Overview

(formerly known as HP StorageWorks 4400 Enclosure)

The HP StorageWorks Modular Smart Array 30 Single Bus or Dual Bus Enclosures (hereafter referred to as "MSA30 SB or MSA30 DB") is an Ultra320 SCSI disk drive storage enclosure. These enclosures deliver industry-leading data performance, availability, storage density, and upgradeability to meet customers' demanding and growing storage needs. The drive carrier is designed to support the fastest current Ultra320 hard drives on the same SCSI bus. The ease of upgrading the StorageWorks 4200 or the StorageWorks 4300 Enclosure to the MSA30 proves that HP provides the lowest cost of ownership. The MSA30 SB and DB enclosures support HP Integrity and HP ProLiant servers in addition to HP 9000 and HP Alpha Servers. Proving that technology transitions can proceed smoothly without disrupting critical business environments

The MSA30 OVSM HA kit ships with a 60 day trial license of **OpenView Storage Mirroring software**. This product also includes two 72GB 15K rpm Ultra320 hard drives. When configured with a ProLiant server, IT administrators can perform tasks such as OS Migration, disaster recovery and server consolidation. Administrators can move file servers to new servers without incurring downtime and while using available bandwidth. This solution allows customers to keep the target and host units in production mode while allowing the migration of data simultaneously. MSA30 OVSM HA kit will allow the administrator to manage bandwidth during the migration process to maximize I/O on critical servers during off-peak hours.

NOTE: For more information on OpenView Storage Mirroring please go to the following link: http://h18006.www1.hp.com/products/storage/software/sm/index.html.

Models

The MSA30 design allows for specific configurations tailored to the needs of all HP server customers. The models are available today:

Model MSA30 SB	Rack-mountable 14 drive enclosure with single bus, redundant power supplies	302969-B21
Model MSA30 DB	Rack-mountable 14 drive enclosure with dual bus, redundant power supplies	302970-B21

Customer Benefits	**Higher Performance**	Ultra320 SCSI transfer rates combined with the highest spindle count per U of rack space allows the MSA30 to achieve the greatest I/Os per second.
	Storage Capacity	3U rack form factor allows customer to achieve the maximum storage capacity per square foot in the data center.
	Upgradeability	Ultra320 single and dual I/O upgrade modules make upgrading the StorageWorks 4200/4300 Enclosure to Ultra320 quick and easy. **NOTE:** U320 performance requires a compatible U320 controller. This is noted in the product documentation.
	Investment Protection	With the ability to upgrade, as well as mix and match, existing Ultra2and/or Ultra3 components with Ultra320, HP makes technology transitions simple and cost effective, and has simplified the transition to the next generation SCSI protocol.
	Reduced Spares Inventory	Universal drives and drive carriers across HP's entire Ultra2, Ultra3, and Ultra320 product offering allow the same drives to be used in servers and external storage.

Overview

Key Features

NOTE: All models of the MSA30 (Formerly StorageWorks 4400) Enclosure Family have the following features:

Ultra320 (LVD) support - Delivering data transfer rates up to 320 MB/s per channel
NOTE: U320 performance requires a compatible U320 controller. This is noted in the product documentation.

- 3U rack height.
- Supports up to 14 (1-inch) Ultra320 (as well as legacy Ultra3 and Ultra2 drives) Universal hard disk drives.
- Provides storage capacity of up to 4.2TB per enclosure (using 300GB 1-inch disk drives) Modular design allows the MSA30 to be used in any storage configuration from JBOD (Just a Bunch of Disks) to Smart Array storage enclosures to external RAID arrays. Up to 14 enclosures can be mounted in one 42U rack for a single rack storage capacity of up to 28.4TB of disk storage (JBOD configuration) or up to 12 enclosures in an EMA16000 (HSG80 configuration) for a single rack storage capacity of 24.4TB.
- A common storage platform allows for future storage consolidation to the SAN.
- Award-winning innovative SCA (Single Connect Attach) direct connect drive carrier - provides better cooling and reliability for 10K and 15K drives.
- Hot pluggable disk drives, power supplies, and fans.
- Redundant fans, dual power supplies and single or dual bus I/O module options.
- Environmental Monitoring Unit (EMU) - Monitors environmental conditions within the enclosure and components such as the power supplies and fans.

