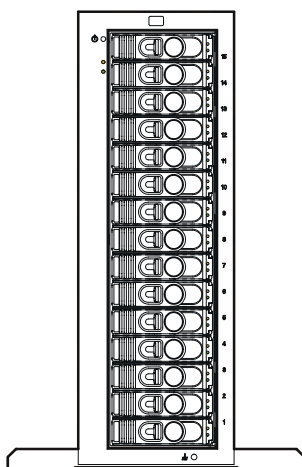


Figure 4.7.10.6 Deskside—VA7100 Only



Hardware Ordering Information

VA7100 Hardware Ordering Information

The following codes define the suffixes on product numbers: A = Field Racked, AE = diskless enclosure (field disk integration), AZ = Factory Racked.

Order drives separately from the Enterprise Module section using the OD1 option for integration. “AE” products are shipped as diskless enclosure only no integration (disks are ordered separately and field installed).

Product Number	Option Number	Description
VA7100 Field RK SKU		
A6261A		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 256-MB Cache
A6262A		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 512-MB Cache
A6263A		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 1024-MB Cache
A6183A		Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Includes filler for controllers and disks.
A6188A	OD1	Virtual Array Controller no memory installed
A6185A	OD1	256-MB Cache for Virtual Array Controller, 1 × 256MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6186A	OD1	512-MB Cache for Virtual Array Controller, 1 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6187A	OD1	2 × 512-MB Cache for Virtual Array Controller, 2 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6191A	OD1	18-GB 15K RPM FC HDD Module
A6192A	OD1	36-GB 10K RPM FC HDD Module
A6193A	OD1	36-GB 15K RPM FC HDD Module
A6194A	OD1	73-GB 10K RPM FC HDD Module
A6203A	OD1	Optical Gigabit Interface Circuit (GBIC)
A3583A	OD1	2-meter FC fibre optic cable M/M multimode SC-SC
A3531A	OD1	16-meter FC fibre optic cable M/M multimode SC-SC
A3735A	OD1	50-meter FC fibre optic cable M/M multimode SC-SC
A3736A	OD1	100-meter FC fibre optic cable M/M multimode SC-SC
C7529A	OD1	2-meter FC fiber optic cable M/M duplex LC-SC
C7530A	OD1	16-meter FC fiber optic cable M/M duplex LC-SC
C7534A	OD1	FC fiber optic coupler F/F SC-SC
C7540A	OD1	FC adapter kit (includes C7529A and C7534A)
VA7100 Factory Rack		
A6261AZ		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 256-MB Cache
A6262AZ		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 512-MB Cache
A6263AZ		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 1024-MB Cache
A6183AZ		Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6188A	OD1	Virtual Array Controller no memory installed
A6185A	OD1	256-MB Cache for Virtual Array Controller, 1 × 256MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6186A	OD1	512-MB Cache for Virtual Array Controller, 1 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6187A	OD1	2 × 512-MB Cache for Virtual Array Controller, 2 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6191A	OD1	18-GB 15K RPM FC HDD Module
A6192A	OD1	36-GB 10K RPM FC HDD Module
A6193A	OD1	36-GB 15K RPM FC HDD Module
A6194A	OD1	73-GB 10K RPM FC HDD Module
A6203A	OD1	Optical Gigabit Interface Circuit (GBIC)
A3583A	OD1	2-meter FC fibre optic cable M/M multimode SC-SC

Product Number	Option Number	Description
A3531A	OD1	16-meter FC fibre optic cable M/M multimode SC-SC
A3735A	OD1	50-meter FC fibre optic cable M/M multimode SC-SC
A3736A	OD1	100-meter FC fibre optic cable M/M multimode SC-SC
C7529A	OD1	2-meter FC fiber optic cable M/M duplex LC-SC
C7530A	OD1	16-meter FC fiber optic cable M/M duplex LC-SC
C7534A	OD1	FC fiber optic coupler F/F SC-SC
C7540A	OD1	FC adapter kit (includes C7529A and C7534A)
VA7100 Modules		
A6183AE		Field upgrade product. Select Virtual Array Controller (one or two) and cache product separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies. This product is shipped without disks or controllers/cache and includes filler for controllers and disks.
A6261AE		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 256-MB Cache
A6262AE		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 512-MB Cache
A6263AE		Predefined SKU - VA7100 with Dual Controller, 2 GBICs, 1024-MB Cache
A6188A		Virtual Array Controller no memory installed
A6185A		256-MB Cache for Virtual Array Controller, 1 × 256MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6186A		512-MB Cache for Virtual Array Controller, 1 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6187A		2 × 512-MB Cache for Virtual Array Controller, 2 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6191A		18-GB 15K RPM FC HDD Module
A6192A		36-GB 10K RPM FC HDD Module
A6193A		36-GB 15K RPM FC HDD Module
A6194A		73-GB 10K RPM FC HDD Module
A6196A		Desktop cabinet for HP StorageWorks VA7100
A6203A		Optical Gigabit Interface Circuit (GBIC)
A3583A		2-meter FC fibre optic cable M/M multimode SC-SC
A3531A		16-meter FC fibre optic cable M/M multimode SC-SC
A3735A		50-meter FC fibre optic cable M/M multimode SC-SC
A3736A		100-meter FC fibre optic cable M/M multimode SC-SC
C7529A	OD1	2-meter FC fiber optic cable M/M duplex LC-SC
C7530A	OD1	16-meter FC fiber optic cable M/M duplex LC-SC
C7534A	OD1	FC fiber optic coupler F/F SC-SC
C7540A	OD1	FC adapter kit (includes C7529A and C7534A)

VA7100 Rail Kits

The following rail kits are needed to mount the VA7100 into the specific racks as listed.

Part Number	Description
A6209A	System/E Rail Kit (RoseBowl 2)
A5672A	Rittal 9K Cabinet Rail Kit
A6244A	HP Original rack rackmount hardware kit
C2791A	Filler panel kit for Rose Bowl 1 rack

VA7400 Hardware Ordering Information

VA7400 Controller Enclosure Hardware Ordering Information

The following codes define the suffixes on product numbers: A = Field Racked, AE = Empty enclosure (no integration), AZ = Factory Racked.

Order drives separately from the Enterprise Module section using the 0D1 option for integration. “AE” products are shipped as diskless enclosure only no integration (disks are ordered separately and field installed).

Product Number	Option	Description
VA7400 Enterprise Field RK SKU		
A6183A		Includes: VA Enclosure, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6264A		VA7400 with Dual Controller 512-MB Cache Includes: VA Enclosure, (2) 2-Gbit/1-Gbit VA Cont Module Assy, (2) DIMM 512-MB, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, ESD Kit, RS-232 cable 9-9 pin, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6265A		VA7400 with Dual Controller 1024-MB Cache Includes: VA Enclosure, (2) 2-Gbit/1-Gbit VA Cont Module Assy, (4) DIMM 512-MB, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, ESD Kit, RS-232 cable 9-9 pin, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6185A		256-MB Cache for Virtual Array Controller, 1 × 256MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6186A		512-MB Cache for Virtual Array Controller, 1 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6187A		2 × 512-MB Cache for Virtual Array Controller, 2 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6191A	0D1	Enterprise Class 18-GB 15K RPM FC HDD (minimum 10) (order separately)
A6192A	0D1	Enterprise Class 36-GB 10K RPM FC HDD (minimum 10) (order separately)
A6193A	0D1	Enterprise Class 36-GB 15K RPM FC HDD (minimum 10) (order separately)
A6194A	0D1	Enterprise Class 73-GB 10K RPM FC HDD (minimum 10) (order separately)
C7524A		Fiber Optic Cable 2-meter LC 50/125 M/M
C7525A		Fiber Optic Cable 16-meter LC Duplex 50/125 M/M
C7526A		Fiber Optic Cable 50-meter LC Duplex 50/125 M/M
C7527A		Fiber Optic Cable 200-meter LC Duplex 50/125 M/M
C7529A		2-meter FC fiber optic cable M/M duplex LC-SC
C7530A		16-meter FC fiber optic cable M/M duplex LC-SC
C7534A		FC fiber optic coupler F/F SC-SC
C7540A		FC adapter kit (includes C7529A and C7534A)
VA7400 Enterprise Factory Rack		
A6264AZ		VA7400 with Dual Controller 512-MB Cache Includes: VA Enclosure, (2) 2-Gbit/1-Gbit VA Cont Module Assy, (2) DIMM 512-MB, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, ESD Kit, RS-232 cable 9-9 pin, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6265AZ		VA7400 with Dual Controller 1024MB Cache Includes: VA Enclosure, (2) 2-Gbit/1-Gbit VA Cont Module Assy, (4) DIMM 512-MB, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, ESD Kit, RS-232 cable 9-9 pin, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6183AZ		Includes: VA Enclosure, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6185A		256-MB Cache for Virtual Array Controller, 1 × 256MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP

Product Number	Option	Description
A6186A		512-MB Cache for Virtual Array Controller, 1 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6187A		2 × 512-MB Cache for Virtual Array Controller, 2 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6191A	OD1	Enterprise Class 18-GB 15K RPM FC HDD (minimum 10) (order separately)
A6192A	OD1	Enterprise Class 36-GB 10K RPM FC HDD (minimum 10) (order separately)
A6193A	OD1	Enterprise Class 36-GB 15K RPM FC HDD (minimum 10) (order separately)
A6194A	OD1	Enterprise Class 73-GB 10K RPM FC HDD (minimum 10) (order separately)
C7524A		Fiber Optic Cable 2-meter LC 50/125 M/M
C7525A		Fiber Optic Cable 16-meter LC Duplex 50/125 M/M
C7526A		Fiber Optic Cable 50-meter LC Duplex 50/125 M/M
C7527A		Fiber Optic Cable 200-meter LC Duplex 50/125 M/M
C7529A		2-meter FC fiber optic cable M/M duplex LC-SC
C7530A		16-meter FC fiber optic cable M/M duplex LC-SC
C7534A		FC fiber optic coupler F/F SC-SC
C7540A		FC adapter kit (includes C7529A and C7534A)
VA7400 Enterprise Modules		
A6183AE		Includes: VA Enclosure, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6264AE		VA7400 with Dual Controller 512-MB Cache Includes: VA Enclosure, (2) 2-Gbit/1-Gbit VA Cont Module Assy, (2) DIMM 512-MB, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, ESD Kit, RS-232 cable 9-9 pin, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6265AE		VA7400 with Dual Controller 1024-MB Cache Includes: VA Enclosure, (2) 2-Gbit/1-Gbit VA Cont Module Assy, (4) DIMM 512-MB, User Guide, Installation Guide, Documentation Map, VA7x00 Documentation CD-ROM, (2) power cord, ESD Kit, RS-232 cable 9-9 pin, HP Command View SDM. Field upgrade product. Select Virtual Array Controller (one or two) and cache and disk options separately (factory installed). Field Installed. Includes enclosure assembly, user manual, and 2 power supplies, filler panels for controllers and disks.
A6185A		256-MB Cache for Virtual Array Controller, 1 × 256MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6186A		512-MB Cache for Virtual Array Controller, 1 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6187A		2 X 512-MB Cache for Virtual Array Controller, 2 × 512MB DIMM, Surestore VAP requires equal cache for both Controllers (if 2nd installed). Order 1 per installed VAP
A6189A		VA7400 Controller (minimum two required for VA7400)
A6186A		512-MB Cache (1 × 512MB) (Order one per VAP)
A6187A		1024-MB Cache (2 × 512MB) (Order one per VAP)
A6191A		Enterprise Class 18-GB 15K RPM FC HDD (minimum 10 per VA7400)
A6192A		Enterprise Class 36-GB 10K RPM FC HDD (minimum 10 per VA7400)
A6193A		Enterprise Class 36-GB 15K RPM FC HDD (minimum 10 per VA7400)
A6194A		Enterprise Class 73-GB 10K RPM FC HDD (minimum 10 per VA7400)
C7524A		Fiber Optic Cable 2-meter LC 50/125 M/M
C7525A		Fiber Optic Cable 16-meter LC Duplex 50/125 M/M
C7526A		Fiber Optic Cable 50-meter LC Duplex 50/125 M/M
C7527A		Fiber Optic Cable 200-meter LC Duplex 50/125 M/M
C7529A		2-meter FC fiber optic cable M/M duplex LC-SC
C7530A		16-meter FC fiber optic cable M/M duplex LC-SC
C7534A		FC fiber optic coupler F/F SC-SC
C7540A		FC adapter kit (includes C7529A and C7534A)

VA7400 Rail Kits

The following rail kits are needed to mount the VA7400 into the specific racks as listed.

Part Number	Description
A6209A	System/E Rail Kit (RoseBowl 2)
A5672A	Rittal 9K Cabinet Rail Kit
A6244A	HP Original rack rackmount hardware kit
C2791A	Filler panel kit for Rose Bowl 1 rack

Disk System Enclosure (DS2400) Hardware Ordering Information

Note: The DS2400 cannot be used with the VA7100

The following codes define the suffixes on product numbers: A = Field Racked, AE = Empty enclosure (no integration), AZ = Factory Racked.

Product Number	Option	Description
DS2400 Disk Enclosure Field Rack		
A6214A		Factory Installed DS2400 Disk Enclosure Includes: Disk Enclosure, Installation Guide, Disk Filler Assy, (2) power cord,
A6214AE		Field Installed DS2400 Disk Enclosure Includes: Disk Enclosure, Installation Guide, Disk Filler Assy, (2) power cord,
A6191A		18-GB 15K RPM Fibre Channel drive add-on
A6191A	OD1	18-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6192A		36-GB 10K RPM Fibre Channel drive add-on
A6192A	OD1	36-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6193A		36-GB 15K RPM Fibre Channel drive add-on
A6193A	OD1	36-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6194A		73-GB 10K RPM Fibre Channel drive add-on
A6194A	OD1	73-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
DS2405 Disk Enclosure Field Rack		
A6250A		Disk System 2405 field rack enclosure (cables are not included and must be ordered separately)
A6250AE		Disk System 2405 field rack enclosure with no disk integration (cables are not included and must be ordered separately)
A6191A		18-GB 15K RPM Fibre Channel drive add-on
A6191A	OD1	18-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6192A		36-GB 10K RPM Fibre Channel drive add-on
A6192A	OD1	36-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6193A		36-GB 15K RPM Fibre Channel drive add-on
A6193A	OD1	36-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6194A		73-GB 10K RPM Fibre Channel drive add-on
A6194A	OD1	73-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
DS2400 Disk Enclosure Factory Rack		
A6214AZ		Factory Installed DS2400 Disk Enclosure Includes: Disk Enclosure, Disk filler assy, (2) power cord, Telluride RBII Rack Rail Kit
A6191A		18-GB 15K RPM Fibre Channel drive add-on
A6191A	OD1	18-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6192A		36-GB 10K RPM Fibre Channel drive add-on
A6192A	OD1	36-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6193A		36-GB 15K RPM Fibre Channel drive add-on
A6193A	OD1	36-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6194A		73-GB 10K RPM Fibre Channel drive add-on
A6194A	OD1	73-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
C7524A	OD1	FC cable 2-meter LC duplex M/M
C7525A	OD1	FC cable 16-meter LC duplex M/M
C7526A	OD1	FC cable 50-meter LC duplex M/M
C7527A	OD1	FC cable 200-meter LC duplex M/M
DS2405 Disk Enclosure Factory Rack		
A6250AZ		Disk System 2405 factory rack enclosure (cables are not included and must be ordered separately)
A6191A		18-GB 15K RPM Fibre Channel drive add-on
A6191A	OD1	18-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6192A		36-GB 10K RPM Fibre Channel drive add-on
A6192A	OD1	36-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)

Product Number	Option	Description
A6193A		36-GB 15K RPM Fibre Channel drive add-on
A6193A	OD1	36-GB 15K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
A6194A		73-GB 10K RPM Fibre Channel drive add-on
A6194A	OD1	73-GB 10K RPM Fibre Channel drive installed into the enclosure (must order minimum quantity 2, maximum = 15)
Disk Enclosure Upgrades		
A6209A		System/E Rail Kit
A5672A		Rittal 9K Cabinet Rail Kit
A6244A		HP Original rack rackmount hardware kit

NOTES: A6183A requires rail kits to be ordered separately.

Cache memory for VAP ordering note: You must order one and only one cache memory option type for each array.

Fiber channel disk module ordering note: You must order at least two (2) but not more than fifteen (15) disk modules per enclosure. The unused slots must contain a disk slot filler panel to insure proper cooling of the array. The factory will include filler panels for any remaining open drive bays.

DS2405 Disk System Accessories

C7524A		2-meter Fibre Channel cable LC 50/125 M/M
C7525A		16-meter Fibre Channel cable LC Duplex 50/125 M/M
C7526A		50-meter Fibre Channel cable LC Duplex 50/125 M/M
C7527A		200-meter Fibre Channel cable LC Duplex 50/125 M/M
C7529A		2-meter Fibre Channel cable LC/SC 50/125 M/M
C7530A		16-meter Fibre Channel cable LC/SC 50/125 M/M
C7540A		Fiber optic adapter kit
C7534A		Fiber optic coupler SC F/F
A6209A		System/E rack rail kit
A6244A		HP Original rack rackmount hardware kit
A6496A		NT/Rittal rack rail kit
A6498A		3U 2-post rail kit

VA7000 Family Racking and Rail Kit Options

Note: Solution interconnect cabling/configuration of the A6264A/AZ and A6265A/AZ will be performed by the factory only when specified via Solution Integration Service Plan 2 (A3142B #002) with Visio Drawing attachment. Otherwise, data cables will ship with the solution, unconnected. (Please refer to <http://www.sisp.hp.com> for information on SISP services.). Not supported under Cronus structure

Note: The VA7100 is not designed to be transported in the RoseBowl 1 or Rittal racks.

HP Rack System/E Products

Part Number	Description	Height	Units
J1500A	HP Rack System/E41	1.96 meters	41U
J1501A	HP Rack System/E33	1.60 meters	33U
J1502A	HP Rack System/E25	1.25 meters	25U
A4900A	HP Rack System/E25	1.25 meters	25U
A4901A	HP Rack System/E33	1.60 meters	33U
A4902A	HP Rack System/E41	1.96 meters	41U

HP Computer Cabinet Products

Part Number	Description	Height	Units
C2785A	Computer Cabinet	1.10 meters	21U
C2786A	Computer Cabinet	1.60 meters	32U
C2787A	Computer Cabinet	1.96 meters	41U

Compaq 9000 Rack Products

Part Number	Description	Height	Units
9122	Rack	1.1 meters	22U
9136	Rack	1.7 meters	36U
9142	Rack	2.0 meters	42U

Support Options Overview

Hardware Support Options

CATS Upfront Support Options for Enterprise; Product Support Packs for Commercial Channel

The following CATS and support pack options are available for the VA7000 Family. The support packs are on the disk system and contain the support pricing for the drives. CATS support, on the other hand, is ordered at the disk level. The following additional rules apply:

Installation and start-up service is required and includes the following on the entire customer order:

- Pre-installation review
- Hardware installation
- Software enablement
- LUN design and implementation
- Customer documentation and orientation
- In order for customers to continue with the benefits of HP Instant Support Enterprise Edition beyond the first year that is included, a minimum level same-day hardware support contract must be purchased.

VA Hardware Universal Product Numbers	Description	Direct (Enterprise) CATS and Options ¹		Indirect (Commercial) Support Packs ¹	
		1-, 2-, and 3-year Support: SD, 24x7, SCS, BCS	Installation and Start-Up (H4726A)	3-Year Support: SD, 24x7	Installation and Start-Up
VA7100 Dual Controllers A6261A/AZ/AE; A6262A/AZ/AE; A6263A/AZ/AE	Covers dual processors, cache, enclosure	8AE	5CM	H7555A/E; H7559A/E	H7550A/E
VA7400 Dual Controllers A6264A/AZ/AE; A6265A/AZ/AE	Covers dual processors, cache, enclosure	8AF	5CP	H7561A/E; H7565A/E	H7551A/E
Disk Enclosures A6214A/AZ/AE; A6183A/AD/AE	Covers enclosure	8AQ	5CA	H7563A/E; H7564A/E	H7558A/E
VA7100 Controller A6188A	Covers processor, cache	803	5CE	H7569A/E; H7553A/E	H7552A/E
VA7400 Controller A6189A	Covers processor, cache	803	5CF	H7567A/E; H7533A/E	H7552A/E
18-GB HDD A6191A	N/A	8AL	5CG	N/A	N/A
36-GB HDD A6913A, A6192A	N/A	8AN	5CH	N/A	N/A
73-GB HDD A6194A	N/A	8AP	5CJ	N/A	N/A

¹ Direct channel (enterprise customers) purchase support on disks individually; support pack customers ("commercial" or indirect) receive coverage on up to 15 disks with purchase of enclosure or dual controller support packs.

Note: CATS is the merger of the Camelot and Licensing 2000 projects into one overall program to "reinvent" HP's upfront and contractual support structures. The internal program name is CATS, which stands for Camelot, Aries, Taurus, Scorpio (LS2K releases). For more information on CATS please see the URL at: <http://internet.fc.hp.com/catscore/channels.htm>

HP Service levels	CATS Support Options-1 Year	CATS Support Options-2 Year	CATS Support Options-3 years	CATS Support Options-4 Year	CATS Support Options-5 Year
Same Day	N/A	N/A	N/A	N/A	N/A
24 hours × 7 days	H4404A/H4405A	H4405J	H4404Y/H4405Y	N/A	N/A
Storage Critical Support VA	H4390A	H4390J	H4390Y	H4390G	H4390H
BCS—4 hour Call-to-Restoration	H4395A	N/A	N/A	N/A	N/A

Hardware and Software—Additional Recommended Services

- TAS—H4399A/H4399J/H4399Y
- SAN Implementation Service for SAN environments—H9273A option 380
- Additional Day ASE Time—H9273A option 311
- Service Guard Implementation—H4810AT
- HP StorageWorks Business Copy VA Implementation (Virtual Array)—H9273A option 3B2

Contractual Support for Enterprise and Commercial Channels

Support Suffixes (SPNs)

- 02C
- 02A
- 02G
- 02L
- 02V
- 02X
- 07A
- 07C
- 07G
- 07V
- 07X

Description of Services Offered

The 02x are the post warranty support contractual monthly pricing available after the warranty. The 07x are the upgrade warranty support contractual monthly pricing available during the warranty.

Below are the Service Levels:

Code	Description
02A	On-site 4 hour same day hardware response, Monday - Friday, business hours.
07A	07A is available as a warranty upgrade to an 02A response level
02C	On-site next day hardware response, Monday - Friday, business hours (vary by country).
07C	07C available as a warranty upgrade to an 02C response level
02G	On-site 4 hour same day hardware response, seven days a week, 24 hours a day.
07G	07G available as a warranty upgrade to an 02G response level
02L	On-site scheduled hardware response, Monday - Friday, business hours (vary by country).
02V	On-site six-hour hardware call-to-repair, seven days a week, 24 hours a day. Time begins when the original call to the call center is made. Recovery of operating system and other software are excluded from time commitment. Available only for customer sites up to 50 miles (80 km) from a primary HP Support Response Office.
07V	07V available as a warranty upgrade to an 02V repair level
02X	On-site four-hour hardware call-to-restoration, seven days a week, 24 hours a day. Time begins when the original call to the call center is made. Restoration considered complete when an operating system prompt is re-established and the operating system is restored to the customer's last configuration (or when the operating system is restored to a generic configuration for that operating system configuration). Time commitment does not include time needed for recovery of middleware, application software or data. Available only for customer sites up to 50 miles (80 km) from a primary HP Support Response Office. In order to purchase this level of response, the system must be part of a BCS contract.
07X	07X available as a warranty upgrade to an 02X repair level

Field Replaceable Units (FRUs)

Dual Inline Memory Modules (DIMMs)

Each controller utilizes one or two DIMMs, which contain battery-backed non-volatile RAM (NVRAM). The NVRAM is utilized for read/write caching and to store array memory maps. Because data is spread across all of the disks in the array, the array controller must have a way of determining where each block of data is located. This is accomplished using a logical-to-physical data map stored in NVRAM cache. This data map is vital to managing data; without it, all data in the array is inaccessible.

Both controllers require the same amount of memory as the contents of NVRAM are mirrored between the two controllers. This mirroring process insures that both controllers have exactly the same information in the event of a failure. The controller battery maintains NVRAM contents when normal power is not present. If the battery fails or loses its charge while power is off, the NVRAM contents are lost on that controller. To protect against data loss, the array power/standby switch turns off power to the array and the "Shutdown Operation" copies NVRAM contents to the disk drives in two (2) slots of the array. This allows reconstruction of the data in NVRAM if the original data is lost or corrupted.

***Note:** The process of copying the contents of NVRAM to the two recovery disks makes the disk set independent of its controller. Because all the necessary mapping information is on these disks, it is possible to install a new controller or move the entire disk set to another controller. The new controller will determine that it has a new disk set, and the controller will attach itself to those disks.*

DIMM Sizes and Memory Sizes

Memory size of 512 MB is one 512-MB DIMM per Virtual Array Controller-Physical total of 1024. Memory size of 1024 MB is two 512-MB DIMMs per Virtual Array Controller-Physical total of 2048.

DIMM Memory Size	Number of DIMMs	Memory Size Per Controller
256 MB	1	256 MB
256 MB	2	512 MB
512 MB	1	512 MB
512 MB	2	1024 MB
1024 MB	1	1024 MB
1024 MB	2	2048 MB

Battery

Each array controller includes one battery to supply backup power to the DIMMs in the event of a power failure or if array power is switched off. If power is lost, the battery LED will flash with a 5% duty cycle while it powers the DIMMs. The battery will maintain a charge for 3.5 days. If the battery loses its charge, or if it is removed from the controller, the DIMMs have no power and NVRAM contents are lost. A battery should be replaced when the software indicates a battery failure.

Early Warning Switch

In a dual controller configuration, the NVRAM contents on both controllers are updated constantly. By maintaining a mirror image of the NVRAM, the secondary controller can take over immediately if the primary controller fails. If a dual controller configuration needs to be replaced online, an early warning switch incorporated into the latch detects when the controller is being removed. Releasing the latch disables communication between controllers before power is lost to the controller being removed. This prevents corruption of the NVRAM contents. The remaining controller executes a fast reset in order to assume responsibility for providing access to data previously accessed through the now missing controller.

Disk Drives

The disk drives provide the storage medium for the disk array. A minimum of ten (10) drives are required to operate the disk array. This is because two (2) drives are required for parity in each redundancy group. Different capacity disk modules can be installed in the same array.

Four types of disk drives can be installed in the array and capacities can be mixed within the array:

- 18-GB Low-Profile Fibre Channel 15,000 rpm
- 36-GB Low-Profile Fibre Channel 10,000 rpm
- 36-GB Low-Profile Fibre Channel 15,000 rpm
- 73-GB Low-Profile Fibre Channel 10,000 rpm

Loading Rules

VA7400/VA7410 disk loading rules:

- Ten (10) disk minimum per VA7400/VA7410
- One hundred and five (105) disks maximum
- Four (4) disks minimum for each disk type that is installed, then user can add singles after that.

DS2400/DS2405 (disk enclosure) disk loading rules:

- Two (2) disk minimum
- Fifteen (15) disk maximum per DS2400/DS2405

A new disk can be added at any time, even while the disk array is operating. The array controller will recognize that a new disk has been added and will include the disk in the array configuration automatically if the Auto Include feature is enabled. To make the additional capacity available to the host, a new logical drive must be created, and the resulting drive must be configured into the operating system.

A new DS2405 can be added at any time, even while the disk array is operating. Please refer to the back-end cabling diagrams and the VA74xx user manual for specific procedures. If the disk enclosure being added is a DS2405 Disk System, make sure that HP StorageWorks Command View SDM 1.04 (or later) is used and the array controller firmware is HP14 (or later). Earlier versions of controller firmware will not recognize the DS2405 and may cause the array to generate a Phantom Enclosure Warning. Additional information is contained in the service note located at <http://snsrver.mayfield.hp.com/products/A6206A> (note this is an internal URL). Additionally, if the disk enclosure being added is a DS2405 Disk System, set the FC Loop Speed switch on each LCC controller to 1-GB/s (refer to the VA7xxx User Guide).

Note: Disk drive and controller filler panels must be installed in unused slots to maintain proper cooling within the disk enclosure.

Redundant Power Supply/Fan Modules

The array is shipped with two (2) fully redundant power/fan modules. Each power/fan module contains:

- One load-sharing power supply that works in conjunction with the second power supply. The power supplies share the power load reciprocally; one supply automatically increases its output to compensate for reduced output from the other. If one power supply fails, the other supply delivers the entire load to maintain power for the array. If both power supplies fail, the controller will shutdown the array. Each power supply uses a separate power cord. Both power supplies can be plugged into a common power source, but it is recommended that each supply be plugged into a separate circuit to provide power source redundancy.
- Two (2) internal fan modules provide cooling airflow and maintain the proper operating temperature for the entire array enclosure. If a fan fails, a fan fault will occur and the associated power supply will shut down. The other power supply will continue to operate and its associated fans will continue to cool the array. Also, if one power supply fails, and one or both of its associated fans are operable, they will be powered by the remaining good power supply in cooling the array.

Note: During normal operation, if a failed power supply/fan module is removed, it must be replaced within two minutes to maintain proper cooling of the array. If a power/fan module slot is left empty, the airflow path will be disrupted and the array will overheat.

Midplane

The midplane, internal to the array enclosure, contains the following features for the identification of the array. This information is stored into redundant EEPROMs during the manufacturing process:

Item	Description
World Wide Name (WWN)	The Node WWN is used by the OS drivers to identify the array enclosure.
Default Fibre Channel Loop Addresses	The following default Fibre Channel loop addresses are assigned to array controllers: Array Controller 1: 108 Array Controller 2: 110 The default Fibre Channel loop addresses can be changed using either the Virtual Front Panel (VPF) or the Command Line User Interface (CLUI) included with your HP Command View SDM software.
Product Mode Parameters	Retains various operating parameters
Product Serial Number	Same as the serial number sticker applied to the array
Product ID Number VA7100	Same the product ID number (A6188A)
Product ID Number VA7400	Same the product ID number (A6189A)
Product ID Number VA7410	Same the product ID number (A6218A)

User installed licenses are stored within the Midplane EEPROM. These licenses are associated with a particular product serial number. If the Midplane must be replaced, a special Midplane may be ordered which, will allow the automatic regeneration of product serial number, licenses and product mode parameters. This information will be automatically re-programmed within the new Midplane EEPROMs if the replacement procedure is followed.

LED Status Indications

If a disk drive, controller, battery, DIMM, power supply or fan fails in the enclosure, a fault will be indicated by a fault (amber) LED on the module. Examining the state of the LEDs can localize the nature of the fault.

GBIC (VA7100 only)

A GigaBit Interface Converter (GBIC) is connected to each array controller as a transceiver for data and to convert the data from an optical signal to an electrical signal and vice versa. Each VAP includes a single GBIC. Based on user configurations, additional GBICs may be required. Only the GBICs A6203A (Enterprise) and A6241A (Commercial) are supported with the VA7100. These are Finisar GBICs, which provide readable serial number functionality.

Array Logs

The array logs consist of the following controller logs:

- Events
 - Errors
 - Unexpected conditions
 - Configuration changes
 - Environmental changes
- Fibre Channel Port Statistics
 - Historical fibre channel port information
- Performance
 - Input/Output per second
- Flash
 - Event log stored in flash memory in the event of a loss of battery power

The array logs are stored in two (2) locations:

The Controller(s).

Host operating system: The HP Command View SDM software polls the array controller every 15 minutes and updates a host OS directory located on the host server internal disk drive. These logs contain "Event" data will be commonly accessed by the support entity HP Response Center.

Note: The Fibre Channel Port Statistics log are stored in dynamic memory and will be lost when the array is powered off.

Supported Operating Systems

- HP-UX
- Windows NT
- Windows 2000
- Red Hat Linux
- Sun Solaris (Non-Native - requires a management station)
- AIX (Non-Native - requires a management station)
- NetWare (Non-Native - requires a management station)
- MPE (Non-Native - requires a management station)

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

Supported Hardware Devices

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

HBA Support

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

HBA and Server	HP-UX 10.20	HP-UX 11.00	HP-UX 11i
A6684A	D- and R-Class	D- and R-Class	D- and R-Class
A6685A	K-Class	K-Class	K-Class
A6795A		Servers – A-Class, L-Class, N-Class, and HP Server rp8400 Workstations – C, B, and J-Class	Servers – A-Class, L-Class, N-Class, Superdome, and HP Servers rp7410 and rp8400 Workstations – C, B, and J-Class
A5158A		A-Class, L-Class, N-Class, V-Class, and HP Server rp8400	A-Class, L-Class, N-Class, V-Class, HP Server rp8400, and Superdome

HBA and Server	NT Advanced Server	NT Enterprise Edition	Windows 2000 Server	Windows 2000 Advanced Server	Linux Red Hat 6.2
D8602B	Microsoft listed HCL servers ¹	Microsoft listed HCL servers ¹	Microsoft listed HCL servers ^{1, 2}	Microsoft listed HCL servers ^{1, 2}	
Emulex LP8000/LP9002	Microsoft listed HCL servers ¹	Microsoft listed HCL servers ¹	Microsoft listed HCL servers ^{1, 2}	Microsoft listed HCL servers ^{1, 2}	
Emulex LP8000/LP900 /LP9002					All listed with Linuxcare or RedHat Linux LVM. The server must be running v4.10g/Kernel 2.2.14-5 qlogiclf driver required patches/Kernel 2.2.16-3
QLogic QLA2200F/QLA 2300F	Microsoft listed HCL servers ¹	Microsoft listed HCL servers ¹	Microsoft listed HCL servers ^{1, 2}	Microsoft listed HCL servers ^{1, 2}	
QLogic QLA2200F/QLA 2200F					All listed with Linuxcare or RedHat Linux LVM. The server must be running v4.10g/Kernel 2.2.14-5 qlogiclf driver required patches/Kernel 2.2.16-3

¹ For VA clusters listed on HCL, HP will support servers listed on cluster HCL using HBA/driver combinations to the same VA model as was certified in the cluster configuration.

² VA7000 family clustered solutions are listed at: http://netserver.hp.com/products/high_availability/ms_supported_config.asp

HBA and Server	AIX 4.3.3 (32- and 64-bit)	Solaris 2.6, 2.7, 2.8	Netware
IBM 6227, 6228	RS/6000 PCI based servers only		
Sun 6799A (PCI)		Sun Fire 280R (Solaris 8 only)	
JNI FCE-6460 (PCI)		Sun Fire 280R (Solaris 8 only) Sun Enterprise 220R/250/420R/450 (PCI) Sun Enterprise 3000/3500/4000/4500/5000/5500/6000/6500 (PCI and/or Sbus) Sun Enterprise 10000 (PCI and/or Sbus) Ultra 5/10/30/60/80 workstations (PCI only)	
JNI FCE-6410 (PCI)		Sun Fire 280R (Solaris 8 only) Sun Enterprise 220R/250/420R/450 (PCI) Sun Enterprise 3000/3500/4000/4500/5000/5500/6000/6500 (PCI and/or Sbus) Sun Enterprise 10000 (PCI and/or Sbus) Ultra 5/10/30/60/80 workstations (PCI only)	
JNI FCI-1063 (PCI)		Sun Enterprise 220R/250/420R/450 (PCI) Sun Enterprise 3000/3500/4000/4500/5000/5500/6000/6500 (PCI and/or Sbus) Sun Enterprise 10000 (PCI and/or Sbus) Ultra 5/10/30/60/80 workstations (PCI only)	

HBA and Server	AIX 4.3.3 (32- and 64-bit)	Solaris 2.6, 2.7, 2.8	Netware
JNI FCI-1063 (Sbus)		Sun Fire 280R (Solaris 8 only) Sun Enterprise 220R/250/420R/450 (PCI) Sun Enterprise 3000/3500/4000/4500/5000/5500/ 6000/6500 (PCI and/or Sbus) Sun Enterprise 10000 (PCI and/or Sbus)	
JNI FC64-1063 (Sbus)		Sun Enterprise 220R/250/420R/450 (PCI) Sun Enterprise 3000/3500/4000/4500/5000/5500/ 6000/6500 (PCI and/or Sbus) Sun Enterprise 10000 (PCI and/or Sbus) Ultra 5/10/30/60/80 workstations (PCI only)	
QLogic QLA2200			HP and non-HP servers listed on Novell's "Yes" list provided that the OS/HBA/driver combination is supported by the server HBA vendor

Hub Support

For the latest AutoPath support and configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

Hub	HP-UX 10.20	HP-UX 11.00	HP-UX 11i	NT Advanced Server	NT Enterprise Edition	Windows 2000 Server	Windows 2000 Advanced Server	Linux Red Hat 6.2	AIX 4.3.3 (32- and 64-bit)	Solaris 2.6, 2.7, 2.8	Netware
S10/L10		Yes	Yes	Yes	Yes	Yes	Yes	None		FCI 1063 and FC64-106 3 only	

Switch Support

For the latest AutoPath support and configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

Switches	HP-UX 10.20	HP-UX 11.00	HP-UX 11i	NT Advanced Server	NT Enterprise Edition	Windows 2000 Server	Windows 2000 Advanced Server	Linux Red Hat 6.2	AIX 4.3.3 (32- and 64-bit)	Solaris 2.6, 2.7, 2.8	Netware
Brocade 2400/2800	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Brocade 2800									Yes		
Brocade 3200/3800	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Brocade FC6164	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Brocade FC64	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
InRange FC9000	Yes	No	No								
HP P4459A				Single MSCS cluster only	Single MSCS cluster only	Single MSCS cluster only	Single MSCS cluster only	Single MSCS cluster only			Yes

Supported Disk Drives

Part Number	Description	All Operating Systems
A6191A	18-GB 15K RPM	Yes
A6192A	36-GB 10K RPM	Yes
A6193A	36-GB 15K RPM	Yes
A6194A	73-GB 10K RPM	Yes

Supported Fibre Channel Cables

Product Number	Description	Usage
Optical LC/LC		
C7524A	FC Cable 2-meter LC Duplex 50/125 M/M optical	SFF ¹ (VA7400) to SFF FC Infrastructure (Future 2 GB/s FC)
C7525A	FC Cable 16-meter LC 50/125 LC/LC M/M optical	SFF ¹ (VA7400) to SFF FC Infrastructure (Future 2 GB/s FC)
C7526A	FC Cable 50-meter LC Duplex 50/125 M/M optical	SFF ¹ (VA7400) to SFF FC Infrastructure (Future 2 GB/s FC)
C7527A	FC Cable 200-meter LC Duplex 50/125 optical	SFF ¹ (VA7400) to SFF FC Infrastructure (Future 2 GB/s FC)
LC/SC Adapters		
C7529A	FC Cable 2-meter LC/SC Duplex 50/125 M/M optical	SFF ¹ (VA7400) to existing 1 GB/s FC Infrastructure
C7530A	FC Cable 16-meter LC/SC Duplex 50/125 LC/LC M/M optical	SFF ¹ (VA7400) to existing 1 GB/s FC Infrastructure
C7534A	Fibre Channel SC F/F Extender Optical	Converter for SFF cable to existing large format FC optical cables
C7540A	Fibre Channel Adapter Kit - optical (Includes the C7529A and C7534A)	Kit for existing customer 1 Gbit/sec FC infrastructure

¹ SFF = Small Form Factor

Configuration

Front End and Back End Cabling

Both front-end and back-end cables are Fibre Channel Optical cables.

