

MODELS

StorageWorks™ Enclosure 4300 by Compaq

Model 4314R – Bundle (includes 24x7 support with 4 hour response for 3 years, and basic installation)

253734-001

Model 4314R

190209-001

Model 4314T

190210-001

Model 4354R– Bundle (includes 24x7 support with 4 hour response for 3 years, and basic installation)

253735-001

Model 4354R

190211-001

Ultra3 Single Bus I/O Module

190212-B21

Ultra3 Dual Bus I/O Module

190213-B21

Feature List:

- Ultra3 (LVD) data transfer rates (160 MB/s)
- 3U rack height
- Hot pluggable disk drives, power supplies, and fan pack
- Redundant fans
- Redundant power supply (optional on the 4314R)
- Single or dual bus I/O

OVERVIEW

The StorageWorks Enclosure 4300 is an Ultra3 SCSI disk drive storage enclosure. These enclosures deliver industry-leading data performance, availability, storage density, and upgradability to meet customers' demanding and growing storage needs. The drive carrier is designed to support the fastest current and next generation Ultra3 and Ultra2 hard drives on the same SCSI bus. The ease of upgrading the StorageWorks Enclosure 4200 to the StorageWorks Enclosure 4300 proves to our customers that Compaq provides the lowest cost of ownership, as well as the fact that technology transitions can be smooth without disrupting critical business environments.

StorageWorks Enclosure 4300 customer benefits include:

- **Higher Performance** – Ultra3 SCSI transfer rates combined with the highest spindle count per U of rack space allows the StorageWorks Enclosure 4300 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.
- **Upgradability** – Ultra3 single and dual I/O upgrade modules make upgrading the StorageWorks Enclosure 4200 to Ultra3 quick and easy.
- **Investment Protection** – With the ability to upgrade, as well as mix and match, existing Ultra2 components with Ultra3, Compaq 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 Compaq's entire Ultra2 and Ultra3 product offering allow the same drives to be used in servers and external storage.

Model 4314T

Tower 14-bay drive enclosure, single bus, single power supply, LCD monitor

Model 4314R - Bundle

Rack-mountable 14-bay drive enclosure, single bus, single power supply **(includes 24x7 support with 4 hour response for 3 years, and basic installation)**

Model 4314R

Rack-mountable 14-bay drive enclosure, single bus, single power supply

Model 4354R - Bundle

Rack-mountable 14 drive enclosure with dual bus, dual power supply **(includes 24x7 support with 4 hour response for 3 years, and basic installation)**

Model 4354R

Rack-mountable 14 drive enclosure with dual bus, dual power supply

COMPAQ

OVERVIEW *(continued)*

Product Family Models:

The StorageWorks Enclosure 4300 design allows for specific configurations tailored to the needs of all Compaq server customers. Three models are available today:

Model 4314R – Rack-mountable 14 drive enclosure with single bus, single power supply

Model 4314T – Tower mount 14 drive enclosure with single bus, single power supply, LCD monitor

Model 4354R – Rack-mountable 14 drive enclosure with dual bus, dual power supply

All models are universal drive enclosures and are supported behind Compaq Smart Array controllers, HSGx0 controllers, and adapters.

Note: For complete compatibility information, refer to the Specifications section of this document.

KEY FEATURES

All models of the StorageWorks Enclosure 4300 Family have the following features:

- Ultra3 (LVD) support – Delivering data transfer rates up to 160 MB/s per channel
- 3U rack height
- Supports up to 14 (1-inch) Ultra3 Universal hard disk drives
- Provides storage capacity of up to 1TB per enclosure (using 72.8GB 1-inch disk drives)
- Modular design allows the StorageWorks Enclosure 4300 to be used in any storage configuration from JBOD (Just a Bunch of Disk) to Smart Array storage enclosures to external RAID arrays. House up to 14 enclosures in one 42U rack for a single rack storage capacity of up to 14.2TB of disk storage (JBOD configuration) or up to 12 enclosures in an EMA16000 (HSG80 configuration) for a single rack storage capacity of 12.2TB.
- 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, redundant power supply and dual bus I/O module (Each Enclosure 4314T and 4314R come with a single power supply that is sufficient to provide power to the enclosure and maintain normal operating levels. A second optional redundant power supply is recommended for higher levels of fault tolerance and availability.)
- Environmental Monitoring Unit (EMU) – Monitors environmental conditions within the enclosure and components such as the power supply and fans
- Easy removal of parts provides better serviceability. No tools are required!