NOTE: A U320 compatible EMU is required for a U320 I/O module. This is included with a MSA30 but must be deployed if an upgrade option kit is purchased for a StorageWorks 4200/4300 Enclosure.

- Easy removal of parts provides better serviceability. No tools are required!

Product Highlights

Upgradeability	Upgrading a StorageWorks 4200/4300 Enclosure to a MSA30 is as easy as swapping out the I/O module and the EMU on the back of the unit. The unit must be powered down to replace the I/O unit. **NOTE:** U320 performance requires a compatible U320 controller. This is noted in the product documentation. A U320 compatible EMU is also required for upgrades to U320 I/O modules.
Mix and Match	All Ultra320, Ultra3, and Ultra2 devices from HP are compatible with one another so customers can mix and match components in the same storage enclosure or server. When Ultra2, Ultra3, and Ultra320 devices are found on the same Ultra320 SCSI bus, each device will transfer data at its individual interface transfer rate up to the transfer rate of the SCSI bus. (Requires an Ultra320 controller for each drive to reach maximum I/Os as listed here.) **NOTE:** For customers who operate legacy Models 4310R and 4350R enclosures, the use of 1-inch Universal Ultra2, Utlra3, or Ultra320 disk drives requires the addition of 0.6-inch drive extenders. For configurations using the PCI-X Dual Channel U320 SCSI HBA, (P/N A7173A), mixing disks types (U160 and U320) is not supported in the same MSA30 enclosure.
Hot Pluggable	Hot pluggable technology is designed into drives, redundant power supplies and redundant cooling fans. Hot pluggable components can be replaced without powering down the storage system or stopping I/O operations. This feature significantly enhances data availability.
Auto SCSI ID Selection	SCSI ID is automatically set when a drive is inserted into a drive bay.
LED Indicators	LED indicators provide a quick visual assessment of overall system storage status. The MSA30 has three LEDs in the front, for EMU Status, power and fault. LED status and fault indicators for the fans and power supplies are located in the back of the enclosure.
Rack Density	The MSA30 models have a 3U height.
Environment Monitoring Unit (EMU)	Each MSA30 model is equipped with a hot-pluggable EMU that constantly monitors the enclosure, the power supplies, and fans to ensure suggested operating tolerances are maintained. **NOTE:** A U320 compatible EMU is required for a U320 I/O module.
Single Bus I/O Module	The single bus I/O module allows one SCSI channel to access all drives in the MSA30.
Dual Bus I/O Module	The dual bus I/O module allows two SCSI channels to access a single MSA30. This allows for greater fault tolerance (controller duplexing) or provides access from two different servers to two separate storage areas.
Fault Tolerance	With the dual bus I/O module, redundant power supplies and fans, the MSA30 provides a high level of system availability. Using an internal or external RAID Array, the MSA30 can be configured for RAID levels 0, 1, 1+0, 5 and RAID 6 with ADG when using a HP Smart Array RAID controller.
Manageability	Depending on the host controller, the MSA30 is managed by HP Insight Manager or StorageWorks Command Console.

Product Highlights

Compatibility and Integration Testing	Intensive compatibility and performance testing with HP ProLiant severs, HP Integrity, HP 9000 Servers and Alpha servers ensures the highest level of integration available in the industry on a HP server. For a complete list of supported HP servers and workstations, please refer to the QuickSpecs and/or User Guide of the array controller or Host Bus adapter that you are planning to use. The list of supported array controllers and SCSI adapters is provided under "Related Options, Controllers".

Product Kit Contents

Model MSA30 SB — Redundant power supplies, single bus I/O module, 14 drive blanks, warranty card, mounting hardware, Enclosure 4400 user guide, EMU booklet, HP SmartStart CD Kit, documentation CD, one 12-ft VHDCI to VHDCI SCSI cables and two Nema 5-15 to C13 and two IEC320-C14 to -C13.