Figure 4.7.10.7 VA7400 Back End Cabling (Serial Connections)

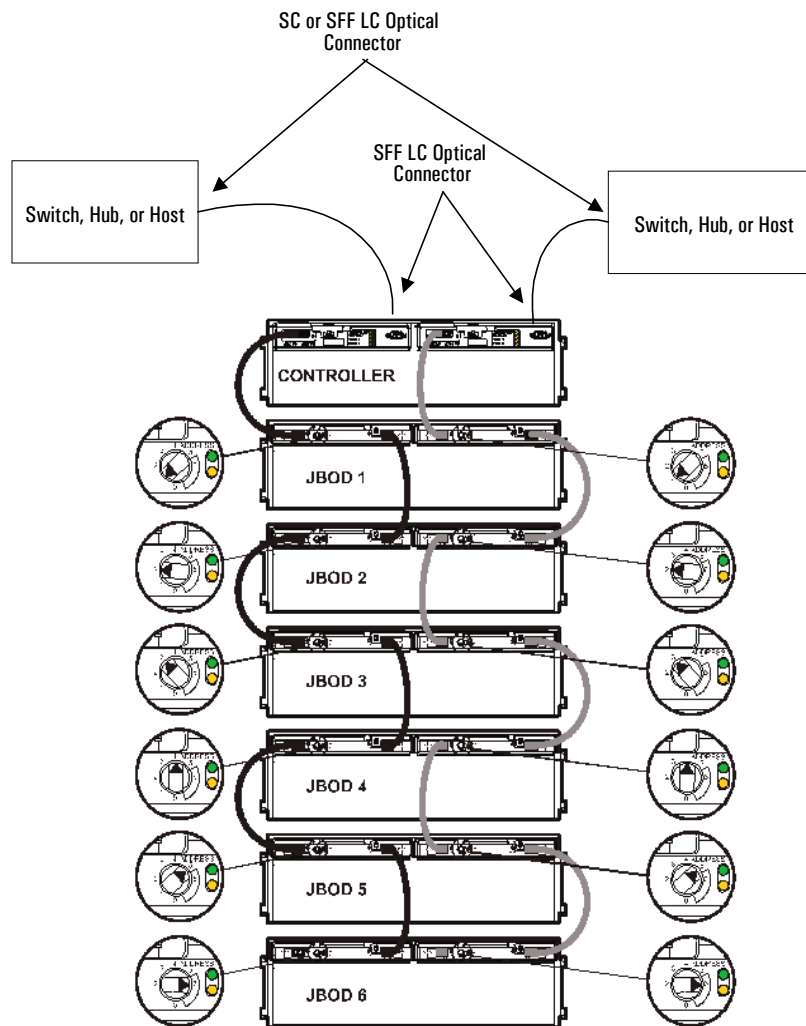
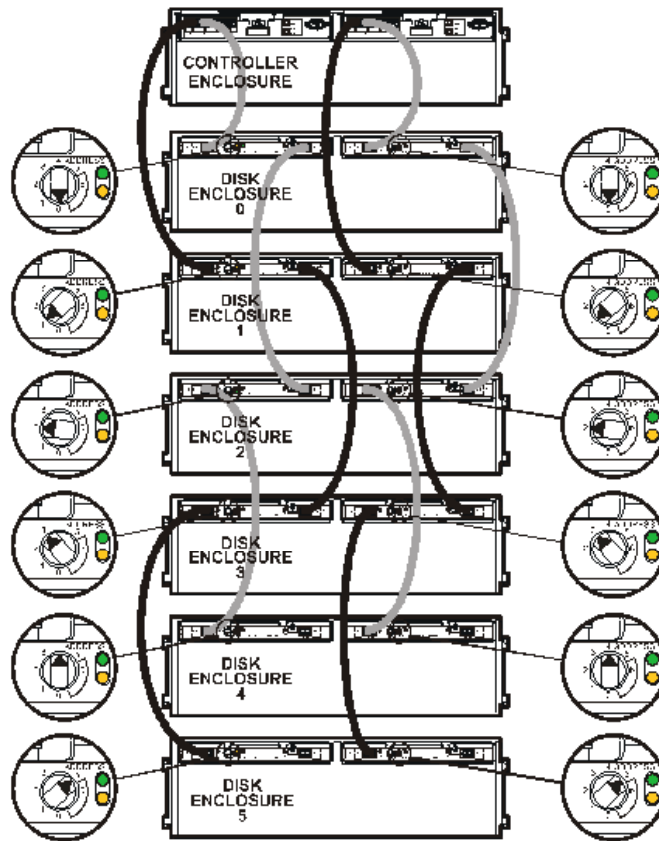


Figure 4.7.10.8 VA7410 Back End Cabling (Serial Connections)



Campus Cluster with Hubs

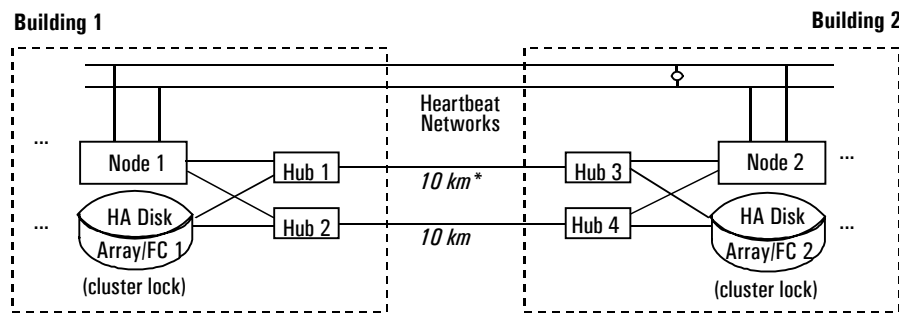
MC/ServiceGuard supports a two data center campus solution using HA Disk Arrays. This solution requires the following:

- Refer to **Figure 4.7.10.9** for campus cluster solutions using HA Fibre Channel Disk Arrays.
- Dual cluster lock disks are required if there are less than six nodes in the cluster.
- To protect against the possibility of a split-cluster (inherent when using dual cluster lock), at least two (three preferred) independent paths between the two data centers must be used for heartbeat and cluster lock I/O. Specifically, the path from the first data center to the cluster lock at the second data center must be different than the path from the second data center to the cluster lock at the first data center. Preferably, at least one of the paths for heartbeat traffic should be different from each of the paths for cluster lock I/O.
- Each building must contain the same number of nodes.
- Currently, Fibre Channel Arbitrated loops are limited to a maximum of four nodes and nine HA Fibre Channel Disk Array devices per loop.
- There can be a maximum of 500 meters between the Fibre Channel hubs in the two data centers. This distance can be increased to 10 kilometers by using a long-wave Fibre Channel port on the hubs.
- Use of MirrorDisk/UX is required to mirror data between the data centers.

Campus Cluster with HP StorageWorks Disk Arrays (Fibre Channel)

HP StorageWorks Disk Arrays with Fibre Channel can be used in a MC/ServiceGuard campus cluster, similar to that configured in a MC/ServiceGuard local cluster. However, data must be replicated between the two buildings of the campus cluster via MirrorDisk/UX.

Figure 4.7.10.9 Campus Cluster



* Unless noted, cable lengths are 2 or 16 meters

High Availability Configurations

HP-UX

The VA7400 is certified for use with HP-UX MC/ServiceGuard installations. In addition, the VA7400 is certified for use as a cluster lock device.

Notes:

- Multiple HP-UX MC/ServiceGuard Clusters connected to the same VA7000 Family array ARE supported.
- An HP-UX MC/ServiceGuard cluster sharing a VA7000 Family array with other HP-UX hosts IS supported.
- An HP-UX MC/ServiceGuard cluster sharing a VA7000 Family array with other non-HP-UX hosts is NOT supported!

Microsoft Operating Systems

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

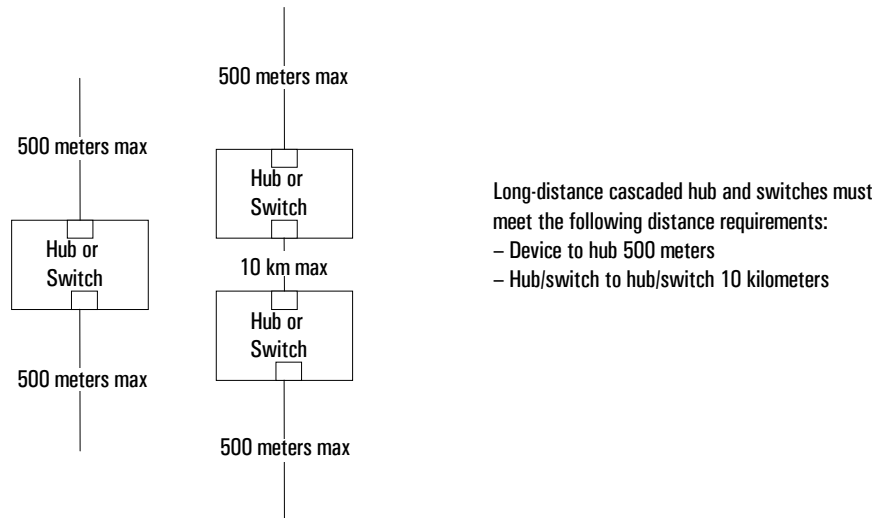
Partnership Website:

- <http://partner.americas.hp.com/>

Long-Distance Configurations

Long-distance topologies are part of the supported configurations, but not specifically represented in this document. Long-distance scenarios may be obtained with the following configurations by replacing host/device connections with any of the combinations of hubs in **Figure 4.7.10.10**. Hubs and switches may be cascaded. Hubs are limited to two layers deep.

Figure 4.7.10.10 Long Distance Configuration



SAN (Storage Area Network) Definitions

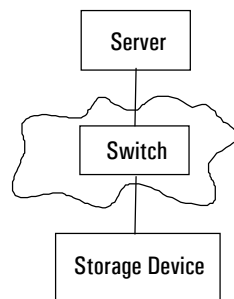
Configurations in this document that include a SAN assume the following definition of a SAN or fabric.

SAN characteristics:

- Utilizes a switch-based topology
- Allows cascaded switches
- Support heterogeneous (multiple vendor) storage
- Switch based
- Heterogeneous server/OS capable
- Fabric login
- Uses LUN Security or zoning
- SAN Manager (management software)

Note: The SAN does not support common data access for heterogeneous servers.

Figure 4.7.10.11 Example of a Minimum SAN



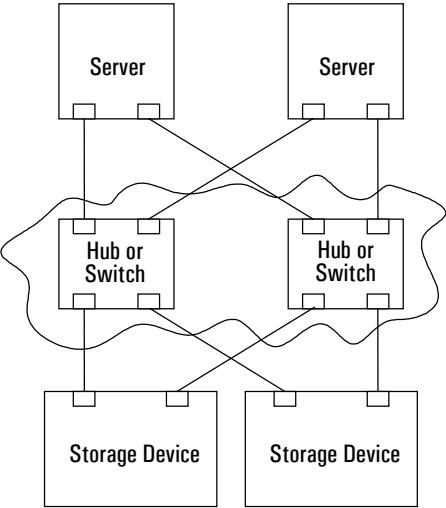
SAN Definitions

SAN (Storage Area Network)—A dedicated network of servers and storage devices all connected to a fabric supporting block access technologies. For the purposes of this document, a fabric is defined as a hardware configuration containing at least one switch, which is responsible for frame routing.

Open SAN—Defined as heterogeneous (multiple vendor) servers and OS', heterogeneous storage, and heterogeneous infrastructure components. At this time, pooled storage access is dependent on a LUN security methodology (zoning, partitioning, or dedicated LUN security) to provide data access by multiple heterogeneous servers. Multiple server access to common data is available only to homogeneous servers using server coordination software (e.g., PV Links in LVM).

Is	Is Not
Switch based Cascaded switches Heterogeneous server/OS capable Heterogeneous (multiple vendor) storage Fabric login LUN Security or zoning SAN Manager (management software)	Hubs only Common Data access for Heterogeneous servers

Figure 4.7.10.12 Example of a Typical SAN



Configuration Drawings

This matrix is a guide to the configurations in this document. It provides representative configurations, not a comprehensive list of all possible configurations. It is a quick reference to the diagrams and supporting information/requirements provided in the following pages.

For each configuration, two types of configurations are represented:

- **Minimum:** This is the absolute minimum configuration.
- **Typical:** Most common usage scenario, with the range of each proposed configuration.

VA7000 Representative Configurations

Figure 4.7.10.13 Lowest Entry Point, non-HA—Minimum Configuration (VA7100 only)

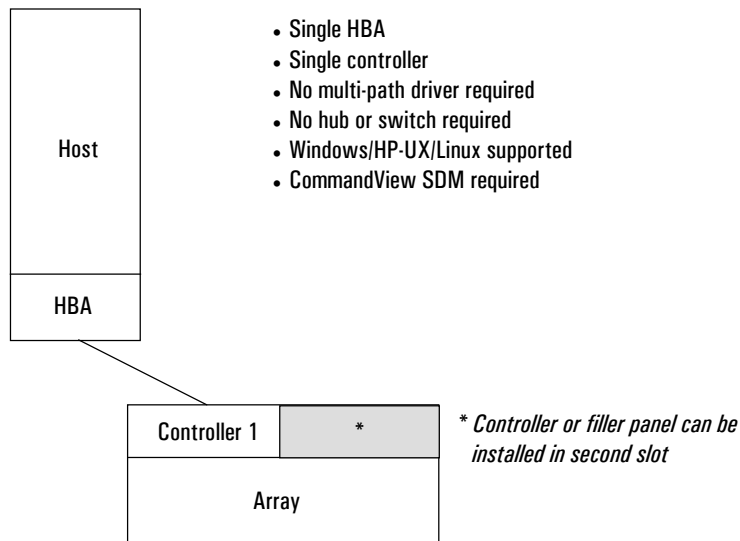


Figure 4.7.10.14 Lowest Entry Point, non-HA—Minimum Configuration (VA7100 only)

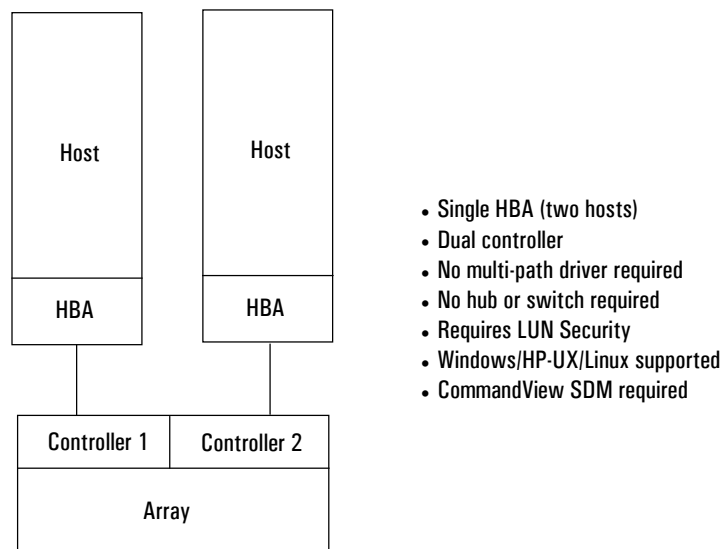


Figure 4.7.10.15 Lowest Entry Point, Non-HA—Minimum Configuration (VA7410 only)

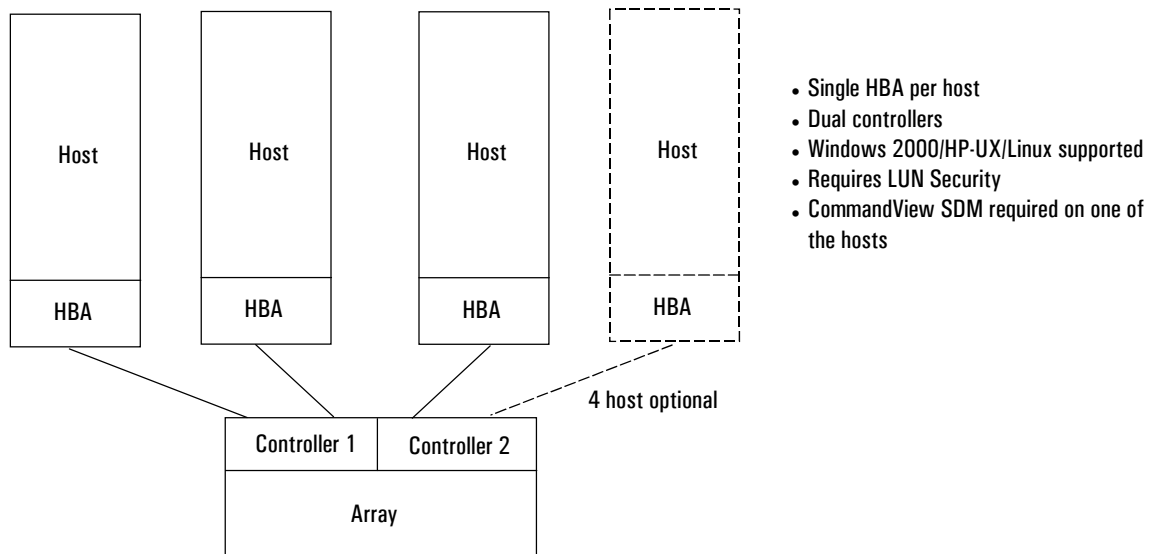


Figure 4.7.10.16 Entry-level, non-cluster with Path Redundancy (All VA arrays)

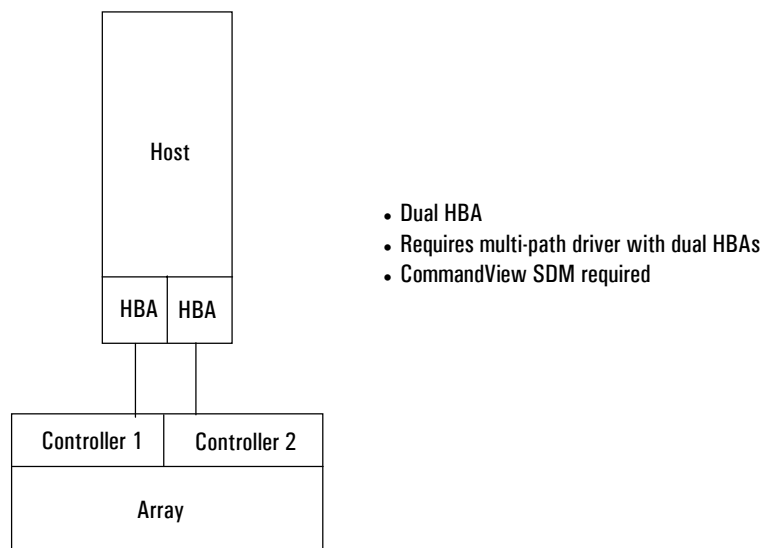


Figure 4.7.10.17 Entry-level Cluster with Path Redundancy—High Availability (VA7410 only)

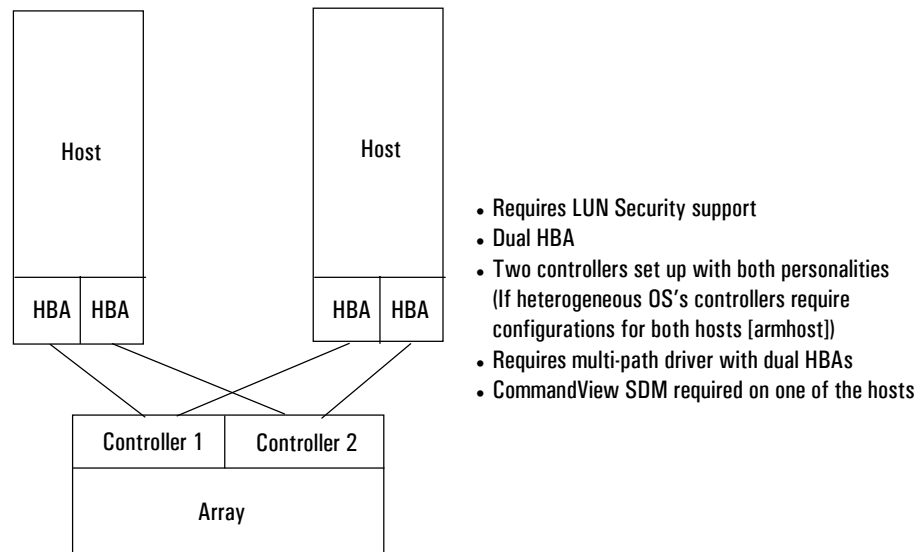


Figure 4.7.10.18 Midrange Non-Cluster (All VA arrays)

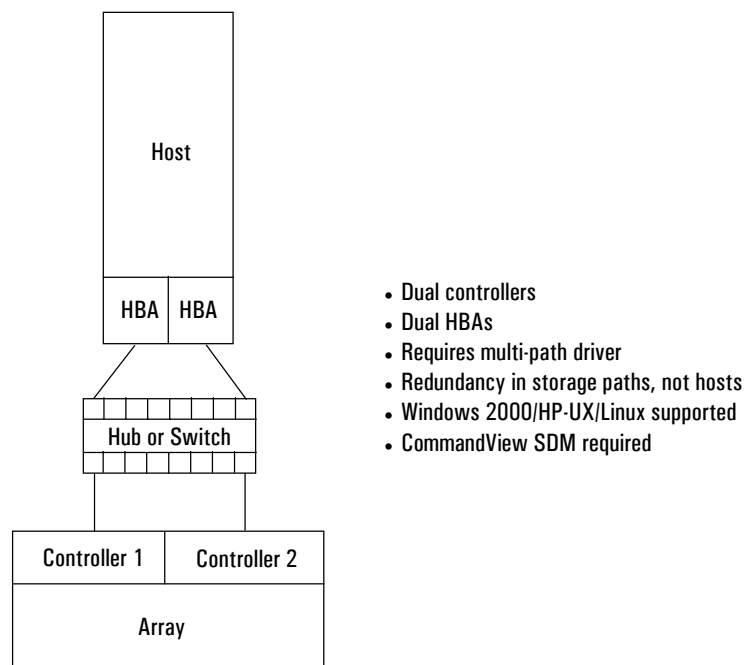


Figure 4.7.10.19 Midrange Non-Cluster (7410 only)

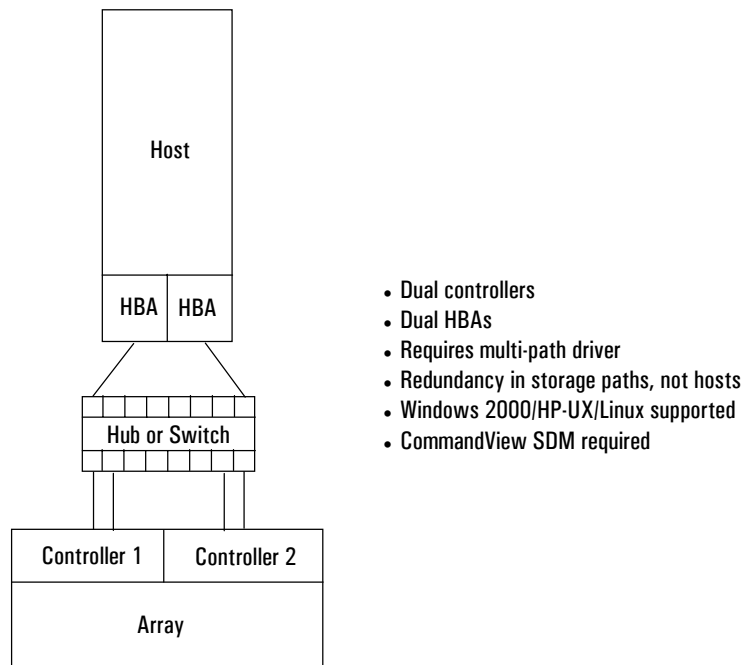


Figure 4.7.10.20 Midrange Non-Cluster with Full Storage Path Redundancy (All VA arrays)

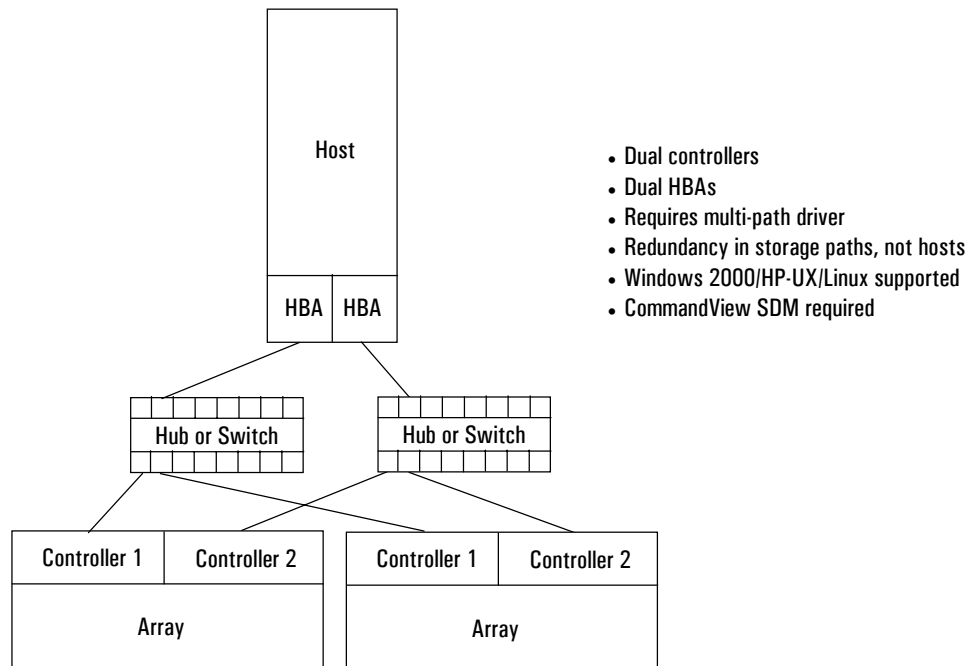


Figure 4.7.10.21 Non-Clustered with Path Redundancy—Typical (VA7410 only)

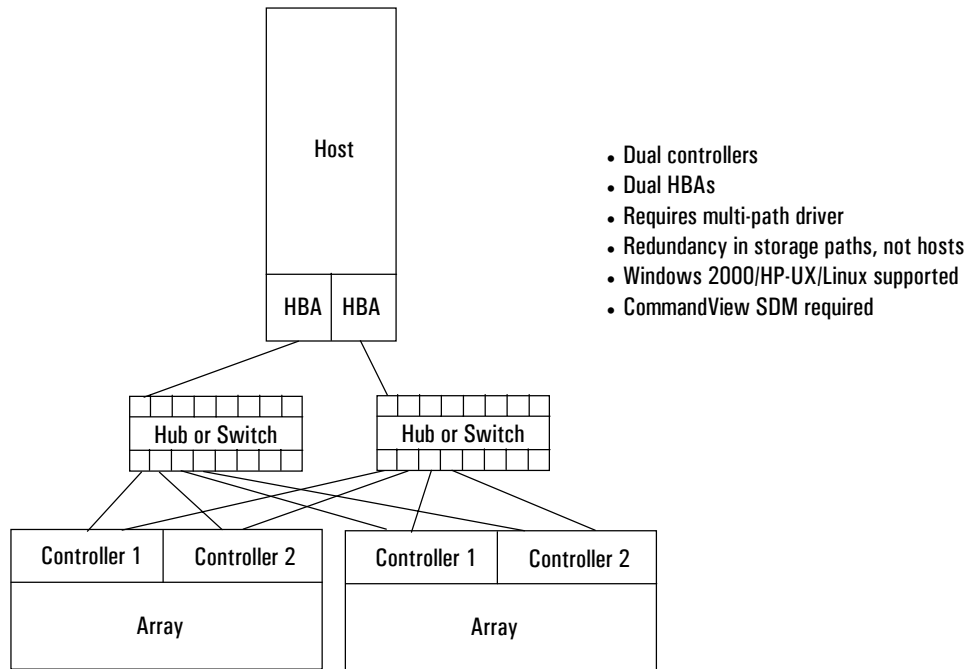


Figure 4.7.10.22 Clustered Configuration—Typical (All VA models)

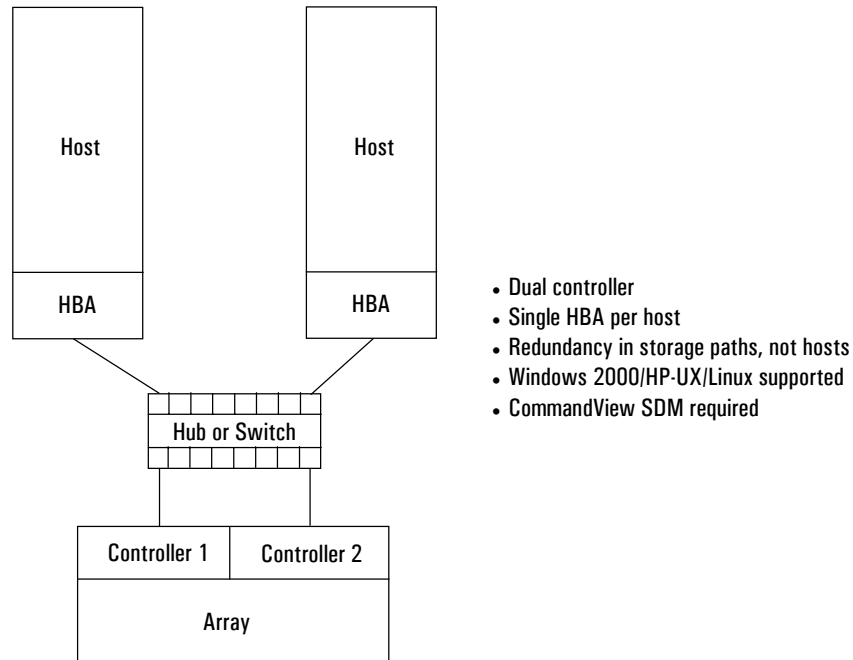


Figure 4.7.10.23 Clustered Configuration—Typical (VA7410 only)

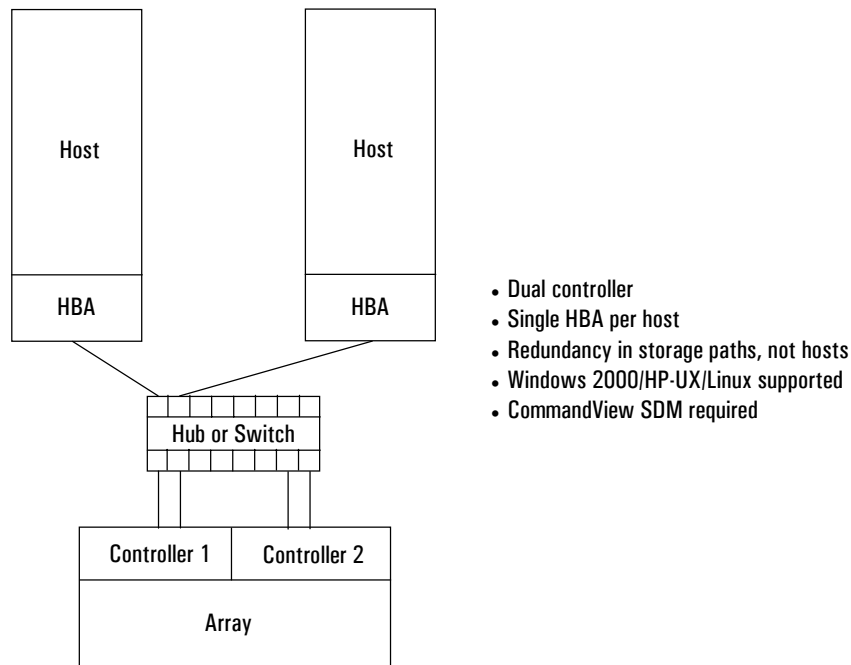


Figure 4.7.10.24 HP-UX MC/ServiceGuard or Windows 2000 Cluster (All VA arrays)

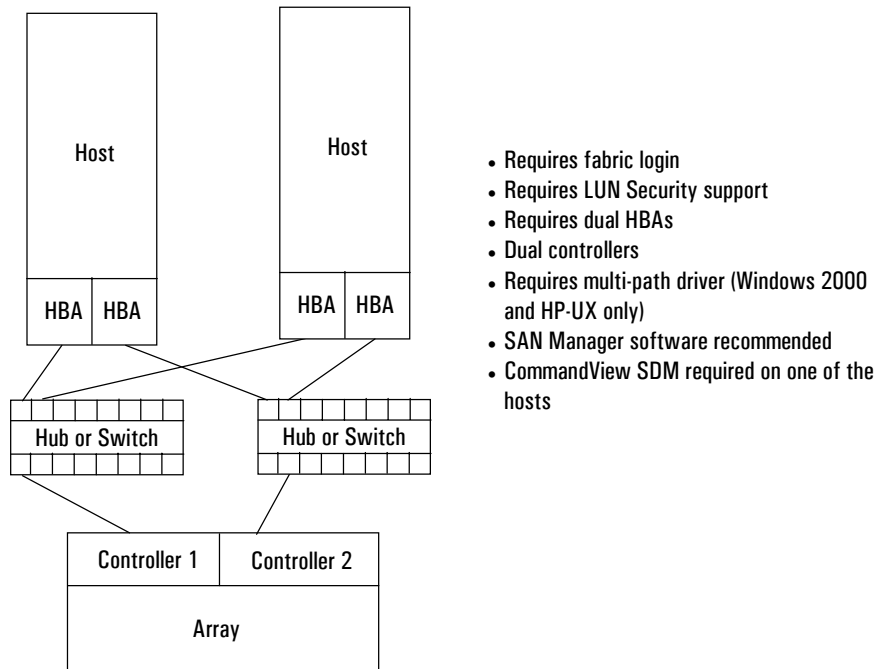


Figure 4.7.10.25 Highly Redundant Clusters (VA7410 only)

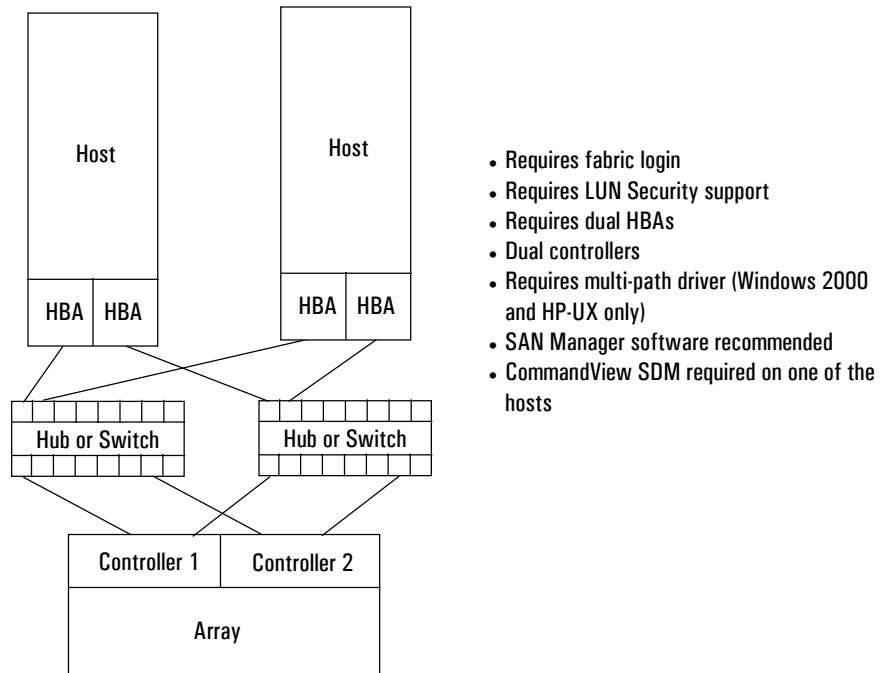


Figure 4.7.10.26 Highly Redundant Clusters—Typical (All VA models)

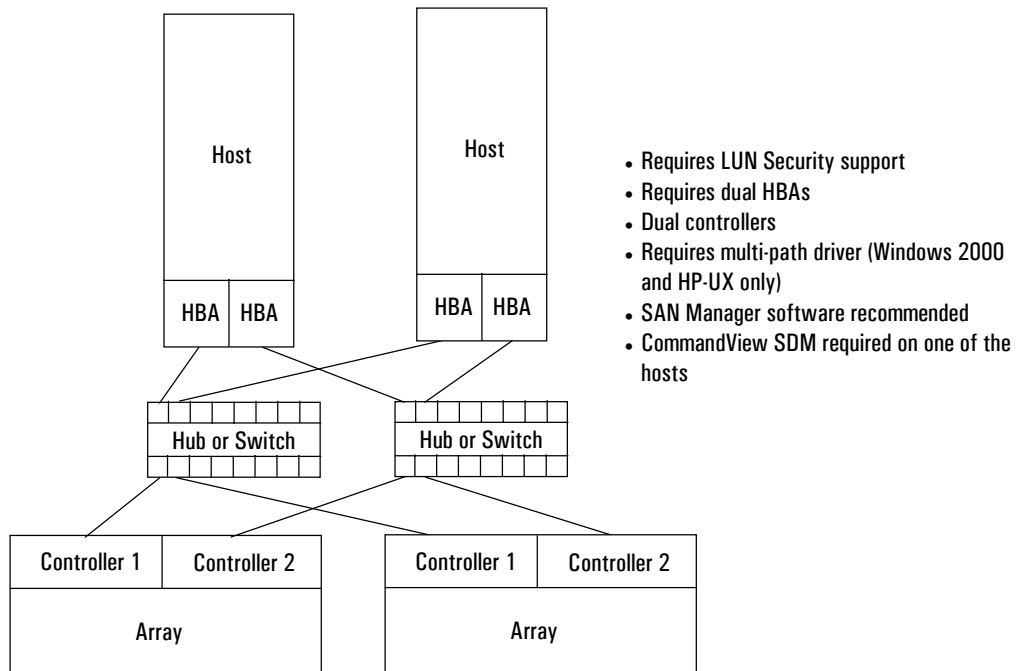
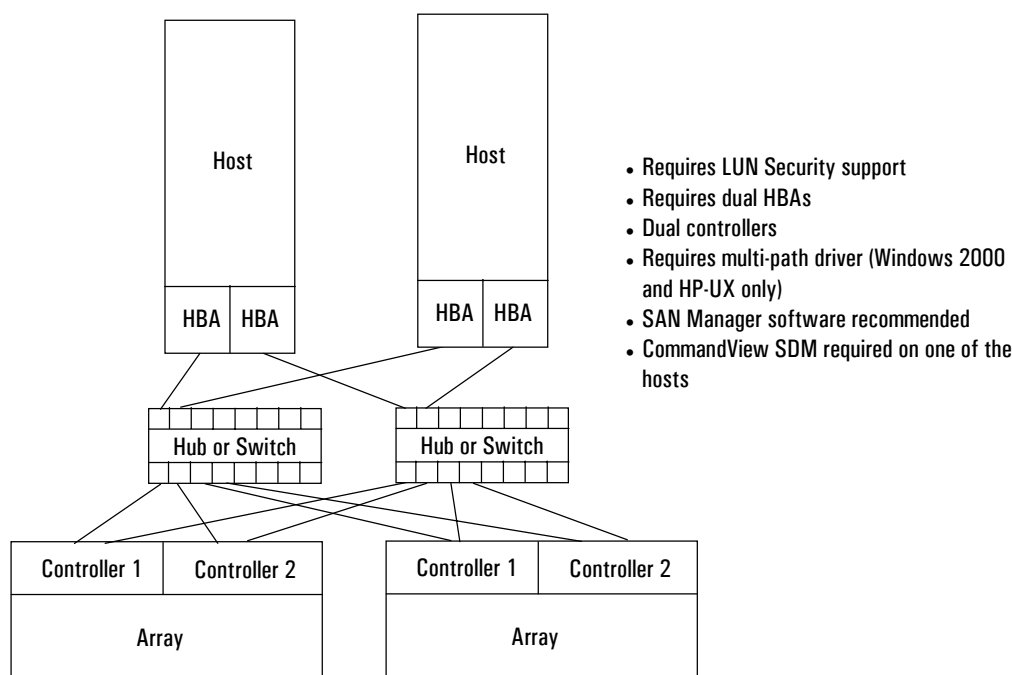


Figure 4.7.10.27 Highly Redundant Clusters—Typical (VA7410 only)



Heterogeneous Cluster (HA) in a SAN

For the latest information, please refer to the NSAS SAN Strategy document on the SPOCK web site show below (note this is an HP internal document):

http://xpslpgrms.corp.hp.com/xp_documentation/os%20stream%20docs/NSAS_SAN_strategy.pdf

Software Product Descriptions

Software Products Reference Chart

The following table lists the software products available for the VA7000 Family. These products are described in detail later in this section.

Software Product	Source	Description
HP StorageWorks Command View SDM	A single host license-to-use and software media kit ships with each VA7x00 Family product.	Allows you to manage, diagnose, and monitor the performance of the array; used in conjunction with value-added software products. Native OS support on HP-UX, Windows NT, Windows 2000, Red Hat Linux, and with a separate management console on Solaris, Novell Netware, IBM AIX, and MPE. Additional host licenses must be purchased for each host running Command View SDM.
HP StorageWorks Integrations Pack (Formerly Smart Plug-Ins)	Sold separately.	Enables HP StorageWorks Command View SDM in HP OpenView NNM for HP-UX, Windows 2000 and Windows NT, also enables HP StorageWorks Command View SDM for HP TopTools, CA-Unicenter-TNG, Tivoli Netview and BMC Patrol. Includes/supports HP SEMI 1.0 for HP modular storage and tape devices.
HP StorageWorks Business Copy VA	Sold separately.	Enables LUN copying within the array, and requires the same physical space to be available in the array as the LUN(s) being copied.
HP StorageWorks Secure Manager VA	Sold separately.	Enables LUNs to be locked into a secure shared environment.
HP StorageWorks Auto Path	Sold separately.	Enables I/O path fail-over in a single server for MSCS Windows 2000, Windows NT (HP-UX and Linux support in future releases) environments.
HP StorageWorks Fast Recovery Solutions	Sold separately.	Allows for recovery of corrupted databases in minutes for Microsoft Exchange 2000 environments. Requires Business Copy Virtual array

Software Products

Product Number	Description
T1001A	HP StorageWorks Command View SDM 1 host License To Use and software media kit. Device management for the HP StorageWorks VA7x00 Family.
T1002A	HP StorageWorks Enterprise Integrations 1 host License To Use and software media kit.
T1003A	HP StorageWorks Secure Manager, 50-GB host License To Use and software media kit. (Required for enablement) (Not combinable - 50 GB max)
T1004A	HP StorageWorks Secure Manager 500-GB License To Use.
T1005A	HP StorageWorks Secure Manager 1-TB License To Use.
T1006A	HP StorageWorks Secure Manager 5-TB License To Use.
T1007A	HP StorageWorks Business Copy VA, 50-GB host License To Use and software media kit. (Required for enablement) (Not combinable - 50 GB max)
T1008A	HP StorageWorks Business Copy VA 500-GB License To Use.
T1009A	HP StorageWorks Business Copy VA 1-TB License To Use.
T1010A	HP StorageWorks Business Copy VA 5-TB License To Use.
T1011A	HP StorageWorks Auto Path for Windows 2000 1-host License To Use and software media kit. (Required for enablement)
T1012A	HP StorageWorks Auto Path for Windows 2000 - 1-host License To Use.
T1013A	HP StorageWorks Auto Path for Windows 2000 - 5-host License To Use.
T1039A	HP StorageWorks Auto Path for Windows NT 4.0 - 1-host License To Use and software media kit. (Required for enablement)
T1040A	HP StorageWorks Auto Path for Windows NT 4.0 - 1-host License To Use.
T1041A	HP StorageWorks Auto Path for Windows NT 4.0 - 5-host License To Use.
T1060A	HP StorageWorks Auto Path for HP-UX 11.0, 11i - 1-host License To Use and software media kit. (Required for enablement)
T1061A	HP StorageWorks Auto Path for HP-UX 11.0, 11i - 1-host License To Use.
T1062A	HP StorageWorks Auto Path for HP-UX 11.0, 11i - 5-host License To Use.
B9550A	HP StorageWorks Fast Recovery Solutions for Microsoft Exchange 2000 1 array based license to use capacity unlimited

HP StorageWorks Command View SDM Software

The HP StorageWorks Command View SDM software is a host or Web-browser based device management application that provides a common user interface for modular networked storage systems.