PRODUCT HIGHLIGHTS

Upgradability

Upgrading a StorageWorks Enclosure 4200 to a StorageWorks Enclosure 4300 is as easy as swapping out the I/O module on the back of the unit. The I/O module is warm-swappable, therefore during the upgrade power to the unit can remain on, but all I/O operations need to be stopped to ensure that no data is lost during the upgrade.

Mix and Match

All Ultra3 devices from Compaq are compatible with previous Ultra2 devices so customers can mix and match components in the same storage enclosure or server. When Ultra2 devices and Ultra3 devices are found on the same Ultra3 SCSI bus, each Ultra2 device will transfer data up to 80 MB/s, while each Ultra3 device will transfer data up to 160 MB/s.

Note: For customers who operate legacy Models 4310R and 4350R enclosures, the use of 1-inch Universal Ultra2 or Ultra3 disk drives requires the addition of 0.6-inch drive extenders.

Hot Pluggable

Hot pluggable technology is designed into drives, 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

Front panel LEDs indicate drive activity, required drive service, and power, giving a quick visual assessment of overall system storage status. LED status and fault indicators for the fans and power supplies are located in the back of the enclosure.

PRODUCT HIGHLIGHTS *(continued)*

Rack Density

The StorageWorks Enclosure 4300 models have a 3U height.

Environment Monitoring Unit (EMU)

Each StorageWorks Enclosure 4300 model is equipped with an EMU that constantly monitors the enclosure, the power supplies, and fans to ensure suggested operating tolerances are maintained.

Single Bus I/O Module

The single bus I/O module allows one SCSI channel to access all drives in the StorageWorks Enclosure 4300.

Dual Bus I/O Module

The dual bus I/O module allows two SCSI channels to access a single StorageWorks Enclosure 4300. 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 StorageWorks Enclosure 4300 family provides a high level of system availability. Using an internal or external RAID Array, the StorageWorks Enclosure 4300 family can be configured for RAID levels 0, 1, 0 + 1, 5.

Manageability

The StorageWorks Enclosure 4300 is managed by Compaq Insight Manager or StorageWorks Command Console, depending on the host controller.

Compatibility and Integration Testing

Intensive compatibility and performance testing with Compaq *ProLiant*™ servers and *AlphaServers*™ ensures the highest level of integration available in the industry on a Compaq server. For a complete list of supported Compaq 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."

SPECIFICATIONS

Protocol Support	Wide Ultra3 (LVD) Wide Ultra2 (LVD)
O/S Support	Defined by specific Compaq 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)	Tower 22.5 x 13.25 x 23 in / 56.7 x 33.9 x 57.96 cm Rack 5.2 x 19 x 20.5 in / 13.1 x 47.88 x 51.66 cm
Shipping Dimensions (HxWxD)	Tower 34.25 x 14.5 x 31.25 in / 86.31 x 36.54 x 78.75 cm Rack 34.25 x 14.5 x 31.25 in / 86.31 x 36.54 x 78.75 cm
Weight	Tower 93 lb / 42.8 kg Rack 68 lb / 30.9 kg Redundant Power Supply 5 lb / 2.3 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

SPECIFICATIONS *(continued)*

Relative Humidity (non-condensing)	Operating	10% to 90%
	Shipping	5% to 90%
Controllers and Adapters Supported Models 4314T, 4314R, 4354R	Smart Array 4200 Controller Smart Array 3200 Controller Smart Array 431 Controller Smart Array 221 Controller HSG80 Controller HSG60 Controller 64-bit Dual Channel Wide Ultra2 SCSI Adapter 64-bit Dual Channel Wide Ultra3 SCSI Adapter 1 channel Wide Ultra2 Adapter (AlphaStations) 1 channel Wide Ultra2 Adapter (AlphaServers) Note: See your server and controller compatibility matrix for details on controller and server compatibility.	
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.		