Model MSA30 DB — Redundant power supplies, dual bus I/O module, 14 drive blanks, warranty card, mounting hardware, Enclosure 4400 user guide, EMU booklet, HP SmartStart CD Kit, documentation CD, two 12-ft VHDCI to VHDCI SCSI cables and two Nema 5-15 to C13 and two IEC320-C14 to -C13.

NOTE: A different SCSI cable may be required when the MSA30 is intended for connection to an HSG80 controller in a Model 2200 controller enclosure or a host-based adapter on an Alpha server. See the Related Options section of this document for cable ordering information.
NOTE: Power cord for Japan will be included in orders marked for Japan.
NOTE: To maintain proper cooling and airflow, a drive blank or drive must occupy all bays during operation.

Warranty

MSA30: Three-year limited warranty. Limited warranty includes 3 year parts, 0 years labor, 0 years on-site support.
NOTE: Certain restrictions and exclusions apply.

Hard drive Pre-Failure Warranty: When used with any one of the StorageWorks Smart Array Family controllers and monitored under HP Insight Manager (v4.20 or later), HP hard drives are supported by a Pre-Failure (replacement) Warranty.

NOTE: Pre-Failure Warranty is available on all HP ProLiant servers using HP Insight Manager v4.20 or later, and covers Pentium Pro processors, ECC memory, server hard drives, and external storage enclosure hard drives (except the 535 MB Fast-SCSI-2 hard drive) using HP IDA, IDA-2, HP SMART SCSI Array Controllers, HP SMART-2 Array Controllers or HP Smart Array Controllers. Certain restrictions and exclusions apply.

Service and Support, HP Care Pack, and Warranty Information

Software Product Services

Standalone telephone support

Rights to new license version

Media and documentation updates

Hardware Product Services

Installation services

On-site maintenance (includes warranty support)

Response time upgrades during the warranty period

Post-warranty coverage

RAID setup and performance consulting via statement of work

For additional hardware installation and maintenance information, please refer to the URL listed below:

http://www.hp.com/hps/carepack/services/cp_installation.html

Warranty Upgrade Options

Response – Upgrade on-site response from next business day to same day 4 hours

Coverage – Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days

Duration – Select duration of coverage for a period of 1, 3, or 5 years

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HP Care Pack Installation

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4 hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMware-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices, resellers or visit our worldwide website at: http://www.hp.com/hps/carepack

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit is at: http://www.hp.com/hps

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

NOTE: For additional information on Server Services, Rack and Power Options, please visit: http://h20219.www2.hp.com/services/cache/111072-0-0-225-121.html

NOTE: The information contained herein is subject to change without notice and is provided "as is" without warranty of any kind.

NOTE: The warranties for HP products and services are set forth in the express limited warranty statements accompanying such products and services.

NOTE: Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Information	**Flexible Care Packs**		
	1 Year Next Day HW	HA101A1-7GT	
	1 Year 4h 13x5 HW	HA103A1-7GT	
	1 Year 4h 24x7 HW	HA104A1-7GT	
	1 Year 6h CTR HW	HA105A1-7GT	
	1 Year Support Plus	HA109A1-7GT	
	1 Year Support Plus 24	HA110A1-7GT	
	3 Year Next Day HW	HA101A3-7GT	
	3 Year 4h 13x5 HW	HA103A3-7GT	
	3 Year 4h 24x7 HW	HA104A3-7GT	
	3 Year 6h CTR HW	HA105A3-7GT	
	3 Year Support Plus	HA109A3-7GT	
	3 Year Support Plus 24	HA110A3-7GT	
	Installation	HA113A1-564	

Fixed Care Packs

3 Year NBD 9x5 (Electronic)	U8128E	
3 Year 4H 13x5 (Electronic)	U8129E	
3 Year 4H 24x7 (Electronic)	U8130E	
3 Year 6H CTR (Electronic)	U8131E	
1 Year NBD 9x5 (Electronic)	U8151E	
1 Year 4H 13x5 (Electronic)	U8152E	
1 Year 4H 24x7 (Electronic)	U8153E	
1 Year 6H CTR (Electronic)	U8154E	
Installation (Electronic)	U8132E	

HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

HP Care Pack is not available for less than the product's warranty duration.

HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.

HP Care Pack services are prepaid.

For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL http://www.hp.com/hps/carepack/

Components	The following brick level options/components do not have individual HP Care Pack Services. These items will be included in product HP Care Pack Services into which they are installed.			
	Disk Drives	Tape Drives	CD/DVD ROM	SCSI Hubs in SBBs	Adapters
	Bus Converters	Backplane RAID Controllers	Power Supplies	Cabling	Fans

Configuration Information

NOTE: Some of the options listed below may be discontinued.

	Shipping Dimensions	**Part Number**
MSA30	34.38 x 34.375 x 12 in (87.33 x 87.313 x 30.48 cm) (SB)	302969-B21
	34.38 x 34.375 x 12 in (87.33 x 87.313 x 30.48 cm) (DB)	302970-B21
Ultra320 Single Bus Upgrade I/O Module	19.63 x 17.25 x 3.75 in (49.86 x 43.81 x 9.53 cm)	287484-B21
Ultra320 Dual Bus Upgrade I/O Module	12.75 x 8 x 3.75 in (32.13 x 20.16 x 9.45 cm)	287483-B21
Redundant Power Supply, 499 watts	12.75 x 8 x 3.75 in (32.13 x 20.16 x 9.45 cm)	338296-B21

		Part Number
Controllers & Adapters Supported	Smart Array 6404/256 Controller	273914-B21 (A9891A)
	Smart Array 6402/128 Controller	273915-B21 (A9890A)
	Smart Array 5304/256 Controller	283551-B21 (A9826A)
	Smart Array 642 Controller	291967-B21
	64-Bit/66Mhz Dual Channel Wide Ultra3 SCSI Adapter, Alternative OS	284688-B21
	1 channel Ultra2 (LVD) Adapter (Alpha Server systems)	3X-KZPCA-AA
	PCI-X TO SCSI UWD (FAST20 Differential) Adapter	3X-KZPBA-CC
	NOTE: Requires: 3X-DWZCV-BA or 3X-DWZCV-CA HVD-to-LVD converter	
	1 Channel Wide Ultra-2 (LVD) Adapter	3X-KZPCA-AA
	PCI to ULTRA3/LVD 2 Channel Host Bus Adapter	3X-KZPEA-DB
	1 Channel, 64-BIT,PCI-U2 Backplane RAID Controller	DS-KZPCC-AC
	3-Channel LVD 64 BIT PCI RAID Controller, 64MB Memory	DS-KZPCC-CE
	Smart Array 5302A/128 for Alpha Systems	3X-KZPDC-BE
	Smart Array 5304A/256 for Alpha Systems	3X-KZPDC-DF
	PCI to 10/100MBPS Ethernet, Graphics, LVD SCSI Combo Adapter	3X-DEPVZ-AA
	PCI-X Dual Channel U320 SCSI HBA For configurations using the A7173A HBA, mixing disks (U160 and U320) is not supported in the same MSA30 enclosure.	A7173A
	PCI Dual Channel Ultra160 SCSI Adapter OS Support: HP-UX 11i v1; HP-UX 11i v2.	A6829A
	PCI Ultra160 SCSI Adapter OS Support: HP-UX 11i v1; HP-UX 11i v2.	A6828A
	PCI 2 Port 100Base-T & 2 Port Ultra2 SCSI OS Support: HP-UX 11i v1; HP-UX 11i v2.	A5838A
	Ultra160 SCSI Adapter OS Support: Windows 2003 server on Integrity servers	A7059A
	2 port Ultra160 SCSI HBA OS Support: Windows 2003 server on Integrity servers	A7060A