The HP StorageWorks Command View SDM software monitors and manages modular scaleable storage resources from a single systems management console or remotely via a Web browser with centralized control of their information resources. The HP StorageWorks Command View SDM software launches and configures HP value added software, such as HP StorageWorks Business Copy VA and HP StorageWorks Secure Manager VA. The HP StorageWorks Command View SDM software supports the HP StorageWorks VA 7000 family.

- Integrated device management platform and common user interface for all supported HP modular scaleable storage (arrays and disk systems)
- Java technology for ease of portability for support of new storage devices
- Active Graphic displays and status at glance features provides a comprehensive environment to monitor health and status with the highest efficiency and awareness.
- Common user interface (GUI, CLUI, CVUI and Web browser support) reduces training needs
- Network management and SANs integration for SAN network connectivity and device identification and event reporting to industry leading network management applications such as HP OpenView.
- Heterogeneous support

HP StorageWorks Command View SDM Operating Systems Compatibility

For operating system compatibility, please see “Supported Operating Systems” at the beginning of this section.

HP StorageWorks Command View SDM Software Compatibility

- HP StorageWorks Command View SDM
- HP StorageWorks Integrations Pack
- HP StorageWorks Secure Manager
- HP StorageWorks Business Copy VA

HP StorageWorks Command View SDM Minimum System Requirements

- Requires Internet Explorer 5.0; Netscape 4.74; Java Plug-In 1.3
- Need to add installation requirements for RAM

Operating System	CPU	Memory	Video	Disk Space ²
Windows NT 4.0 Windows 2000	Pentium III 500 MHz	256 MB RAM	1024 × 768 resolution, supports 64,000 colors	60 MB of free disk space Performance Logs (2 months) 16 MB per LUN
HP-UX 11.0/11.i ³	All	256 MB RAM	800 × 600 resolution, supports 64,000 colors	60 MB of free disk space Performance Logs (2 months) 16 MB per LUN
Red Hat Linux 6.2, 7.1	Pentium III 500 MHz	256 MB RAM	1024 × 768 resolution, supports 64,000 colors	60 MB of free disk space Performance Logs (2 months) 16 MB per LUN
Solaris 2.6, 7.0, 8.0 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
Novell Netware 5.0, 5.1 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
IBM AIX 4.3.3 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).

¹ Requires dedicated management console and system requirements compatible with one of the above.

² 30 MB of temporary disk space is required during installation. This space is returned after installation.

³ HP-UX may require additional patches for proper operation.

The VA7x00 family system encompasses all the components within the controller chassis as well as the disks and their enclosures. The VA7x00 family Graphical User Interface (GUI) provides capabilities to retrieve single or multiple component status conditions and modify component states when applicable. The table lists all the components visible to the user. The first column denotes components that have their status queried and displayed by the GUI. The second column denotes components that the user can modify via the GUI.

Note: This is the Command Line User Interface (CLUI) that is used for the VA7000 Family.

Component Device Offerings

Component	GUI provides capabilities to Query State	GUI provides capabilities to Modify State
Main Enclosure	•	•
Batteries	•	
Controllers	•	• ³
DIMMs	•	
Disks	•	•
Fans	•	
GBICs	•	
Power Supplies	•	
Ports	•	
JBODS	•	•
Disks	•	•
Fans	•	
LCC	•	
Power Supplies	•	

³ This does not reflect changing state of the controller, but rather modifying controller parameters.

HP StorageWorks Command View SDM Frequently Asked Questions

What is included with the standalone version of HP StorageWorks Command View SDM?

Each Standalone version of HP StorageWorks Command View SDM includes:

- Software CD
- User's Manual
- One Host License To Use

This is defined as "Installation Authorization for one (1) Server" running any or all of the Command View SDM components listed above.

Support is NOT INCLUDED with the Standalone version of HP StorageWorks Command View SDM. One (1) support option is required with each one (1) Host LTU of HP StorageWorks Command View SDM.

Do I need HP StorageWorks Command View SDM installed on all hosts in a configuration order to access my VA?

You must install HP StorageWorks Command View SDM on at least one (1) host with a fibre channel connection to the VA7400. After your initial installation of HP StorageWorks Command View SDM, it is not necessary to install HP StorageWorks Command View SDM to access data on your VA.

Is HP StorageWorks Command View SDM only required for management/configuration purposes?

HP StorageWorks Command View SDM is only required for configuration and management of your HP VA. After your initial installation of HP StorageWorks Command View SDM, it is not necessary to install HP StorageWorks Command View SDM to access data on your VA.

How many VA's can HP StorageWorks Command View SDM manage at any given time?

HP StorageWorks Command View SDM can manage an unlimited number of VA from a single host, provided that it is physically connected to each VA either directly or through a SAN

HP StorageWorks Integrations Pack

HP StorageWorks Integrations Pack provide customers with a basic level of integration between HP StorageWorks Command View SDM and the leading network and systems management solutions enabling management from a single point—the enterprise management console. Integration is via SNMP (Simple Network Management Protocol) and enables customers to observe, diagnose and react to potential problems in their storage environment before they become serious enough to affect system availability.

HP StorageWorks Integrations Pack Features

- Integration with HP OpenView NNM, HP TopTools, CA Unicenter-TNG, Tivoli Netview, and BMC Patrol
- Includes/supports HP SEMI 1.0 agent for HP modular storage and tape devices
- Plug and play installation
- Automated custom scripts
- Automatic discovery of supported storage devices by the network management application
- Device event communication via SNMP for Windows 2000 and NT 4.0 environments
- Changes in the status of the device are represented via the device icon that can launch the device software for further diagnostics or configuration status.

Notes:

HP StorageWorks Integrations Pack:

- *are only supported on HP StorageWorks Command View SDM for modular networked storage. They are not supported on XP arrays*
- *do not support Red Hat Linux 6.2, 7.1.*

HP StorageWorks Integrations Pack Compatibility

- Supports HP SNMP integration for HP virtual arrays
- Supports HP OpenView Network Node Manager for HP-UX, Windows NT 4.0, and Windows 2000.
- Supports HP TopTools 4.5 and 5.0
- Supports CA Unicenter TNG for HP-UX, NT 4.0, and Windows 2000
- Supports HP StorageWorks VA7x00 Family
- Supports Tivoli Netview
- Supports BMC Patrol
- Supports HP SEMI 1.0 agent for HP modular storage and tape devices

HP StorageWorks Integrations Pack Frequently Asked Questions

What is included with HP StorageWorks Integrations Pack?

Each HP StorageWorks Integrations Pack product includes:

- Software CD
- User's Manual
- One Host License To Use (LTU)

This is defined as "Installation Authorization for one (1) Server" running any or all of HP StorageWorks Integrations Pack components.

Support is not included with this product. One (1) support option is required with each one (1) Host LTU for Enterprise Integrations.

How does HP StorageWorks Command View SDM talk to OpenView Network Node-Manager using the HP StorageWorks Integrations Pack?

HP StorageWorks Command View SDM tracks each connected VA7400 using a unique TCP-IP address. HP StorageWorks Command View SDM gets device information from each virtual array inband through the fibre channel connection and the HP StorageWorks Integrations Pack translate this information to OpenView Network Node Manager over TCP-IP using JVM and standard SNMP commands.

HP StorageWorks Business Copy VA

HP StorageWorks Business Copy VA is an array-based software product that allows customers to create up to 1023 non-disruptive high-performance, local business copies of any active application volume or LUN for the VA7400 within the array while benefiting from full RAID protection for the business copies. These LUN copies can be used by another application or system for a variety of purposes, including batch processing and backup. Create up to 1023 Business Copy LUNs the VA7400. Business Copy VA is fully integrated into and enabled through the HP Command View SDM software interface.

HP StorageWorks Business Copy VA is a vital piece of the Virtual Array Technology and is the key enabler of the virtual array online Backup solution, which is implemented using custom scripting of backup application environments.

HP StorageWorks Business Copy VA Features

- Business critical data can be executed in parallel to enhance efficiency and cost effectiveness.
- Instantly creating point-in-time copies of source LUNs, scheduling backup activities, and maintaining I/O Host performance because all LUN creation and activity is handled directly by the array.
- HP StorageWorks Business Copy VA is fully integrated with Command View SDM.

HP StorageWorks Business Copy VA Operating Systems Compatibility

HP StorageWorks Business Copy VA runs with HP StorageWorks Command View SDM. For operating system compatibility, please see "Supported Operating Systems" at the beginning of this section.

HP StorageWorks Business Copy VA Software Compatibility

- HP StorageWorks Command View SDM
- HP StorageWorks Integrations Pack
- HP StorageWorks Secure Manager
- HP StorageWorks Business Copy VA

HP StorageWorks Business Copy VA Minimum System Requirements

Operating System	CPU	Memory	Disk Space
Windows NT 4.0 Windows 2000	Pentium III 500-MHz	256 MB RAM	45 MB of free disk space.
HP-UX 11.0, 11.i	All	256 MB RAM	60 MB of free disk space.
Red Hat Linux 6.2	Pentium III 500-MHz	256 MB RAM	45 MB of free disk space
HP-UX 10.20 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
Solaris 2.6, 7.0, 8.0 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
Novell Netware 5.0,5.1 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
IBM AIX 4.3.3 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).

¹ Requires dedicated management console and system requirements compatible with one of the above.

Note: HP StorageWorks Business Copy VA supports a custom scripted implementation to automate backup solutions.

HP StorageWorks Business Copy VA Frequently Asked Questions

What is included with HP StorageWorks Business Copy VA Software Media Kit?

Each HP StorageWorks Business Copy VA software media kit includes:

- Software CD
- User's Manual
- 50-GB License To Use (not combinable - 50 GB max)
- 90 days of telephone support

In addition, to cover all capacity-based license-to-use options for HP StorageWorks Business Copy VA, one (1) support option is required.

How does HP StorageWorks Business Copy VA Licensing work?

In order to create HP StorageWorks Business Copy VA LUNs, a license must be obtained. Licensing is sold in quantities of 500 GB, 1 TB and 5 TB. The total size for all HP StorageWorks Business Copy VA LUNs cannot exceed the licensed amount for each virtual array.

HP StorageWorks Business Copy VA licensing is based on the total size of all parent LUNs being copied, not the total array capacity. For example, in an array with total usable capacity of two (2) Terabytes, if you are copying one (1) Terabyte of parent LUN data you must purchase a one (1) Terabyte HP StorageWorks Business Copy VA license.

Note: Licenses cannot span multiple arrays!

Every VA7000 series array contains a 50-GB trial license. This is a permanent capability of the array and is intended to allow the trial of the feature before committing to the purchase. The trial copy can be used for the life of the product. **This trial license is NOT additive.**

HP StorageWorks Secure Manager VA

HP StorageWorks Secure Manager VA is an array-based software product that allows customers to create up to 128 secure World Wide Name connections for the VA7400 on up to 1024 secure LUNs per virtual array. HP StorageWorks Secure Manager VA is fully integrated into and enabled through the HP Command View SDM software interface.

HP StorageWorks Secure Manager VA is a storage software application that allows LUNs to be locked into secure protected volumes by World Wide Names, ensuring that only authorized World Wide Names (WWN) have access to restricted volumes. Permissions for each principal can be configured by volume within the virtual array to read only, read/write, or no access. The HP StorageWorks Secure Manager VA software's supported configurations range from an entry-level single-server direct-connect environment up to a homogeneous or heterogeneous clustered environment.

HP StorageWorks Secure Manager VA Features

- World Wide Names, host, and volume to enhance efficiency and cost effectiveness can secure business critical data in parallel.
- Configure security within the virtual array by changing permissions on volumes and/or World Wide Names (WWN) while the array is online.
- Uses the HP StorageWorks Command View SDM interface for establishing secure volumes.
- HP StorageWorks Secure Manager VA is fully integrated with HP StorageWorks Command View SDM and the VA family of hardware and software products for interoperability across the spectrum of future virtual array storage solutions.
- HP StorageWorks Secure Manager VA supports 128 secure World Wide Names for the VA7400. The HP StorageWorks Secure Manager VA software supports up to 1024 secure LUNs for each VA7400.

HP StorageWorks Secure Manager VA Operating Systems Compatibility

HP StorageWorks Secure Manager VA runs with HP StorageWorks Command View SDM. For operating system compatibility, please see "Supported Operating Systems" at the beginning of this section.

HP StorageWorks Secure Manager VA Software Compatibility

- HP StorageWorks Command View SDM
- HP StorageWorks Integrations Pack
- HP StorageWorks Secure Manager
- HP StorageWorks Business Copy VA

HP StorageWorks Secure Manager VA Minimum System Requirements

Operating System	CPU	Memory	Disk Space
Windows NT 4.0 and Windows 2000	Pentium III 500-MHz	256 MB RAM	45 MB of free disk space.
HP-UX 11.0, 11.1	All	256 MB RAM	60 MB of free disk space.
Red Hat Linux 6.2	Pentium III 500-MHz	256 MB RAM	45 MB of free disk space
HP-UX 10.20	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
Solaris 2.6, 7.0, 8.0 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
Novell Netware 5.0, 5.1 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).
IBM AIX 4.3.3 ¹	Depends on management station (see above).	Depends on management station (see above).	Depends on management station (see above).

¹ Requires dedicated management console and system requirements compatible with one of the above.

HP StorageWorks Secure Manager VA Frequently Asked Questions

What is included with HP StorageWorks Secure Manager VA Software Media Kit?

Each HP StorageWorks Secure Manager VA software media kit includes:

- Software CD.
- User's Manual.
- 50-GB License To Use (LTU).
- 90 days of telephone support.
- In addition, one support option is required for each capacity-based license-to-use option for HP StorageWorks Secure Manager VA.

What does the term “principal” mean when used in HP StorageWorks Secure Manager VA?

“Principal” and “World Wide Name” (WWN) are used interchangeably when describing secure connections for HP Virtual Arrays. All authentications for the VA7400 are based on WWN.

How many secure connections can each VA7400 support?

The VA7400 can support up to 128 secure Node WWN. Each Host Bus Adapter (HBA) uses a single Node WWN, therefore each VA7400 can support up to 1024 secure connections. Remember, for HA configurations, each server requires two HBAs so the largest HA configuration supported for each VA7400 is a 16-node cluster.

Can incremental capacity licenses be add over time?

Yes, licenses are cumulative and additional licenses to may be added as capacity needs grow.

HP StorageWorks Auto Path

HP StorageWorks Auto Path VA is host-based software that provides key data availability and performance. HP StorageWorks Auto Path provides multi-path failover capability of all I/O data paths to the virtual array. HP StorageWorks Auto Path offers completely automatic HBA failover for all supported cluster environments.

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

HP StorageWorks Auto Path Features

- Automatic error detection and failover: helps eliminate the need for planned and unplanned downtime.
- Works with Windows 2000 and Microsoft Cluster Server infrastructure.
- Works with Windows NT 4.0 and Microsoft Cluster Server infrastructure
- Works with HP-UX 11.0, 11i and MC/ServiceGuard infrastructure
- Supports the HP VA products that provide maximum performance and scalability.
- Automated configuration
- Management through a graphical user interface

HP StorageWorks Auto Path Operating Systems Compatibility

- Windows 2000
- Windows NT 4.0
- HP-UX 11.0, 11i

HP StorageWorks Auto Path Software Compatibility

- HP StorageWorks Command View SDM
- HP StorageWorks Integrations Pack
- HP StorageWorks Secure Manager
- HP StorageWorks Business Copy VA

HP StorageWorks Auto Path Minimum System Requirements

Operating System	CPU	Memory	Disk Space
Windows 2000, NT 4.0	Pentium III- 500 MHZ	256 MB RAM	45 MB of free disk space.
HP-UX 11.0, 11i	All	256 MB RAM	45 MB of free disk space.

Note: HP StorageWorks Auto Path provides automatic I/O path failover only for Windows 2000, NT 4.0, and HP-UX 11.0, 11i.

All HP software products are covered by a 90-day media defect warranty. All support options are sold separately.

HP StorageWorks Auto Path Frequently Asked Questions

What is included with HP StorageWorks Auto Path?

Each HP StorageWorks Auto Path product includes:

- Software CD
- User's Manual
- One (1) Host License To Use (LTU)

This is defined as "Installation Authorization for one (1) Server" running any or all Auto Path components.

Support is NOT included with this product. One (1) support option is required for each host-based license-to-use option for HP StorageWorks Auto Path.

What environments are available for HP StorageWorks Auto Path on the VA?

HP StorageWorks Auto Path has planned availability of Windows 2000, Windows NT, and HP-UX with Red Hat Linux planned for future availability.

HP StorageWorks Fast Recovery Solutions for Microsoft Exchange 2000

HP StorageWorks Fast Recovery Solutions (FRS) is a tool designed to enable fast recovery of corrupt Exchange 2000 databases. FRS interacts with Windows 2000, Exchange 2000 server and the disk array. The disk array stages recovery ready copies of Exchange 2000 databases. When a catastrophic event occurs, the Exchange administrator initiates the FRS process. This process takes the damaged database offline, removes it and inserts the known good, recovery-ready copy on the production server. This process recovers the known good copy from disk rather than tape providing a full database recovery in minutes not hours.

For the latest configuration information, please refer to the SPOCK website (internal) or the Partnership Website (external):

Spock Website:

- For VA7100 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7100_docs.htm
- For VA7400 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7400_docs.htm
- For VA7410 array: http://xpslpgrms.corp.hp.com/xp_documentation/va7410_docs.htm

Partnership Website:

- <http://partner.americas.hp.com/>

HP StorageWorks Fast Recovery Solutions Features

- Ultra-fast recovery of large Microsoft Exchange 2000 databases.
- Lowest possible downtime during a corruption and database recovery.
- Recovery to the last backup.
- Multiple databases can be recovered simultaneously.

VA7400 Software Ordering Information

HP StorageWorks VA Software Support Products

Product Number	Option	Description
T1001A		HP StorageWorks Command View SDM Software Media Kit with - 1 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1002A		HP StorageWorks Integrations Pack for HP StorageWorks Command View SDM One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Secure Manager VA Software Media Kit and 50 GB License To Use (required for enablement) 90-day support included (Not combinable - 50 GB max)
	H4403A/H4405A	N/A
	H4403J/H4405J	Two (2) year software support
	H4403Y/H4405Y	N/A
	H4726A	N/A
T1004A		HP StorageWorks Secure Manager VA 500 GB License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1005A		HP StorageWorks Secure Manager VA - 1TB License To Use-One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1006A		HP StorageWorks Secure Manager VA - 5 TB License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1007A		HP StorageWorks Business Copy VA Software Media Kit and 50 GB License To Use (required for enablement) 90-day support included (Not combinable - 50 GB max)
	H4403A/H4405A	N/A
	H4403J/H4405J	Two (2) year software support
	H4403Y/H4405Y	N/A
	H4726A	N/A
T1008A		HP StorageWorks Business Copy VA 500 GB License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support

Product Number	Option	Description
T1009A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Business Copy VA - 1 TB License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1010A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Business Copy VA - 5 TB License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1011A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows 2000 Software Media Kit and 1 Host License To Use (required for enablement) One software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1012A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows 2000 - 1 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1013A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows 2000 - 5 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1039A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows NT 4.0 Software Media Kit and 1 Host License To Use (required for enablement) One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1040A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows NT 4.0 - 1 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
T1041A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows NT 4.0 - 5 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405J	Three (3) year software support
T1042A	H4726A	Software enablement, installation and customer demonstration service
		HP StorageWorks Auto Path for Windows NT 4.0 - 10 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service

Product Number	Option	Description
T1043A		HP StorageWorks Auto Path for Windows NT 4.0 - 25 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1060A		HP StorageWorks Auto Path for HP-UX 11.0,11i Software Media Kit and 1 Host License To Use (required for enablement) One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1061A		HP StorageWorks Auto Path for HP-UX 11.0,11i 1 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
T1062A		HP StorageWorks Auto Path for HP-UX 11.0,11i - 5 Host License To Use One (1) software support warranty option required
	H4403A/H4405A	One (1) year software support
	H4403J/H4405J	Two (2) year software support
	H4405Y	Three (3) year software support
	H4726A	Software enablement, installation and customer demonstration service
B9550A		HP StorageWorks Fast Recovery Solutions for Microsoft Exchange 2000 1 Array-based License to Use, capacity unlimited
	H4403A/H4405A	One (1) year software support
	H4405Y	Three (3) year software support

Glossary

Abbreviation	Description
Bps	Bits per second
BE	Back End
CLUI	Command Line User Interface
Cluster	For the purposes of this document, a cluster is a configuration using two or more servers with failover capability. For HP-UX based configurations, this means running ServiceGuard. Windows-based cluster configurations incorporate the following characteristics: <ul style="list-style-type: none"> Windows Enterprise Edition for NT 4.0 Windows Advanced Server Data Center Server for Windows 2000 (currently not released and not defined-this is an issue)
Cluster-Aware	Application is aware of cluster environment, informs the user a cluster exists, and provides additional cluster information
Cluster-Safe	Application does not prevent a MSCS cluster certification and does not create loss of data in a MSCS cluster environment
Cluster-Supported	Application is a transferable resource in a cluster; i.e., if a node in a cluster is taken off-line, the application will failover automatically to another cluster node.
Data Center	Version of Windows 2000 OS that allows clustering of up to four servers.
DR	Design Release
ESI	Enhanced Serial Interface
ESN	Enterprise Storage Network
Fabric Login	The name given to the initialization protocol for a device on the Storage Area Network (SAN) fabric with which it is "logged" into the SAN fabric. The act of "logging" provides the fabric with the required information about the device so that the device can be accessed and allows the device to access any other "fabric" device on the fabric.
FE	Front End
Fsam	Federated Storage Area Management
GB	Gigabyte(s)

Glossary (continued)

Abbreviation	Description
GBIC	Gigabyte Interface Connector; plugged into the Cassini controller to provide the optical interface to the host.
Gbit	Gigabit(s) (Note: HP standard says do not abbreviate as Gb.)
Gbit/sec	Gigabits per second
GHz	Gigahertz
GLM	Gigabyte Link Module; generally associated with the HBA and the optical connection.
GUI	Graphical User Interface
HBA	Host Bus Adapter
HCL	Hardware Compatibility List
Heterogeneous	Dissimilar, differing in structure and quality
JBOD	Storage/RAID Device (just a bunch of disks)
I/O	Input/Output
k	Kilo (prefix meaning 1,024)
K	Kilo (prefix meaning 1,024)
Kbit	Kilobit (1,024 bits) (Note: HP standard says do not abbreviate as Kb.)
KB	Kilobyte (1,024 bytes)
Kbps	Kilobytes per second
LUN	Logical Unit Number (virtual disk)
Mbit	Megabit
Mb/s	Megabits per second
MB	Megabyte(s)
MB/s	Megabytes per second
Windows MSCS	Windows software that coordinates two servers and directs the other server to take over when one fails.
Multi-path aware	Ability to have knowledge of multiple paths to the storage device.
Multi-path driver	Device driver that masks multiple access paths to a physical device. Ability to switch between paths.
RAID	Redundant Array of Independent Disk
Remote Management Capability	Ability to launch management software from a remote location.
RG	Redundancy Group
SAN	Storage Area Network
SCSI	Small Computer Standard Interface
SDM	Storage Device Management
SES	SCSI Enclosure Services
ServiceGuard	HP-UX software that coordinates two servers and directs the other server to take over when one fails.
SFF	Small Form Factor
VA	Virtual Array
VAP	Virtual Array Controller
WHQL	Windows Hardware Quality Lab
WWN	World Wide Name
Windows MSCS	Microsoft Cluster Server - Windows software that coordinates two servers and directs the other server to take over when one fails.

Subchapter 4.1—Fibre Channel Infrastructure and DTCs

	Description	Product #	Opt #	Price
	Fibre Channel for Information Storage Infrastructure Products			
•	HP Brocade 8-Port Fibre Channel Switch (field installable)	A5625A		
•	Power Supply for Brocade 2400 Switch	A5671A		
•	2 meter fibre channel cable	A3583A		
•	16 meter fibre channel cable	A3531A		
•	50 meter fibre channel cable	A3735A		
•	100 meter fibre channel cable	A3736A		
•	SW GBIC	A5225A		
•	LW GBIC	A5226A		
•	HP Brocade 8-Port Fibre Channel Switch (factory integrated)	A5625AZ		
•	Power Supply for Brocade 2400 Switch	A5671A		
•	2 meter fibre channel cable	A3583A		
•	16 meter fibre channel cable	A3531A		
•	50 meter fibre channel cable	A3735A		
•	100 meter fibre channel cable	A3736A		
•	SW GBIC	A5225A		
•	LW GBIC	A5226A		
•	HP Brocade 16-Port Fibre Channel Switch (field installable)	A5624A		
•	2 meter fibre channel cable	A3583A		
•	16 meter fibre channel cable	A3531A		
•	50 meter fibre channel cable	A3735A		
•	100 meter fibre channel cable	A3736A		
•	SW GBIC	A5225A		
•	LW GBIC	A5226A		
•	HP Brocade 16-Port Fibre Channel Switch (factory integrated)	A5624AZ		
•	2 meter fibre channel cable	A3583A		
•	16 meter fibre channel cable	A3531A		
•	50 meter fibre channel cable	A3735A		
•	100 meter fibre channel cable	A3736A		
•	SW GBIC	A5225A		
•	LW GBIC	A5226A		
•	2 Optical SW GBIC's with one 50 meter optical cable	D6980A		
•	2 Optical SW GBIC's with one 100 meter optical cable	D6981A		
•	2 Copper GBIC's with one 3 meter copper cable	D6978A		
•	2 Copper GBIC's with one 5 meter copper cable	D6979A		
•	2 Copper GBIC's with one 10 meter copper cable	D7080A		
•	Fibre Channel 1063 Mbps 10 port shortwave Hub (standalone or field integratable)	A3724A		
	Rack Mount Kit for FC Hub		001	
	16 meter fibre cable		AFY	
	50 meter fibre cable		025	
	100 meter fibre cable		026	
•	Fibre Channel 1063 Mbps 10 port shortwave Hub (racked, factory integrated)	A3724AZ		
	16 meter fibre cable		AFY	
	50 meter fibre cable		025	
	100 meter fibre cable		026	
•	Fibre Channel 1063 Mbps 9 port shortwave, 1 port long-wave Hub (standalone or field integratable)	A4839A		
	Rack Mount Kit for FC Hub		001	
	16 meter fibre cable		AFY	
	50 meter fibre cable		025	
	100 meter fibre cable		026	
•	Fibre Channel 1063 Mbps 9 port shortwave, 1 port long-wave Hub (factory integrated)	A4839AZ		
	16 meter fibre cable		AFY	
	50 meter fibre cable		025	

Description	Product #	Opt #	Price
100 meter fibre cable		0Z6	
• Fibre Channel 1063 Mbps SCSI Multiplexer (factory integrated)	A3308A		
F/W SCSI interface card (4 maximum per SCSI Multiplexer)		003	
Fibre Channel 1063 Mbps interface card (2 maximum per SCSI Multiplexer)		004	
16 meter fibre cable		AFY	
50 meter fibre cable		0Z5	
100 meter fibre cable		0Z6	
• Fibre Channel 1063 Mbps SCSI Multiplexer (racked, factory integrated)	A3511AZ		
F/W SCSI interface card (4 maximum per SCSI Multiplexer)		003	
Fibre Channel 1063 Mbps interface card (2 maximum per SCSI Multiplexer)		004	
16 meter fibre cable		AFY	
50 meter fibre cable		0Z5	
100 meter fibre cable		0Z6	
• Fibre Channel SCSI Multiplexer (including rack kit)	A3511A		
F/W SCSI interface card		003	
Fibre Channel 1063 Mbps interface card		004	
16 meter fibre cable		AFY	
50 meter fibre cable		0Z5	
• F/W SCSI adapter upgrade for SCSI Multiplexer (provides additional F/W SCSI Channel)	A3509A		
• 1063 Mbps Fibre Channel adapter upgrade for SCSI Multiplexer (provides second FC connection)	A3512A		
100 meter fibre cable		0Z6	
Interface Manager			
• HP SureStore Interface Manager for 10/180 & 20/700	A6356A		
Includes card cage, remote management card, redundant power supplies, controller, fans, 2.5 SCSI cable, 10 plug PDU			
• HP SureStore Fibre Channel Interface Ultrium LVDS	A4674A		
2 pack of 2.5M Multimode SCSI cables		001	
• HP SureStore Fibre Channel Interface Ultrium HVDS	A4673A		
2 pack of 2.5M Multimode SCSI cables		001	
Fibre Bridges			
• HP SureStore Bridge FC 4/1 HV	A4688A		
Cable package, four each SCSI 2.5M		001	
Library installation kit including power strip, rackmount hardware, SCSI cable (bridge to controller)		002	
• HP SureStore Bridge FC 2/1 LV	A4689A		
Cable package, two each SCSI 2.5M		001	
Library installation kit including power strip, rackmount hardware, SCSI cable (bridge to controller)		002	
• SCSI Library HVD to LVD Convertor (for LVD bridge support of library robotics interface)	A6324A		
DTCs			
• DTC16TN Telnet Terminal Server with 16 RS-232 Ports	J2060A		
Racking kit for 1.1 or 1.6 meter cabinets		1AC	
Replace eight RJ-45 direct ports with eight DB-25 modem ports		UG5	
Replace RS-232 with 16 RS-423 ports		UG4	
• HP DTC Manager UX media for Servers	J2120A		
CD-ROM certificate		AAU	
HP-UX 10.01		APS	
HP-UX 10.10		APX	
HP-UX 10.20		APZ	
• DTC72MX Communications Server with three available slots	J2070A		
Racking kit for 1.1 or 1.6 meter cabinets		1AC	
Configure with 24 RS-232 direct connect ports with RJ-45 connectors		001	
Configure with 48 RS-232 direct connect ports with RJ-45 connectors		002	
Configure with 72 RS-232 direct connect ports with RJ-45 connectors		003	
Replace eight RJ-45 direct ports with eight DB-25 modem ports		UG5	
Configure with 24 RS-423 direct connect ports with RJ-45 connectors		UG4	
Add X.25 board with RS-232 interface		1CW	
Add X.25 board with V.35 interface		1CX	
Add Telnet Access board		004	

	Description		Product #	Opt #	Price
	Add-On Products for DTC72MX:				
•	24-Port RS-232 Direct Connect Card for DTC72MX with RJ-45 connections		J2076A		
	Replace eight RJ-45 direct ports with eight DB-25 modem ports			UG5	
•	24-Port RS-423 Direct Connect Card for DTC72MX		J2077A		
•	X.25 Board for DTC72MX		J2079A		
	RS-232 Interface			1CW	
	V.35 Interface			1CX	
•	Telnet Access Board for DTC72MX		J2080A		
	Terminal Server for Model 12H with Fibre Channel		A4917A		
	8 Port -for use with 12H and SCSI-FC MUX				
	Accessories for DTC16TN and DTC72MX				
•	Racking Kit for 5 DTC MDPs in 1.1 or 1.6 meter cabinets		J2084A		
•	DTC Connection Accessories		J2085A		
	8-Port RS-232 modem distribution panel with DB-25 connectors			101	
	8-Port direct connect distribution panel with DB-25 connectors			102	
	24-Port direct connect distribution panel with RJ-45 connectors			103	
	8-Port multi-port cable with HP 3-pin connectors			104	

Subchapter 4.2—HP Secure Web Console

	Description		Product #	Opt #	Price
1.0	HP Secure Web Console				
	HP Secure Web Console Note 1: Secure Web Console is integrated into the A-, R-, L-, and N-Class servers and does not need to be ordered with these servers. Note 2: An RS232 cable is required to connect the Secure Web Console to the server. This can be the existing console cable or a new customer supplied cable or it can be ordered from HP. The HP product number is 24542G. For more information, see the Configuration Guide, Chapter 4 Peripherals and Accessories, subchapter 4.2-HP Secure Web console	[]	J3591A		

Subchapter 4.3—HP Uninterruptible Power Supplies

	Description		Product #	Opt #	Price
	HP PowerTrust UPS (Must order option 021 for use with D- and K-Class Servers.)				
•	PowerTrust II-LR 1.4kW/2.0kVA UPS 120V		A1353A		
	Includes; one battery pack, RS232 DB9f/DB9m cable for UPS to host connection, power cord based on country code and all manuals				
	Factory Racked			0D1	
	Additional Battery Pack note: maximum 4 additional battery packs for a total of 5			001	
	Field Rack RBII			002	
	Floor standing security brackets			003	
	Replace Standard RS232 cable with RS232 DB9-DB25 PCI MUX cable			25P	
	Replace Standard RS232 cable with RS232 DB9-DB25 MDP MUX cable			25M	
	Replace Standard RS232 cable with RS232 DB9f-DB9m for MS NT Servers (available 6/1/00)			013	
	Replace Standard power cord with 120V straight plug			011	
•	PowerTrust II-LR 1.4kW/2.0kVA UPS 230V		A1354A		
	Includes; one battery pack, RS232 DB9f/DB9m cable for UPS to host connection, power cord based on country code and all manuals				
	Factory Racked			0D1	
	Additional Battery Pack note: maximum 4 additional battery packs for a total of 5			001	
	Field Rack RBII			002	
	Floor standing security brackets			003	
	Replace Standard RS232 cable with RS232 DB9-DB25 PCI MUX cable			25P	

Description	Product #	Opt #	Price
Replace Standard RS232 cable with RS232 DB9-DB25 MDP MUX cable		25M	
Replace Standard RS232 cable with RS232 DB9f-DB9m for MS NT Servers (available 6/1/00)		013	
Replace Standard power cord with Central European 4.5m C19/CEE7		AWT	
Replace Standard power cord with International 4.5m C19/IEC309 plug		AWU	
Replace Standard power cord with International/European C19/unterminated		AW5	
• PowerTrust II-LR 2.1kW/3.0kVA UPS 230V	A1356A		
Includes; one battery pack, RS232 DB9f/DB9m cable for UPS to host connection, power cord based on country code and all manuals			
Factory Racked		0D1	
Additional Battery Pack note: maximum 4 additional battery packs for a total of 5		001	
Field Rack RBII		002	
Floor standing security brackets		003	
Replace Standard RS232 cable with RS232 DB9-DB25 PCI MUX cable		25P	
Replace Standard RS232 cable with RS232 DB9-DB25 MDP MUX cable		25M	
Replace Standard RS232 cable with RS232 DB9f-DB9m for MS NT Servers (available 6/1/00)		013	
Replace Standard power cord with Central European 4.5m C19/CEE7		AWT	
Replace Standard power cord with International 4.5m C19/IEC309 plug		AWU	
Replace Standard power cord with International/European C19/unterminated		AW5	
• PowerTrust II-LR Battery Pack	A1357A		
• RS232 Extension Cable DB9f/DB9m	A1358A		
• PowerTrust II-LR SNMP/WEB Card	A1359A		
• PowerTrust II-LR Rack kit for Rosebowl I	A1361A		
• PowerTrust II-LR Rack kit for Rosebowl II	A1362A		
• PowerTrust II-LR Floor standing security brackets	A1363A		
• PowerTrust II-LR/MR RS232 DB-9f/DB-9m cable	A1364A		
• RS232 DB9-DB25 PCI MUX cable	A1365A		
• RS232 DB9-DB25 MDP MUX cable	A1366A		
• PowerTrust II-MR 4.0kW/4.5kVA UPS 230V	A6583A		
Includes; one battery pack, RS232 DB9f/DB9m cable for UPS to host connection, power cord based on country code and all manuals. Must choose one Power interface option.			
Factory Racked		0D1	
Additional Battery Pack note: 3 additional battery packs for a max of 4		001	
Field rack for RBII		002	
Replace Standard RS232 cable with RS232 DB9-DB25 PCI MUX cable		004	
Replace Standard RS232 cable with RS232 DB9-DB25 MDP MUX cable		005	
Input/output hardwired		007	
Power interface option, L6-30P plug line cord, w/PDP-2,output, US/Japan		008	
Power interface option, input hardwired w/PDP-2,output, US/Japan		011	
Power interface option, input hardwired w/PDP-1 output,Europe		012	
Power interface option, IC309 30A plug, line cord, w/PDP-1 output,Europe		013	
• PowerTrust II-M4.0kW Battery Pack note: 3 additional battery packs for a max of 4	A6586A		
• PowerTrust II-MR 6.5kW/9kVA UPS 230V	A6584A		
Includes; one battery pack, RS232 DB9f/DB9m cable for UPS to host connection, power cord based on country code and all manuals. Must choose one Power interface option.			
Factory Racked		0D1	
Additional Battery Pack Set (2 batteries/set) note: 3 additional battery pack sets for a max of 4		001	
Field rack for RBII		002	
Replace Standard RS232 cable with RS232 DB9-DB25 PCI MUX cable		004	
Replace Standard RS232 cable with RS232 DB9-DB25 MDP MUX cable		005	
Input/output hardwired		007	
Power interface option, 6-50P plug line cord, w/PDP-2,output, US/Japan		009	
Power interface option, IC309 60A plug, line cord, w/PDP-1 output,Europe		010	
Power interface option, input hardwired w/PDP-2,output, US/Japan		011	
Power interface option, input hardwired w/PDP-1 output,Europe		012	
Power interface option, IC309 60A plug, line cord, w/PDP-2 output,US/Japan		014	
• PowerTrust II-MR 8kW/12kVA UPS 230V	A6585A		
Includes; one battery pack, RS232 DB9f/DB9m cable for UPS to host connection, power cord based on country code and all manuals. Must choose one Power interface option.			