Product Kit Contents

Model 4314T: Single power supply, single bus I/O module, 14 drive blanks, warranty card, AC power cord, Enclosure 4300 tower user guide, EMU booklet, Compaq *SmartStart*™ CD Kit, documentation CD, and one 12-ft VHDCI to VHDCI SCSI cable:

Model 4314R: Single power supply, single bus I/O module, 14 drive blanks, warranty card, mounting hardware, AC power cord, Enclosure 4300 user guide, EMU booklet, Compaq *SmartStart*™ CD Kit, documentation CD, and one 12-ft VHDCI to VHDCI SCSI cable

Model 4354R: Redundant power supplies, dual bus I/O module, 14 drive blanks, warranty card, mounting hardware, AC power cord, Enclosure 4300 user guide, EMU booklet, Compaq *SmartStart*™ CD Kit, documentation CD, and two 12-ft VHDCI to VHDCI SCSI cables

Note: A different SCSI cable may be required when the StorageWorks Enclosure 4300 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: To maintain proper cooling and airflow, a drive blank or drive must occupy all bays during operation.

Warranty

StorageWorks Enclosure 4300 family: Three-year limited warranty

Note: Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center at 1-800-345-1518 for details.

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

Note: Pre-Failure Warranty is available on all Compaq Prosignia™ and Compaq ProLiant servers using Compaq 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 Compaq IDA, IDA-2, Compaq SMART SCSI Array Controllers, Compaq SMART-2 Array Controllers or Compaq Smart Array Controllers. Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center at: 1-800-345-1518 for details.

SERVICE & SUPPORT, CAREPAQ 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 URLs listed below:

<http://www.compaq.com/services/carepag/us/install/>

<http://www.compaq.com/services/carepag/us/hardware/>

Note: These Web sites are available in English only.

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

CarePAQ Information

Sample part numbers:

- FM-**XHW-36, 3 year, uplift to 5 x 9, Next Day Response
- FM-**4HR-36, 3 year, uplift to 5 x 9, 4-hour Response
- FM-**724-36, 3 year, uplift to 7 x 24, 4-hour Response

** Represents a two-digit, product-specific code

- CarePaq is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- CarePaq is not available for less than the product's warranty duration.
- CarePaq 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.
- CarePaq services are prepaid.

For additional CarePaq (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:

<http://www.compaq.com/services/carepag/index.html>

Note: This Web site is available in English only.

Components

The following brick level options/components do not have individual CarePaqs. These items will be included in product CarePaqs 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

Product	Part Number	Shipping Dimensions
StorageWorks Enclosure 4314T	190210-001	25.25 x 12.5 x 23.5 in/ 64.1 x 31.8 x 59.7 cm
StorageWorks Enclosure 4314R - Bundle	253734-001	25.25 x 12.5 x 23.5 in/
StorageWorks Enclosure 4314R	190209-001	64.1 x 31.8 x 59.7 cm
StorageWorks Enclosure 4354R - Bundle	253735-001	
StorageWorks Enclosure 4354R	190211-001	25.25 x 12.5 x 23.5 in/ 64.1 x 31.8 x 59.7 cm
Ultra3 Single Bus Upgrade I/O Module	190212-B21	12.75 x 8 x 3.75 in/ 32.13 x 20.16 x 9.45 cm
Ultra3 Dual Bus Upgrade I/O Module	190213-B21	13.25 x 8 x 8.5 in/ 33.39 x 20.16 x 21.42 cm