Configuration Information

	PCI-X 2-Port U320 SCSI and 2-Port Gigabit Ethernet Combination Card OS Support: HP-UX 11.11, 11.23PI, Linux (RH AS3, RH AS4, SLES9) on Integrity servers, Windows 2003 server on Integrity servers	AB290A
	NOTE: See your server and controller compatibility matrix for details on controller and server compatibility. HP 9000 and HP Integrity Server-Storage Support Matrices: http://www.hp.com/products1/serverconnectivity/support_matrices.html	
Power Options	**NOTE:** These parts replace 119826-B21 - Redundant power supply, 375 watts).	
	Redundant Power Supply, 499 watts	338296-B21
	StorageWorks Enclosure Ultra320 Single Bus I/O Module	287484-B21
	StorageWorks Enclosure Ultra320 Dual Bus I/O Module	287483-B21
	39-ft (12m) VHDCI to VHDCI SCSI Cable	150214-B21
	24-ft (7m) VHDCI to VHDCI SCSI Cable	164604-B21
	NOTE: Configuration restrictions apply, please see modular array QuickSpecs for details: http://h18006.www1.hp.com/storage/arraysystems.html.	
HP Rack 5000 Series (Metallic Carbonite)	5642 (42U) Rack Cabinet - Unassembled on Pallet	358254-B21
	NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML (Worldwide) **NOTE:** For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack 10000 Series (Graphite Metallic)	10642 (42U) Infrastructure Rack (Low Voltage)	379006-001
	10642 (42U) Infrastructure Rack (High Voltage)	379005-001
	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP 10842 (42U, 800mm wide) Rack Cabinet - Pallet	257415-B21
	HP 10842 (42U, 800mm wide) Rack Cabinet - Shock Pallet	257415-B22
	HP 10647 (47U) Rack Cabinet - Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet - Shock Pallet	245160-B23
	HP 10622 (22U) Rack Cabinet - Pallet	245163-B21
	HP 10622 (22U) Rack Cabinet - Shock Pallet	245163-B22
	HP 10622 (22U) Rack Cabinet - Crated	245163-B23
	HP Rack System/E, 41U, quartz color	A4902A
	HP Rack System/E, 33U, quartz color	A4901A
	HP Rack System/E, 41U, graphite color	A4902D
	HP Rack System/E, 33U, graphite color	A4901D
	HP9000 Std Rack System E25	A4900A
	42U EVA cab 60Hz	338042-B21
	42U EVA cab 50Hz	338043-B21
	36U EVA cab 60Hz	338044-B21
	36U EVA cab 50Hz	338045-B21
	22U EVA cab 60Hz	338046-B21
	22U EVA cab 50Hz	338047-B21
	42U Modular Storage Cabinet 60 Hz (Opal)	180311-B21

Configuration Information

42U Modular Storage Cabinet 50 Hz (Opal)	180312-B22
36U Modular Storage Cabinet 60 Hz (Opal)	180313-B21
36U Modular Storage Cabinet 50 Hz (Opal)	180314-B22
22U Modular Storage Cabinet 60 Hz (Opal)	180315-B21
22U Modular Storage Cabinet 50 Hz (Opal)	180316-B22
41U Modular Storage Cabinet 60 Hz (Blue)	180317-B21
41U Modular Storage Cabinet 50 Hz (Blue)	180318-B22

NOTE: Each Modular Storage Cabinet (42U, 41U, 36U, and 22U) comes with redundant 220 to 240V PDUs and power cables to accommodate Modular Array configurations. For more details on Modular Array solutions, see: http://h18006.www1.hp.com/storage/arraysystems.html.

NOTE: xxxxxx-B21 (pallet) used to ship empty racks shipped on a truck. xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). xxxxxx-B23 (crated) used for air shipments of empty racks.

NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed.

NOTE: Please see the Rack 10000 QuickSpecs for additional part number and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

Legacy Racks Supported	Rack 7142	165753-001
	Rack 9142	120663-B21
	Rack 9136	120664-B21
	Rack 9122	120665-B21

NOTE: Certain power support and cooling restrictions apply when housing a maximum number of Model 4314R or Model 4354R enclosures in one of the supported HP racks. Please refer to http://h18006.www1.hp.com/storage/index.html for more information.