Description	Product #	Opt #	Price
Factory Racked		0D1	
Additional Battery Pack Set (2 batteries/set) note: 3 additional battery pack set for a max of 4		001	
Field rack for RBII		002	
Replace Standard RS232 cable with RS232 DB9-DB25 PCI MUX cable		004	
Replace Standard RS232 cable with RS232 DB9-DB25 MDP MUX cable		005	
Input/output hardwired		007	
Power interface option, input hardwired w/PDP-2,output, US/Japan		011	
Power interface option, input hardwired w/PDP-1 output,Europe		012	
• PowerTrust II-MR 6.5kW/8kW Battery Pack Set (2 batteries/set)) note: 3 additional battery pack set for a max of 4	A6587A		
• PowerTrust II-MR Input/Output Hardwired cable	A6588A		
• PowerTrust II-MR Rack kit for Rosebowl I	A6601A		
• PowerTrust II-MR Rack kit for Rosebowl II	A6602A		
• Power interface option, L6-30P plug line cord, w/PDP-2,output, US/Japan	A6589A		
• Power interface option, 6-50P plug line cord, w/PDP-2,output, US/Japan	A6590A		
• Power interface option, IC309 60A plug, line cord, w/PDP-1 output,Europe	A6591A		
• Power interface option, input hardwired w/PDP-2,output, US/Japan	A6592A		
• Power interface option, input hardwired w/PDP-1 output,Europe	A6594A		
• Power interface option, IC309 30A plug, line cord, w/PDP-1 output,Europe	A6595A		
• Power interface option, IC309 60A plug, line cord, w/PDP-2 output,US/Japan	A6596A		
• SNMP Card Communication Kit (available June 2001)	A6593A		
• Contact Closure Card Kit w/cable (direct connection w/native NT or remote status connection	A6597A		

Subchapter 4.4—Field Integrated Cabinets

Description	Product #	Opt #	Price
• HP Rack System/E41 (includes side panels, anti-tip feet) Field Integrated Cabinet	A4902A		
Delete Cabinet Side Panels		AXW	
Rear Door (Required – Max 1) (See Chapter 2 for factory integrated cabinet menu).	A5213AZ		
• HP Rack System/E33 (includes side panels, anti-tip feet) Field Integrated Cabinet	A4901A		
Delete Cabinet Side Panels		AXW	
Rear Door (Required – Max 1) (See Chapter 2 for factory integrated cabinet menu)	A5212AZ		
I/O Expansion Option (available only with Corporate Business Server 890, A1828A) Add HP-PB Expansion module with 14 HP-PB expansion slots, lower bus converter, and 10-meter interconnect cable			
• 1.6 m Field Integrated Base Cabinet - High Density D-Class 23" wide Cabinet	A3765A		
(See Chapter 2 for factory integrated cabinet menu) Note: PDUs can be ordered already integrated into the cabinet using the options for the Field Integrated Cabinet (A3765A). PDUs can also be ordered separately using the cabinet accessory menu and installed at the customer's site. Note: One mounting kit (A4838A) is required for each D-Class server integrated into the Field Integrated 23" wide cabinet (A3765A). One mounting kit (A4838A) is also required for each additional D-Class server integrated in the field into the Factory Integrated 23" wide cabinet (A3764A). Note: The Factory Integration product (A4834A) provides the mounting kit and factory integration for each D-Class integrated at the factory into the Factory Integrated 23" wide cabinet. The Mounting Kit product (A4838A) provides the mounting kit for someone to integrate a D-Class server in the field into the Field Integrated 23" wide cabinet or the Factory Integrated 23" wide cabinet. Note: 2 PDUs are required if 3 or 4 servers are integrated into the cabinet			
• Cabinet with capacity to integrate 1 to 4 D-Class servers	A3765A	001	
• Cabinet with capacity to integrate 1 to 2 D-Class servers as well as 15 EIA units of peripherals	A3765A	002	

Description	Product #	Opt #	Price
• 1st 200-240 volts North American power	A3765A	AW4	
• Add 2nd 200-240 volts North American power	A3765A	A5J	
• 1st 200-240 volts International power	A3765A	AW5	
• Add 2nd 200-240 volts International power	A3765A	A5K	
• 1st 240 volts North American UPS PDU	A3765A	A5F	
• 1st 240 volts European UPS PDU	A3765A	A5G	
• 1st 120/240 volts Universal UPS PDU	A3765A	A5H	
• Add 2nd 120/240 volts Universal UPS PDU	A3765A	A5L	
• Mounting kit for integrating one D-Class server in the field into the D-Class 23" wide cabinet	A4838A		
• D-Class deskside front bezel (optional) (only needed to replace the front bezel if moving a D-Class server in the field from a 19" wide cabinet to the 23" wide cabinet)	A4838A	010	
• HP Rack System/E25 (includes side panels, anti-tip feet) Field Integrated Cabinet	A4900A		
Rear Door (Required – Max 1) (See Chapter 2 for factory integrated cabinet menu.)	A5211AZ		
Cabinet Accessories			
• HP side panel kit for Rack System/E41	J1506A		
• HP side panel kit for Rack System/E33	J1507A		
• HP side panel kit for Rack System/E25	J1508A		
• HP Filler Panels for rack System/E Quantity 6	J1514A		
• ADP Rackmount Kit (for rear of cabinet)	C2792A		
• Rackmount kit for A-Class Systems	A5810A		
• Rackmount Kit for D-Class Systems (Only for standard 19" cabinets)	C2805C		
• Rackmount Kit for E-Class Systems	C2803C		
• Field Rackmount Kit for L-Class Systems – HA Slider rails	A5556A		
• Field Rackmount Kit for L-Class Systems – Static rails	A5575A		
• Field Rackmount Kit for L-Class Systems in A189xA cabinets – Static rails	A5562A		
• Rackmount Kit for K-Class Systems	C2804C		
• 14 Kg (30 lbs.) Anti-tip Ballast	C2790A		
• Rackmount Kit for 5 Modem Distribution Panels	J2084A		
• Rackmount Kit for 10 Modem Distribution Panels	J2087A		
• HP Tie Kit for Rack System/E41	J1512A		
• HP Tie Kit for Rack System/E33	J1513A		
Power Distribution Unit: (requires additional power cord except for 30A PDU and no separate installation kit to be ordered)			
<i>19" modular PDU's (no switch):</i>			
• 100-240V, 16A PDU w/ 7-C13, 1-C19 receptacles	E7674A		
• 200-240V, 30A PDU w/ 8-C13, 2-C19 receptacles, N. America (comes w/attached Nema L6-30P power cord)	E7681A		
• 200-240V, 30A PDU w/ 8-C13, 2-C19 receptacles, International (comes w/ attached IEC-309 power cord)	E7682A		
• 200-240V, 60A PDU w/8-C19 receptacles, N. America	E7683A		
• 200-240V, 60A PDU w/8-C19 receptacles, International	E7684A		
<i>To have the switching capability for the above 19" modular PDU's, additional SKU's needs to be ordered:</i>			
• 200-240V switch accessory for 16A PDU's (includes the switch accy. and switch panel)	E7680A		
Power Cords: (to be used to connect the PDU's to the power source- wall or UPS)			
• Power cord w/ 5-20P, 4.5m	E7802A		
• Power cord w/ L6-20P, 4.5m	E7803A		
• Power cord w/ C20 plug, 4.0m	E7804A		
• Power cord w/ L6-30P, 4.5m	E7805A		
• Power cord w/ no plug, 4.5m	E7806A		
• Power cord w/ IEC-309, 4.5m (outside N. America use only)	E7808A		
• Power cord w/ CEE7/7, 4.5m (outside N. America use only)	E7809A		
• Power cord w/ C20 plug, 2.5m	E7798A		
Jumper Cords: (to connect the mounted equipment to the PDU within the rack)			

Description	Product #	Opt #	Price
• 250V Jumper cord w/ C13 to C14, 2.3m	E7742A		
• 125V Jumper cord w/ C13 to Nema 5-15, 2.3m	E7743A		
• Jumper cord w/ C14 to C15, 0.7m	E7807A		

Subchapter 4.5—Add-on Memory and Accessories

Description	Product #	Opt #	Price
A-Class, R-Class, D-Class Memory			
• 128 MB ECC memory module	A3408A		
• 256 MB ECC memory module	A3564A		
• 512 MB ECC memory module	A3717A		
E-Class Memory			
• 16 MB ECC memory module	A2946A		
• 32 MB ECC memory module	A3309A		
• 64 MB ECC memory module	A2948A		
• 128 MB ECC memory module, quantity price break for 4 or more units, \$2,495 ea.	A3131A		
8x7, F, G, H, I-Class Memory			
• 128 MB ECC High Density memory module	A2516A		
K-Class Memory			
• 128 MB high-density ECC memory module	A3027A		
• 256 MB high-density ECC memory module	A3483A		
• 512 MB high-density ECC memory module	A3737A		
T-Class Memory and I/O Accessories			
• 256 MB ECC memory board	A2234A		
• 512 MB ECC memory board	A2588A		
• 768 MB ECC memory board	A2589A		
• 8 GB memory carrier (T600 only; no memory installed)	A3839A		
• 1 GB memory module for T600 (Used with A3839A)	A3832A		
• HP-PB I/O Expansion Module	A1828A		
• HSC bus converter (T600 only)	A3567A		
• HP-PB bus converter (T600 only)	A3568A		
• Dual I/O Bus Converter	A1829A		
Floating-Point Coprocessor Field Upgrades			
• Floating-Point Coprocessor Field Upgrade on HP 9000 F-, G-, H-, I-Class, and 8x7	A2293A		
For HP 9000 Model 10 systems, Model 807S (shipped after 3/15/92)		001	
For HP 9000 Model 20 systems, Model 817S - 827S		003	
For HP 9000 Model 30 systems, Model 837S - 857S		004	
For HP 9000 Model 40 systems, Models 867S - 877S		002	
32 MHz CPU board with Floating-Point Coprocessor for 807S Servers shipped before 3/15/92 without floating-point socket		101	

Subchapter 4.6—Add-on Storage Products for Installation inside the SPU Enclosure

Description	Product #	Opt #	Price
Disk Drives			
Unless otherwise specified, all disk drive products are supported on HP-UX 9.04 and 10.01.			
The following products occupy one half-height slot:			
• 2 GB FWD SCSI-2 low profile or (K-Class only)	A3351A	002	
• 4 GB SE SCSI-2 low profile disk drive	A3352A	002	
• 4 GB FWD SCSI-2 low profile disk drive (K-Class only)	A3353A	002	
Removable Media Drives			
The following products occupy one half-height slot and are single-ended SCSI-2			
• 2.88 MB 3.5" IDE floppy disk drive	A3307A		
For field add-on		002	
• 12x CD-ROM Drive	A3715A		
For field add-on		002	
• 4.0 GB DDS DAT drive + data compression	A3183A		
For field add-on (orderable July 1, 1997)		002	
• 7.0 GB 8 mm tape drive SCSI-2. HP-UX 9.04 required.	A3357A		
Installation kit for F/G/H/I SPU		002	

Subchapter 4.7—Mass Storage

4.7.1—Mass Storage Warranty*

Product Family	U.S. Base Warranty
hp StorageWorks disk system 2100	One-Year, enhanced parts only, return to HP
hp StorageWorks disk system 2300	Three-Year, Next Day Response, On-Site Support
hp StorageWorks disk system 2405	Two-Year, Same Business Day, On-Site Support
hp StorageWorks disk systems HVD10, SC10 and FC10	Three-Year, 3 Day Response, On-Site Support
DLT (Standalone Only) and DDS Tape Drives	Two-Year Total Duration, with Year 1 Next-Day On-Site, Year 2 Unit Exchange
DLT (Library Only)	One-Year, Next Day Support
All Other Mass Storage Products	One-Year, 3 Day Response

*Warranty May Differ Outside the U.S.

4.7.2—StorageWorks disk system 2100

Description	Product #	Opt #	Price
• Disk System 2100 (Field Rack)	A5675A		
• Disk System 2100 (Field Rack – empty enclosure only, disk drives cannot be integrated)	A5675AE		
• Disk System 2100 (Factory Rack)	A5675AZ		
• Disk System 2100 (Desktop)	A5675AD		
• Disk System 2100 (Desktop – empty enclosure only, disk drives cannot be integrated)	A5675AD		
• Disk System 2105, DC Powered (Field Rack)	Y1770A		
Accessories			
• 18GB 10K RPM Ultra3 SCSI	A6537A		
• 36GB 10K RPM Ultra3 SCSI	A6538A		
• 73GB 10K RPM Ultra3 SCSI	A6539A		
• 18GB 15K RPM Ultra3 SCSI	A6540A		
• 36GB 15K RPM Ultra3 SCSI	A6541A		
• HP System E/Rittal Rack Kit	A5679A		
• HP Original Rack Kit	A5680A		

Description	Product #	Opt #	Price
• Two Post Carrier Grade Rack Kit	A6576A		
• Four Post Carrier Grade Rack Kit	A6578A		
• 0.5m 68P HD to 68P HD SCSI Cable	C2978B		
• 1.0m 68P HD to 68P HD SCSI Cable	C2911C		
• 1.5m 68P HD to 68P HD SCSI Cable	C2979B		
• 2.5m 68P HD to 68P HD SCSI Cable	C2924C		
• 5.0m 68P HD to 68P HD SCSI Cable	C7521A		
• 1.0m VHDCI to 68P HD SCSI Cable	C2361B		
• 2.5m VHDCI to 68P HD SCSI Cable	C2362B		
• 5.0m VHDCI to 68P HD SCSI Cable	C2365B		
• 2.0m VHDTS68/HDTS68 LVD/SE Self-terminating cable for V-Class	C7541A		
• 5.0m VHDTS68/HDTS68 LVD/SE Self-terminating cable for V-Class	C7520A		
• SCSI Terminator	C2364A		
• Deskside Pedestal Upgrade Kit (for desktop model only)	A6519A		

4.7.3—StorageWorks disk system 2300

Description	Product #	Opt #	Price
• Disk System 2300 field rack enclosure	A6490A		
• Disk System 2300 field rack enclosure (empty enclosure for stocking – no drive integration)	A6490AE		
• Disk System 2300 factory rack enclosure	A6490AZ		
• Disk System 2300 deskside enclosure	A6490AD		
• Disk System 2300 deskside enclosure (empty enclosure for stocking – no drive integration)	A6490ED		
• Disk System 2300 disk enclosure integrated through select express	A6490AV		
• Redundant controller for HP DS2300	A6491A		
• Redundant controller for HP DS2300 installed in enclosure	A6491A	0D1	
• Redundant controller for HP DS2300 integrated through Select Express	A6491AV		
• 18GB 10K RPM LVD disk module	A6537A		
• 18GB 10K RPM LVD disk module installed in enclosure	A6537A	0D1	
• 18GB 10K RPM LVD disk module integrated through Select Express	A6537AV		
• 36GB 10K RPM LVD disk module	A6538A		
• 36GB 10K RPM LVD disk module installed in enclosure	A6538A	0D1	
• 36GB 10K RPM LVD disk module integrated through Select Express	A6538AV		
• 73GB 10K RPM LVD disk module	A6539A		
• 73GB 10K RPM LVD disk module installed in enclosure	A6539A	0D1	
• 73GB 10K RPM LVD disk module integrated through Select Express	A6539AV		
• 18GB 15K RPM LVD disk module	A6540A		
• 18GB 15K RPM LVD disk module installed in enclosure	A6540A	0D1	
• 18GB 15K RPM LVD disk module integrated through Select Express	A6540AV		
• 36GB 15K RPM LVD disk module	A6541A		
• 36GB 15K RPM LVD disk module installed in enclosure	A6541A	0D1	
• 36GB 15K RPM LVD disk module integrated through Select Express	A6541AV		
• HP System/E Rack Rail Kit	A6209A		
• HP System/E Rack Rail Kit integrated through Select Express	A6209AV		
• HP Original Rack Rail Kit	A6244A		
• NT/Rittal Rack Rail Kit	A6496A		
• NT/Rittal Rack Rail Kit integrated through Select Express	A6496AV		
• 3U 2-post Rack Rail Kit	A6498A		
• 3U 2-post Rack Rail Kit integrated through Select Express	A6498AV		
• SCSI Cable 2M VHDTS68 M/M Multimd	C2373A		
• SCSI Cable 2M VHDTS68 M/M Multimd integrated into enclosure packaging	C2373A	0D1	
• SCSI Cable 5M VHDTS68 M/M Multimd	C2374A		
• SCSI Cable 5M VHDTS68 M/M Multimd integrated into enclosure packaging	C2374A	0D1	
• SCSI Cable 10M VHDTS68 M/M Multimd	C2375A		
• SCSI Cable 10M VHDTS68 M/M Multimd integrated into enclosure packaging	C2375A	0D1	

	Description	Product #	Opt #	Price
•	SCSI Cable 2.5M VHDS68/HDTS68 M/M Multimd	C2362B		
	SCSI Cable 2.5M VHDS68/HDTS68 M/M Multimd integrated into enclosure packaging	C2362B	OD1	
•	SCSI Cable 5M VHDS68/HDTS68 M/M Multimd	C2365B		
	SCSI Cable 5M VHDS68/HDTS68 M/M Multimd integrated into enclosure packaging	C2365B	OD1	
•	SCSI Cable 10M VHDS68/HDTS68 M/M Multimd	C2363B		
	SCSI Cable 10M VHDS68/HDTS68 M/M Multimd integrated into enclosure packaging	C2363B	OD1	
•	SCSI Terminator LVD/SE VHDS68	C2370A		

4.7.4—StorageWorks disk system 2405

	Description	Product #	Opt #	Price
•	Disk System 2405 Field Rackable Enclosure	A6250A		
	Includes DS2405 chassis, 2 power supplies and fans, 2 link controller cards, 2 power cords, disk slot filler panels, user guide and Command View SDM (rackmount kit not included). Accommodates 15 low profile FC disk drives. Cables are not included and must be ordered separately.			
	Mandatory option: Instructs VA customers to have HP14 or later firmware and Command View SDM Version 1.04 or later.		223	
•	18.2GB 15K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6191A	OD1	
•	36.4GB 10K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6192A	OD1	
•	36.4GB 15K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6193A	OD1	
•	73.4GB 10K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6194A	OD1	
•	Disk System 2405 Factory Racked Enclosure	A6250AZ		
	Includes DS2405 chassis, 2 power supplies and fans, 2 link controller cards, 2 power cords, disk slot filler panels, rackmount kit, user guide and Command View SDM. Accommodates 15 low profile FC disk modules. Cables are not included and must be ordered separately.			
	Mandatory option: Instructs VA customers to have HP14 or later firmware and Command View SDM Version 1.04 or later.		223	
•	18.2GB 15K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6191A	OD1	
•	36.4GB 10K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6192A	OD1	
•	36.4GB 15K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6193A	OD1	
•	73.4GB 10K RPM Fibre Channel Disk Drive (minimum 2 per DS2405)	A6194A	OD1	
•	Disk System 2405 Empty Enclosure	A6250AE		
	Includes DS2405 chassis, 2 power supplies and fans, 2 link controller cards, 2 power cords, disk slot filler panels, user guide and Command View SDM (rackmount kit not included). Accommodates 15 low profile FC disk modules. Disk drives cannot be integrated.			
	Cables and Accessories			
•	Fibre Channel Cable 2-meter LC Duplex 50/125 M/M	C7524A		
•	Fibre Channel Cable 16-meter LC Duplex 50/125 M/M	C7525A		
•	Fibre Channel Cable 50-meter LC Duplex 50/125 M/M	C7526A		
•	Fibre Channel Cable 200-meter LC Duplex 50/125 M/M	C7527A		
•	Fibre Channel Cable 2-meter LC/SC Duplex 50/125 M/M	C7529A		
•	Fibre Channel Cable 16-meter LC/SC Duplex 50/125 M/M	C7530A		
•	Fiber Optic Coupler SC F/F (for use with C7529A and C7530A)	C7534A		
•	Fiber Optic Adapter Kit (includes C7529A and C7534A)	C7540A		
•	HP System/E Rack Rail Kit	A6209A		
•	HP Original Rack Rail Kit	A6244A		
•	NT/Rittal Rack Rail Kit	A6496A		
•	3U 2-post Rail Kit	A6498A		

4.7.5—StorageWorks disk system HVD10

Note: Effective July 1, 2002, the HVD10 will be discontinued. Customers can continue purchasing the add-on disk drives until July 1, 2003 or while supplies last. Depending on the server, the DS2100, DS2300 or DS2405 is the replacement product for the HVD10.

	Description	Product #	Opt #	Price
•	1-meter HDTS68 (M/M) Multimd	C2911C	OD1	
•	2.5-meter HDTS68 (M/M) Multimd	C2924C	OD1	
•	5-meter HDTS68 (M/M) Multimd	C7521A	OD1	
•	10-meter HDTS68 (M/M) Multimd	C7522A	OD1	
•	20-meter HDTS68 (M/M) Multimd	C7532A	OD1	
•	1-meter VHDS68/HDTS68 (M/M) Multimd	C2361B	OD1	
•	2.5-meter VHDS68/HDTS68 (M/M) Multimd	C2362B	OD1	
•	5-meter VHDS68/HDTS68 (M/M) Multimd	C2365B	OD1	
•	10-meter VHDS68/HDTS68 (M/M) Multimd	C2363B	OD1	
•	5-meter HDTS68 ILT (M/M)	C7554A	OD1	
•	10-meter HDTS68 ILT (M/M)	C7555A	OD1	
•	5-meter VHDS68/HDTS68 HVD ILT (M/M)	C5766A	OD1	
•	10-meter VHDS68/HDTS68 HVD ILT (M/M)	C5767A	OD1	
•	0.5-meter VHDS68/HDTS68 ILT (M/F)	C7519A	OD1	
•	2-meter V cable (68 pin HD) male	C7544A	OD1	
•	2-meter V cable VHDCI/VHDCI/ 68 pin HD	A5607A	OD1	
•	2-meter V cable VHDCI/VHDCI ILT/ 68 pin HD	A5608A	OD1	
•	2-meter V cable 68 pin HD/VHDCI/68 pin HD	A5609A	OD1	
•	2-meter V cable 68 pin HD/VHDCI ILT/68 pin HD	A5610A	OD1	
•	Add on 18.2 GB 10K RPM High Performance Ultra3 SCSI LVD Disk Module	A6272A		
•	Add on 18.2 GB 15K RPM High Performance Ultra3 SCSI LVD Disk Module	A6273A		
•	Add on 36.4 GB 10K RPM High Performance Ultra3 SCSI LVD Disk Module	A6274A		
•	Add on 36.4 GB 15K RPM High Performance Ultra3 SCSI LVD Disk Module	A6275A		
•	HP Rack System /E Rack Rail Accessory Kit	A5251A		

4.7.6—StorageWorks disk system SC10

Note: Effective June 1, 2002, the SC10 will be discontinued. Customers can continue purchasing the add-on disk drives until July 1, 2003 or while supplies last. Depending on the server, the DS2100 or DS2300 is the replacement product for the SC10. Please note that the DC version (Z7536A) is still available.

	Description	Product #	Opt #	Price
•	Z7536A Surestore Disk System SC10, DC Powered, Field Rackable (requires CE installation)	Z7536A		
	Includes 2 DC power supplies, 2 blower modules, 1 Bus Control Card, 2 power cords, 2 Rack Rail Kits and ½ U filler panel. Accommodates 10 Half High or 10 low profile disk modules.			
•	Add on Bus Controller Card	A5273A		
•	Add on 18.2 GB 10K RPM High Performance Ultra3 SCSI LVD Module	A6272A		
•	Add on 18.2 GB 15K RPM High Performance Ultra3 SCSI LVD Module	A6273A		
•	Add on 36.4 GB 10K RPM High Performance Ultra3 SCSI LVD Module	A6274A		
•	Add on 36.4 GB 15K RPM High Performance Ultra3 SCSI LVD Module	A6275A		
•	Add on 73.4 GB 10K RPM High Performance Ultra3 SCSI LVD Disk Module	A6276A		
•	2-meter VHTDS68 (M/M) Multimd	C2373A	OD1	
•	5-meter VHTDS68 (M/M) Multimd	C2374A	OD1	
•	10-meter VHTDS68 (M/M) Multimd	C2375A	OD1	
•	2-meter VHTDS68 LVD/SE ILT (M/M)	A5668A	OD1	
•	5-meter VHTDS68 LVD/SE ILT (M/M)	A5669A	OD1	
•	10-meter VHTDS68 LVD/SE ILT (M/M)	A5670A	OD1	
•	HP Rack System /E Rack Rail Accessory Kit	A5251A		

4.7.7—StorageWorks disk system FC10

Note: Effective April 1, 2002, the FC10 will be discontinued. Customers can continue purchasing the add-on disk drives until September 30, 2002 or while supplies last. The StorageWorks disk system 2405 is the replacement product for the FC10.

Description	Product #	Opt #	Price
• Add on 36GB 10K RPM High Performance Fibre Channel Disk Module	A6485A		
• Add on 73GB 10K RPM High Performance Fibre Channel Disk Module	A6487A		
• Add on 18GB 15K RPM High Performance Fibre Channel Disk Module	A6488A		
• Add on 36GB 15K RPM High Performance Fibre Channel Disk Module	A6486A		
• HP Rack System /E Rack Rail Accessory Kit	A5251A		

4.7.8—Mass Storage Subsystems

Note: Effective January 1, 2002, the HASS will be discontinued. Customers can continue purchasing the 18.2 GB 7200 RPM low profile drive (A5286A) while supplies last. The Surestore Disk System HVD10 or the DS2100 are the replacement products for the HASS.

Description	Product #	Opt #	Price
HP SMART Storage Family of Storage Modules & Enclosure: Factory Racked Tape Products			
• HP SMART Storage Full Height Enclosure, Factory-racked (3 EIA units high)	C4318SZ		
HP SMART Storage DDS-2 Tape Drive		102	
HP SMART Storage DDS-3 Tape Drive		103	
HP SMART Storage DDS-3 Tape Autoloader		104	
HP SMART Storage DDS-4 Tape Drive		110	
HP SMART Storage DDS-4 Tape Autoloader		111	
HP SMART Storage DLT 4000 (HP-UX)		106	
HP SMART Storage DLT 4000 (MPE/iX)		107	
HP SMART Storage DVD-ROM		108	
HP SMART Storage DLT-8000)		109	
.5 68-pin HD to 68-pin HD Cable		001	
.9 m 68-pin HD to 68-pin HD cable		801	
2.5 m 68-pin HD to 68-pin HD cable		802	
5 m 68-pin HD to 68-pin HD cable		803	
1 m VHDCI 68-pin to HD 68-pin cable		811	
2.5 m VHDCI 68-pin to HD 68-pin cable		812	
5.0 m VHDCI 68-pin to HD 68-pin cable		813	
10.0 m VHDCI 68-pin to HD 68-pin cable		814	
1 m 50-pin LD to 68-pin HD cable		821	
2 m 50-pin LD to 68-pin HD cable		822	
1 m 50-pin HD to 68-pin HD cable		825	
2 m 50-pin HD to 68-pin HD cable		827	
WSE 68-pin SCSI terminator		835	
FWD 68-pin SCSI terminator		836	
LVD/SE 68-pin terminator		837	
"Y" Power cable to power two devices from single PDU outlet		850	
10 m 68-pin HD to 68-pin HD V-Class cable		851	
2/3 m V in-line terminator V-Class 68-pin HDM		871	
2/3 m V in-line terminator V-Class 68-pin HDM		873	
5 m 68-pin HD to 68-pin HD V-Class cable		875	
HP SMART Storage Family of Storage Modules and Enclosure: Field Racked Customer Installable/Field Upgrade			
• HP SMART Storage Full- Height Enclosure Field-racked (3 EIA Units)	C4318B		

Description	Product #	Opt #	Price
• HP SMART Storage Half-Height Enclosure Field-racked (2 EIA Units)	C4317A		
• HP SMART Storage 9 GB LVD Disk Drive Field-racked	C6403A		
• .5 m 68-pin HD to 68-pin HD cable	C2978B		
• 1.5 m 68-pin HD to 68-pin HD cable	C2979B		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable	C2906A		
• WSE 68-pin SCSI terminator	C2972A		
• HP SMART Storage Half Height NSE DVD-ROM Field-racked	C4315A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable	C2911C		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable (male to male)	C2906A		
• WSE 68-pin SCSI terminator	C2972A		
HP SMART Storage Family of Storage Modules & Enclosures			
Field-Racked Tape Products (*C4318B or C4317A required)			
• HP SMART Storage NSE DDS-2 Tape Drive Field-racked	C6363A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable	C2911C		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable	C2906A		
• WSE 68-pin SCSI terminator	C2972A		
• HP SMART Storage NSE DDS-3 Tape Drive Field-racked	C6365A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable	C2911C		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable	C2906A		
• WSE 68-pin SCSI terminator	C2972A		
• HP SMART Storage NSE DDS-3 Tape Autoloader Field-racked	C6367A		
• 0.5 m 68-pin HD to 68-pin HD cable (male to male)	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable (male to male)	C2911C		
• 1 m 50-pin HD to 68-pin HD cable (male to male)	C2961A		
• 2 m 50-pin HD to 68-pin HD cable (male to male)	C2906A		
• WSE 68-pin SCSI terminator	C2972A		
• HP SMART Storage (LVD) DDS-4 Tape Drive Field-racked	C6369A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 1.5 m 68-pin HD to 68-pin HD cable	C2979B		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable	C2906A		
• 0.9 m 68-pin HD to 68-pin HD cable	C2911C		
• 2.5 m 68-pin HD to 68-pin HD cable	C2924C		
• LVD 68-pin SCSI terminator	C2364A		
• 1 m VHDCI 68-pin to HD 68-pin cable	C2361B		
• 2.5 m VHDCI 68-pin to HD 68-pin cable	C2362B		
• 10.0 m VHDCI 68-pin to HD 68-pin cable	C2363B		
• 5.0 m VHDCI 68-pin to HD 68-pin cable	C2365B		
• HP SMART Storage (LVD) DDS-4 Tape Autoloader	C6371A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 1.5 m 68-pin HD to 68-pin HD cable	C2979B		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable	C2906A		
• 0.9 m 68-pin HD to 68-pin HD cable	C2911C		
• 2.5 m 68-pin HD to 68-pin HD cable	C2924C		
• LVD 68-pin SCSI terminator	C2364A		
• 1 m VHDCI 68-pin to HD 68-pin cable	C2361B		
• 2.5 m VHDCI 68-pin to HD 68-pin cable	C2362B		

Description	Product #	Opt #	Price
• 10.0 m VHDCI 68-pin to HD 68-pin cable	C2363B		
• 5.0 m VHDCI 68-pin to HD 68-pin cable	C2365B		
• HP SMART Storage FWD DLT 8000 Drive Field-racked)	C6379A		
• 0.5 m 68-pin HD to 68-pin HD cable (male to male)	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable (male to male)	C2911C		
• 2.5 m 68-pin HD to 68-pin HD cable (male to male)	C2924C		
• FWD 68-pin SCSI terminator	C2905A		
• HP SMART Storage NSE DLT 4000 (MPE/iX) Field-racked	C6381A		
• 0.5 m 68-pin HD to 68-pin HD cable (male to male)	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable (male to male)	C2911C		
• 1 m 50-pin HD to 68-pin HD cable (male to male)	C2961A		
• 2 m 50-pin HD to 68-pin HD cable (male to male)	C2906A		
• Smart WSE 68-pin SCSI terminator	C2972A		
• HP SMART Storage FND DLT 4000 (HP-UX) Field-racked	C6383A		
• 0.5 m 68-pin HD to 68-pin HD cable (male to male)	C2978B		
• 0.9 m 68-pin HD to 68-pin HD cable (male to male)	C2911C		
• 2.5 m 68-pin HD to 68-pin HD cable (male to male)	C2924CA		
• FWD 68-pin SCSI terminator	C2905A		
HP SMART Storage Family: Desktop Modules			
• HP SMART Storage Desktop NSE DVD-ROM Drive	C4314A		
• .5 m 50-pin HD to HD SCSI cable	C2955A		
• 1 m 50-pin HD to HD SCSI cable	C2908A		
• 2 m 50-pin HD to HD SCSI cable	C2957A		
• NSE Terminator	C2904A		
• 1.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2367A		
• 2.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2368A		
HP Smart Storage Desktop Tape Products			
• HP SMART Storage Desktop NSE DDS-2 Tape Drive	C6362A		
• .5 m 50-pin HD to HD SCSI cable	C2955A		
• 1 m 50-pin HD to HD SCSI cable	C2908A		
• 2 m 50-pin HD to HD SCSI cable	C2957A		
• NSE Terminator	C2904A		
• 1.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2367A		
• 2.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2368A		
• HP SMART Storage Desktop NSE DDS-3 Tape Drive	C6364A		
• .5 m 50-pin HD to HD SCSI cable	C2955A		
• 1 m 50-pin HD to HD SCSI cable	C2908A		
• 2 m 50-pin HD to HD SCSI cable	C2957A		
• NSE Terminator	C2904A		
• 1.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2367A		
• 2.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2368A		
• HP SMART Storage Desktop DDS-3 Tape Autoloader	C6366A		
• .5 m 50-pin HD to HD SCSI cable	C2955A		
• 1 m 50-pin HD to HD SCSI cable	C2908A		
• 2 m 50-pin HD to HD SCSI cable	C2957A		
• NSE Terminator	C2904A		
• 1.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2367A		
• 2.5 m 68 pin VHDCI to 50 pin HD SCSI cable	C2368A		
• HP SMART Storage Desktop LVD DDS-4 Tape Drive	C6368A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 1.5 m 68-pin HD to 68-pin HD cable	C2979B		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• WSE/NSE 68-pin SCSI terminator	C2972A		
• LVD/SE 68-pin SCSI terminator	C2364A		
• 2 m 68 pin to 50 pin HD SCSI cable	C2906A		

Description	Product #	Opt #	Price
• 1 m VHDCI 68-pin to HD 68-pin cable	C2361B		
• 2.5 m VHDCI 68-pin to HD 68-pin cable	C2362B		
• 10.0 m VHDCI 68-pin to HD 68-pin cable	C2363B		
• 5.0 m VHDCI 68-pin to HD 68-pin cable	C2365B		
• HP SMART Storage Desktop LVD DDS-4 Tape Autoloader	C6370A		
• 0.5 m 68-pin HD to 68-pin HD cable	C2978B		
• 1.5m 68-pin HD to 68-pin HD cable	C2979B		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 68 pin to 50 pin HD SCSI cable	C2906A		
• LVD 68-pin SCSI terminator	C2364A		
• 1 m VHDCI 68-pin to HD 68-pin cable	C2361B		
• 2.5 m VHDCI 68 pin I to HD 68-pin cable	C2362B		
• 10.0 m VHDCI 68-pin to HD 68-pin cable	C2363B		
• 5.0 m VHDCI 68-pin to HD 68-pin cable	C2365B		
• HP SMART Storage Desktop DLT 8000 Drive	C6378A		
• 0.9 m 68-pin HD to 68-pin HD cable	C2911C		
• 2.5 m 68-pin HD to 68-pin HD cable	C2924C		
• FWD Terminator	C2905A		
• HP SMART Storage DLT 4000 (MPE/iX)	C6380A		
• .5 m 50-pin HD to HD SCSI cable	C2955A		
• 1 m 50-pin HD to HD SCSI cable	C2908A		
• 2 m 50-pin HD to HD SCSI cable	C2957A		
• NSE Terminator	C2904A		
• HP SMART Storage FND DLT 4000 (HP-UX) (terminator is included)	C6382A		
• 1 m 50-pin HD to 68-pin HD cable	C2961A		
• 2 m 50-pin HD to 68-pin HD cable)	C2906A		

4.7.9—SureStore Tape Autoloaders and Accessories

Description	Product #	Opt #	Price
DLT Tape Autoloaders			
• HP SureStore Autoloader 1/9 (DLT8000 – standalone unit – HVDS)	C7145RA		
• HP SureStore Autoloader 1/9 (DLT8000 – standalone unit – LVDS)	C7145NB		
• HP SureStore Autoloader 1/9 (DLT8000 – rackmount unit – HVDS)	C7745RA		
• HP SureStore Autoloader 1/9 (DLT8000 – rackmount unit – LVDS)	C7745NB		
• HP SureStore Autoloader 1/9 (DLT8000 – standalone unit – HVDS) * with remote mgmt card	C7146RA		
• HP SureStore Autoloader 1/9 (DLT8000 – standalone unit – LVDS) * with remote mgmt card	C7146NB		
• HP SureStore Autoloader 1/9 (DLT8000 – rackmount unit – HVDS) * with remote mgmt card	C7746RA		
• HP SureStore Autoloader 1/9 (DLT8000 – rackmount unit – LVDS) * with remote mgmt card	C7746NB		
Ultrium Tape Autoloaders			
• HP SureStore Autoloader 1/9 (Ultrium – standalone unit – HVDS)	C7147AA		
• HP SureStore Autoloader 1/9 (Ultrium – standalone unit – LVDS)	C7147CB		
• HP SureStore Autoloader 1/9 (Ultrium – rackmount unit – HVDS)	C7747AA		
• HP SureStore Autoloader 1/9 (Ultrium – rackmount unit – LVDS)	C7747CB		
• HP SureStore Autoloader 1/9 (Ultrium – standalone unit – HVDS) * with remote mgmt card	C7149AA		
• HP SureStore Autoloader 1/9 (Ultrium – standalone unit – LVDS) * with remote mgmt card	C7149CB		
• HP SureStore Autoloader 1/9 (Ultrium – rackmount unit – HVDS) * with remote mgmt card	C7748AA		
• HP SureStore Autoloader 1/9 (Ultrium – rackmount unit – LVDS) * with remote mgmt card	C7748CB		
Accessories			
• 1/9 Skins Kit (includes all cosmetic parts – front bezel, chin, enclosure and feet)	C7148A		
• 1/9 Rackmount Kit (Two 1/9 Autoloaders per rack; can be mounted side-by-side)	C7740R		
• 1/9 Remote Management Card Kit	C7749A		
• 1/9 Ultrium HVDS Conversion Kit (converts HVDS DLT or DLT1 autoloader to Ultrium)	C7768A		
• 1/9 Ultrium LVDS Conversion Kit (converts LVDS DLT or DLT1 autoloader to Ultrium)	C7768C		

Description	Product #	Opt #	Price
• 1/9 DLT 6-Slot Removable Magazine (with six pieces of media)	C7742R		
• 1/9 DLT 6-Slot Removable Magazine (empty)	C7741R		
• 1/9 Ultrium 6-Slot Removable Magazine (with six pieces of media)	C7744A		
• 1/9 Ultrium 6-Slot Removable Magazine (empty)	C7743A		
Multimode Cables for Tape Drives			
SCSI Cable 0.5m HDTS 68 pin Male/Male Multimode cable	C2978B		
SCSI Cable 1 m HDTS 68 pin Male/Male Multimode cable	C2911C		
SCSI Cable 1.5m HDTS 68 pin Male/Male Multimode cable	C2979B		
SCSI Cable 2.5m HDTS 68 pin Male/Male Multimode cable	C2924C		
SCSI Cable 5 m HDTS 68 pin Male/Male Multimode cable	C7521A		
SCSI Cable 10 m HDTS 68 pin Male/Male Multimode cable	C7522A		
SCSI Cable 1 m VHDS 68 pin Male/Male Multimode cable	C2361B		
SCSI Cable 2.5 m VHDS 68 pin Male/Male Multimode cable	C2362B		
SCSI Cable 5 m VHDS 68 pin Male/Male Multimode cable	C2365B		
SCSI Cable 10 m VHDS 68 pin Male/Male Multimode cable	C2363B		
SCSI Terminator LVDS/SE HDTS 68 Multimode	C2364A		
SCSI Terminator LVDS/SE VHDS 68 Multimode	C2370A		

4.7.10—SureStore Mid-Range Tape Libraries and Accessories

Description	Product #	Opt #	Price
DLT Tape Libraries			
• HP SURESTORE DLT TAPE LIBRARY 2/20 (RACKMOUNT UNIT - HVDS)	A5583A		
• HP SURESTORE DLT TAPE LIBRARY 2/20 (RACKMOUNT UNIT - LVDS)	A4680A		
Requires 1 or 2 DLT tape drives (not included); includes empty media magazines for 20 cartridges.			
• HP SURESTORE DLT TAPE LIBRARY 2/20 (STANDALONE UNIT - HVDS)	A5584A		
• HP SURESTORE DLT TAPE LIBRARY 2/20 (STANDALONE UNIT - LVDS)	A4681A		
Requires 1 or 2 DLT tape drives (not included); includes empty media magazines for 20 cartridges.			
• HP SURESTORE DLT TAPE LIBRARY 4/40 (RACKMOUNT UNIT - HVDS)	A5585A		
• HP SURESTORE DLT TAPE LIBRARY 4/40 (RACKMOUNT UNIT - LVDS)	A4682A		
Requires 2 or 4 DLT tape drives (not included); includes empty media magazines for 40 cartridges.			
• HP SURESTORE DLT TAPE LIBRARY 4/40 (STANDALONE UNIT - HVDS)	A5586A		
• HP SURESTORE DLT TAPE LIBRARY 4/40 (STANDALONE UNIT - LVDS)	A4683A		
Requires 2 or 4 DLT tape drives (not included); includes empty media magazines for 40 cartridges.			
• HP SURESTORE DLT TAPE LIBRARY 6/60 (RACKMOUNT UNIT - HVDS)	A5587A		
• HP SURESTORE DLT TAPE LIBRARY 6/60 (RACKMOUNT UNIT - LVDS)	A4684A		
Requires 2, 4, or 6 DLT tape drives (not included); includes empty media magazines for 60 cartridges.			
• HP SURESTORE DLT TAPE LIBRARY 6/60 (STANDALONE UNIT - HVDS)	A5588A		
• HP SURESTORE DLT TAPE LIBRARY 6/60 (STANDALONE UNIT - LVDS)	A4685A		
Requires 2, 4, or 6 DLT tape drives (not included); includes empty media magazines for 60 cartridges.			
HP SURESTORE DLT TAPE LIBRARY 8/80 (STANDALONE UNIT - HVDS)	A6287A		
HP SURESTORE DLT TAPE LIBRARY 8/80 (STANDALONE UNIT - LVDS)	A6288A		
Requires 2, 6, or 8 DLT tape drives (not included); includes empty media magazines for 80 cartridges.			
HP SURESTORE DLT TAPE LIBRARY 10/100 (STANDALONE UNIT - HVDS)	A6289A		
HP SURESTORE DLT TAPE LIBRARY 10/100 (STANDALONE UNIT - LVDS)	A6290A		
Requires 4 or 10 DLT tape drives (not included); includes empty media magazines for 100 cartridges.			
DLT Tape Drives – Required with all DLT libraries			
• HP SureStore DLT 8000 Tape Drive – HVDS	A5589A		
Factory Installation – Installs tape drives in library at the factory. (This option is required with all orders that include a tape library. To order a separate additional drive for upgrade or other purposes, use a separate order section and order the drive as an accessory without the OD1 option.)		OD1	
• HP SureStore DLT 8000 Tape Drive - LVDS	A4686A		
Factory Installation – Installs tape drives in library at the factory. (This option is required with all orders that include a tape library. To order a separate additional drive for upgrade or other purposes, use a separate order section and order the drive as an accessory without the OD1 option.)		OD1	