RELATED OPTIONS

	Description	Part Number
Controllers	HSG80 Controller (Note: HSG80 connection to the model 4300 requires the use of the Model 2200 controller shelf: 135820-B21)	176622-B21
	StorageWorks Enclosure Model 2200 for HSG80 - Bundle	253703-001
	Smart Array 5302/32	166207-B21
	Smart Array 5302/64	124992-B21
	Smart Array 5304/128	(158939-B21)
	Smart Array 4200 Controller	295636-B21
	Smart Array 3200 Controller	295643-B21
	Smart Array 431 Controller	127695-B21
	Smart Array 221 Controller	388099-B21
	64-bit Dual Channel Wide Ultra2 SCSI Adapter	348757-B21
	64-bit Dual Channel Wide Ultra3 SCSI Adapter	129803-B21
	1 channel Ultra2 (LVD) Adapter (AlphaServers)	136237-B21/ SN-KZPCA-AA
	1 channel Ultra2 (LVD) Adapter (AlphaServers)	3X-KZPCA-AA
Power Options	StorageWorks Enclosure Redundant Power Supply Option	119826-B21
	StorageWorks Enclosure Ultra3 Single Bus I/O Module	190212-B21
	StorageWorks Enclosure Ultra3 Dual Bus I/O Module	190213-B21
	StorageWorks Enclosure Tower to Rack Conversion Kit	150213-B21
	39-ft (12m) VHDCI to VHDCI SCSI Cable	150214-B21
	24-ft (7m) VHDCI to VHDCI SCSI Cable	164604-B21

RELATED OPTIONS *(continued)*

	Description	Part Number	
Rack Options	42U Modular Storage Cabinet 60 Hz (Opal)	180311-B21	
	42U Modular Storage Cabinet 60 Hz Bundle	253725-001	
	36U Modular Storage Cabinet 60 Hz (Opal)	180313-B21	
	36U Modular Storage Cabinet 60 Hz Bundle	253727-001	
	22U Modular Storage Cabinet 60 Hz (Opal)	180315-B21	
	22U Modular Storage Cabinet 60 Hz Bundle	253729-001	
	41U Modular Storage Cabinet 60 Hz (Blue)	180317-B21	
	41U Modular Storage Cabinet 60 Hz Bundle	253731-001	
	Note: Each Modular Storage Cabinet comes with redundant 220 to 240V PDUs and power cables to accommodate MA/EMA configurations. For more details on MA8000/EMA12000 solutions, see http://www.compaq.com/products/storageworks/ma8ema12/specifications.html .		
	Compaq Rack Model 7142	165753-001	
Compaq Rack 9142	120663-B21		
Compaq Rack 9136	120664-B21		
Compaq 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 Compaq racks. Please refer to http://www.compaq.com/products/storageworks for more information or consult the Compaq Customer Support Center at 1-800-345-1518 for details. (Note: English only Web site.)			
Universal SCSI Drives	72.8-GB Ultra3 SCSI 10K rpm 1in (25.4mm) drive	232432-B22	
	36.4-GB Ultra3 SCSI 15K rpm 1in (25.4mm) drive	232916-B22	
	36.4-GB Ultra3 SCSI 10K rpm 1in (25.4mm) drive	176496-B22	
	18.2-GB Ultra3 SCSI 15K rpm 1in (25.4mm) drive	188122-B22	
	18.2-GB Ultra3 SCSI 10K rpm 1in (25.4mm) drive	142673-B22	
	9.1-GB Ultra3 SCSI 15K rpm 1in (25.4mm) drive	188120-B22	
	9.1-GB Ultra3 SCSI 10K rpm 1in (25.4mm) drive	142671-B22	
	0.6in. (15.24mm) Drive Extenders (package of 4) ⁽¹⁾	148649-B21	
	⁽¹⁾ Attach drive height extender to 1" drive for use in 1.6" drive bay.	328939-B22	
	Note: Go to: ftp://ftp.compaq.com/pub/products/storageworks/drives/HotPlug.pdf , (Compaq SCSI Hard Drive Compatibility table) for complete drive compatibility information. 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. (English only)		
SCSI Cable Options	<i>Cables for use with HSG80 controller in the Model 2200 controller enclosure</i>		
	1M SCSI cable for connection to the Model 2200 Controller Shelf	168256-B21	
	2M SCSI cable for connection to the Model 2200 Controller Shelf	168257-B21	
	3M SCSI Cable for connection to the Model 2200 Controller Shelf	188505-B21	
	<i>Cables for use with Smart Array controllers</i>		
	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	
	<i>Cables for use with the KZPCA-AA host bus adapter</i>		
	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		