Configuration Information

Universal SCSI Drives

Ultra 320 Drives

HP 300GB U320 15K Universal HDD	411089-B22
HP 300GB U320 10K Universal HDD	350964-B22
HP 146GB U320 10K Universal HDD	286716-B22
HP 72GB U320 10K Universal HDD	286714-B22
HP 146GB U320 15K Universal HDD	347708-B22
HP 72GB U320 15K Universal HDD	286778-B22
HP 36GB U320 15K Universal HDD	286776-B22
0.6-inch (1.52 cm) Drive Extenders (package of 4)	148649-B21

1. Ultra 2 and Ultra3 drives are also supported in 4300 configurations.
2. For pre-existing 10-bay solutions, drive height extenders are attached to 1 in drives for use in 1.6 in drive bay.

NOTE: Go to the HP SCSI Hard Drive Compatibility table for complete drive compatibility information (http://www.hp.com/products/harddiskdrives). Using hard drives in unsupported configurations will result in voiding the warranty and could result in damage to the drive and/or loss of data.

SCSI Cable Options

Cables for use with Smart Array controllers

12 ft VHDCI to 68-pin SCSI Cable	341177-B21
24-ft VHDCI to VHDCI SCSI Cable	164604-B21
39-ft VHDCI to VHDCI SCSI Cable	150214-B21

Cables for use with the KZPCA-AA host bus adapter

1M SCSI 68HD Cable	BN38C-01
2M SCSI 68HD Cable	BN38C-02
3M SCSI 68HD Cable	BN38C-03
5M SCSI 68HD Cable	BN38C-05
10M SCSI 68HD Cable	BN38C-10

Technical Specifications

Protocol Support	Wide Ultra320 (LVD)	
	Wide Ultra3 (LVD)	
	Wide Ultra2 (LVD)	
O/S Support	Defined by specific HP array controller or SCSI adapter used; please refer to the QuickSpecs and/or User Guide of the specific array controller or SCSI adapter	
Dimensions (HxWxD)	Rack	5.2 x 19 x 20.5 in (13.1 x 47.88 x 51.66 cm)
Shipping Dimensions (HxWxD)	Rack	34.25 x 14.5 x 31.25 in (86.31 x 36.54 x 78.75 cm)
Weight	Rack	68 lb (30.9 kg)
LED Indicators (on front panel)	EMU Status LED (left)	
	Enclosure Power LED (middle)	
	Fault LED (right)	
Drive LED Indicators (on drive trays)	Drive LED (top)	
	On Line LED (middle)	
	Drive Failure LED (bottom)	
Enclosure LED Indicators (back of unit)	I/O Module (top)	
	EMU (middle)	
	Power supplies (bottom)	
Input Requirements	Nominal Line Voltage	110 to 240 V AC
	Range Line Voltage	90 to 264 V AC
	Line Frequency	47 to 63 Hz
	Typical Input Current	2.3A at 120 V AC
Relative Humidity (non-condensing)	Operating	10% to 90%
	Shipping	5% to 90%
I/O Module Connector	Very High Density Cable Interconnect (VHDCI)	
Power	377 Watts per supply (load)	
BTU (220 volts)	Single power supply 14 drives	1164 BTUs/hour
	Single power supply 5 drives	536 BTUs/hour
	Single power supply 1 drive	273 BTUs/hour
	Dual power supply 14 drives	1232 BTUs/hour
	Dual power supply 5 drives	625 BTUs/hour
	Dual power supply 1 drive	352 BTUs/hour
Temperature Range	Operating	50° to 94° F (10° to 35° C°)
	Shipping	-40° to 151° F (-40° to 66° C)
	NOTE: To maintain proper cooling and airflow, a drive blank or drive must occupy all bays during operation.	

Technical Specifications

Free Manuals Download Website

http://myh66.com

http://usermanuals.us

http://www.somanuals.com

http://www.4manuals.cc

http://www.manual-lib.com

http://www.404manual.com

http://www.luxmanual.com

http://aubethermostatmanual.com

Golf course search by state

http://golfingnear.com

Email search by domain

http://emailbydomain.com

Auto manuals search

http://auto.somanuals.com

TV manuals search

http://tv.somanuals.com