Description	Product #	Opt #	Price
Ultrium Tape Libraries			
HP SURESTORE ULTRIUM TAPE LIBRARY 2/20 (RACKMOUNT UNIT - HVDS)	A6310A		
HP SURESTORE ULTRIUM TAPE LIBRARY 2/20 (RACKMOUNT UNIT - LVDS)	A6311A		
Requires 1 or 2 Ultrium tape drives (not included); includes empty media magazines for 20 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 2/20 (STANDALONE UNIT - HVDS)	A6312A		
HP SURESTORE ULTRIUM TAPE LIBRARY 2/20 (STANDALONE UNIT - LVDS)	A6313A		
Requires 1 or 2 Ultrium tape drives (not included); includes empty media magazines for 20 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 4/40 (RACKMOUNT UNIT - HVDS)	A6314A		
HP SURESTORE ULTRIUM TAPE LIBRARY 4/40 (RACKMOUNT UNIT - LVDS)	A6315A		
Requires 2 or 4 Ultrium tape drives (not included); includes empty media magazines for 40 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 4/40 (STANDALONE UNIT - HVDS)	A6316A		
HP SURESTORE ULTRIUM TAPE LIBRARY 4/40 (STANDALONE UNIT - LVDS)	A6317A		
Requires 2 or 4 Ultrium tape drives (not included); includes empty media magazines for 40 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 6/60 (RACKMOUNT UNIT - HVDS)	A6318A		
HP SURESTORE ULTRIUM TAPE LIBRARY 6/60 (RACKMOUNT UNIT - LVDS)	A6319A		
Requires 2, 4, or 6 Ultrium tape drives (not included); includes empty media magazines for 60 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 6/60 (STANDALONE UNIT - HVDS)	A6320A		
HP SURESTORE ULTRIUM TAPE LIBRARY 6/60 (STANDALONE UNIT - LVDS)	A6321A		
Requires 2, 4, or 6 Ultrium tape drives (not included); includes empty media magazines for 60 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 8/80 (STANDALONE UNIT - HVDS)	A6291A		
HP SURESTORE ULTRIUM TAPE LIBRARY 8/80 (STANDALONE UNIT - LVDS)	A6292A		
Requires 2, 6, or 8 Ultrium tape drives (not included); includes empty media magazines for 80 cartridges.			
HP SURESTORE ULTRIUM TAPE LIBRARY 10/100 (STANDALONE UNIT - HVDS)	A6293A		
HP SURESTORE ULTRIUM TAPE LIBRARY 10/100 (STANDALONE UNIT - LVDS)	A6294A		
Requires 4 or 10 Ultrium tape drives (not included); includes empty media magazines for 100 cartridges.			
Ultrium Tape Drives– Required with all Ultrium libraries			
HP SureStore Ultrium Tape Drive – HVDS	A6306A		
Factory Installation – Installs tape drives in library at the factory. (This option is required with all orders that include a tape library. To order a separate additional drive for upgrade or other purposes, use a separate order section and order the drive as an accessory without the OD1 option.)		OD1	
HP SureStore Ultrium Tape Drive – HVDS	A6307A		
Factory Installation – Installs tape drives in library at the factory. (This option is required with all orders that include a tape library. To order a separate additional drive for upgrade or other purposes, use a separate order section and order the drive as an accessory without the OD1 option.)		OD1	
Fibre Channel Interfaces			
HP SureStore Fibre Channel Interface – Ultrium LVDS	A4674A		
Factory Installation – Installs fibre channel interface in library at the factory. (Required unless ordering as an accessory.)		OD1	
• HP SureStore Fibre Channel Interface – DLT HVDS	A5590A		
Factory Installation – Installs fibre channel interface in library at the factory. (Required unless ordering as an accessory.)		OD1	
• HP SureStore Fibre Channel Interface – Ultrium HVDS (for field upgrade only)	A4673A		
• HP SureStore Fibre Channel Interface – DLT LVDS (for field upgrade only)	A4687A		
Upgrades, Power Supplies, and Magazines			
• 20 to 40 Slot Upgrade Kit for 2/20 DLT Library	A1378A		
• 40 to 60 Slot Upgrade Kit for 4/40 DLT Library	A1379A		
• 20 to 40 Slot Upgrade Kit for 2/20 Ultrium Library	A6325A		
• 40 to 60 Slot Upgrade Kit for 4/40 Ultrium Library	A6326A		
• 40 Slot Upgrade & Rack Kit for 40 or 60 Slot DLT Library	A6295A		
Use to upgrade either an existing 40 or 60 slot DLT tape library to a 80 or 100 slot DLT tape library. Kit includes a 2 meter rack plus an additional 40 slots. Requires one additional 20 slot upgrade kit (A6359A) if upgrading from an existing 40 slot to 80 slot OR 60 slot to 100 slot configuration.			
Requires two additional 20 slot upgrade kits (A6359A) if upgrading from an existing 40 slot to 100			

Description	Product #	Opt #	Price
slot configuration. Twenty slots will always be left over and unused when transferring an existing system into the 100 slot rack. Requires additional DLT tape drives (not included) to scale to the supported configurations (6/80, 8/80 or 10/100).			
<ul style="list-style-type: none"> 40 Slot Upgrade & Rack Kit for 40 or 60 Slot Ultrium Library 	A6296A		
Use to upgrade either an existing 40 or 60 slot Ultrium tape library to a 80 or 100 slot Ultrium tape Library. Kit includes a 2 meter rack plus an additional 40 slots. Requires one additional 20 slot upgrade kit (A6360A) if upgrading from an existing 40 slot to 80 slot OR 60 slot to 100 slot configuration. Requires two additional 20 slot upgrade kits (A6360A) if upgrading from an existing 40 slot to 100 slot configuration. Twenty slots will always be left over and unused when transferring an existing system into the 100 slot rack. Requires additional Ultrium tape drives (not included) to scale to the supported configurations (6/80, 8/80 or 10/100).			
<ul style="list-style-type: none"> 20 Slot Upgrade Kit for 80 or 100 Slot DLT Library 	A6359A		
Use to upgrade from an existing 40 or 60 slot to 80 or 100 slot tape library. Requires the 100 slot 2 meter rack upgrade kit (A6295A) if upgrading an existing library. Kit can also be used to upgrade a 6/80 or 8/80 configuration to the supported 10/100 configuration. Requires additional DLT tape drives (not included).			
<ul style="list-style-type: none"> 20 Slot Upgrade Kit for 60 to 100 Slot Ultrium Library 	A6360A		
Use to upgrade from an existing 40 or 60 slot to 80 or 100 slot tape library. Requires the 100 slot 2 meter rack upgrade kit (A6296A) if upgrading an existing library. Kit can also be used to upgrade a 6/80 or 8/80 configuration to the supported 10/100 configuration. Requires additional Ultrium tape drives (not included).			
<ul style="list-style-type: none"> 100 Slot to 120 and 140 Slot Upgrade Kit for 6/140 DLT Library 	A4671A	OD1	
Factory installation – installs upgrade kits for 6/140 at the factory. (This option is required with all orders for a 4,6/120 or 4,6/140 slot library; the kit upgrades the library in 20 slot increments. To order a capacity upgrade kit to upgrade from a 100 slot library to a 120 or 140 slot library in the field, use a separate order section and order the capacity upgrade kit without the OD1 option.)			
100 Slot to 120 and 140 Slot Upgrade Kit for 6/140 Ultrium Library	A4668A	OD1	
Factory installation – installs upgrade kits for 6/140 at the factory. (This option is required with all orders for a 4,6/120 or 4,6/140 slot library; the kit upgrades the library in 20 slot increments. To order a capacity upgrade kit to upgrade from a 100 slot library to a 120 or 140 slot library in the field, use a separate order section and order the capacity upgrade kit without the OD1 option.)			
<ul style="list-style-type: none"> Tape Library Redundant Power Supply (for use with 2/20 through 6/140 Ultrium tape libraries) 	A4676A	OD1	
Factory Installation – Installs power supply in library at the factory. (This option is required with all orders that include a tape library. To order a separate additional power supply for upgrade or other purposes, use a separate order section and order the power supply as an accessory without the OD1 option.)			
<ul style="list-style-type: none"> 2/20-6/140 DLT 5-Slot Removable Magazine (with five pieces of media) 	C7236J		
<ul style="list-style-type: none"> 2/20-6/140 DLT 5-Slot Removable Magazine (empty) 	C7235J		
<ul style="list-style-type: none"> 2/20-6/140 Ultrium 5-Slot Removable Magazine (with five pieces of media) 	C9554A		
<ul style="list-style-type: none"> 2/20-6/140 Ultrium 5-Slot Removable Magazine (empty) 	C9553A		
Enclosures and Rack Mount Kits			
<ul style="list-style-type: none"> Desktop Enclosure Kit for 20 Slot Library 	C7204J		
<ul style="list-style-type: none"> Deskside Enclosure Kit for 40 Slot Library 	C7216J		
<ul style="list-style-type: none"> Deskside Enclosure Kit for 60 Slot Library 	C7232J		
<ul style="list-style-type: none"> Rackmount Kit for 2/20 	C7205J		
<ul style="list-style-type: none"> Rackmount Kit for 4/40 	C7217J		
<ul style="list-style-type: none"> Rackmount Kit for 6/60 	C7233J		
Multimode Cables for Tape Drives			
SCSI Cable 0.5m HDTS 68 pin Male/Male Multimode cable	C2978B		
SCSI Cable 1 m HDTS 68 pin Male/Male Multimode cable	C2911C		
SCSI Cable 1.5m HDTS 68 pin Male/Male Multimode cable	C2979B		
SCSI Cable 2.5m HDTS 68 pin Male/Male Multimode cable	C2924C		
SCSI Cable 5 m HDTS 68 pin Male/Male Multimode cable	C7521A		
SCSI Cable 10 m HDTS 68 pin Male/Male Multimode cable	C7522A		
SCSI Cable 1 m VHDS 68 pin Male/Male Multimode cable	C2361B		

Description	Product #	Opt #	Price
SCSI Cable 2.5 m VHDS 68 pin Male/Male Multimode cable	C2362B		
SCSI Cable 5 m VHDS 68 pin Male/Male Multimode cable	C2365B		
SCSI Cable 10 m VHDS 68 pin Male/Male Multimode cable	C2363B		
SCSI Terminator LVDS/SE HDS 68 Multimode	C2364A		
SCSI Terminator LVDS/SE VHDS 68 Multimode	C2370A		

4.7.11—SureStore High-End Tape Libraries and Accessories

Description	Product #	Opt #	Price
Tape Libraries			
<ul style="list-style-type: none"> HP SureStore Tape Library 10/180 Requires 1 to 10 DLT drives, 1 to Ultrium drives, 1 to 6 9840 drives or a mixture of all types (not included); includes empty media magazines for 84 cartridges 	A5617A		
<ul style="list-style-type: none"> HP SureStore Tape Library 20/700 Requires 1 to 20 DLT drives, 1 to 20 Ultrium drives, 1 to 12 9840 drives or a mixture of all types (not included); includes empty media magazines for 216 cartridges. 	A5597B		
Tape Drives – Required with all libraries			
<ul style="list-style-type: none"> HP SureStore DLT 8000 Tape Drive for 10/180 or 20/700 Library 	A5599A		
<ul style="list-style-type: none"> HP SureStore Ultrium Tape Drive LVDS for 10/180 or 20/700 Library 	A6322A		
<ul style="list-style-type: none"> HP SureStore Ultrium Tape Drive HVDS for 10/180 or 20/700 Library 	A6323A		
<ul style="list-style-type: none"> HP SureStore 9840 Tape Drive for 10/180 or 20/700 Library <p>Note: Mixing and matching DLT 8000 tape drives, Ultrium tape drives and 9840 tape drives in the same library is supported in the 10/180 and 20/700 libraries. However, since the 9840 tape drive assembly is larger in size than the DLT 8000 tape drive and Ultrium tape drives, it is not a 1:1 ratio between drive types. The correct ratio is approximately 3:1, DLT/Ultrium to 9840 tape drives. Alone, only 12×9840 drives fill the allowable drive space in a 20/700 library and only 6×9840 drives fill the allowable drive space in a 10/180 library. If you are using only DLT 8000 tape drives and Ultrium tape drives the ratio is 1:1 since the Ultrium Tape drive is a little smaller than the DLT tape drives. See HP9000 Configuration Guide for specific combinations of drives.</p>	A5598A		
Upgrade Kits			
<ul style="list-style-type: none"> Expansion module to convert base 10/180 Library from 84 to 140 slots 	A1376A		
<ul style="list-style-type: none"> Expansion module to convert base 10/180 Library from 140 to 174 slots <p>Note: Requires 56 slot expansion (A1376A) to be installed first.</p>	A1377A		
<ul style="list-style-type: none"> Expansion module to convert base 20/700 Library from 216 to 384 slots 	A5604A		
<ul style="list-style-type: none"> Expansion module to convert base 20/700 Library from 384 to 678 slots 	A5605A		
<ul style="list-style-type: none"> Second Drive Tower to convert from 10 drive capacity to 20 drive capacity for 20/700 Library 	A5600A		
<ul style="list-style-type: none"> Second Cartridge Access Port to convert from 20 to 40 cartridge import/export for 20/700 Library 	A5601A		
<ul style="list-style-type: none"> Secondary Power Supply for 10/180 Library 	A6327A		
Multimode Cables for Tape Drives			
<ul style="list-style-type: none"> SCSI Cable 0.5m HDS 68 pin Male/Male Multimode cable 	C2978B		
<ul style="list-style-type: none"> SCSI Cable 1 m HDS 68 pin Male/Male Multimode cable 	C2911C		
<ul style="list-style-type: none"> SCSI Cable 1.5m HDS 68 pin Male/Male Multimode cable 	C2979B		
<ul style="list-style-type: none"> SCSI Cable 2.5m HDS 68 pin Male/Male Multimode cable 	C2924C		
<ul style="list-style-type: none"> SCSI Cable 5 m HDS 68 pin Male/Male Multimode cable 	C7521A		
<ul style="list-style-type: none"> SCSI Cable 10 m HDS 68 pin Male/Male Multimode cable 	C7522A		
<ul style="list-style-type: none"> SCSI Cable 1 m VHDS 68 pin Male/Male Multimode cable 	C2361B		
<ul style="list-style-type: none"> SCSI Cable 2.5 m VHDS 68 pin Male/Male Multimode cable 	C2362B		
<ul style="list-style-type: none"> SCSI Cable 5 m VHDS 68 pin Male/Male Multimode cable 	C2365B		
<ul style="list-style-type: none"> SCSI Cable 10 m VHDS 68 pin Male/Male Multimode cable 	C2363B		
<ul style="list-style-type: none"> SCSI Terminator LVDS/SE HDS 68 Multimode 	C2364A		
<ul style="list-style-type: none"> SCSI Terminator LVDS/SE VHDS 68 Multimode 	C2370A		

Subchapter 4.8—Optical Storage

Description		Product #	Opt #	Price
Magneto-Optical Disk Drives				
<i>Optical Jukeboxes - 14x (9.1 GB Magneto-Optical Disk Drives)</i>				
•	HP SureStore 220mx MO Jukebox (218.4GB) - 1 drive, 24 slots	C1118M		
MO jukebox with 1 multifunction 9.1 GB optical disk drive, capacity for up to 24 rewritable or CCW WORM optical disks, auto-sensing single-ended / LVD SCSI interface (HDTS 68), one 9.1 GB rewritable optical disk (4096 byte/sector), one year, on-site warranty and freight. Customer installable. Upgradeable to 2 drives. Note: Interface cable must be ordered separately.				
•	HP SureStore 220mx MO Jukebox (218.4 GB) - 2 drive, 24 slots	C1119M		
MO jukebox with 2 multifunction 9.1 GB optical disk drives, capacity for up to 24 rewritable or WORM optical disks, auto-sensing single-ended / LVD SCSI interface (HDTS 68), one 9.1 GB CCW rewritable optical disk (4096 byte/sector), one year, on-site warranty and freight. Customer installable. Note: Interface cable must be ordered separately.				
•	HP SureStore 300mx MO Jukebox (291.2 GB) - 2 drive, 32 slots	C1150M		
MO jukebox with 2 multifunction 9.1 GB optical disk drives, capacity for up to 32 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50) or Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector), one year, on-site warranty and freight. Customer installable. Upgradeable to 4 drive, 64 slots. Note: Interface cable must be ordered separately				
•	HP SureStore 600mx MO Jukebox (582.4 GB) - 4 drive, 64 slots	C1160M		
MO jukebox with 4 multifunction 9.1 GB optical disk drives, capacity for up to 64 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50) or Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector), one year, on-site warranty and freight. Customer installable. Note: Interface cable must be ordered separately				
•	HP SureStore 700mx MO Jukebox (691.6 GB) - 2 drive, 76 slots	C1170M		
MO jukebox with 2 multifunction 9.1 GB optical disk drives, capacity for up to 76 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50) or Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector), one year, on-site warranty and freight. Customer installable. Note: Interface cable must be ordered separately				
•	HP SureStore 1200mx Jukebox (1164.8 GB) - 4 drive, 128 slots	C1104M		
MO jukebox with 4 multifunction 9.1 GB optical disk drives, capacity for up to 128 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50)Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector),one year, on-site warranty, freight and installation. Upgradeable to 6 drive/128 slots, 4 drive/238 slots, 6 drive/238 slots or 10 drive/238 slots. Note: Interface cable must be ordered separately				
	Delete Installation		0D4	
•	HP SureStore 1200mx Jukebox (1164.8 GB) - 6 drive, 128 slots	C1105M		
MO jukebox with 6 multifunction 9.1 GB optical disk drives, capacity for up to 128 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50)Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector),one year, on-site warranty, freight and installation. Upgradeable to 6 drive/238 slots or 10 drive/238slots Note: Interface cable must be ordered separately				
•	HP SureStore 2200mx Jukebox (2165.8 GB) - 6 drive, 238 slots	C1107M		
MO jukebox with 6 multifunction 9.1 GB optical disk drives, capacity for up to 238 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50) Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical				

Description	Product #	Opt #	Price
disk (4096 byte/sector), one year, on-site warranty, freight and installation. Upgradeable to 10 drive/238 slots Note: Interface cable must be ordered separately Delete Installation		OD4	
• HP SureStore 2200mx Jukebox (2165.8 GB) - 10 drive, 238 slots	C1110M		
MO jukebox with 10 multifunction 9.1 GB optical disk drives, capacity for up to 238 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50) Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector), one year, on-site warranty, freight and installation. Note: Interface cable must be ordered separately Delete Installation		OD4	
• HP SureStore 2200mx Jukebox (2165.8 GB) - 4 drive, 238 slots	C1111M		
MO jukebox with 4 multifunction 9.1 GB optical disk drives, capacity for up to 238 rewritable or CCW WORM optical disks, two-disk transport system, user-selectable single-ended SCSI (HDTS 50) Fast Differential SCSI (HDTS 68) interface, one 9.1 GB rewritable optical disk (4096 byte/sector), one year, on-site warranty, freight and installation. Upgradeable to 6 drives, 238 slots or 10 drives, 238 slots. Note: Interface cable must be ordered separately. Delete Installation		OD4	
• HP SureStore 9100mx Optical Subsystem (9.1 GB)	C1114M		
Standalone MO drive with 1 multifunction 9.1 GB optical disk drive, capacity for one rewritable or CCW WORM optical disk, single-ended SCSI interface (HDTS 50), Macintosh, Windows®95/98/2000/NT® drivers, one 9.1 GB rewritable optical disk (4096 byte/sector), one year overnight exchange warranty and freight. Customer installable Note: Interface cable must be ordered separately.			
Optical Jukebox Upgrade Kits: 9.1 GB Jukeboxes (Upgrades increase the number of drives and/or capacity)			
• Drive Upgrade Kit for HP SureStore 220mx (1 drive, 24 slot Jukebox)	C5130M		
Includes one 9.1 GB optical disk drive, mounting hardware and installation Delete Installation		OD4	
• Drive and Capacity Upgrade for HP SureStore 300mx (2 drive, 32 slot Jukebox)	C1155M		
Includes two 9.1GB optical disk drives, mounting hardware and installation Delete Installation		OD4	
• Two Drive Upgrade Kit for 1200mx and 2200mx	C1154M		
Includes two 9.1 GB optical disk drives, mounting hardware and installation Delete Installation		OD4	
• Capacity Upgrade Kit for 1200mx	C1159M		
Adds 110 slot capacity. Includes controller electronics, mounting hardware and installation Delete Installation		OD4	
• Four Drive Upgrade for 2200mx	C1158M		
Includes four 9.1GB optical disk drives, 2 nd SCSI bus, mounting hardware and installation Delete Installation		OD4	
<i>Optical Jukeboxes - 8x (5.2 GB Magneto-Optical Disk Drives)</i>			
• HP Optical Module 5200 Multifunction Disk Drive (5.2 GB)	C1114J		
Includes cabinet, one 8x (5.2 GB) multifunction optical disk drives, capacity for one rewritable or CCW WORM optical disk, single-ended SCSI interface (HDTS 50), users guide, Macintosh, Windows®, and Windows NT® drivers, one 8x (5.2 GB) rewritable optical disk (1024 byte sectors), one SE SCSI terminator, one year overnight exchange warranty and freight. Customer installable. Note: Interface cable must be ordered separately. <i>Optical Jukebox Upgrade Kits: 5.2GB (8x) Jukeboxes</i> <i>(Upgrades increase the number of drives and/or capacity. Upgrades from 2x-to-4x converted jukeboxes are not supported)</i> Model 1/24 one-drive to Model 2/24 two-drive			
• Drive Upgrade Kit for Model 1/24 (and older 1/16)	C5130J		

Description	Product #	Opt #	Price
Includes one 5.2 GB optical disk drive, mounting hardware and installation. Delete Installation		OD4	
Model 2/32 two-drive and 32 slots to Model 4/64 four-drive and 64 slots			
• Drive Upgrade Kit for Model 2/32	C1155J		
Includes two 5.2 GB optical disk drives w/electronic capacity upgrade to enable an additional 32 slots. Also includes mounting hardware and installation Delete Installation		OD4	
• Two-Drive Upgrade Kit for Model 4/128 and 4/238	C1154J		
Includes two 5.2 GB optical disks and mounting hardware w/installation. Delete Installation		OD4	
• Capacity Upgrade Kit for 4/128 to 4/238	C1159J		
Add 110 slots capacity Delete Installation		OD4	
• Four-Drive Upgrade from 6-drive 238 slot jukebox to 10-drive 238-slot jukebox w/SCSI bus	C1158J		
Delete Installation <i>Optical Jukebox Conversion Kits: 4x to 14x</i> (Conversion Kits exchange previous generation drives for next generation drives)		OD4	
• 80fx to 300mx Conversion Kit	C5131M		
Exchanges two 9.1 GB drives for two 2.6 GB drives. Includes installation. Delete Installation		OD4	
• 160fx to 600mx Conversion Kit	C5132M		
Exchanges four 9.1 GB drives for four 2.6 GB drives. Includes installation Delete Installation		OD4	
• 200fx to 700mx Conversion Kit	C5133M		
Exchanges two 9.1 GB drives for two 2.6 GB drives. Includes installation Delete Installation		OD4	
• 330fx to 1200mx Conversion Kit	C5138M		
Exchanges four 9.1 GB drives for four 2.6 GB drives. Includes installation Delete Installation		OD4	
• 600fx to 2200mx Conversion Kit	C5139M		
Exchanges four 9.1 GB drives for four 2.6 GB drives. Includes installation Delete Installation		OD4	
Optical Jukebox Conversion Kits: 8x to 14x (Conversion Kits exchange previous generation drives for next generation drives)			
• 125ex to 220mx Conversion Kit	C5130M		
Exchanges one 9.1 GB drive for one 5.2 GB drive. Includes installation Delete Installation		OD4	
• 160ex to 300mx Conversion Kit	C5131M		
Exchanges two 9.1 GB drives for two 5.2 GB drives. Includes installation Delete Installation		OD4	
• 320ex to 600mx Conversion Kit	C5187M		
Exchanges four 9.1 GB drives for four 5.2 GB drives. Includes installation Delete Installation		OD4	
• 400ex to 700mx Conversion Kit	C5188M		
Exchanges two 9.1 GB drives for two 5.2 GB drives. Includes installation Delete Installation		OD4	
• 660ex to 1200mx Conversion Kit			
Exchanges four 9.1 GB drives for four 5.2 GB drives. Includes installation Delete Installation	C5138M	OD4	
1200ex to 2200mx Conversion Kit			
• Exchanges four 9.1 GB drives for four 5.2 GB drives. Includes installation	C5189M		

Description	Product #	Opt #	Price
Delete Installation		0D4	
14x Optical Disks: Single Disks			
• 5.25 inch 9.1 GB rewritable optical disk - 4096 bytes per sector	C7983A		
• 5.25 inch 9.1 GB WORM optical disk - 4096 bytes per sector	C7984A		
• 5.25 inch 8.6 GB rewritable optical disk - 2048 bytes per sector	C7985A		
• 5.25 inch 8.6 GB WORM optical disk - 2048 bytes per sector	C7986A		
• 5.25 inch 9.1 GB rewritable optical disk - 1024 bytes per sector	C7987A		
• 5.25 inch 9.1 GB rewritable optical disk - 512 bytes per sector	C7988A		
8x Optical Disks: Single Disks			
• 5.25-inch 5.2 GB rewritable optical disk - 1024 bytes per sector	88143J		
• 5.25-inch 5.2 GB WORM optical disk - 1024 bytes per sector	88145J		
• 5.25-inch 5.2 GB rewritable optical disk - 2048 bytes per sector	88147J		
• 5.25-inch 5.2 GB WORM optical disk - 2048 bytes per sector	88146J		
4x Optical Disks: single disks			
• 5.25-inch 2.6 GB rewritable optical disk - 1024 bytes per sector	92280F		
• 5.25-inch 2.6 GB WORM optical disk - 1024 bytes per sector	92290F		
• 5.25-inch 2.3 GB rewritable optical disk - 512 bytes per sector	92279F		
• 5.25-inch 2.3 GB WORM optical disk - 512 bytes per sector	92289F		
2x Optical Disks: single disks			
• 5.25-inch 1.3 GB rewritable optical disk - 1024 bytes per sector	92280T		
• 5.25-inch 1.3 GB WORM optical disk - 1024 bytes per sector	92290T		
• 5.25-inch 1.2 GB rewritable optical disk - 512 bytes per sector	92279T		
• 5.25-inch 1.2 GB WORM optical disk - 512 bytes per sector	92289T		

Subchapter 4.9—disk arrays

4.9.1—surestore disk array 12H (with AutoRAID technology) 12H w/FC MUX

Description	Product #	Opt #	Price
HP Surestore Disk Array 12H (with AutoRAID technology) 12H with FC MUX (FC MUX optional) <i>(To place orders for 12H with FC MUX, refer to sample order menus in the Design Guide at http://eps.rose.hp.com. (This site not available to channel partners) Full factory integration (including racking and cabling) is available only for configurations described in the Design Guide. Order A5147A for full factory integration of storage configurations described in the Design Guide. All cables [C2924A, C5167A, C2925A, and C2911A] must be ordered with the OD1 option to ensure factory integration.)</i>			
<ul style="list-style-type: none"> Deskside Disk Array with AutoRAID 	A3700AD		
<i>Standard Array Includes:</i> Deskside Array Enclosure Two Empty Controller slots Two Power Supplies (third power supply option available) Three Fan Modules Twelve empty Disk Slots 0.5 m Ultra-Flexible SCSI cable Fast Wide Differential SCSI Terminator Factory Installation into Deskside Cabinet Owners Guide and general usage document			
High Availability Options			

Description	Product #	Opt #	Price
Third Power Supply Option		002	
Storage Capacity Options (Minimum of 4 drives required)			
4x18.2 GB 10K rpm Disk drive modules		184	
5x18.2 GB 10K rpm Disk drive modules		185	
8x18.2 GB 10K rpm Disk drive modules		188	
12x18.2 GB 10K rpm Disk drive modules		192	
4x36.4 GB 10K rpm Disk drive modules		504	
5x36.4 GB 10K rpm Disk drive modules		505	
8x36.4 GB 10K rpm Disk drive modules		508	
12x36.4 GB 10K Disk drive modules		512	
Controllers (Must select Option 200 or Option 203)			
One 96 MB HP Disk Array Controller with AutoRAID		200	
Two 96 MB HP Disk Array Controllers with AutoRAID		203	
Cable Options			
0.9 m 68-pin high-density male to 68-pin high-density male cable		801	
2.5 m 68-pin high-density male to 68-pin high-density male cable		802	
5.0 m 68-pin high-density male to 68-pin high-density male cable		803	
10.0 m 68-pin high-density male to 68-pin high-density male cable		804	
CA – 1M 68 Pin LP to 68 Pin HD LP		806	
CA – 2.5M 68 Pin LP to 68 Pin HD LP		807	
CA – 5.0M 68 Pin LP to 68 Pin HD LP		808	
CA – 10M 68 Pin LP to 68 Pin HD LP		809	
1.0M VHDCI to 68 Pin HD Cable		811	
2.5M VHDCI to 68 Pin HD Cable		812	
5.0M VHDCI to 68 Pin HD Cable		813	
10.0M VHDCI to 68 Pin HD Cable		814	
2M V CBL VHDCI – VHDCI – 68 Pin HD		841	
2M V CBL VHDCI – VHDCI I / L Term – 68 Pin HD		842	
2M V CBL 68 Pin HD – VHDCI – 68 Pin HD		843	
2M V CBL 68 Pin HD – VHDCI I / L Term – 68 Pin HD		844	
4M V CBL VHDCI – VHDCI – 68 Pin HD		B25	
4M V CBL VHDCI – VHDCI I / L Term – 68 Pin HD		B26	
4M V CBL 68 Pin HD – VHDCI – 68 Pin HD		B27	
4M V CBL 68 Pin HD – VHDCI I / L Term – 68 Pin HD		B28	
2.0 m V cable - 68-pin high-density male		840	
10.0 m 68-pin high-density male to 68-pin high-density male in-line terminator cable for V-Class		851	
2/5 m V in-line terminator cable - 68-pin high-density male for V-Class		871	
2/3 m V in-line terminator cable - 68-pin high-density male for V-Class		873	
5.0 m 68-pin high-density male to 68-pin high-density male in-line terminator cable for V-Class		875	
• SCSI Cable 0.5m VHDTS68/HDTS68 HVD ILT M/F	C7519A		
Configuration Tools			
NT Support Kit (This software is required for the array to work with NT systems.)		ASJ	
MPE Tracking (This option should be ordered with all arrays that will be connected to MPE systems. This is a configuration tracking solution only.)		003	
Supporting Software (CD-ROMs)			
• Supporting Software (This software is required for the array to work with HP-UX. The customer is not required to order more than one per installation site. If the array is ordered as part of an integrated system order, B6191AA need not be ordered because the necessary supporting software is automatically included with the HP-UX order.)	B6191AA		
• Rackmount HP Surestore Disk Array 12H (with AutoRAID technology)	A3700A		
<i>Standard Array Includes:</i>			
Rackmount Array Enclosure			
Two Empty Controller slots			
Two Power Supplies (third power supply option available)			
Three Fan Modules			
Twelve Empty Half-Height Disk Slots			
0.5 m Ultra-Flexible SCSI cable			

Description	Product #	Opt #	Price
Fast Wide Differential SCSI Terminator			
Owners Guide and general usage document			
High Availability Options			
Third Power Supply Option		002	
Storage Capacity Options (Minimum of 4 drives required)			
4x18.2 GB 10K rpm Disk drive modules		184	
5x18.2 GB 10K rpm Disk drive modules		185	
8x18.2 GB 10K rpm Disk drive modules		188	
12x18.2 GB 10K rpm Disk drive modules		192	
4x36.4 GB 10K rpm Disk drive modules		504	
5x36.4 GB 10K rpm Disk drive modules		505	
8x36.4 GB 10K rpm Disk drive modules		508	
12x36.4 GB 10K Disk drive modules		512	
Controllers (Must select Option 200 or Option 203)			
One 96 MB HP Disk Array Controller with AutoRAID		200	
Two 96 MB HP Disk Array Controllers with AutoRAID		203	
Cable Options			
0.9 m 68-pin high-density male to 68-pin high-density male cable		801	
2.5 m 68-pin high-density male to 68-pin high-density male cable		802	
5.0 m 68-pin high-density male to 68-pin high-density male cable		803	
10.0 m 68-pin high-density male to 68-pin high-density male cable		804	
CA – 1M 68 Pin LP to 68 Pin HD LP		806	
CA – 2.5M 68 Pin LP to 68 Pin HD LP		807	
CA – 5.0M 68 Pin LP to 68 Pin HD LP		808	
CA – 10M 68 Pin LP to 68 Pin HD LP		809	
1.0M VHDCI to 68 Pin HD Cable		811	
2.5M VHDCI to 68 Pin HD Cable		812	
5.0M VHDCI to 68 Pin HD Cable		813	
10.0M VHDCI to 68 Pin HD Cable		814	
2M V CBL VHDCI – VHDCI – 68 Pin HD		841	
2M V CBL VHDCI – VHDCI I / L Term – 68 Pin HD		842	
2M V CBL 68 Pin HD – VHDCI – 68 Pin HD		843	
2M V CBL 68 Pin HD – VHDCI I / L Term – 68 Pin HD		844	
4M V CBL VHDCI – VHDCI – 68 Pin HD		B25	
4M V CBL VHDCI – VHDCI I / L Term – 68 Pin HD		B26	
4M V CBL 68 Pin HD – VHDCI – 68 Pin HD		B27	
4M V CBL 68 Pin HD – VHDCI I / L Term – 68 Pin HD		B28	
2.0 m V cable – 68-pin high-density male		840	
10.0 m 68-pin high-density male to 68-pin high-density male in-line terminator cable for V-Class		851	
2/5 m V in-line terminator cable – 68-pin high-density male for V-Class		871	
2/3 m V in-line terminator cable – 68-pin high-density male for V-Class		873	
5.0 m 68-pin high-density male to 68-pin high-density male in-line terminator cable for V-Class		875	
• SCSI Cable 0.5m VHDS68/HDS68 HVD ILT M/F	C7519A		
Configuration Tools			
NT Support Kit (This software is required for the array to work with NT systems.)		ASJ	
MPE Tracking (This option should be ordered with all arrays that will be connected to MPE systems. This is a configuration tracking solution only.)		003	
Supporting Software (CD-ROMs)			
Supporting Software (This software is required for the array to work with HP-UX. The customer is not required to order more than one per installation site. If the array is ordered as part of an integrated system order, B6191AA need not be ordered because the necessary supporting software is automatically included with the HP-UX order.)	B6191AA		
• Factory-Racked HP Surestore Disk Array 12H (with AutoRAID technology)	A3700AZ		
<i>Standard Array Includes:</i>			
Factory Racked Enclosure			
Two Empty Controller slots			

Description	Product #	Opt #	Price
Two Power Supplies (third power supply option available)			
Three Fan Modules			
Twelve Empty Half-Height Disk Slots			
0.5 m Ultra-Flexible SCSI cable			
Fast Wide Differential SCSI Terminator			
Owners Guide and general usage document			
High Availability Options			
Third Power Supply Option		002	
Storage Capacity Options (Minimum of 4 drives required)			
4x18.2 GB 10K rpm Disk drive modules		184	
5x18.2 GB 10K rpm Disk drive modules		185	
8x18.2 GB 10K rpm Disk drive modules		188	
12x18.2 GB 10K rpm Disk drive modules		192	
4x36.4 GB 10K rpm Disk drive modules		504	
5x36.4 GB 10K rpm Disk drive modules		505	
8x36.4 GB 10K rpm Disk drive modules		508	
12x36.4 GB 10K Disk drive modules		512	
Controllers (Must select Option 200 or Option 203)			
One 96 MB HP Disk Array Controller with AutoRAID		200	
Two 96 MB HP Disk Array Controllers with AutoRAID		203	
Cable Options			
0.9 m 68-pin high-density male to 68-pin high-density male cable		801	
2.5 m 68-pin high-density male to 68-pin high-density male cable		802	
5.0 m 68-pin high-density male to 68-pin high-density male cable		803	
10.0 m 68-pin high-density male to 68-pin high-density male cable		804	
CA – 1M 68 Pin LP to 68 Pin HD LP		806	
CA – 2.5M 68 Pin LP to 68 Pin HD LP		807	
CA – 5.0M 68 Pin LP to 68 Pin HD LP		808	
CA – 10M 68 Pin LP to 68 Pin HD LP		809	
1.0M VHDCI to 68 Pin HD Cable		811	
2.5M VHDCI to 68 Pin HD Cable		812	
5.0M VHDCI to 68 Pin HD Cable		813	
10.0M VHDCI to 68 Pin HD Cable		814	
2M V CBL VHDCI – VHDCI – 68 Pin HD		841	
2M V CBL VHDCI – VHDCI I / L Term – 68 Pin HD		842	
2M V CBL 68 Pin HD – VHDCI – 68 Pin HD		843	
2M V CBL 68 Pin HD – VHDCI I / L Term – 68 Pin HD		844	
4M V CBL VHDCI – VHDCI – 68 Pin HD		B25	
4M V CBL VHDCI – VHDCI I / L Term – 68 Pin HD		B26	
4M V CBL 68 Pin HD – VHDCI – 68 Pin HD		B27	
4M V CBL 68 Pin HD – VHDCI I / L Term – 68 Pin HD		B28	
2.0 m V cable - 68-pin high-density male		840	
10.0 m 68-pin high-density male to 68-pin high-density male in-line terminator cable for V-Class		851	
2/5 m V in-line terminator cable - 68-pin high-density male for V-Class		871	
2/3 m V in-line terminator cable - 68-pin high-density male for V-Class		873	
5.0 m 68-pin high-density male to 68-pin high-density male in-line terminator cable for V-Class		875	
• SCSI Cable 0.5m VHDS68/HDS68 HVD ILT M/F	C7519A		
Configuration Tools			
NT Support Kit (This software is required for the array to work with NT systems.)		ASJ	
MPE Tracking (This option should be ordered with all arrays that will be connected to MPE systems. This is a configuration tracking solution only.)		003	
Supporting Software (CD-ROMs)			
Supporting Software (This software is required for the array to work with HP-UX. The customer is not required to order more than one per installation site. If the array is ordered as part of an integrated system order, B6191AA need not be ordered because the necessary supporting software is automatically included with the HP-UX order.)	B6191AA		

Description	Product #	Opt #	Price
Add-On/Upgrade Products			
• 18.2 GB disk drive module 10K RPM S/E (54 mm disk module) (Must have all 3 fan modules A3709B)*	A3714A		
• 36.4 GB disk drive module 10K RPM S/E (54 mm disk module) (Must have all 3 fan modules A3709B)*	A6518A		
• Power supply option (one power supply with no cable)	A3708A		
Power cable option for racked configurations		004	
Power cable option for wall outlets (localized according to country of origin of the order)		006	
• 12H Power Upgrade Kit (For use of upgrade kit in FC storage solutions, refer to the HP 9000 Enterprise Servers Configuration Guide. Choose Option OD1 for basic factory integration into rack)	A4915A		
U.S. – English Localization		ABA	
Europe (HPSA) – English Localization		ABB	
200 – 240 V UPS 4.5 m Power Cable		024	
• Fan Module	A3709B		
• 96 MB HP Disk Array Controller with AutoRAID	A3706A		
• Fast Wide Differential SCSI Terminator	C2905A		
• 0.5 m Ultra-Flexible SCSI Cable	C2981A		
• SCSI Cable 0.5m VHDS68/HDTS68 HVD ILT M/F	C7519A		
• 5.0 m 68-pin high-density male to 68-pin high-density male cable	A5167A		
• Empty deskside cabinet (allows conversion of rackmounted unit to deskside unit)	A3701A		
• Enterprise Storage Integration Product (for full factory integration of storage configurations) Described in the Design Guide (http://eps.rose.hp.com) (Site not available to channel partners)	A5147A		
• CD-ROM FW upgrade kit (for single controller solutions)	A5284B		
• PCI Differential UW SCSI HBA for NT	A5252A		
• Software Integration Kit for NT	A5253C		
• Front Door for 12H – Quartz Grey (For Parchment White door replacement)	A5329A		

* A3700A, A3700AD & A3700AZ enclosures ordered before 02 April 98, need to be upgraded with all 3 fan modules A3709B. Upgraded module is identified by a bubble label. Previous label was flat.

4.9.2—HP Surestore Virtual Array 7100

US List

Ordering Notes:

Choose ordering methodology:

Field Rackable Pre-Defined SKUs

Factory Racked Pre-Defined SKUs

Field Rackable “Build From Scratch”

Factory Racked “Build From Scratch”

Choose appropriate base controller enclosure unit and base unit disks

Choose desired disk system enclosure unit and disks based on chosen ordering methodology

Minimum of 4 disks are required per VA 7100

Maximum of 15 disks per VA 7400

All enterprise factory integrated products include appropriate disk filler panels

Commercial Channel specific products are no longer available. The VA Family has completed the “Universal Product Merge”

Factory SKU’s are no longer available for single controller or deskside units. Please see the following examples for how to order

How to order a single controller VA 7100 (with factory integration)

Table 1

Count	Product Number	Option	Description
-------	----------------	--------	-------------

1	A6183A		Virtual Array Enclosure
1	A6188A		Virtual Array Processor – One minimum, two per enclosure max
1	A6188A	OD1	Factory Integration
1	A6186A		512MB Cache for Virtual Array Processor – one per Virtual Array Processor
1	A6185A	OD1	Factory Integration
1	A6203A		SW GBIC for SureStore VA series – one per Virtual Array Processor
1	A6203A	OD1	Factory Integration
15	A6194A		Enterprise Class 73GB 10K RPM FC HDD (min 4)
15	A6194A	OD1	Factory Integration

How to order a desktide VA 7100 (with factory integration)

Table 2

Count	Product Number	Option	Description
1	A6183AD		Virtual Array Enclosure
2	A6188A		Virtual Array Processor – One minimum, two per enclosure max
2	A6188A	OD1	Factory Integration
2	A6186A		512MB Cache for Virtual Array Processor – one per Virtual Array Processor
2	A6185A	OD1	Factory Integration
2	A6203A		SW GBIC for SureStore VA series – one per Virtual Array Processor
2	A6203A	OD1	Factory Integration
15	A6194A		Enterprise Class 73GB 10K RPM FC HDD (min 4)
15	A6194A	OD1	Factory Integration

Description	Product #	Opt #	Price
VA 7100 Field Rackable Controller Enclosure, w/ Dual Controllers			
<ul style="list-style-type: none"> VA 7100 w/ Dual Controller 256MB Cache includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (2) DIMM 256MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet & 2 GBICS Enterprise Class 18GB 15K RPM FC HDD (min 4) Enterprise Class 36GB 10K RPM FC HDD (min 4) Enterprise Class 36GB 15K RPM FC HDD (min 4) Enterprise Class 73GB 10K RPM FC HDD (min 4) VA 7100 w/ Dual Controller 512MB Cache includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (2) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet & 2 GBICS Enterprise Class 18GB 15K RPM FC HDD (min 4) Enterprise Class 36GB 10K RPM FC HDD (min 4) Enterprise Class 36GB 15K RPM FC HDD (min 4) Enterprise Class 73GB 10K RPM FC HDD (min 4) VA 7100 w/ Dual Controller 1024MB Cache includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (4) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet & 2 GBICS Enterprise Class 18GB 15K RPM FC HDD (min 4) Enterprise Class 36GB 10K RPM FC HDD (min 4) Enterprise Class 36GB 15K RPM FC HDD (min 4) Enterprise Class 73GB 10K RPM FC HDD (min 4) 	A6261A		
	A6191A	OD1	
	A6192A	OD1	
	A6193A	OD1	
	A6194A	OD1	
	A6262A		
	A6191A	OD1	
	A6192A	OD1	
	A6193A	OD1	
	A6194A	OD1	
	A6263A		
	A6191A	OD1	
	A6192A	OD1	
	A6193A	OD1	
	A6194A	OD1	
VA 7100 Factory Racked Controller Enclosure, w/ Dual Controllers			
<ul style="list-style-type: none"> VA 7100 w/ Dual Controller 256MB Cache includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (2) DIMM 256MB, User Guide, RS232 	A6261AZ		

	Description	Product #	Opt #	Price
	Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet & 2 GBICS			
•	Enterprise Class 18GB 15K RPM FC HDD (min 4)	A6191A	OD1	
•	Enterprise Class 36GB 10K RPM FC HDD (min 4)	A6192A	OD1	
•	Enterprise Class 36GB 15K RPM FC HDD (min 4)	A6193A	OD1	
•	Enterprise Class 73GB 10K RPM FC HDD (min 4)	A6194A	OD1	
	VA 7100 w/ Dual Controller 512MB Cache	A6262AZ		
	includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (2) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet & 2 GBICS			
•	Enterprise Class 18GB 15K RPM FC HDD (min 4)	A6191A	OD1	
•	Enterprise Class 36GB 10K RPM FC HDD (min 4)	A6192A	OD1	
•	Enterprise Class 36GB 15K RPM FC HDD (min 4)	A6193A	OD1	
•	Enterprise Class 73GB 10K RPM FC HDD (min 4)	A6194A	OD1	
•	VA 7100 w/ Dual Controller 1024MB Cache	A6263AZ		
	includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (4) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet & 2 GBICS			
•	Enterprise Class 18GB 15K RPM FC HDD (min 4)	A6191A	OD1	
•	Enterprise Class 36GB 10K RPM FC HDD (min 4)	A6192A	OD1	
•	Enterprise Class 36GB 15K RPM FC HDD (min 4)	A6193A	OD1	
•	Enterprise Class 73GB 10K RPM FC HDD (min 4)	A6194A	OD1	
	Module products			
•	Virtual Array Enclosure	A6183A		
•	Virtual Array Enclosure – Deskside (VA 7 100 ONLY)	A6183AD		
•	Virtual Array Processor – One minimum, two per enclosure max	A6188A		
•	256MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6185A		
•	512MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6186A		
•	1024MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6187A		
•	Enterprise Class 18GB 15K RPM FC HDD (min 4)	A6191A	OD1	
•	Enterprise Class 36GB 10K RPM FC HDD (min 4)	A6192A	OD1	
•	Enterprise Class 36GB 15K RPM FC HDD (min 4)	A6193A	OD1	
•	Enterprise Class 73GB 10K RPM FC HDD (min 4)	A6194A	OD1	
•	SW GBIC for SureStore VA series – one per Virtual Array Processor	A6203A		
	Cables & Accessories			
•	Deskside Cab for Virtual Array Series	A6196A		
•	2 meter FC fibre optic cable	A3583A		
•	16 meter FC fibre optic cable	A3531A		
•	50 meter FC fibre optic cable	A3735A		
•	100 meter FC fibre optic cable	A3736A		
•	VAP/LCC filler panel	A6197A		
•	Disk Slot filler panel	A6198A		
	Software			
•	COMMAND VIEW SDM 1 HOST LTU AND SW KIT	T1001A		
•	Enterprise Integrations for Command View SDM	T1002A		
•	Secure Manager Virtual Array 50GB LTU w/SW Media Kit (required for enablement)	T1003A		
•	Secure Manager Virtual Array 500GB LTU	T1004A		
•	Secure Manager Virtual Array 1TB LTU	T1005A		
•	Business Copy Virtual Array 50GB LTU w/SW Media Kit (required for enablement)	T1007A		
•	Business Copy Virtual Array 500GB LTU	T1008A		
•	Business Copy Virtual Array 1TB LTU	T1009A		
•	Auto Path Virtual Array Windows 2000 1 Host LTU w/SW Media Kit (required for enablement)	T1011A		
•	Auto Path Virtual Array Windows 2000 1 Host LTU	T1012A		
•	Auto Path Virtual Array Windows 2000 5 Host LTU	T1013A		
•	Auto Path Virtual Array Windows NT 4.0 1 Host LTU w/SW Media Kit (required for enablement)	T1039A		

Description	Product #	Opt #	Price
• Auto Path Virtual Array Windows NT 4.0 1 Host LTU	T1040A		
• Auto Path Virtual Array Windows NT 4.0 5 Host LTU	T1041A		
• Auto Path Virtual Array HP-UX 11.0/11.i 1 Host LTU w/SW Media Kit (required for enablement)	T1060A		
• Auto Path Virtual Array HP-UX 11.0/11.i 1 Host LTU	T1061A		
• Auto Path Virtual Array HP-UX 11.0/11.i 5 Host LTU	T1062A		
• Fast Recovery Solutions for MS Exchange 2000	B9550A		

4.9.3—HP Surestore Virtual Array 7400

US List

Ordering Notes:

Choose ordering methodology:

Field Rackable Pre-Defined SKUs

Factory Racked Pre-Defined SKUs

Field Rackable “Build From Scratch”

Factory Racked “Build From Scratch”

Choose appropriate base controller enclosure unit and base unit disks

Choose desired disk system enclosure unit and disks based on chosen ordering methodology

Minimum of 10 disks are required per VA 7400 controller pair

Minimum of 4 drives of chosen capacity type per VA 7400 controller pair

Minimum of 2 drives per DS2405 enclosure

All enterprise factory integrated products include appropriate disk filler panels

Commercial Channel specific products are no longer available. The VA Family has completed the “Universal Product Merge”

Description	Product #	Opt #	Price
VA 7400 Field Rackable Controller Enclosure, w/ Dual Controllers			
• VA 7400 w/ Dual Controller 512MB Cache – order additional disk systems separately includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (2) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet	A6264A		
• Enterprise Class 18GB 15K RPM FC HDD (min 10)	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD (min 10)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 10)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD (min 10)	A6194A	OD1	
• VA 7400 w/ Dual Controller 1024MB Cache– order additional disk systems separately includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (4) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet	A6265A		
• Enterprise Class 18GB 15K RPM FC HDD (min 10)	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD (min 10)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 10)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD (min 10)	A6194A	OD1	
VA 7400 Factory Racked Controller Enclosure, w/ Dual Controllers			
• VA 7400 w/ Dual Controller 512MB Cache– order additional disk systems separately includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (2) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord,(2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet	A6264AZ		
• Enterprise Class 18GB 15K RPM FC HDD (min 10)	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD (min 10)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 10)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD (min 10)	A6194A	OD1	
• VA 7400 w/ Dual Controller 1024MB Cache– order additional disk systems separately	A6265AZ		

Description	Product #	Opt #	Price
includes: VA Enclosure, (2) 2Gb/1Gb VA Cont Module Assy, (4) DIMM 512MB, User Guide, RS232 Installation Guide, Documentation Map, (2) power cord, (2) power supplies, (2) fan modules, ESD Kit, CBL 9-9 PIN, HP CommandView SDM, HP-UX Patch Alert Data Sheet			
• Enterprise Class 18GB 15K RPM FC HDD (min 10)	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD (min 10)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 10)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD (min 10)	A6194A	OD1	
Virtual Array Family Modules – Integrated Build From Scratch Field Rackable			
• Virtual Array Enclosure- Field Rackable <i>includes:</i> VA Enclosure, User Guide, Installation Guide, Documentation Map, (2) power cord, HP CommandView SDM, HP-UX Patch Alert Data Sheet and disk filler panels	A6183A		
• Virtual Array Processor 7400 – two per enclosure required	A6189A	OD1	
• 512MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6186A	OD1	
• 1024MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6187A	OD1	
• Enterprise Class 18GB 15K RPM FC HDD – may mix capacity points	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD – may mix capacity points	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 10)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD – may mix capacity points	A6194A	OD1	
• Virtual Array Family Modules – Integrated Build From Scratch Factory Racked			
• Virtual Array Enclosure – Factory Racked <i>includes:</i> VA Enclosure, User Guide, Installation Guide, Documentation Map, (2) power cord, HP CommandView SDM, HP-UX Patch Alert Data Sheet and disk filler panels	A6183AZ		
• Virtual Array Processor 7400 – two per enclosure required	A6189A	OD1	
• 512MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6186A	OD1	
• 1024MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6187A	OD1	
• Enterprise Class 18GB 15K RPM FC HDD – may mix capacity points	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD – may mix capacity points	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 2 per DS 2400)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD – may mix capacity points	A6194A	OD1	
DS2400 WILL BE REPLACED WITH THE DS2405			
DS 2400 Field Rackable Disk Enclosure w/ Dual Link Control Cards			
• DS 2400 Disk Enclosure – for use ONLY with VA 7400 products <i>includes:</i> Disk Enclosure, Installation Guide, Disk Filler Assy, (2) power cord, 2 FC Optical LC/LC Cables	A6214A		
• Enterprise Class 18GB 15K RPM FC HDD (min 2 per DS 2400)	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD (min 2 per DS 2400)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 2 per DS 2400)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD (min 2 per DS 2400)	A6194A	OD1	
DS 2400 Factory Racked Disk Enclosure w/ Dual Link Control Cards			
• DS 2400 Disk Enclosure – for use ONLY with VA 7400 products <i>includes:</i> Disk Enclosure, Installation Guide, Disk Filler Assy, (2) power cord, 2 FC Optical LC/LC Cables	A6214AZ		
• Enterprise Class 18GB 15K RPM FC HDD (min 2 per DS 2400)	A6191A	OD1	
• Enterprise Class 36GB 10K RPM FC HDD (min 2 per DS 2400)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 2 per DS 2400)	A6193A	OD1	
• Enterprise Class 73GB 10K RPM FC HDD (min 2 per DS 2400)	A6194A	OD1	
DS 2405 Field Rackable Disk Enclosure w/ Dual Link Control Cards			
• DS 2405 Disk Enclosure – for use ONLY with VA 7400 products <i>includes:</i> Disk Enclosure, Installation Guide, Disk Filler Assy and (2) power cord. Cables are NOT included and must be ordered separately. Mandatory option: Instructs VA customers to have HP14 or later firmware and Command View SDM version 1.04 or later.	A6250A		
• Enterprise Class 18GB 15K RPM FC HDD (min 2 per DS 2405)	A6191A	OD1	223
• Enterprise Class 36GB 10K RPM FC HDD (min 2 per DS 2405)	A6192A	OD1	
• Enterprise Class 36GB 15K RPM FC HDD (min 2 per DS 2405)	A6193A	OD1	

	Description	Product #	Opt #	Price
•	Enterprise Class 73GB 10K RPM FC HDD (min 2 per DS 2405)	A6194A	OD1	
	DS 2405 Factory Racked Disk Enclosure w/ Dual Link Control Cards			
•	DS 2405 Disk Enclosure – for use ONLY with VA 7400 products <i>includes:</i> Disk Enclosure, Installation Guide, Disk Filler Assy and (2) power cord. Cables are NOT included and must be ordered separately. Mandatory option: Instructs VA customers to have HP14 or later firmware and Command View SDM version 1.04 or later.	A6250AZ		
•	Enterprise Class 18GB 15K RPM FC HDD (min 2 per DS 2405)	A6191A	OD1	
•	Enterprise Class 36GB 10K RPM FC HDD (min 2 per DS 2405)	A6192A	OD1	
•	Enterprise Class 36GB 15K RPM FC HDD (min 2 per DS 2405)	A6193A	OD1	
•	Enterprise Class 73GB 10K RPM FC HDD (min 2 per DS 2405)	A6194A	OD1	

4.9.4—virtual array family upgrade products

	Description	Product #	Opt #	Price
	Virtual Array Family Upgrade Products			
•	Virtual Array Enclosure- Field Rackable <i>includes:</i> VA Enclosure, User Guide, Installation Guide, Documentation Map, (2) power cord, HP CommandView SDM, HP-UX Patch Alert Data Sheet and NO DISK FILLER PANELS	A6183A		
•	DS 2400 Disk Enclosure – for use ONLY with VA 7400 products <i>includes:</i> Disk Enclosure, Installation Guide, (2) power cord, 2 FC Optical LC/LC cables NO DISK	A6214A		
	DS 2405 Disk Enclosure – for use ONLY with VA 7400 products <i>includes:</i> Disk Enclosure, Installation Guide, (2) power cord NO DISK FILLER PANELS. Cables are NOT included and must be ordered separately.	A6250A		
•	Virtual Array Processor 7400 – two per enclosure required	A6189A		
•	512MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6186A		
•	1024MB Cache for Virtual Array Processor – one per Virtual Array Processor	A6187A		
•	Enterprise Class 18GB 15K RPM FC HDD – may mix capacity points	A6191A		
•	Enterprise Class 36GB 10K RPM FC HDD – may mix capacity points	A6192A		
•	Enterprise Class 36GB 15K RPM FC HDD – may mix capacity points	A6193A	OD1	
•	Enterprise Class 73GB 10K RPM FC HDD – may mix capacity points	A6194A		
•	Disk Slot filler panel – must order one per empty disk slot	A6198A		
	LC/LC Cables			
•	FC Cable 2m LC Duplex 50/125 M/M Optical	C7524A		
•	FC Cable 16m LC 50/125 LC/LC M/M Optical	C7525A		
•	FC Cable 50m LC Duplex 50/125 M/M Optical	C7526A		
•	FC Cable 200m LC Duplex 50/125 M/M Optical	C7527A		
	LC/SC Adapter Cables			
•	FC Cable 2m LC/SC Duplex 50/125 M/M Optical	C7529A		
•	FC Cable 16m LC/SC Duplex 50/125 M/M Optical	C7530A		
•	Fibre Channel SC F/F Couple Optical –for use with C7529A, C7530A	C7534A		
•	Fibre Channel Adapter Kit - Optical (includes the C7529A and C7534A)	C7540A		
	Rack Kit Accessories			
•	System/E Rail Kit	A6209A		
•	RBI Rack Rail Kit for VA Family	A6244A		
•	Compaq 9000 Rack Rail Kit SF21	A5672A		
	Software			
•	COMMAND VIEW SDM 1 HOST LTU AND SW KIT	T1001A		
•	Enterprise Integrations for Command View SDM	T1002A		
•	Secure Manager Virtual Array 50GB LTU w/SW Media Kit (required for enablement)	T1003A		
•	Secure Manager Virtual Array 500GB LTU	T1004A		
•	Secure Manager Virtual Array 1TB LTU	T1005A		
•	Secure Manager Virtual Array 5TB LTU	T1006A		

Description	Product #	Opt #	Price
• Business Copy Virtual Array 50GB LTU w/SW Media Kit (required for enablement)	T1007A		
• Business Copy Virtual Array 500GB LTU	T1008A		
• Business Copy Virtual Array 1TB LTU	T1009A		
• Business Copy Virtual Array 5TB LTU	T1010A		
• Auto Path Virtual Array Windows 2000 1 Host LTU w/SW Media Kit (required for enablement)	T1011A		
• Auto Path Virtual Array Windows 2000 1 Host LTU	T1012A		
• Auto Path Virtual Array Windows 2000 5 Host LTU	T1013A		
• Auto Path Virtual Array Windows NT 4.0 1 Host LTU w/SW Media Kit (required for enablement)	T1039A		
• Auto Path Virtual Array Windows NT 4.0 1 Host LTU	T1040A		
• Auto Path Virtual Array Windows NT 4.0 5 Host LTU	T1041A		
• Auto Path Virtual Array HP-UX 11.0/11.i 1 Host LTU w/SW Media Kit (required for enablement)	T1060A		
• Auto Path Virtual Array HP-UX 11.0/11.i 1 Host LTU	T1061A		
• Auto Path Virtual Array HP-UX 11.0/11.i 5 Host LTU	T1062A		
• Fast Recovery Solutions for MS Exchange 2000	B9550A		

4.9.5—hp surestore disk array fc60

US List

Description	Product #	Opt #	Price
<ul style="list-style-type: none"> Surestore Disk Array FC60, Field Rackable <p>Requires one to six A5294A Disk Systems to form an array. Requires HP-UX 10.20 or later.</p> <p><i>Standard Array Includes:</i></p> <ul style="list-style-type: none"> – Rackmount enclosure with two empty controller slots – Two power supplies – Two fan modules – One battery backup unit (BBU) – Two power cords – Mounting rails for HP cabinets – Terminators for unused SCSI ports – ½ U Filler Panels – User manuals 	A5277A		
Controllers (Must select one option)			
Single controller with 256 MB cache, HP-UX firmware, one Media Interface Adapter and one filler panel		203	
Dual controllers with 256 MB mirrored cache and two Media Interface Adapters, HP-UX firmware		204	
Dual controllers with 256 MB mirrored cache and two Media Interface Adapters, Windows firmware		205	
Dual controllers with 512 MB mirrored cache and two Media Interface Adapters, HP-UX firmware		304	
Dual controllers with 512 MB mirrored cache and two Media Interface Adapters, Windows firmware		305	
Host Connect Cable Options			
2 meter Fibre Channel Cable		0Z4	
16 meter Fibre Channel Cable		AFY	
50 meter Fibre Channel Cable		0Z5	
• Supporting Software for HP-UX (CD-ROMs)	B6191AA		
• NT Support for the FC60, for converting HP-UX firmware to Windows	A5628A		
• 8-Partition support for Windows	A5649A		
Enter the following selection as a sub-item to the A5277A product above			
• Surestore Disk System SC10, Array Integrated, Field Rackable	A5294A		
This product may only be ordered in conjunction with the A5277A. To order a SC10 without integration into an array, order A5272A. Array Integrated product includes:			
– Rackmount enclosure that accommodates 10 disk modules (1.6" or 1")			

Description	Product #	Opt #	Price
– Two power supplies			
– Two fan modules			
– Two power cords			
– Two bus controller card modules (with enclosure monitoring)			
– Mounting rails for HP cabinets			
– User manuals			
– Two SCSI bus terminators			
– ½ U filler panel			
– One or two 2 meter VHDCI SCSI cables for connection to the A5277A. The number of cables included depends upon how many A5294As are connected to the A5277A.			
<div> <div>Number of A5294A per A5277A</div> <div>Number of SCSI cables per A5294A</div> </div>			
1, 2, or 3	2		
4, 5, or 6	1		
Storage Capacity Options			
Note: All disk systems ordered with a single A5277A must have identical Storage Capacity Options.			
Qty 4 18GB 10K RPM disk drive modules		204	
Qty 8 18GB 10K RPM disk drive modules		208	
Qty 10 18GB 10K RPM disk drive modules		210	
Qty 4 36GB 10K RPM disk drive modules		304	
Qty 8 36GB 10K RPM disk drive modules		308	
Qty 10 36GB 10K RPM disk drive modules		310	
Qty 4 73GB 10K RPM disk drive modules		404	
Qty 8 73GB 10K RPM disk drive modules		408	
Qty 10 73GB 10K RPM disk drive modules		410	
73GB 10K RPM disk drive modules (Note: Need to order quantity of 1 to 10 per enclosure)		350	
Qty four 18.2GB 15K RPM Ultra2 SCSI Disk Drive		504	
Qty eight 18.2GB 15K RPM Ultra2 SCSI Disk Drive		508	
Qty ten 18.2GB 15K RPM Ultra2 SCSI Disk Drive		510	
Custom cable options (use only if customer requires a non-standard configuration)			
Delete a 2m cable included in A5294A and add a 5m VHDCI SCSI cable for Connection to A5277A (suitable for connection of A5277A to A5294A in a different rack)		701	
• Surestore Disk Array FC60, Factory Racked	A5277AZ		
Requires one to six A5294AZ Disk Systems to form an array. Requires HP-UX 10.20 or later.			
<i>Standard Array Includes:</i>			
– Rackmount enclosure with two empty controller slots			
– Two power supplies			
– Two fan modules			
– One battery backup unit (BBU)			
– Two power cords			
– Mounting rails for HP cabinets			
– Terminators for unused SCSI ports			
– User manuals			
– Factory integrated into specified rack			
Controllers (Must select one option)			
Single controller with 256 MB cache, HP-UX firmware, one Media Interface Adapter and one filler panel		203	
Dual controllers with 256 MB mirrored cache and two Media Interface Adapters		204	
Dual controllers with 256 MB mirrored cache and two Media Interface Adapters, Windows firmware		205	
Dual controllers with 512 MB mirrored cache and two Media Interface Adapters, HP-UX firmware		304	
Dual controllers with 512 MB mirrored cache and two Media Interface Adapters, Windows firmware		305	

Description	Product #	Opt #	Price
Host Connect Cable Options			
2 meter Fibre Channel Cable		0Z4	
16 meter Fibre Channel Cable		AFY	
50 meter Fibre Channel Cable		0Z5	
Operating System Support Option (Must select one option)			
Support for HP-UX 11.0		UM4	
Enter the following selection as a sub-item to the A5277AZ product above			
• [Brand name] Disk System SC10, Array Integrated, Factory Racked	A5294AZ		
This product may only be ordered in conjunction with the A5277AZ. To order a SC10 without Integration into an array, order A5272AZ. Array Integrated product includes:			
– Rackmount enclosure that accommodates 10 disk modules (1.6" or 1")			
– Two power supplies			
– Two fan modules			
– Two power cords			
– Two bus controller card modules (with enclosure monitoring)			
– Mounting rails for HP cabinets			
– User manuals			
– Two SCSI bus terminators			
– ½ U filler panel (as required for proper rack appearance)			
– One or two 2 meter VHDCI SCSI cables for connection to the A5277AZ. The number of cables Included depends upon how many A5294AZs are connected to the A5277AZ.			
<u>Number of A5294AZ per A5277AZ</u>	<u>Number of SCSI cables per A5294AZ</u>		
1, 2, or 3	2		
4, 5, or 6	1		
– Disks will be bound to the A5277AZ array			
Storage Capacity Options			
Note: All disk systems ordered with a single A5277AZ must have identical Storage Capacity Options.			
Qty 4 18GB 10K RPM disk drive modules		204	
Qty 8 18GB 10K RPM disk drive modules		208	
Qty 10 18GB 10K RPM disk drive modules		210	
Qty 4 36GB 10K RPM disk drive modules		304	
Qty 8 36GB 10K RPM disk drive modules		308	
Qty 10 36GB 10K RPM disk drive modules		310	
Qty 4 73GB 10K RPM disk drive modules		404	
Qty 8 73GB 10K RPM disk drive modules		408	
Qty 10 73GB 10K RPM disk drive modules		410	
73GB 10K RPM disk drive modules (Note: Need to order quantity of 1 to 10 per enclosure)		350	
Qty four 18.2GB 15K RPM Ultra2 SCSI Disk Drive		504	
Qty eight 18.2GB 15K RPM Ultra2 SCSI Disk Drive		508	
Qty ten 18.2GB 15K RPM Ultra2 SCSI Disk Drive		510	
• Supporting Software for HP-UX (CD-ROMs)	B6191AA		
• NT Support for the FC60	A5628A		
Add-On/Upgrade Products			
• Cache Memory upgrade, 2 X 256 MB DIMMs	A5279A		
• Add on 18.2 GB disk drive module, 10000 RPM Ultra2 LVD	A5282A		
• Add on 36GB disk drive module 10K RPM Ultra2 LVD	A5595A		
• Add on 73GB disk drive module 10K RPM Ultra2 LVD	A5622A		
• Add on 73GB disk drive module 10K RPM Ultra3 LVD	A6276A		

	Description		Product #	Opt #	Price
•	Add on 18.2 GB disk drive module, 15,000 RPM Ultra2 LVD		A5633A		
•	Add on controller (no cache)		A5278A		
	Controller Cache Option (Required)				
	256 MB cache			002	
•	2-meter VHTDS68 (M/M) Multimd		C2373A	0D1	
•	5-meter VHTDS68 (M/M) Multimd		C2374A	0D1	
•	10-meter VHTDS68 (M/M) Multimd		C2375A	0D1	
•	Rack Rail Accessory Kit (for legacy cabinets only: C2785A, C2786A, C2787A, A1896A, A1897A)		A5250A		
•	HP Rack System/E Rack Rail Accessory Kit (for cabinets: A4900A, A4801A, A4902A, J1502A, J1501A, J1500A)		A5251A		
•	2 meter Fibre Channel Cable		A3583A		
•	16 meter Fibre Channel Cable		A3531A		
•	50 meter Fibre Channel Cable		A3735A		
•	100 meter Fibre Channel Cable		A3736A		
•	SCSI Terminator, VHDCI LVD/SE		A5296A		

4.9.6—HP Surestore Disk Array XP48 Ordering Process

Overview

Once the configuration choices have been made and saved in WATSON or Sales Builder for Windows (SBW), the configuration may be converted to a quote and imported into the order entry system. If configuration tools such as WATSON or SBW are not available, then it is important to follow an ascending numeric order for each Item / Sub-Item ordered in sequence. See Appendix for step by step Manual Procedures for configuring the XP48.

Structured Solution Programs (SSPs):

The HP Structured Solution Program (SSP) has been designed to make the ordering process simple, flexible, and easy to understand. It is completely menu driven requiring only a few simple choices for the various components in the system. Minimum/maximum numbers have been inserted into the menu wherever possible to simplify your choices and to guide your configuration decisions.

XP48 HW Ordering Information Using SSP

- 1) Upgrade products are bundled with the solution, NOT integrated.
- 2) Upgrades cannot be on the same order section with an SSP system order.
- 3) Cables and software can be on the same order section as the upgrades.

4.9.7—hp surestore disk array xp48 hardware

	Description		Product #	Opt. #	
	XP48 HW SSP				
1.0	HP Surestore Disk Array XP48 SSP Solution	[]	A5920A		
2.0	Surestore Disk Array XP48 Disk Control Frame (1 required). Single phase power only. Must select one power frequency option				
	XP48 Disk Control Frame with 1 ACP pair, Redundant Power Supplies for CHIP prs 1-3, HP Firmware and Continuous Track XP with Modem and pcAnywhere	[]	A5921A		
	XP48 Disk Control Frame				
	2 GB Cache Memory				
	512 MB Shared Memory				
	60 Hz Single Phase Power Option	[]	A5921A	001	
	50 Hz Single Phase Power Option	[]	A5921A	002	
2.1	Client-Host Interface Processor pairs (Min1 pr Max 3 pr)				
	4 Port ExSA Channel Adapter Pair	[]	A5923A		
	8 Port ExSA Channel Adapter Pair	[]	A5924A		
	4 Port Fiber Channel Adapter Pair for Short Wave	[]	A5925A		

	Description		Product #	Opt. #	
	8 Port Fiber Channel Adapter Pair for Short Wave (While quantities last)	[]	A5926A		
	8 Port Fiber Channel for Continuous Access Adapter Pair for Short Wave	[]	A5927A		
	1-2Gb/sec 8 Port Auto sensing FC Adapter for Continuous Access Adapter Pair for Short Wave	[]	A5929A		
2.2	Additional Nonvolatile Cache (Min 0, Max 16 GB including 2 GB cache in base DKC configuration)				
	2 GB Cache Memory	[]	A5932A		
2.3	Additional Shared Memory (Min 0, Max 1024 MB including 512 MB Shared Memory in base DKC configuration)				
	256 MB Shared Memory Module	[]	A5933A		
2.4	Disk Array Groups (min 1 max 11)				
	18 GB 10k rpm, FC Disk Array Group - 4 drives per group (While quantities last)	[]	A5936A		
	18 GB 15k rpm, FC Disk Array Group - 4 drives per group (Obsoletes 18GB-10k after inventory roll)	[]	A5940A		
	47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5937A		
	73 GB 10k rpm, FC Disk Array Group - 4 drives per group	[]	A5938A		
2.5	Spare Disk Drives (Min 1 per array group size, Max 4 total)				
	18 GB 10k rpm, FC Spare Disk Drive (While quantities last)	[]	A5936S		
	18 GB 15k rpm, FC Spare Disk Drive (Obsoletes 18GB-10k after inventory roll)	[]	A5440S		
	47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5937S		
	73 GB 10K rpm, FC Spare Disk Drive	[]	A5938S		

4.9.8—hp xp48 upgrade products

	Description		Product #	Opt. #	
•	4 Port ExSA Channel Adapter Pair	[]	A5923U		
•	8 Port ExSA Channel Adapter Pair	[]	A5924U		
•	4 Port Fiber Channel Adapter Pair for Short Wave	[]	A5925U		
•	8 Port Fiber Channel Adapter Pair for Short Wave (While quantities last)	[]	A5926U		
•	8 Port Fiber Channel for Continuous Access Adapter Pair for Short Wave	[]	A5927U		
•	1-2Gb/sec 8 Port Auto sensing FC Adapter for Continuous Access Adapter Pair for Short Wave	[]	A5929U		
•	2 GB Cache Memory Module	[]	A5932U		
•	256 MB Shared Memory Module	[]	A5933U		
•	18 GB 10k rpm, FC Disk Array Group - 4 drives per group (While quantities last)	[]	A5936U		
•	18 GB 15k rpm, FC Disk Array Group - 4 drives per group (Obsoletes 18GB-10k after inventory roll)	[]	A5940U		
•	47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5937U		
•	73 GB 10k rpm, FC Disk Array Group - 4 drives per group	[]	A5938U		
•	181 GB 7200 rpm, FC Disk Array Group - 4 drives per group	[]	A5939U		
•	18 GB 10k rpm, FC Spare Disk Drive (While quantities last)	[]	A5936SU		
•	18 GB 15k rpm, FC Spare Disk Drive (Obsoletes 18GB-10k after inventory roll)	[]	A5940SU		
•	47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5937SU		
	73 GB 10K rpm, FC Spare Disk Drive	[]	A5938SU		
	181 GB 7200 rpm, FC Spare Disk Drive	[]	A5939SU		
	Host Interface Cables (Same as XP512)				
•	1Gb/sec to 1Gb/sec Fibre Channel Cables – SC/SC	[]	A5750A		
•	16 meter SC/SC Fibre Channel Cable, 50 micron, multimode	[]	A5750A	001	
•	50 meter SC/SC Fibre Channel Cable, 50 micron, multimode	[]	A5750A	002	
•	100 meter SC/SC Fibre Channel Cable, 50 micron, multimode	[]	A5750A	003	
•	2Gb/sec to 2Gb/sec Fibre Channel Cables – LC/LC				
•	16 meter 2Gb/sec LC/LC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	004	
•	50 meter 2Gb/sec LC/LC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	005	
•	200 meter 2Gb/sec LC/LC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	006	
•	2Gb/sec to 1Gb/sec Fibre Channel Cables – LC/SC				
•	2 meter LC/SC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	007	
•	16 meter LC/SC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	008	
	Cable Adapters				

	Description		Product #	Opt. #	
•	SC Female – SC Female adapter, for use with 2 or 16 meter LC/SC cables	[]	A5750A	009	
•	2 meter LC male adapter kit-contains both SC-SC adapter & 2 meter LC/SC cable	[]	A5750A	010	
•	Fibre Optic Cables (ESCON)		A5752A		
	Fiber Optic Cable - 7m	[]		001	
	Fiber Optic Cable - 13m	[]		002	
	Fiber Optic Cable - 22m	[]		003	
	Fiber Optic Cable - 31m	[]		004	
	Fiber Optic Cable - 46m	[]		005	
	Fiber Optic Cable - 61m	[]		006	
	Fiber Optic Cable - 92m	[]		007	
	Fiber Optic Cable - 122m	[]		008	

4.9.9—hp surestore disk array xp48 software

	Description		Product #	Opt#	
	Software				
	All LTU products for initial purchase or upgrade				
•	Continuous Access XP	[]	B9320A		
•	Continuous Access XP Media For XP512/XP48 includes RAID Manager	[]	B9320A	002	
•	Continuous Access XP 1 TB LTU	[]	B9321A		
•	Continuous Access XP 5 TB LTU	[]	B9322A		
•	Continuous Access XP 10 TB LTU	[]	B9323A		
•	Continuous Access XP 25 TB LTU	[]	B9324A		
•	Continuous Access XP Extension	[]	B9325A		
•	Continuous Access XP Ext. Media For XP512/XP48	[]	B9325A	002	
•	Continuous Access XP Ext. 1 TB LTU	[]	B9326A		
•	Continuous Access XP Ext. 5 TB LTU	[]	B9327A		
•	Continuous Access XP Ext. 10 TB LTU	[]	B9328A		
•	Continuous Access XP Ext. 25 TB LTU	[]	B9329A		
•	Business Copy XP	[]	B9330A		
•	Business Copy XP Media For XP512/XP48 includes RAID Manager	[]	B9330A	002	
•	Business Copy XP 1 TB LTU	[]	B9331A		
•	Business Copy XP 5 TB LTU	[]	B9332A		
•	Business Copy XP 10 TB LTU	[]	B9333A		
•	Business Copy XP 25 TB LTU	[]	B9334A		
•	Secure Manager XP	[]	B9351A		
•	Secure Manager XP Media For XP512/XP48	[]	B9351A	002	
•	Secure Manager XP 1 TB LTU	[]	B9352A		
•	Secure Manager XP 5 TB LTU	[]	B9353A		
•	Secure Manager XP 10 TB LTU	[]	B9354A		
•	Secure Manager XP 25 TB LTU	[]	B9355A		
•	Auto Path XP	[]	B9351A		
	Auto Path XP for AIX				
•	Auto Path XP for AIX Media	[]	B7949B		
•	Auto Path XP for AIX, 1 Server LTU (LTU on one server running AIX connected to an XP Disk Array)	[]	B7950B		
•	Auto Path XP for AIX, Unlimited Server LTU (LTU on unlimited servers running AIX connected to an XP Disk Array)	[]	B7951B		
	Auto Path XP for MS Windows 2000				
•	Auto Path for W2K Media	[]	B9500A		
•	Auto Path for W2K 1 Server LTU	[]	B9501A		
•	Auto Path for W2K 5 Server LTU	[]	B9502A		
•	Auto Path for W2K 10 Server LTU	[]	B9503A		
	Auto Path XP for MS NT				
•	Auto Path for NT Media	[]	B9505A		
•	Auto Path for NT 1 Server LTU	[]	B9506A		
•	Auto Path for NT 5 Server LTU	[]	B9507A		
•	Auto Path for NT 10 Server LTU	[]	B9508A		
	Cluster Extension XP				
	Cluster Extension XP for VCS				
•	Cluster Extension XP for Veritas Cluster Server	[]	B9531A		
	Cluster Extension XP for HACMP				
•	Cluster Extension XP for IBM HACMP	[]	B9532A		
	Cluster Extension XP for MSCS				
•	Cluster Extension XP for MSCS	[]	B9533A		
	Cache LUN XP				

	Description		Product #	Opt#	
•	Cache LUN XP Media For XP512/XP48	[]	B9345A	002	
•	Cache LUN XP 1 TB LTU	[]	B9346A		
•	Cache LUN XP 5 TB LTU	[]	B9347A		
•	Cache LUN XP 10 TB LTU	[]	B9348A		
•	Cache LUN XP 25 TB LTU	[]	B9349A		
	Performance Advisor XP				
•	Performance Advisor XP	[]	B9369A		
•	Auto LUN XP	[]	B9340A		
•	Auto LUN XP Media For XP512/XP48	[]	B9340A	002	
•	Auto LUN XP 1 TB LTU	[]	B9341A		
•	Auto LUN XP 5 TB LTU	[]	B9342A		
•	Auto LUN XP 10 TB LTU	[]	B9343A		
•	Auto LUN XP 25 TB LTU	[]	B9344A		
	Command View XP				
•	HP Surestore Command View XP For New XP512/XP48 Installations Includes Remote Control XP For XP512/XP48	[]	B9357AB		
•	Remote Control XP Upgrade For XP512/XP48	[]	B9357AD		
•	LUN Configuration Manager XP Media	[]	B9335A		
•	LUN Configuration Mgr XP Media For XP512/XP48	[]	B9335A	002	
•	LUN Configuration Mgr XP 1 TB LTU	[]	B9336A		
•	LUN Configuration Mgr XP 5 TB LTU	[]	B9337A		
•	LUN Configuration Mgr XP 10 TB LTU	[]	B9338A		
•	LUN Configuration Mgr XP 25 TB LTU	[]	B9339A		
	Resource Manager XP				
•	Resource Manager XP For XP512/XP48	[]	B9358A	002	
	Data Exchange XP				
•	Data Exchange XP For XP256/XP512/XP48	[]	T1620AA		
•	Fast Recovery Solutions XP				
	Fast Recovery Solutions XP for MS Exchange				
•	Fast Recovery Solutions XP for MS Exchange	[]	B9550A		N/A
•	Direct Backup XP				
•	Direct Backup XP (LTU on one XP Disk Array)	[]	B9560A		

4.9.10—hp disk array xp128

	Description		Product #	Opt #	Price
1.0	HP Disk Array XP128 SSP Solution	[]	A7875A		
1.1	XP128 Disk Control Frame (1 required per XP system). Must select one power option.				
	XP128 Disk Control Frame with 2 GB Cache, 512 MB Shared Memory, Redundant Power Supplies for CHIP prs 1-3, HP microcode, HP Continuous Track XP, Modem and pcAnywhere. Does not include basic ACP pr.	[]	A7876A		
	XP128 Disk Control Frame				
	2 GB Cache Memory Module				
	512 MB Shared Memory Module				
	3 Phase 60 Hz for XP128	[]	A7876A	001	
	Power Cable Kit for Three Phase (60Hz)				
	AC Box for Three Phase				
	3 Phase 50 Hz for XP128	[]	A7876A	002	
	Power Cable Kit for Three Phase (50Hz)				
	AC Box for Three Phase				
	Single Phase 60 Hz for XP128	[]	A7876A	003	
	Power Cable Kit for Single Phase (60Hz)				
	AC Box for Single Phase				

	Description		Product #	Opt #	Price
	Single Phase 50 Hz for XP128	[]	A7876A	004	
	Power Cable Kit for Single Phase (50Hz)				
	AC Box for Single Phase				
1.2	DKC Accessories (min 0, max 1 of each)				
	XP1024/128 SVP High Reliability Support Kit	[]	A7907A		
	XP1024/128 UPS Connection Kit (for single phase DKC only)	[]	A7908A		
1.3	Client-Host Interface Processor pairs (Min 1, Max 3 if A7894A is not selected, Max 2 if A7894A is selected)				
	XP1024/128 8-Port ExSA Channel Adapter Pair	[]	A7909A		
	XP1024/128 8-Port 1 Gb/sec FC/CA Adapter Pair	[]	A7910A		
	XP1024/128 4 Port 1-2Gb/sec Auto-sensing FC/CA CHIP Pair	[]	A7911A		
	XP1024/128 8 Port 1-2Gb/sec Auto-sensing FC/CA CHIP Pair	[]	A7912A		
1.4	Additional Nonvolatile Cache (Min 0, Max 15) Max 32 GB Cache allowed including 2 GB Cache in base DKC configuration.				
	XP1024/128 2 GB Cache Memory Module	[]	A7918A		
1.5	Additional Shared Memory (Min 0, Max 4) Max 2560 MB Shared Memory allowed including 512 MB Shared Memory in base DKC configuration.				
	XP1024/128 512 MB Shared Memory Module	[]	A7921A		
1.6	Array Control Processor prs (Min 1 for 1 DKA Model, Max 2 A7922A for 2 DKA Model) 2 DKA model requires Disk Path Expansion Kit A7894A and then Max 2 CHIP prs allowed (Can not intermix high and std performance ACPs in same array).				
	XP1024/128 Array Control Processor (ACP) pair- High Performance	[]	A7922A		
1.7	Disk Port Switch Sets (Min 0, Max 1) A7893A Disk Port Switch Set required if 16 or more Disk Array Groups are configured and Disk Path Expansion Kit A7894A is not configured. Disk Path Expansion Kit is required if 2 ACP prs A7922A are configured for 2 DKA Model. Cannot configure A7893A and A7894A in the same array.				
	XP128 Additional Disk Port Switch Set	[]	A7893A		
	XP128 Disk Path Expansion Kit	[]	A7894A		
1.8	Disk Array Groups (min 1 max 31)				
	XP1024/128 36 GB 15k rpm, FC Array Group - 4 disks	[]	A7928A		
	XP1024/128 73 GB 10k rpm, FC Array Group - 4 disks	[]	A7929A		
1.9	Spare Disk Drives (Min 1,Max 4) Must configure 1 spare disk of equal capacity of Disk Array Group configured.				
	XP1024/128 36 GB 15k rpm, FC Spare Disk Drive	[]	A7928S		
	XP1024/128 73 GB 10K rpm, FC Spare Disk Drive	[]	A7929S		

4.9.11—hp disk array xp1024

	Description		Product #	Opt #	Price
	XP1024 (K2) HW Structure				
1.0	HP Disk Array XP1024 SSP Solution		A7905A		
	XP1024 Disk Control Frame (1 required per XP system) Must select one power option.				
1.01	XP1024 Disk Control Frame with 4 GB Cache, 512MB Shared memory, Redundant Power Supplies for CHIP prs 1-2, FC Cable Set for DKU Frame position R1, Basic High Performance ACP pr, HP microcode, HP Continuous Track XP, Modem and pcAnywhere		A7906A		
	3 Phase 60 or 50 Hz for XP1024		A7906A	001	
	Single Phase 60 Hz for XP1024		A7906A	003	
	Single Phase 50 Hz for XP1024		A7906A	004	
1.02	DKC Accessories (min 0, max 1 of each)				
	XP1024/128 SVP High Reliability Support Kit		A7907A		
	XP1024/128 UPS Connection Kit (for single phase DKC only)		A7908A		
1.03	Client-Host Interface Processor pairs (Min 1 pr, Max 4 pr)				
	XP1024/128 8-Port ExSA Channel Adapter Pair		A7909A		
	XP1024/128 8-Port 1 Gb/sec FC/CA Adapter Pair		A7910A		
	XP1024/128 4 Port 1-2 Gb/sec Auto-sensing FC/CA CHIP Pair		A7911A		
	XP1024/128 8 Port 1-2 Gb/sec Auto-sensing FC/CA CHIP Pair		A7912A		

	Description	Product #	Opt #	Price
1.04	Additional DKC Power Supply for CHIP pairs 3 and 4 (Min 0, Max 1) XP1024 Additional CHIP Power Supply	A7917A		
1.05	Additional Nonvolatile Cache (Min 0, Max 30) Max 64 GB including 4 GB cache in base DKC A7919A configuration (Must configure DKC in increments of 4 GB and order Additional Cache Platform Board for performance configurations) XP1024/128 2 GB Cache Memory Module	A7918A		
1.06	Additional Cache Platform Board (Min 0, Max 1) Required for all performance configurations or required for cache beyond 32GB including 4 GB in base DKC. XP1024 Cache Platform Board	A7919A		
1.07	Additional Battery for Cache Memory (Min 0, Max 1) Required for all cache configurations beyond 32GB including 4 GB in base DKC. XP1024 Additional Battery for Cache Memory	A7920A		
1.08	Additional Shared Memory (Min 0, Max 5) Max 3072 MB including 512 MB Shared Memory in base DKC configuration. XP1024/128 512 MB Shared Memory Module	A7921A		
1.09	Additional Array Control Processor (Min 0, Max 3) One ACP pair provided in base DKC configuration. XP1024/128 Array Control Processor (ACP) pair- High Performance	A7922A		
1.10	DKU Frame L1 Interconnect Cable. (Min 0, max 1) A7924A is required for DKU frame configured in L1 position. Cable set for DKU in position R1 is provided with base DKC and A7926A cable set is required for DKU for position R2 or L2. XP1024 FC Cable Set for L1 DKU	A7924A		
1.11	Disk Array Frame (Min 1 position R1, Max 4) Must select one option and must match Power option of DKC, no intermixing of power options. FC Cable set for DKU in position R1 is provided with base DKC. FC Device Cable Set A7924A required for DKU position L1 and A7926A Cable Set required for R2 and L2 position. XP1024 Disk Array Frame 3 Phase 60 Hz for XP1024 DKU 3 Phase 50 Hz, for XP1024 DKU Single Phase, 60 Hz, for XP1024 DKU Single Phase, 50 Hz, for XP1024 DKU	A7925A A7925A A7925A A7925A A7925A	 001 002 003 004	
1.12	DKU R2, L2 Frame Interconnect Cable. (Min 0, max 2) A7926A is required for DKU frame A7924A configured in R2 or L2 position. Cable set for DKU in position R1 is provided with base DKC and cable set is required for DKU for position L1. XP1024 FC Cable Set for R2 and L2 DKU	A7926A		
1.13	Disk Array Groups (min 1 max 254) (max 63 R1 and L1) (max 64 R2 and L2) XP1024/128 36 GB 15k rpm, FC Array Group - 4 disks XP1024/128 73 GB 10k rpm, FC Array Group - 4 disks	A7928A A7929A		
1.14	Spare Disk Drives (Min 1 per array group size, Max 4 for R1 DKU and 4 additional for L1 DKU) XP1024/128 36 GB 15k rpm, FC Spare Disk Drive XP1024/128 73 GB 10K rpm, FC Spare Disk Drive	A7928S A7929S		

4.9.12—hp disk array xp128/1024 upgrades

	Description	Product #	Opt #	Price
2.0	XP1024 (K2) HW Structure HP Disk Array XP128/1024 upgrades SSP Solution DKC Accessories (min 0, max 1 of each) XP1024/128 SVP High Reliability Support Kit XP1024/128 UPS Connection Kit (for single phase DKC only) Client-Host Interface Processor pairs (Min 1 pr, Max 4 pr) XP1024/128 8-Port ExSA Channel Adapter Pair XP1024/128 8-Port 1 Gb/sec FC/CA Adapter Pair XP1024/128 4 Port 1-2 Gb/sec Auto-sensing FC/CA CHIP Pair XP1024/128 8 Port 1-2 Gb/sec Auto-sensing FC/CA CHIP Pair Additional DKC Power Supply for CHIP pairs 3 and 4 (Min 0, Max 1) XP1024 Additional CHIP Power Supply	A7873A A7907U A7908U A7909U A7910U A7911U A7912U A7917U		

	Description	Product #	Opt #	Price
	Additional Nonvolatile Cache (Min 0, Max 30) Max 64 GB including 4 GB cache in base DKC A7919A configuration (Must configure DKC in increments of 4 GB and order Additional Cache Platform Board for performance configurations)			
	XP1024/128 2 GB Cache Memory Module	A7918U		
	Additional Cache Platform Board (Min 0, Max 1) Required for all performance configurations or required for cache beyond 32GB including 4 GB in base DKC.			
	XP1024 Cache Platform Board	A7919U		
	Additional Battery for Cache Memory (Min 0, Max 1) Required for all cache configurations beyond 32GB including 4 GB in base DKC.			
	XP1024 Additional Battery for Cache Memory	A7920U		
	Additional Shared Memory (Min 0, Max 5) Max 3072 MB including 512 MB Shared Memory in base DKC configuration.			
	XP1024/128 512 MB Shared Memory Module	A7921U		
	Additional Array Control Processor (Min 0, Max 3) One ACP pair provided in base DKC configuration.			
	XP1024/128 Array Control Processor (ACP) pair- High Performance	A7922U		
	Disk Array Frame (Min 1 position R1, Max 4) Must select one option and must match Power option of DKC, no intermixing of power options. FC Cable set for DKU in position R1 is provided with base R2 DKC. FC Device Cable Set A7924A required for DKU position L1 and A7926A Cable Set required for and L2 position.			
	XP1024 Disk Array Frame	A7925U		
	3 Phase 60 Hz for XP1024 DKU	A7925U	001	
	3 Phase 50 Hz, for XP1024 DKU	A7925U	002	
	Single Phase, 60 Hz, for XP1024 DKU	A7925U	003	
	Single Phase, 50 Hz, for XP1024 DKU	A7925U	004	
	DKU Frame L1 Interconnect Cable. (Min 0, max 1) A7924A is required for DKU frame configured in L1 position. Cable set for DKU in position R1 is provided with base DKC and A7926A cable set is required for DKU for position R2 or L2.			
	XP1024 FC Cable Set for L1 DKU	A7924U		
	DKU R2, L2 Frame Interconnect Cable. (Min 0, max 2) A7926A is required for DKU frame configured in R2 or L2 position. Cable set for DKU in position R1 is provided with base DKC and A7924A cable set is required for DKU for position L1.			
	XP1024 FC Cable Set for R2 and L2 DKU	A7926U		
1.13	Disk Array Groups (min 1 max 254) (max 63 R1 and L1) (max 64 R2 and L2)			
	XP1024/128 36 GB 15k rpm, FC Array Group - 4 disks	A7928U		
	XP1024/128 73 GB 10k rpm, FC Array Group - 4 disks	A7929U		
1.14	Spare Disk Drives (Min 1 per array group size, Max 4 for R1 DKU and 4 additional for L1 DKU)			
	XP1024/128 36 GB 15k rpm, FC Spare Disk Drive	A7928SU		
	XP1024/128 73 GB 10K rpm, FC Spare Disk Drive	A7929SU		

4.9.13—hp disk array xp1024 & hp disk array xp128 software

	Description	Product #	Opt #	Price
	xp1024 and xp128 software			
	All LTU products for initial purchase or upgrade			
	Command View XP			
•	Command View XP for XP1024/XP128 (LTU on one management console)	[] B9357AD		
	LUN Configuration & Security Manager XP			
	This Software Title orderable only on the XP1024 and XP128			
•	LUN Configuration and Security Manager XP 1 TB LTU (0 to 1 TB range, used capacity on one	[] T1614AA		
•	XP1024/XP128 disk array see config guide for more info)			
•	LUN Configuration and Security Manager XP 1 TB LTU (2 to 6 TB range, used capacity on one	[] T1614AB		
	XP1024/XP128 disk array (see config guide for more info)			
•	LUN Configuration and Security Manager XP 1 TB LTU (7 to 15 TB range, used capacity on one	[] T1614AC		

Description		Product #	Opt #	Price
XP1024/XP128 disk array (see config guide for more info)				
• LUN Configuration and Security Manager XP 1 TB LTU (16 to 36 TB range, used capacity on one XP1024/XP128 disk array) (see config guide for more info)	[]	T1614AD		
Cache LUN XP				
• Cache LUN XP 1 TB LTU (0 to 1 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1616AA		
• Cache LUN XP 1 TB LTU (2 to 6 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1616AB		
• Cache LUN XP 1 TB LTU (7 to 15 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1616AC		
• Cache LUN XP 1 TB LTU (16 to 36 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1616AD		
Auto LUN XP				
• Auto LUN XP 1 TB LTU (0 to 1 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1615AA		
• Auto LUN XP 1 TB LTU (2 to 6 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1615AB		
• Auto LUN XP 1 TB LTU (7 to 15 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1615AC		
• Auto LUN XP 1 TB LTU (16 to 36 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1615AD		
Application Policy Manager XP				
• Application Policy Manager XP for XP1024/XP128 (LTU on one management console and one XP1024/XP128 disk array)	[]	B9540AB		
Auto Path XP				
Auto Path XP for AIX				
• Auto Path XP for AIX Media	[]	B7949B		
• Auto Path XP for AIX, 1 Server LTU (LTU on one server running AIX connected to an XP Disk Array)	[]	B7950B		
• Auto Path XP for AIX, Unlimited Server LTU (LTU on unlimited servers running AIX connected to an XP Disk Array)	[]	B7951B		
Auto Path XP for Windows 2000				
• Auto Path for W2K Media	[]	B9500A		
• Auto Path for W2K 1 Server LTU (LTU on one server running W2K connected to an XP Disk Array)	[]	B9501A		
• Auto Path for W2K 5 Server LTU (LTU on five servers running W2K connected to an XP Disk Array)	[]	B9502A		
• Auto Path for W2K 10 Server LTU (LTU on ten servers running W2K connected to an XP Disk Array)	[]	B9503A		
Auto Path XP for Windows NT				
• Auto Path for NT Media	[]	B9505A		
• Auto Path for NT 1 Server LTU (LTU on one server running NT connected to an XP Disk Array)	[]	B9506A		
• Auto Path for NT 5 Server LTU (LTU on five servers running NT connected to an XP Disk Array)	[]	B9507A		
• Auto Path for NT 10 Server LTU (LTU on ten servers running NT connected to an XP Disk Array)	[]	B9508A		
Auto Path XP for HP-UX				
• Auto Path for HP-UX Media	[]	B9510A		
• Auto Path for HP-UX 1 Server LTU (LTU on one server running HP-UX connected to an XP Disk Array)	[]	B9511A		
• Auto Path for HP-UX 5 Server LTU (LTU on five servers running HP-UX connected to an XP Disk Array)	[]	B9512A		
• Auto Path for HP-UX 10 Server LTU (LTU on ten servers running HP-UX connected to an XP Disk Array)	[]	B9513A		
Auto Path XP for Linux				
• Auto Path for Linux Media	[]	B9515A		
• Auto Path for Linux Server LTU (LTU on one server running Linux connected to an XP Disk Array)	[]	B9516A		
• Auto Path for Linux 5 Server LTU (LTU on five servers running Linux connected to an XP Disk Array)	[]	B9517A		
• Auto Path for Linux 10 Server LTU (LTU on ten servers running Linux connected to an XP Disk Array)	[]	B9518A		

Description		Product #	Opt #	Price
Array)				
Business Copy XP Media				
• Business Copy XP 1 TB LTU (0 to 1 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1613AA		
• Business Copy XP 1 TB LTU (2 to 6 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1613AB		
• Business Copy XP 1 TB LTU (7 to 15 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1613AC		
• Business Copy XP 1 TB LTU (16 to 36 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1613AD		
Continuous Access XP				
• Continuous Access XP 1 TB LTU (0 to 1 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1611AA		
• Continuous Access XP 1 TB LTU (2 to 6 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1611AB		
• Continuous Access XP 1 TB LTU (7 to 15 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1611AC		
• Continuous Access XP 1 TB LTU (16 to 36 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1611AD		
Continuous Access XP Extension				
• Continuous Access XP Extension 1 TB LTU (0 to 1 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1612AA		
• Continuous Access XP Extension 1 TB LTU (2 to 6 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1612AB		
• Continuous Access XP Extension 1 TB LTU (7 to 15 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1612AC		
• Continuous Access XP Extension 1 TB LTU (16 to 36 TB range, used capacity on one XP1024/XP128 disk array - see config guide for more info)	[]	T1612AD		
RAID Manager XP				
• RAID Manager XP (LTU on unlimited servers, any supported Operating System - see config guide for more information on supported Operating Systems)	[]	T1610A		
Cluster Extension XP				
Cluster Extension XP for VERITAS Cluster Server				
• Cluster Extension XP for VERITAS Cluster Server	[]	B9531A		
Cluster Extension XP for IBM HACMP Cluster Server				
• Cluster Extension XP for IBM HACMP	[]	B9532A		
Cluster Extension XP for Microsoft Cluster Service				
• Cluster Extension XP for MSCS	[]	B9533A		
Cluster Extension XP for MC/ServiceGuard for Linux				
• Cluster Extension XP for MC/ServiceGuard for Linux	[]	B9534A		
Performance Advisor XP				
• Performance Advisor XP (LTU on one management console)	[]	B9369A		
Resource Manager XP				
• Resource Manager XP for XP1024/XP128 (LTU on one XP1024/XP128 Disk Array)	[]	T1617A		
Data Exchange XP				
• Data Exchange XP For XP1024/XP128 (LTU on one server, any supported Operating Systems connected to an XP1024/XP128 Disk Array - see config guide for information on supported Operating Systems)	[]	T1620AB		
Fast Recovery Solutions XP				
Fast Recovery Solutions XP for Microsoft Exchange				
• Fast Recovery Solutions for MS Exchange (LTU on one XP Disk Array)	[]	B9550A		
Direct Backup XP				
• Direct Backup XP (LTU on one XP512 or XP48 Disk Array)	[]	B9560A		

4.9.14—hp surestore disk array xp512

Structured Solution Programs

	Description		Product #	Opt#	Price
1.0	HP Surestore Disk Array XP512 Solution	[x]	A5950A		
2.0	Surestore Disk Array XP512 Control Frame (1 required) Base DKC configuration is 3 phase 50/60 Hz . For single phase, select one single phase power option				
	XP512 Disk Control Frame with 1 ACP pair, Redundant Power Supplies for CHIP prs 1 and 2, HP Firmware (microcode) and Continuous Track XP with Modem and pcAnywhere	[]	A5951A		
	XP512 Disk Control Frame				
	1 GB Cache Memory Module, Quantity 2				
	256 MB Shared Memory Module, Quantity 2				
	FC Device Cable Set, DKC to R1U-DKU				
	SNMP Support Kit				
	60 Hz Single Phase Power, DKC	[]	A5951A	001	
	Power Cable Kit, Single Phase 60HZ DKC				
	AC Box Kit for Single Phase DKC				
	50 Hz Single Phase Power, DKC	[]	A5951A	002	
	Power Cable Kit, Single Phase 50HZ DKC				
	AC Box Kit for Single Phase DKC				
2.1	Client-Host Interface Processor pairs (Min1 pr Max 4 pr)				
	4 Port ExSA Channel Adapter Pair	[]	A5953A		
	8 Port ExSA Channel Adapter Pair	[]	A5954A		
	4 Port Fiber Channel Adapter Pair for Short Wave	[]	A5955A		
	8 Port Fiber Channel Adapter Pair for Short Wave (While quantities last)	[]	A5956A		
	8 Port Fiber Channel for Continuous Access Adapter Pair for Short Wave	[]	A5957A		
	1-2Gb/sec 8 Port Auto sensing FC Adapter for Continuous Access Adapter Pair for Short Wave	[]	A5959A		
2.2	Additional DKC Power Supply for CHIP pairs 3 and 4				
	Additional CHIP Power Supply	[]	A5961A		
2.3	Additional Nonvolatile Cache (Min 0, Max 32 GB including 2 GB cache in base DKC configuration)2 GB Cache Memory Module	[]	A5962A		
2.4	Additional Cache Platform Board (Min 0, Max 1) Required for cache beyond 16 GB including 2 GB in base DKC configuration.				
	Additional Cache Platform Board	[]	A5960A		
2.5	Additional Shared Memory (Min 0, Max 1,280 MB including 512 MB Shared Memory in base DKC configuration)				
	256 MB Shared Memory Module	[]	A5963A		
2.6	Additional Array Control Processor (Min 0, Max 4 including 1 ACP pair in base DKC configuration)				
	Array Control Processor (ACP) pair	[]	A5964A		
2.7	DKU Frame L1 Interconnect - FC Device Cable Set. Required if DKU is configured to position L1.				
	(No cables required for DKU in position R1). Min 0, Max 1.				
	FC Device Cable Set, DKC to L1 or R1 DKU	[]	A5974A		
3.0	Disk Array Frame (Min 1 position R1, Max 6) Must select one option and must match Power option of DKC, no intermixing of power options. FC Device Cable Set A5974A required for position L1 DKU.				
	XP512 Disk Array Frame (Must select one power option)	[]	A5965A		
	XP512 Disk Array Frame				
	Disk Canister Mount Platform				
	3 Phase, 60 Hz, for DKU	[]	A5965A	001	
	AC Box for 3 Phase DKU				
	Power Cable Kit, 3 phase, 60 Hz DKU				
	3 Phase, 50 Hz, for DKU	[]	A5965A	002	
	AC Box for 3 Phase DKU				
	Power Cable Kit, 3 phase, 50 Hz DKU				
	Single Phase, 60 Hz, for DKU	[]	A5965A	003	

	Description		Product #	Opt#	Price
	AC Box for Single Phase, DKU				
	Power Cable Kit, single phase, 60 Hz DKU				
	Single Phase, 50 Hz, for DKU	[]	A5965A	004	
	AC Box for Single Phase, DKU				
	Power Cable Kit, single phase, 50 Hz DKU				
3.1	Disk Array Groups (min 1 max 126)(23 R1 and L1)(24 R2 and L2) (16 R3 and L3)				
	18 GB 10k rpm, FC Disk Array Group - 4 drives per group (While quantities last)	[]	A5966A		
	18 GB 15k rpm, FC Disk Array Group - 4 drives per group (Obsoletes 18GB-10k after inventory roll)	[]	A5970A		
	47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5967A		
	73 GB 10k rpm, FC Disk Array Group - 4 drives per group	[]	A5968A		
	181 GB 7200 rpm, FC Disk Array Group - 4 drives per group	[]	A5969A		
3.2	Spare Disk Drives (Min 1 per array group size) Max Spare Drives per position: 4 in R1 and 4 in L1.				
	18 GB 10k rpm, FC Spare Disk Drive (While quantities last)	[]	A5966S		
	18 GB 15k rpm, FC Spare Disk Drive (Obsoletes 18GB-10k after inventory roll)	[]	A5970S		
	47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5967S		
	73 GB 10K rpm, FC Spare Disk Drive	[]	A5968S		
	181 GB 7200 rpm, FC Spare Disk Drive	[]	A5969S		
3.3	DKU Frame Interconnect - FC Device Cable Set. DKUs in positions R2, R3, L2 and L3 require one set A5975A cable for each position configured. Min 0, Max 4. (No cables required for DKU position R1. One cable set A5974A required for DKU position L1 only.)				
	FC Device Cable Set, DKU to R2, R3, L2, or L3 DKU	[]	A5975A		
	END SSP				
	Host Interface Cables				
	1Gb/sec to 1Gb/sec Fibre Channel Cables – SC/SC	[]	A5750A		
	16 meter SC/SC Fibre Channel Cable, 50 micron, multimode	[]	A5750A	001	
	50 meter SC/SC Fibre Channel Cable, 50 micron, multimode	[]	A5750A	002	
	100 meter SC/SC Fibre Channel Cable, 50 micron, multimode	[]	A5750A	003	
	2Gb/sec to 2Gb/sec Fibre Channel Cables – LC/LC				
	16 meter 2Gb/sec LC/LC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	004	
	50 meter 2Gb/sec LC/LC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	005	
	200 meter 2Gb/sec LC/LC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	006	
	2Gb/sec to 1Gb/sec Fibre Channel Cables – LC/SC				
	2 meter LC/SC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	007	
	16 meter LC/SC Fibre Channel Cable, 50/125 micron, multimode	[]	A5750A	008	
	Cable Adapters				
	SC Female – SC Female adapter, for use with 2 or 16 meter LC/SC cables	[]	A5750A	009	
	2 meter LC male adapter kit-contains both SC-SC adapter & 2 meter LC/SC cable	[]	A5750A	010	
	Fibre Optic Cables (ESCON)		A5752A		
	Fiber Optic Cable - 7m	[]	A5752A	001	
	Fiber Optic Cable - 13m	[]	A5752A	002	
	Fiber Optic Cable - 22m	[]	A5752A	003	
	Fiber Optic Cable - 31m	[]	A5752A	004	
	Fiber Optic Cable - 46m	[]	A5752A	005	
	Fiber Optic Cable - 61m	[]	A5752A	006	
	Fiber Optic Cable - 92m	[]	A5752A	007	
	Fiber Optic Cable - 122m	[]	A5752A	008	

4.9.15—xp512 upgrades

Description		Product #	Opt. #	Price
Order Configuration Rules: 1. Upgrade products are bundled with the solution, NOT integrated 2. Upgrades cannot be on the same order section with a SSP A5950A system order. 3. Cables and Software can be on the same order section as the upgrades.				
UPGRADE PRODUCTS				
• 4 Port ExSA Channel Adapter Pair	[]	A5953U		
• 8 Port ExSA Channel Adapter Pair	[]	A5954U		
• 4 Port Fiber Channel Adapter Pair for Short Wave	[]	A5955U		
• 8 Port Fiber Channel Adapter Pair for Short Wave (While quantities last)	[]	A5956U		
• 8 Port Fiber Channel for Continuous Access Adapter Pair for Short Wave (Host & CA Support)	[]	A5957U		
• 1-2Gb/sec 8 Port Auto sensing FC Adapter for Continuous Access Adapter Pair for Short Wave	[]	A5959U		
• Additional CHIP Power Supply	[]	A5961U		
• 2 GB Cache Memory Module	[]	A5962U		
• Additional Cache Platform Board	[]	A5960U		
• 256 MB Shared Memory Module	[]	A5963U		
• Array Control Processor (ACP) Pair	[]	A5964U		
• XP512 Disk Array Frame (Must select one power option)	[]	A5965U		
• XP512 Disk Array Frame				
• Disk Canister Mount Platform				
• 3 Phase, 60 Hz, for DKU	[]	A5965U	001	
• AC Box for 3 Phase DKU				
• Power Cable Kit, 3 phase, 60 Hz DKU				
• 3 Phase, 50 Hz, for DKU	[]	A5965U	002	
• AC Box for 3 Phase DKU				
• Power Cable Kit, 3 phase, 50 Hz DKU				
• Single Phase, 60 Hz, for DKU	[]	A5965U	003	
• AC Box for Single Phase, DKU				
• Power Cable Kit, single phase, 60 Hz DKU				
• Single Phase, 50 Hz, for DKU	[]	A5965U	004	
• AC Box for Single Phase, DKU				
• Power Cable Kit, single phase, 50 Hz DKU				
• 18 GB 10k rpm, FC Disk Array Group - 4 drives per group (While quantities last)	[]	A5966U		
• 18 GB 15k rpm, FC Disk Array Group - 4 drives per group (Obsoletes 18GB-10k after inventory roll)	[]	A5970U		
• 47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5967U		
• 73 GB 10k rpm, FC Disk Array Group - 4 drives per group	[]	A5968U		
• 181 GB 7200 rpm, FC Disk Array Group - 4 drives per group	[]	A5969U		
• 18 GB 10k rpm, FC Spare Disk Drive (While quantities last)	[]	A5966SU		
• 18 GB 15k rpm, FC Spare Disk Drive (Obsoletes 18GB-10k after inventory roll)	[]	A5970SU		
• 47 GB 10K rpm, FC Spare Disk Drive (While quantities last)	[]	A5967SU		
• 73 GB 10K rpm, FC Spare Disk Drive	[]	A5968SU		
• 181 GB 7200 rpm, FC Spare Disk Drive	[]	A5969SU		
• FC Device Cable Set, DKC to L1 or R1-DKU Upgrade	[]	A5974U		
• FC Device Cable Set, DKU to R2, R3, L2, or L3 DKU Upgrade	[]	A5975U		
XP-iCOD-S Products				
• 2GB cache memory, XP-iCOD-S	[]	A5962D		
• 256MB Shared Memory Module, XP-iCOD-S	[]	A5963D		
• Additional ACP pair, XP-iCOD-S	[]	A5964D		
• 18 GB array group - 4 drives per group, XP-iCOD-S	[]	A5966D		
• 18 GB 15k rpm, array group - 4 drives per group, XP-iCOD-S	[]	A5966D		
• 73 GB array group - 4 drives per group, XP-iCOD-S	[]	A5968D		
• 181 GB array group - 4 drives per group, XP-iCOD-S	[]	A5969D		

4.9.16—xp512 software, orca release – rev 17.1
Last Revision 4/17/01

Description		Product #	Opt#
Software			
All LTU products for initial purchase or upgrade			
• Continuous Access XP	[]	B9320A	
• Continuous Access XP Media For XP512/XP48 includes RAID Manager	[]	B9320A	002
• Continuous Access XP 1 TB LTU	[]	B9321A	
• Continuous Access XP 5 TB LTU	[]	B9322A	
• Continuous Access XP 10 TB LTU	[]	B9323A	
• Continuous Access XP 25 TB LTU	[]	B9324A	
• Continuous Access XP Extension	[]	B9325A	
• Continuous Access XP Ext. Media For XP512/XP48	[]	B9325A	002
• Continuous Access XP Ext. 1 TB LTU	[]	B9326A	
• Continuous Access XP Ext. 5 TB LTU	[]	B9327A	
• Continuous Access XP Ext. 10 TB LTU	[]	B9328A	
• Continuous Access XP Ext. 25 TB LTU	[]	B9329A	
• Business Copy XP	[]	B9330A	
• Business Copy XP Media For XP512/XP48 includes RAID Manager	[]	B9330A	002
• Business Copy XP 1 TB LTU	[]	B9331A	
• Business Copy XP 5 TB LTU	[]	B9332A	
• Business Copy XP 10 TB LTU	[]	B9333A	
• Business Copy XP 25 TB LTU	[]	B9334A	
• Secure Manager XP	[]	B9351A	
• Secure Manager XP Media For XP512/XP48	[]	B9351A	002
• Secure Manager XP 1 TB LTU	[]	B9352A	
• Secure Manager XP 5 TB LTU	[]	B9353A	
• Secure Manager XP 10 TB LTU	[]	B9354A	
• Secure Manager XP 25 TB LTU	[]	B9355A	
• Auto Path XP	[]	B9351A	
Auto Path XP for AIX			
• Auto Path XP for AIX Media	[]	B7949B	
• Auto Path XP for AIX, 1 Server LTU (LTU on one server running AIX connected to an XP Disk Array)	[]	B7950B	
• Auto Path XP for AIX, Unlimited Server LTU (LTU on unlimited servers running AIX connected to an XP Disk Array)	[]	B7951B	
Auto Path XP for MS Windows 2000			
• Auto Path for W2K Media	[]	B9500A	
• Auto Path for W2K 1 Server LTU	[]	B9501A	
• Auto Path for W2K 5 Server LTU	[]	B9502A	
• Auto Path for W2K 10 Server LTU	[]	B9503A	
Auto Path XP for MS NT			
• Auto Path for NT Media	[]	B9505A	
• Auto Path for NT 1 Server LTU	[]	B9506A	
• Auto Path for NT 5 Server LTU	[]	B9507A	
• Auto Path for NT 10 Server LTU	[]	B9508A	
Auto Path XP for HP-UX			
• Auto Path for HP-UX Media	[]	B9510A	
• Auto Path for HP-UX 1 Server LTU (LTU on one server running HP-UX connected to an XP Disk Array)	[]	B9511A	
• Auto Path for HP-UX 5 Server LTU (LTU on five servers running HP-UX connected to an XP Disk Array)	[]	B9512A	
• Auto Path for HP-UX 10 Server LTU (LTU on ten servers running HP-UX connected to an XP Disk Array)	[]	B9513A	
Auto Path XP for Linux			

Description		Product #	Opt#	
• Auto Path for Linux Media	[]	B9515A		
• Auto Path for Linux Server LTU (LTU on one server running Linux connected to an XP Disk Array)	[]	B9516A		
• Auto Path for Linux 5 Server LTU (LTU on five servers running Linux connected to an XP Disk Array)	[]	B9517A		
• Auto Path for Linux 10 Server LTU (LTU on ten servers running Linux connected to an XP Disk Array)	[]	B9518A		
Cluster Extension XP				
Cluster Extension XP for VCS				
• Cluster Extension XP for Veritas Cluster Server	[]	B9531A		
Cluster Extension XP for HACMP				
• Cluster Extension XP for IBM HACMP	[]	B9532A		
Cluster Extension XP for MSCS				
• Cluster Extension XP for MSCS	[]	B9533A		
Cluster Extension XP for MC/ServiceGuard for Linux				
• Cluster Extension XP for MC/ServiceGuard for Linux	[]	B9534A		
Cache LUN XP				
• Cache LUN XP Media For XP512/XP48	[]	B9345A	002	
• Cache LUN XP 1 TB LTU	[]	B9346A		
• Cache LUN XP 5 TB LTU	[]	B9347A		
• Cache LUN XP 10 TB LTU	[]	B9348A		
• Cache LUN XP 25 TB LTU	[]	B9349A		
Performance Advisor XP				
• Performance Advisor XP	[]	B9369A		
Auto LUN XP				
• Auto LUN XP Media For XP512/XP48	[]	B9340A	002	
• Auto LUN XP 1 TB LTU	[]	B9341A		
• Auto LUN XP 5 TB LTU	[]	B9342A		
• Auto LUN XP 10 TB LTU	[]	B9343A		
• Auto LUN XP 25 TB LTU	[]	B9344A		
Command View XP				
• HP Surestore Command View XP For New XP512/XP48 Installations Includes Remote Control XP For XP512/XP48	[]	B9357AB		
• Remote Control XP Upgrade For XP512/XP48	[]	B9357AD		
LUN Configuration Manager XP Media				
• LUN Configuration Mgr XP Media For XP512/XP48	[]	B9335A	002	
• LUN Configuration Mgr XP 1 TB LTU	[]	B9336A		
• LUN Configuration Mgr XP 5 TB LTU	[]	B9337A		
• LUN Configuration Mgr XP 10 TB LTU	[]	B9338A		
• LUN Configuration Mgr XP 25 TB LTU	[]	B9339A		
Resource Manager XP				
• Resource Manager XP For XP512/XP48	[]	B9358A	002	
Data Exchange XP				
• Data Exchange XP For XP256/XP512/XP48	[]	T1620AA		
Fast Recovery Solutions XP				
Fast Recovery Solutions XP for MS Exchange				
• Fast Recovery Solutions XP for MS Exchange	[]	B9550A		
Direct Backup XP				
• Direct Backup XP (LTU on one XP Disk Array)	[]	B9560A		

4.9.17—hp surestore disk array xp256

NOTE: The XP256 will be put on Blind CPL August 1st 2001, for easy order configuration for the Fire Sale on the remaining 42 DKC that are available (While quantities last). Must contact factory for availability before quoting. The XP256 “A/S” product then will be remove again and only the “Upgrades will be available as new”.

NOTE: The XP256 will be removed from CPL on 12/31/00. After that time new systems will no longer be orderable. Prior to 12/31, contact CSU factory for XP256 availability.

Ordering Process (XP256 Base Products Off CPL December 31, 2000 - Upgrades Products remain on CPL – 37GB/47GB Disks replaced with 73GB Disk)

Description	Off CPL Date	Replacement Product (if any)	Notes
XP256 Base Products (1)	December 31, 2000	XP512 and XP48(2)	Actual XP256 base product availability is quoted at time of order.
XP256 37GB SCSI Array Groups, Spares and iCOD-S	December 31, 2000 (all)	73GB SCSI Array Groups, Spares (3)	Actual 37GB SCSI drive availability is quoted at time of order.
XP256 47GB SCSI Array Groups, Spares and iCOD-S	December 31, 2000 (base/upgrades)	73GB SCSI Array Groups, Spares (3)	

XP256 base products include all new: Control Frames (DKC's), Disk Frames (DKU's), Array Groups, Cache, Shared Memory, ACP pairs, CHIP pairs (SCSI, Fibre Channel & ESCON), Array Frame Cables
73GB SCSI Array Groups, Spares will be available in December 2000.

Overview

Once the configuration choices have been made and saved in WATSON or Sales Builder for Windows (SBW), the configuration may be converted to a quote and imported into the order entry system. If configuration tools such as WATSON or SBW are not available, then it is important to follow an ascending numeric order for each Item / Sub-Item ordered in sequence. See Appendix for step by step Manual Procedures for configuring the XP256.

Structured Solution Programs (SSP's):

The HP Structured Solution Program (SSP) has been designed to make the ordering process simple, flexible, and easy to understand. It is completely menu driven requiring only a few simple choices for the various components in the system. Minimum/maximum numbers have been inserted into the menu wherever possible to simplify your choices and to guide your configuration decisions.

There is one SSP for this product: A5700A – offers a fully configurable menu of choices that span the entire capacity range of configurations

1. Host Interface Cables

Offers cable choices for each host interface in various lengths.

2. Software

Offers a wide choice of software products.

3. Upgrade Products

Allows for upgrading an existing array with more cache, disk storage, or host interfaces.

4. Product Support and Services

Choose the HW and SW support, and consulting services that your customer wants.

HP Surestore Disk Array XP256

	Description		Product #	Opt #	Status
1.0	HP Surestore Disk Array XP256 - Fully Configurable SSP	[x]	A5700A		While quantities last
2.0	Surestore Disk Array XP256 Control Fra (Required -- 1 Max)				
	Disk Control Frame - 3-phase power, 60 Hz and 50 Hz.	[]	A5701A		While quantities last
	Includes disk control frame with 1 ACP pair, HP Firmware, Continuous Track XP with Modem, 1GB cache memory, 256 MB shared memory, and redundant power.				
	Disk Control Frame with 60 Hz 1-phase power	[]	A5701B		While quantities last
	Includes disk control frame with 1 ACP pair, HP Firmware, Continuous Track XP with Modem, 1GB cache memory, 256 MB shared memory, and redundant power.				
	Disk Control Frame with 50 Hz 1-phase power	[]	A5701C		While quantities last
	Includes disk control frame with 1 ACP pair, HP Firmware, Continuous Track XP with Modem, 1GB cache memory, 256 MB shared memory, and redundant power.				
2.1	Client-Host Interface Processor (CHIP) pairs (Min.1 pair - Max. 4 pair)				
	8-Port SCSI adapter pair	[]	A5702A		While quantities last
	4-ExSA (ESCON compatible) channel adapter pair	[]	A5703A		While quantities last
	8-ExSA (ESCON compatible) channel adapter pair	[]	A5704A		While quantities last
	4-port fiber channel adapter pair	[]	A5705A		While quantities last
	Additional Redundant Power Supply needed for CHIP Pairs 3-4 (Min. 0, Max. 1)	[]	A5740A		While quantities last
2.2	Additional Cache Memory (1 GB) (Min 0, Max 15)	[]	A5710A		While quantities last
	Additional Cache Platform Board (Min 0, Max 1) Required for Cache > 8 GB	[]	A5711A		While quantities last
2.3	Additional Shared Memory (128 MB) (Min 0, Max 2)	[]	A5712A		While quantities last
2.4	Additional Array Control Processor (ACP) Pairs (Min 0, Max 3)	[]	A5719A		While quantities last
2.5	Fibre Channel Control Frame** (Min 0, Max 1)	[]	A5706A		While quantities last
	If A5706A is selected then a minimum of two FC-SCSI Bridges (A5707A) and a minimum of one SCSI CHIP (A5702A) are required. Includes all Bridge racking hardware, 2PDUs, and power cords				
	FC-SCSI Bridge	[]	A5707A		While quantities last
	FC-SCSI Bridge -if A5706A is ordered, Min 2, Max 16. Must order in multiples of 2				
	Disk Array Frame Configuration: Frame R1 Required. Min 1, Max 58 array groups				
	Default Factory Configuration is RAID-1				
3.0	R1 Disk Array Frame (Min 1 - Max 1)				
	Cannot intermix 1 phase, 50Hz and 60Hz frames on same order.				
	60 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708A		
	60 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708B		
	50 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709A		
	50 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709B		
3.1	Frame R1 Configuration (Min. 1 - Max. 15 array groups)				
	ACP pair for Domain 2 must be ordered for array groups 8 to 15.				
	15 GB array group - 4 drives per group	[]	A5721R1		While quantities last
	36.9 GB array group - 4 drives per group	[]	A5723R1		While quantities last
	47 GB array group - 4 drives per group	[]	A5726R1		While quantities last
	73 GB array group - 4 drives per group	[]	A5727R1		While quantities last
	R1 Spare Disk Drives (Min 1 per Array Group capacity, Max 4)				
	15 GB spare drive (15 GB SP Drive)	[]	A5731S		While quantities last
	GB spare drive (47 GB SP Drive)	[]	A5736S		While quantities last
3.2	R2 Disk Array Frame (Min 0 - Max 1)				
	Cannot intermix 1 phase, 50Hz and 60Hz frames on same order.				
	60 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708A		
	60 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708B		
	50 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709A		
	50 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709B		

	Description		Product #	Opt #	Status
3.3	Frame R2 Configuration (Min. 0 - Max. 14 array groups)				
	ACP pair for Domain 2 must be ordered for array groups 8 to 14.				
	15 GB array group - 4 drives per group	[]	A5721R2		While quantities last
	36.9 GB array group - 4 drives per group	[]	A5723R2		While quantities last
	47 GB array group - 4 drives per group	[]	A5726R2		While quantities last
	73 GB array group - 4 drives per group	[]	A5727R2		While quantities last
	SCSI Cable Set for Frame R2 (Required if frame R2 is ordered)	[]	A5746A		
3.4	L1 Disk Array Frame (Min 0 - Max 1)				
	Cannot intermix 1 phase, 50Hz and 60Hz frames on same order.				
	60 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708A		
	60 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708B		
	50 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709A		
	50 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709B		
3.5	Frame L1 Array Group Configuration (Min. 0 - Max. 15 array groups)				
	ACP pair for Domain 3 required for array groups 1-7.				
	ACP pair for Domain 4 required for array groups 8-15.				
	15 GB array group - 4 drives per group	[]	A5721L1		While quantities last
	36.9 GB array group - 4 drives per group	[]	A5723L1		While quantities last
	47 GB array group - 4 drives per group	[]	A5726L1		While quantities last
	73 GB array group - 4 drives per group	[]	A5727L1		While quantities last
	SCSI Cable Set for Frame L1 (Required if L1 Frame is ordered)	[]	A5745A		
	L1 Spare Disk Drives (Min 0 - Max 4)				
	15 GB spare drive (15 GB SP Drive)	[]	A5731S		While quantities last
	36.9 GB spare drive (47 GB SP Drive)	[]	A5733S		While quantities last
	47 GB spare drive (47 GB SP Drive)	[]	A5736S		While quantities last
	73 GB spare drive (47 GB SP Drive)	[]	A5737S		While quantities last
3.6	L2 Disk Array Frame (Min 0 - Max 1)				
	Cannot intermix 50Hz and 60Hz frames on same order.				
	60 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708A		
	60 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5708B		
	50 Hz 3-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709A		
	50 Hz 1-phase Disk Array frame w/ 2 Disk Canister Mount Platforms	[]	A5709B		
3.7	Frame L2 Array Group Configuration (Min. 0 - Max. 14 array groups)				
	Configuration of Frame L1 required, ACP pair for Domain 4 must be ordered for array groups 8-14.				
	15 GB array group - 4 drives per group	[]	A5721L2		While quantities last
	36.9 GB array group - 4 drives per group	[]	A5723L2		While quantities last
	47 GB array group - 4 drives per group	[]	A5726L2		While quantities last
	73 GB array group - 4 drives per group	[]	A5727L2		While quantities last
	SCSI Cable Set for Frame L2 (Required if L2 frame is ordered)	[]	A5746A		

Support Delivery Trigger Option #2YB must be added to A5701A or A5701B or A5701C.

A5706A and A5707A for expanded FC connectivity only. For basic FC Connectivity use 4 port Fibre Channel adapter pair A5705A.

XP256 A5700A SSP (Hardware)

Description		Product #	Opt #	
Host Interface Cables				
• Fibre Channel Cables		A5750A		
16 meter Fibre Channel Cable, 50 micron, multimode	[]		001	
50 meter Fibre Channel Cable, 50 micron, multimode	[]		002	
100 meter Fibre Channel Cable, 50 micron, multimode	[]		003	
• SCSI Cables		A5751A		
20 meter 68-pin HDTS to 68-pin HDTS cable	[]		003	
2 meter Y-cable/68-pin HDTS male cable	[]		004	
5 meter 68-pin HDTS to 68-pin HDTS cable in-line terminator cable for V-Class	[]		005	
10 meter 68-pin HDTS to 68-pin HDTS cable in-line terminator cable for V-Class	[]		006	
2/3 meter Y in-line terminator cable – 68-pin HD male for V-Class	[]		007	
2/5 meter Y in-line terminator cable – 68-pin HD male for V-Class	[]		008	
5 meter 68P HD LP to 68P HD LP	[]		009	
10 meter 68P HD LP to 68P HD LP	[]		010	
• Fibre Optic Cables (ESCON compatible)		A5752A		
Fiber Optic Cable - 7m	[]		001	
Fiber Optic Cable - 13m	[]		002	
Fiber Optic Cable - 22m	[]		003	
Fiber Optic Cable - 31m	[]		004	
Fiber Optic Cable - 46m	[]		005	
Fiber Optic Cable - 61m	[]		006	
Upgrade Products				
• 8-Port SCSI adapter pair	[]	A5702U		
• 4-ExSA (ESCON compatible) channel adapter pair	[]	A5703U		
• 8-ExSA (ESCON compatible) channel adapter pair	[]	A5704U		
• 4 port fiber channel adapter pair	[]	A5705U		
• Additional redundant power supply for CHIP Pairs 3 to 4	[]	A5740U		
• 1GB cache memory	[]	A5710U		
• Additional cache platform board	[]	A5711U		
• 128MB Shared Memory Module	[]	A5712U		
• Additional ACP pair	[]	A5719U		
• 60 Hz 3-phase Disk Array frame w/ 2 disk canister mount platforms	[]	A5708A		
• 50 Hz 3-phase Disk Array frame w/ 2 disk canister mount platforms	[]	A5709A		
• 60 Hz 1-phase Disk Array frame w/ 2 disk canister mount platforms	[]	A5708B		
• 50 Hz 1-phase Disk Array frame w/ 2 disk canister mount platforms	[]	A5709B		
• 15 GB array group - (4 disk drives per group)	[]	A5721U		
• 36.9 GB array group - (4 disk drives per group)	[]	A5723U		While quantities last
• 47 GB array group - (4 disk drives per group)	[]	A5726U		While quantities last
• 73 GB array group - (4 disk drives per group)	[]	A5727U		
• 15 GB spare drive	[]	A5731U		
• 36.9 GB spare drive	[]	A5733U		While quantities last
• 47 GB spare drive	[]	A5736U		While quantities last
• 73 GB spare drive	[]	A5737U		
• SCSI Cable Set for Array Frame L1	[]	A5745U		
• SCSI Cable Set for Array Frames R2 and L2	[]	A5746U		
XP-iCOD-S Products				
• 1GB cache memory, XP-iCOD-S	[]	A5710D		
• 128MB Shared Memory Module, XP-iCOD-S	[]	A5712D		
• Additional ACP pair, XP-iCOD-S	[]	A5719D		
• 15 GB array group - 4 drives per group, XP-iCOD-S	[]	A5721D		
• 73 GB array group - 4 drives per group, XP-iCOD-S	[]	A5727D		
Software				
Data Mirroring/Security				
• Continuous Access XP Media	[]	B9320A		

	Description		Product #	Opt #	
	First Year of System Support Option (required)	[x]		OS6	
	Software Enablement Option (required)	[x]		OSY	
•	Continuous Access XP Media For XP256	[]	B9320A	001	
	includes RAID Manager				
•	Continuous Access XP 1 TB LTU (used capacity – see config guide for more information)	[]	B9321A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP 5 TB LTU (used capacity – see config guide for more information)	[]	B9322A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP 10 TB LTU (used capacity – see config guide for more information)	[]	B9323A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP 25 TB LTU (used capacity – see config guide for more information)	[]	B9324A		
•	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP Extension Media	[]	B9325A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP Ext. Media For XP256	[]	B9325A	001	
•	Continuous Access XP Ext. 1 TB LTU (used capacity – see config guide for more information)	[]	B9326A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP Ext. 5 TB LTU (used capacity – see config guide for more information)	[]	B9327A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP Ext. 10 TB LTU (used capacity – see config guide for more information)	[]	B9328A		
	First Year of System Support Option (required)	[x]		OS6	
•	Continuous Access XP Ext. 25 TB LTU (used capacity – see config guide for more information)	[]	B9329A		
	First Year of System Support Option (required)	[x]		OS6	
•	Business Copy XP Media	[]	B9330A		
	First Year of System Support Option (required)	[x]		OS6	
•	Business Copy XP Media For XP256	[]	B9330A	001	
	includes RAID Manager				
•	Implementation Service (#302 or #303 required)	[x]	H9273A		
•	Implementation Service for Simple environments	[]	H9273A	302	
•	Implementation Service for Complex environments	[]	H9273A	303	
•	Business Copy XP 1 TB LTU (used capacity – see config guide for more information)	[]	B9331A		
	First Year of System Support Option (required)	[x]		OS6	
•	Business Copy XP 5 TB LTU (used capacity – see config guide for more information)	[]	B9332A		
	First Year of System Support Option (required)	[x]		OS6	
•	Business Copy XP 10 TB LTU (used capacity – see config guide for more information)	[]	B9333A		
	First Year of System Support Option (required)	[x]		OS6	
•	Business Copy XP 25 TB LTU (used capacity – see config guide for more information)	[]	B9334A		
	First Year of System Support Option (required)	[x]		OS6	
•	Secure Manager XP Media	[]	B9351A		
	First Year of System Support Option (required)	[x]		OS6	
•	Secure Manager XP Media For XP256	[]	B9351A	001	
	Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY	
•	Secure Manager XP 1 TB LTU (raw capacity – see config guide for more information)	[]	B9352A		
	First Year of System Support Option (required)	[x]		OS6	
•	Secure Manager XP 5 TB LTU (raw capacity – see config guide for more information)	[]	B9353A		
	First Year of System Support Option (required)	[x]		OS6	
•	Secure Manager XP 10 TB LTU (raw capacity – see config guide for more information)	[]	B9354A		
	First Year of System Support Option (required)	[x]		OS6	
•	Secure Manager XP 25 TB LTU (raw capacity – see config guide for more information)	[]	B9355A		
	First Year of System Support Option (required)	[x]		OS6	
•	Auto Path XP for AIX	[]	B7936B		
	First Year of System Support Option (required)	[x]		OS6	
	Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY	
	Auto Path for W2K/Pentium Media	[]	B9500A		
	First Year of System Support Option (required)	[x]		OS6	

Description		Product #	Opt #
Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY
Auto Path for W2K/Pentium 1 Server LTU	[]	B9501A	
First Year of System Support Option (required)	[x]		OS6
Auto Path for W2K/Pentium 5 Server LTU	[]	B9502A	
First Year of System Support Option (required)	[x]		OS6
Auto Path for W2K/Pentium 10 Server LTU	[]	B9503A	
First Year of System Support Option (required)	[x]		OS6
• Auto Path for NT Media	[]	B9505A	
First Year of System Support Option (required)	[x]		OS6
Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY
• Auto Path for NT 1 Server LTU	[]	B9506A	
First Year of System Support Option (required)	[x]		OS6
• Auto Path for NT 5 Server LTU	[]	B9507A	
First Year of System Support Option (required)	[x]		OS6
• Auto Path for NT 10 Server LTU	[]	B9508A	
First Year of System Support Option (required)	[x]		OS6
• Auto Path for HP-UX media		B9510A	
• First Year of System Support Option (required)	[x]		OS6
• Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY
• Auto Path for HP-UX 1 server LTU		B9511A	
First Year of System Support Option (required)	[x]		OS6
• Auto Path for HP-UX 5 server LTU		B9512A	
First Year of System Support Option (required)	[x]		OS6
• Auto Path for HP-UX 10 server LTU		B9513A	
First Year of System Support Option (required)	[x]		OS6
• Cluster Extension XP for Veritas Cluster Server	[]	B9531A	
First Year of System Support Option (required)	[x]		OS6
• Cluster Extension XP for IBM HACMP	[]	B9532A	
First Year of System Support Option (required)	[x]		OS6
• Cluster Extension XP for MSCS	[]	B9533A	
First Year of System Support Option (required)	[x]		OS6
Performance			
• Cache LUN XP Media	[]	B9345A	
First Year of System Support Option (required)	[x]		OS6
Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY
• Cache LUN XP Media For XP256	[]	B9345A	001
• Cache LUN XP 1 TB LTU (raw capacity – see config guide for more information)	[]	B9346A	
First Year of System Support Option (required)	[x]		OS6
• Cache LUN XP 5 TB LTU (raw capacity – see config guide for more information)	[]	B9347A	
First Year of System Support Option (required)	[x]		OS6
• Cache LUN XP 10 TB LTU (raw capacity – see config guide for more information)	[]	B9348A	
First Year of System Support Option (required)	[x]		OS6
• Cache LUN XP 25 TB LTU (raw capacity – see config guide for more information)	[]	B9349A	
First Year of System Support Option (required)	[x]		OS6
• Performance Advisor XP		B9369A	
First year of system support required	[x]		OS6
SW Enablement option (included w/ initial array purchase, required for upgrade to an existing array)	[]		OSY
• Auto LUN XP Media	[]	B9340A	
First Year of System Support Option (required)	[x]		OS6
Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY
• Auto LUN XP Media For XP256	[]	B9340A	001
• Auto LUN XP 1 TB LTU (raw capacity – see config guide for more information)	[]	B9341A	

	Description		Product #	Opt #	
	First Year of System Support Option (required)	[x]		OS6	
•	Auto LUN XP 5 TB LTU (raw capacity – see config guide for more information)	[]	B9342A		
	First Year of System Support Option (required)	[x]		OS6	
•	Auto LUN XP 10 TB LTU (raw capacity – see config guide for more information)	[]	B9343A		
	First Year of System Support Option (required)	[x]		OS6	
	Array Management				
•	Auto LUN XP 25 TB LTU (raw capacity – see config guide for more information)	[]	B9344A		
	First Year of System Support Option (required)	[x]		OS6	
•	HP Surestore Command View XP	[]	B9357A		
	First Year of System Support Option (required)	[x]		OS6	
	Software Enablement Option (required)	[x]		OSY	
•	HP Surestore Command View XP For New XP256 Installations	[]	B9357A	001	
	Includes Remote Control XP For XP256				
•	Command View XP Upgrade (for Existing XP256 Installations)	[]	B9357A	003	
•	LUN Configuration Manager XP Media	[]	B9335A		
	First Year of System Support Option (required)	[x]		OS6	
	Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY	
•	LUN Configuration Mgr XP Media For XP256	[]	B9335A	001	
•	LUN Configuration Mgr XP 1 TB LTU (raw capacity – see config guide for more information)	[]	B9336A		
	First Year of System Support Option (required)	[x]		OS6	
•	LUN Configuration Mgr XP 5 TB LTU (raw capacity – see config guide for more information)	[]	B9337A		
	First Year of System Support Option (required)	[x]		OS6	
•	LUN Configuration Mgr XP 10 TB LTU (raw capacity – see config guide for more information)	[]	B9338A		
	First Year of System Support Option (required)	[x]		OS6	
•	LUN Configuration Mgr XP 25 TB LTU (raw capacity – see config guide for more information)	[]	B9339A		
	First Year of System Support Option (required)	[x]		OS6	
	Mainframe Software				
•	Resource Manager XP	[]	B9358A		
	First Year of System Support Option (required)	[x]		OS6	
	Software Enablement Option (Included with initial array purchase, required for upgrade to an existing array)	[]		OSY	
•	Resource Manager XP For XP256	[]	B9358A	001	
•	Data Exchange XP For XP256/XP512/XP48	[]	T1620AA		
	First Year of System Support Option (required)	[x]		OS6	
	Software Enablement Option (required)	[x]		OSY	
•	Fast Recovery Solutions (1 support product required)	[]	B9550A	N/A	
•	1 Year 24x7 phone support	[]	H4405A	N/A	
•	3 Year 24x7 phone support	[]	H4405Y	N/A	
•	Direct Backup XP (LTU on one XP Disk Array)	[]	B9560A		

4.9.18—CNT UltraNet Storage Director

The CNT UltraNet Storage Director is a key component of HP's disaster-tolerant business continuity solutions, for use by HP customers with array-to-array data mirroring capabilities.

Two CNT UltraNet Storage Directors provide a high-speed switching platform at each data centre site, across unlimited distances, to interconnect HP XP48/512 storage systems to create an effective enterprise-wide storage area network (SAN).

By using either universally available telco-provided WAN links (e.g. ATM) or ubiquitous IP (Ethernet) packet-switched networks, HP customers can utilize better their existing network infrastructure. This allows users to maximize their cost savings by making more efficient use of their WAN connections whilst preventing considerable downtime, disruption and lost revenue by protecting one of their most valuable resources, data.

Description	Product #	Opt #	Price
CNT UltraNet Storage Director 6 slot Director with 2 Single ESCON ports and 1 WAN interface	CNTNSYAZ	OS6	
CNT UltraNet Storage Director 6 Slot Director with 2 Single ESCON ports and 2 WAN interfaces	CNTNSYBZ	OS6	
CNT UltraNet Storage Director 6 Slot Director with 2 Dual ESCON ports and 1 WAN interface	CNTNSYCZ	OS6	
CNT UltraNet Storage Director 6 Slot Director with 2 Dual ESCON ports and 2 WAN interfaces	CNTNSYDZ	OS6	

4.10 Solid State Disk – Excellerator™ file-caching solutions

The Excellerator from Solid Data is a file caching solution that multiplies system performance, scalability and reliability based on solid state disk (SSD) technology. It is the perfect fit in storage infrastructures that support mission-critical applications such as e-mail, messaging, and e-business applications, which heavily rely on speed of transaction processing. By combining HP Surestore disk arrays and Solid Data Excellerator file-caching appliances, an optimal high performance and high availability storage architecture can be configured. I/O wait will be eliminated; server performance and scalability in transaction-intensive applications will be multiplied.

Solid Data file-caching appliances are provided through HP Complementary Products (HPCP) on a worldwide basis. HP Support organization provides support services for the products (Multi-Vendor Support). Product Numbers as well as HP support options are available on CPL.

Description	Product #	Opt #	Price
Chassis – SCSI Interface			
<ul style="list-style-type: none"> 800 Ultra, High Voltage Differential, Dual Port, SCSI Chassis 	SSDEMY1Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slots and can scale up to 10GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
<ul style="list-style-type: none"> 800 Ultra, Low Voltage, Dual Port, SCSI Chassis 	SSDEMY5Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slots and can scale up to 10GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
SCSI cable VHDCI LVD cable 0.9M/36"		V09	
SCSI cable VHDCI LVD cable 1.8M/72"		V18	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
<ul style="list-style-type: none"> 1000 Ultra, High Voltage Differential, Dual Port, SCSI Chassis 	SSDEMY2Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 1000 Chassis have 16 memory array board slots and can scale up to 32GB			

Description	Product #	Opt #	Price
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
<ul style="list-style-type: none"> 1000 Ultra, Low Voltage, Dual Port, SCSI Chassis 	SSDEMY6Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 1000 Chassis have 16 memory array board slots and can scale up to 32GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
SCSI cable VHDCI LVD cable 0.9M/36"		V09	
SCSI cable VHDCI LVD cable 1.8M/72"		V18	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
Chassis – Fibre Channel Interface			
<ul style="list-style-type: none"> 800 Fibre Channel, Single Port, FC Chassis 	SSDEMY3Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slots and can scale up to 10GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
<ul style="list-style-type: none"> 800 Fibre Channel, Dual Port, FC Chassis 	SSDEMY7Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slots and can scale up to 10GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
<ul style="list-style-type: none"> 1000 Fibre Channel, Single Port, FC Chassis 	SSDEMY4Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 1000 Chassis have 16 memory array board slots and can scale up to 32GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
Universal Short Rack Mount Kit 0.4M/36"		R04	

Description	Product #	Opt #	Price
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
• 1000 Fibre Channel, Dual Port, FC Chassis	SSDEMY8Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 1000 Chassis have 16 memory array board slots and can scale up to 32GB			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
Universal Short Rack Mount Kit 0.4M/36"		R04	
Universal Long Rack Mount Kit 1.8M/72"		R18	
Slide Rack Mount Kit for HP Cabinets		R0H	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
Memory Array Boards			
• 512MB Memory Array Board	SSDEMYBZ		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slots			
Model 1000 Chassis have 16 memory array board slots			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
• 1GB Memory Array Board	SSDEMY9Z		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slot			
Model 1000 Chassis have 16 memory array board slots			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
• 2GB Memory Array Board	SSDEMYAZ		
Note: Prices include first year of system support (8x5 next day on-site)			
Model 800 Chassis have 5 memory array board slots			
Model 1000 Chassis have 16 memory array board slots			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
Remote Monitoring and Reporting			
• Remote Monitoring and Reporting	SSDEMYRZ		
Note: Must be ordered together with a Chassis. Can be applied with any Chassis model; support is covered by the Chassis			
e-100 Configured Solutions			
• e-100, High Voltage Differential, Dual Port, with 512MB	SSDEMYGZ		
Note: Price include first year of system support (8x5 next day on-site)			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
• e-100, Low Voltage Differential, Dual Port, with 512MB	SSDEMYHZ		
Note: Price include first year of system support (8x5 next day on-site)			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	

Description	Product #	Opt #	Price
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
SCSI cable VHDCI LVD cable 0.9M/36"		V09	
SCSI cable VHDCI LVD cable 1.8M/72"		V18	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
• e-100, High Voltage Differential, Dual Port, with 1GB	SSDEMYIZ		
Note: Price include first year of system support (8x5 next day on-site)			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
• e-100, Low Voltage Differential, Dual Port, with 1GB	SSDEMYJZ		
Note: Price include first year of system support (8x5 next day on-site)			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
SCSI cable VHDCI LVD cable 0.9M/36"		V09	
SCSI cable VHDCI LVD cable 1.8M/72"		V18	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
• e-100, High Voltage Differential, Dual Port, with 2GB	SSDEMYKZ		
Note: Price include first year of system support (8x5 next day on-site)			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	
• e-100, Low Voltage Differential, Dual Port, with 2GB	SSDEMYLZ		
Note: Price include first year of system support (8x5 next day on-site)			
First Year of System Support Option (8x5 same day).		OS3	
First Year of System Support Option (24x7).		OS6	
SCSI cable 68 Pin Micro D Male 0.9M/36"		S09	
SCSI cable 68 Pin Micro D Male 1.8M/72"		S18	
SCSI cable VHDCI LVD cable 0.9M/36"		V09	
SCSI cable VHDCI LVD cable 1.8M/72"		V18	
Power Cord 0.9M/36" 230V		P09	
Standard US, 115VAC		P15	
Power Cord 1.8M/72" 230V		P18	
Standard US and some Foreign, 230VAC		P23	

Subchapter 4.11—Media

	Description	Product #	Opt #	Price
•	1.3 GB HP DDS DAT cartridge (60 meters) (box of five)	92283A		
•	2 GB HP DDS DAT cartridge (90 meters) (box of five)	92283B		
•	4 GB HP DDS DAT cartridge (120 meters) (box of five)	92300A		
•	12 GB HP DDS DAT cartridge (125-meters) (box of five)	C1517A		
•	DAT drive cleaning cassette	92283K		
•	Certified, 1/4-inch Tape Cartridges for the 9144A tape drive, 600-foot (box of five)	88140LC		
•	Certified, 1/4-inch Tape Cartridges for the 9144A tape drive, 150-foot (box of five)	88140SC		
•	Certified, 1/4-inch Tape Cartridges for the 9145A tape drive, 600-foot (box of five)	92245L		
•	1/2-inch Tape Reels (in seals, box of ten - 2400 ft.)	92150F		
•	40 GB HP DLT Tape IV Cartridge (1 pack)	C5141F		
•	15 GB HP DLT Tape III Cartridge (1 pack)	C5141A		
•	DLT Tape Cleaning Cartridge	C5142A		
•	100GB HP Ultrium Tape Cartridge (1 pack)	C7970A		
•	200GB HP Ultrium Tape Cartridge (1 pack)	C7971A		
•	Ultrium Universal Tape Cleaning Cartridge	C7978A		
•	DLT1 Tape Cleaning Cartridge	C7998A		
	9840 Data Cartridge (Ordering information telephone 1-800-905-8502)			
	9840 Cleaning Cartridge (Ordering information telephone 1-800-905-8502)			
	NOTE: Data cartridge labels can be ordered from Engineered Data Products (EDP).			
	US sales line 1-800-432-1337, International 303 438 8375			

Subchapter 4.12—Terminals

	Description	Product #	Opt #	Price
	HP Terminal/Console			
	14-inch screen, 8-page memory, 80/132 column data, high resolution character, full overscan, VT320/220 compatible, white phosphor display only, EPC 104 keyboard			
•	HP 700/96 with amber screen	C1099A		
	HP 700/60 ASCII/ANSI/PC Terminal			
	DEC VT320 compatible, Wyse 60 compatible, 80/132 column data, 14-inch full overscan display, 72 Hz refresh rate. PC-AT type keyboard (optional ANSI keyboard).			
•	HP 700/60 with amber screen; PC-AT type keyboard	C1080A		
•	HP 700/60 with green screen; PC-AT type keyboard	C1080G		
•	HP 700/60 with soft-white screen; PC-AT type keyboard	C1080W		
	HP 700/70 Terminal			
	14-inch screen, 80/132 column data, DEC VT320 and Wyse 60 compatible; 50, 60 or 72 Hz refresh rate. PC-AT type keyboard (optional ANSI keyboard). Includes license-to-use SSSI FacetTerm software.			
•	HP 700/70 with amber screen	C1093A		
•	HP 700/70 with green screen	C1093G		
•	HP 700/70 with white screen	C1093W		
•	HP 700/70 media kit for HP 9000 – DAT. One required per site.	C1096A		
•	Serial mouse	C3370A		
	HP 700/96 Terminal			
	14-inch screen, 8-page memory, 80/132 column data, high resolution character, full overscan, VT220 compatible.			
•	HP 700/96 with amber screen	C1064A		
•	HP 700/96 with green screen	C1064G		
•	HP 700/96 with soft-white screen	C1064W		
	HP 700/98 High Performance Terminal			

Description	Product #	Opt #	Price
14-inch screen, 16-page memory, 80/132 column data, high resolution characters, full overscan, forms cache, 11 edit checks, VT220 compatible.			
• HP 700/98 with amber screen	C1065A		
• HP 700/98 with green screen	C1065G		
• HP 700/98 with soft-white screen	C1065W		
• HP 700/60ES Terminal with soft-white screen. Has all HP 700/60 features plus compliance with Swedish MPR 1990:10 guidelines.	C1083W		
• HP 700/70ES – has all HP 700/70 features, plus compliance with Swedish MPR 1990:10 guidelines	C1094W		
• HP 700/96ES Terminal with Soft-White Screen. Has all HP 700/96 features plus compliance with Swedish MPR 1990:10 guidelines.	C1084W		
• HP 700/98ES Terminal with Soft-White Screen. Has all HP 700/98 features plus compliance with Swedish MPR 1990:10 guidelines.	C1085W		

Subchapter 4.13—NCD Thin Clients/X-Terminals

NCD is a leading provider of integrated thin client hardware and software solutions that deliver high performance, easy-to-manage access to any UNIX and legacy application. The NCD Network Computer Products deliver the broadest support for today's web, UNIX and legacy application access requirements, with expandability to meet tomorrow's needs. Major features include: outstanding X11 performance, a reliable local Netscape Navigator browser and the fastest and most flexible ICA client in a thin client.

Description	Product #	US \$ Ref. Price
NCD Network Computer X-Terminals		
Base Units include:		
– HP 3 Year International Limited Hardware Warranty with unit replacement		
– Mouse		
– Power Cord		
Keyboard to be ordered separately		
Monitor to be ordered separately		
N916, 16MB System Memory, 2 System Memory Slots, 10/100 BaseT Ethernet, Simultiple Color		
US Localization Bundle (Power Cord)	NCD916UB	
European and International Bundle (Power Cord)	NCD916EB	
N932, 32MB System Memory, 2 System Memory Slots (1 unused), 10/100 BaseT Ethernet, Simultiple Color		
US Localization Bundle (Power Cord)	NCD932UB	
European and International Bundle (Power Cord)	NCD932EB	
N948, 16MB System Memory, 2 System Memory Slots (1 unused), 10/100 BaseT Ethernet, Simultiple Color		
US Localization Bundle (Power Cord)	NCD948UB	
European and International Bundle (Power Cord)	NCD948EB	
N980, 80MB System Memory, 2 System Memory Slots (1 unused), 10/100 BaseT Ethernet, Simultiple Color		
US Localization Bundle (Power Cord)	NCD980UB	
European and International Bundle (Power Cord)	NCD980EB	
HP 3 Year International Limited Hardware warranty with unit Replacement MUST be ordered with every thin client	NCDWARTY	
Keyboards for the NCD900		
US – US Localization	NCDKBDUS	
UK – UK Localization	NCDKBDUK	
France – French Localization	NCDKBDFR	
Germany – German Localization	NCDKBDGR	

Description	Product #	US \$ Ref. Price
Sweden/Finland – Swedish/Finnish Localization	NCDKBDSE	
Italy – Italian Localization	NCDKBDIT	
Canada – French Canadian Localization	NCDKBDFC	
NCD900 Add-on Options		
2 Power Cords – 1 UK / 1 European	NCDPWREU	
Single Australian Power Cord	NCDPWRAU	
16MB 100-Pin DIMM, 4 Bank	NCDNF016	
32MB 100-Pin DIMM, 4 Bank	NCDNF032	
64MB 100-Pin DIMM, 4 Bank	NCDNF064	
128MB 100-Pin DIMM, 4 Bank	NCDNF128	
8MB Flash Memory Card	NCDF08FM	
16MB Flash Memory Card	NCDF16FM	
10 Base2 Thinnet Ethernet	NCDN9FB2	
Parallel Port Card	NCDNCFPL	
Display Stand – for monitors over 17 inches in size	NCDNCFDS	
Floppy Disk Drive	NCDFDD01	
NCD900 Software		
NCBridge 4.0, CD-ROM, site license upgrade for customers who purchased previous versions of NCBridge	NCD840CU	
NCBridge 4.0, CD-ROM, site license (1 License mandatory per site)	NCD840CS	
NCBridge 4.0, CD-ROM, corporate license	NCD840CC	
8 x 5 Phone-in assistance, LTU Updates, Media and Documentation Updates	NCD840S1	
24 x 7 Phone-in assistance, LTU Updates, Media and Documentation Updates	NCD840S2	

Subchapter 4.14—Printers

Description	Product #	Opt #	Price
HP 5000 Cut-Sheet Printers			
Printers and Accessories			
• PostScript™ Level 2 for the D640	C5630A		
• D640 16 megabytes add-on memory	C5635A		
Network Interfaces and Cables			
• 3-meter parallel cable for use with D640	C2946A		
• 10-meter parallel cable for use with D640	C2947A		
Supplies and Consumables			
• D640 Toner Kit (8 bottles)	C5626A		
• D640 Drum Kit	C5629A		
• D640 Developer Kit (2 bottles)	C5632B		
• D640 Printer Pick Roller Kit	C5633A		
• D640 Fuser (120-127V)	C5627A		
• D640 Fuser (200-240V)	C5628A		
• D640 HCI Pick Roller	C5636B		
• C30/C30D/C40D Toner, 2 cartridges	C4006A		
• C30/C30D/C40D Toner, 8 cartridges	C4007A		
• C30/C30D Photoconductor	C4682A		
• C40D Photoconductor	C4683A		
• C30/C30D/C40D Fuser, 100-127 VAC	C4675A		
• C30/C30D/C40D Fuser, 200-240 VAC	C4676A		
• Cleaner Unit for C30/C30D/C40D	C4011A		
• C30/C30D Developer Unit	C4015A		
• C40D Developer Unit	C4677A		
HP LineJet and LP Series Ribbons (Available as service parts; Contact HP Parts Direct)			
• 60 yard text ribbons, box of 6 ribbons (service part number: 171543-001)			

Description	Product #	Opt #	Price
<ul style="list-style-type: none"> 100 yard text ribbons, box of 6 ribbons (service part number: 171543-002) 60 yard bar code/OCR ribbons, box of 6 ribbons (service part number: 171543-003) 100 yard bar code/OCR ribbons, box of 6 ribbons (service part number: 171543-004) 			
P405 Multi-Purpose Impact Printer			
<ul style="list-style-type: none"> Model P405 Multi-purpose impact printer (600 cps in draft mode, 150 cps in letter) 	PSYP405P		
Localized for Europe and AAA (Only available in UK & France)			
<ul style="list-style-type: none"> Model P405 Multi-purpose impact printer (600 cps in draft mode, 150 cps in letter) 	PSYPAMER		
Localized for the Americas (obsolete as of July 1, 2001) *			
<ul style="list-style-type: none"> P405 Printer stand (635x670x730 - W x D x H) ** 	PSYP405S		
<ul style="list-style-type: none"> Pack of 5 ribbons for the P405 (black)** 	PSYP405R		
<ul style="list-style-type: none"> Replacement print head (Lifetime 350,000 pages)** 	PSYP405H		
<ul style="list-style-type: none"> Automatic sheet feeder cassette version A (for normal paper - max 180)** 	PSYP405A		
<ul style="list-style-type: none"> Automatic sheet feeder cassette version B (heavy paper and envelopes - max 50)** 	PSYP405B		
<ul style="list-style-type: none"> Replacement platen assembly (rubber roller to transport paper) ** 	PSYP405Y		
<ul style="list-style-type: none"> Replacement pick up rolls ** 	PSYP405L		
C-Series, HP LineJet, and LP Series Network Interfaces and Cables			
<ul style="list-style-type: none"> HP JetDirect EX Plus Ethernet/IEEE 802.3 Network Interface 	J2591A		
<ul style="list-style-type: none"> HP JetDirect 500X External Print Server 910/100Base-TX, 10Base 2 	J3265A		
<ul style="list-style-type: none"> HP JetDirect E500X External Print Server (Token Ring) 	J3264A		
<ul style="list-style-type: none"> HP JetDirect EX to LP Series parallel connect cable (3-meter) 	C2951B		
<ul style="list-style-type: none"> HP JetDirect EX to LP Series parallel connect cable (2-meter) 	C2950A		
HP 5000 F-Series Printer Consumables			
<ul style="list-style-type: none"> Toner for HP 5000 Printers, 9 kg (estimated yield is 267,000 pages) 	35192A		

* A 100% comparable PSYPAMER product is available through our OEM, PSI
 285 North Drive, #F
 Melbourne, FL 32934
 Phone: 321-254-1946
 Fax: 321-242-0258
 e-mail: psi-us@inetmail.att.net

** These products are still available in UK and France. Outside of these two countries, You can order these products through PSI (see above for the US), and PSI Europe, phone # +49 271 3597 361, email: p405-support@psi-si.de

Subchapter 4.15—Cables and Accessories

Description	Product #	Opt#	Price
Order a 0D1 option for factory integration of cables or terminators. If factory integration is available, the 0D1 option is listed below the cable product number.			
Low Density Bail Lock 50			
<ul style="list-style-type: none"> SCSI Cable 1m LDBL50 M/M 	92222B	0D1	
<ul style="list-style-type: none"> Factory Integrated 			
<ul style="list-style-type: none"> SCSI Cable 3m LDBL50 M/F Ext 	C2900A	0D1	
<ul style="list-style-type: none"> Factory Integrated 			
Low Density Bail Lock to High Density Thumb Screw			
<ul style="list-style-type: none"> SCSI Cable 1m HDTS50/LDBL50 M/M Adptr 	K2296	0D1	
<ul style="list-style-type: none"> Factory Integrated 			
<ul style="list-style-type: none"> SCSI Cable 1m HDTS68/LDBL50 M/M Adptr 	C2915A	0D1	
<ul style="list-style-type: none"> Factory Integrated 			
High Density Thumb Screw 50			
<ul style="list-style-type: none"> SCSI Cable 0.5m HDTS50 M/M 	C2955A	0D1	
<ul style="list-style-type: none"> Factory Integrated 			
<ul style="list-style-type: none"> SCSI Cable 1m HDTS50 M/M 	C2908A		
<ul style="list-style-type: none"> SCSI Cable 2m HDTS50 M/M 	C2957A		
<ul style="list-style-type: none"> SCSI Cable 3m HDTC50 M/M 	C7521A		

Description	Product #	Opt#	Price
Factory Integrated		OD1	
• SCSI Cable 5m HDTS50 M/M	C2958A		
Factory Integrated		OD1	
High Density Thumb Screw 68 to High Density Thumb Screw 50			
• SCSI Cable 1m HDTS68/HDTS50 M/M Adptr	C2961A		
• Factory Integrated		OD1	
• SCSI Cable 2m HDTS68/HDTS50 M/M Adptr	C2906A		
• SCSI Cable 5m HDTS68/HDTS50 M/M Adptr	C2907A		
Factory Integrated		OD1	
Very High Density Thumb Screw 68 to High Density Thumb Screw 50			
• SCSI Cable 1m VHDTS68/HDTS50 M/M Adptr	C2367A		
Factory Integrated		OD1	
• SCSI Cable 2.5m VHDTS68/HDTS50 M/M Adptr	C2368A		
Factory Integrated		OD1	
High Density Thumb Screw 68			
• SCSI Cable 0.5m HDTS68 M/M Multimd	C2978B		
Factory Integrated		OD1	
• SCSI Cable 1m HDTS68 M/M Multimd	C2911C		
Factory Integrated		OD1	
• SCSI Cable 1.5m HDTS68 M/M Multimd	C2979B		
Factory Integrated		OD1	
• SCSI Cable 2.5m HDTS68 M/M Multimd	C2924C		
Factory Integrated		OD1	
• SCSI Cable 5m HDTS68 M/M Multimd	C7521A		
Factory Integrated		OD1	
• SCSI Cable 10m HDTS68 M/M Multimd	C7522A		
Factory Integrated		OD1	
• SCSI Cable 20m HDTS68 M/M Multimd	C7532A		
Factory Integrated		OD1	
Very High Density Thumb Screw 68			
• SCSI Cable 0.5m VHDTS68 M/M Multimd	C2371A		
Factory Integrated		OD1	
• SCSI Cable 1m VHDTS68 M/M Multimd	C2372A		
Factory Integrated		OD1	
• SCSI Cable 2m VHDTS68 M/M Multimd	C2373A		
Factory Integrated		OD1	
• SCSI Cable 5m VHDTS68 M/M Multimd	C2374A		
Factory Integrated		OD1	
• SCSI Cable 10m VHDTS68 M/M Multimd	C2375A		
Very High Density 68 to High Density 68			
• SCSI Cable .5m VHDTS68/HDTS68 M/F Multimd Ext	C7523A		
Factory Integrated		OD1	
• SCSI Cable 1m VHDTS68/HDTS68 M/M Multimd	C2361B		
Factory Integrated		OD1	
• SCSI Cable 1.5m VHDTS68/HDTS68 M/M Multimd	C2362B		
Factory Integrated		OD1	
• SCSI Cable 2m VHDTS68/HDTS68 M/M Multimd	C2365B		
Factory Integrated		OD1	
• SCSI Cable 5m VHDTS68/HDTS68 M/M Multimd	C2363B		
Factory Integrated		OD1	
Special V-Cables			
• SCSI V Cbl 2m HD/HD/HD M/M/M	C7544A		
Factory Integrated		OD1	
• SCSI V Cbl 2m VHD/VHD/HDTS68 M/M/M	A5607A		
Factory Integrated		OD1	

Description	Product #	Opt#	Price
• SCSI V Cbl 2m VHD/VHD ILT/HDTS68 M/M/M Factory Integrated	A5608A	OD1	
• SCSI V Cbl 2m HD/VHD/HDTS68 M/M/M Factory Integrated	A5609A	OD1	
• SCSI V Cbl 2m HD/VHD ILT/HDTS68 M/M/M Factory Integrated	A5610A	OD1	
In-Line Terminated Cables			
• SCSI Cable 0.5m HDTS68 HVD ILT M/F Ext Factory Integrated	C2980A	OD1	
• SCSI Cable 5m HDTS68 HVD ILT M/M Factory Integrated	C7554A	OD1	
• SCSI Cable 5m HDTS68 HVD ILT M/M Factory Integrated	C7555A	OD1	
• SCSI Cable 0.5m VHDS68/HDTS68 HVD ILT M/F Ext Factory Integrated	C7519A	OD1	
• SCSI Cable 5m VHDS68/HDTS68 HVD ILT M/M Factory Integrated	C5766A	OD1	
• SCSI Cable 10m VHDS68/HDTS68 HVD ILT M/M Factory Integrated	C5767A	OD1	
• SCSI Cable 2m VHDS68/HDTS68 LVD/SE ILT M/M Factory Integrated	C7541A	OD1	
• SCSI Cable 5m VHDS68/HDTS68 LVD/SE ILT M/M Factory Integrated	C7520A	OD1	
• SCSI Cable 10m VHDS68/HDTS68 LVD/SE ILT M/M Factory Integrated	C7556A	OD1	
• SCSI Cable 2m VHDS68 LVD/SE ILT M/M Factory Integrated	A5668A	OD1	
• SCSI Cable 5m VHDS68 LVD/SE ILT M/M Factory Integrated	A5669A	OD1	
• SCSI Cable 10m VHDS68 LVD/SE ILT M/M Factory Integrated	A5670A	OD1	
Fiber optic SCSI extender (supported on printers only)			
• Add 50m Fiber-optic cable		AFB	
• Add 100m Fiber-optic cable		AFD	
SCSI Terminators			
• SCSI Terminator SE LDBL50 Factory Integrated	K2291	OD1	
• SCSI Terminator SE HDTS50	C2904A		
• SCSI Terminator HVD HDTS50 Factory Integrated	C2905A	OD1	
• SCSI Terminator Active SE HDTS68 Factory Integrated	C2972A	OD1	
• SCSI Terminator LVD/SE HDTS68 Multimd Factory Integrated	C2364A	OD1	
• SCSI Terminator HVD VHDS68 Factory Integrated	C7528A	OD1	
• SCSI Terminator LVD/SE VHDS68 Multimd Factory Integrated	C2370A	OD1	

NOTE: When ordering SCSI Adapters A5149A, A5150A, A5159A, or A5838A, terminators are NOT included. Please order the appropriate terminator(s) for the final device(s) in your SCSI chain.

Subchapter 4.16—Networking Cables

Description	Product #	Opt #	Price
Order a OD1 option for factory integration of cables or terminators. If factory integration is available, the OD1 option is listed below the cable product number.			
CAT 5e cables			
• CAT 5e Cable 4 ft RJ 45 M/M	C7533A		
• Factory Integrated		OD1	
• CAT 5e Cable 7 ft RJ 45 M/M	C7535A		
• Factory Integrated		OD1	
• CAT 5e Cable 14 ft RJ 45 M/M	C7536A		
• Factory Integrated		OD1	
• CAT 5e Cable 25 ft RJ 45 M/M	C7537A		
• Factory Integrated		OD1	
• CAT 5e Cable 50 ft RJ 45 M/M	C7542A		
• Factory Integrated		OD1	
• CAT 5e C/O Cable 7 ft RJ 45 M/M	C7539A		
• Factory Integrated		OD1	
• CAT 5e C/O Cable 14 ft RJ 45 M/M	C7538A		
• Factory Integrated		OD1	
• CAT 5e C/O Cable 7 ft RJ 45 M/M	C7542A		
• Factory Integrated		OD1	
ThinLAN Cables and Accessories			
ThinLAN Coax Cable (with BNC connectors installed):			
• 1 m coax cable	92227A		
• 2 m coax cable	92227B		
• 4 m coax cable	92227C		
• 8 m coax cable	92227D		
• 16 m coax cable	92227E		
• 32 m coax cable	92227F		
• 128 m coax cable	92227H		
ThinLAN Accessories			
• BNC "T" Connector	92227N		
• ThinLAN Terminator Pair	92227P		
• Backbone LAN MAU and Tap, ThickLAN	30241A		
Backbone LAN AUI Cables (with connectors attached) for use with 30241A:			
• 6 m FEP AUI Cable	92254A		
• 12 m FEP AUI Cable	92254B		
• 48 m FEP AUI Cable	92254D		
• 6 m PVC (11) AUI Cable	92254E		
• 12 m PVC AUI Cable	92254F		
• 48 m PVC AUI Cable	92254H		
Backbone LAN Coax Cables (including connectors and terminators) ThickLAN			
• 500 m FEP without terminators attached	92253D		
• 500 m PVC without terminators attached	92253H		
Backbone LAN Coax Cable Tools for attaching connectors (order once):			
• N-Connectors, male, package of four	92253J		
• Barrel N-Connectors, female, and insulators, package of two	92253K		
• One grounding terminator and one floating point terminator with insulator	92253L		
For information on adapters, bridges, hubs, routers, switches, and transceivers, refer to Chapter 7, Networking and Communications			

Subchapter 4.17—Fibre Optic Cables

	Description	Product #	Opt #	Price
	Order a OD1 option for factory integration of cables or terminators. If factory integration is available, the OD1 option is listed below the cable product number.			
	Fibre Optic cables			
	SC/SC Connector			
•	Fibre Optic Cable 2m SC Duplex 50/125 M/M Factory Integrated	A3583A	OD1	
•	Fibre Optic Cable 16m SC Duplex 50/125 M/M	A3531A		
•	Fibre Optic Cable 50m SC Duplex 50/125 M/M Factory Integrated	A3735A	OD1	
	Fibre Optic Cable 100m SC Duplex 50/125 M/M	A3736A		
•	Factory Integrated		OD1	
	LC/LC Connector			
•	Fibre Optic Cable 2m LC Duplex 50/125 M/M Factory Integrated	C7524A	OD1	
•	Fibre Optic Cable 16m LC Duplex 50/125 M/M Factory Integrated	C7525A	OD1	
•	Fibre Optic Cable 50m LC Duplex 50/125 M/M	C7526A		
•	Fibre Optic Cable 200m LC Duplex 50/125 M/M	C7527A		
	LC/SC Adapter and Extenders			
•	Fibre Optic Cable LC/SC 2m Duplex 50/125 M/M Factory Integrated	C7529A	OD1	
•	Fibre Optic Cable LC/SC 16m Duplex 50/125 M/M Factory Integrated	C7530A	OD1	
•	Fibre Optic SC F/F Coupler Factory Integrated	C7534A	OD1	
•	Fibre Optic Cable Kit: Includes a 2m LC/SC Fibre Optic Cable and a Fibre Optic SC F/F Coupler Factory Integrated	C7540A	OD1	