



EK-ULTRA-PD. A01

Dear Enterprise Series Storage Array customer,

Congratulations on your purchase, and welcome to the growing family of Enterprise Series Storage Array (ESA) owners.

DIGITAL is committed to your satisfaction with this product. The information in the following pages provides an in depth description of the ESA building blocks and solution components for your reference.

Our number one goal is working with you to protect your critical data and providing solutions as your storage needs change. If at any time you have questions or concerns, please contact your Sales or MCS representative.

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## **DIGITAL StorageWorks Enterprise Storage Array 10000**

StorageWorks Enterprise Storage Arrays (ESA) are fully integrated RAID solutions for deploying varied applications throughout the enterprise. The ESA 10000 is the first fully integrated Ultra-SCSI RAID subsystem on the market, providing the performance and connectivity benefits of Ultra-SCSI array controllers, devices, and enclosures. ESA solutions are pre-configured into base models, each of which is optimized for different application workload requirements. The base models include a High-Capacity/General Business Base Model for high transaction oriented applications, and a High-Bandwidth Base Model for high bandwidth decision support applications. Additional pre-configured expansion units are available for each model type for simple integration of additional capacity and performance. Customers have the flexibility of configuring their ESA 10000 to match their own unique application performance needs. For customers needing mid-range departmental solutions with similar performance and lower capacity, the RAID Array 7000 is available to support those requirements.

The Enterprise Storage Array 10000 offers RAID levels 0, 1, 0+1, 3, and 5 with capacities ranging from under 100GB at the entry level up to multiple terabytes and beyond. ESA solutions offer the highest availability with fully redundant components, including power supplies and fans. The architecture incorporates the latest in StorageWorks Ultra-SCSI RAID controller technology, as well as the StorageWorks Command Console, an easy-to-use centralized configuration and management tool.

### **Features**

- Supports all major operating systems including DIGITAL UNIX, HP-UX, Sun Solaris, IBM-AIX, OpenVMS and Windows NT.
- Supports all major RAID levels, and fully redundant, hot-swappable components eliminate single points of failure
- Limitless capacity, higher performance, unequaled availability
- Centralized management capability through enhanced StorageWorks Command Console V2.0
- Latest in high performance 2,4, or 9 GB Ultra wide disk drives
- Enterprise-class service, support, and RAID consulting available
- Investment protection with migration path to Fibre-Channel

### **Software Support**

#### **ESA 10000 Multi-Platform Support**

Ultra 70 Software Solution kits provide the custom tools needed to link the ESA 10000 to a wide variety of vendor platforms. The following platforms have been qualified by DIGITAL StorageWorks for use with the ESA 10000.

- DIGITAL UNIX V3.2G, 4.0, 4.0a, 4.0b
- DIGITAL OpenVMS V6.2, 7.0, 7.1
- Windows NT/ Alpha 3.5.1, 4.0
- Windows NT/Intel (PCI) 3.5.1, 4.0
- SUN Solaris 2.4, 2.5, 2.5.1
- HP-UX 800/700 series 10.01, 10.10, 10.2
- IBM AIX 4.1.4, 4.1.5, 4.2

#### **StorageWorks Command Console (SWCC) Utility**

StorageWorks Command Console V2.0 is a full-featured, multi-platform configuration and monitoring tool for the Enterprise Storage Arrays. It allows relatively simple configuration of the storage array, and also provides at-a-glance summary status through a user-friendly graphical interface. Monitoring can take place on a networked host, and the console supports industry-standard protocols such as the Simple Network Management Protocol (SNMP). In addition, enhanced security and protection capabilities are built in. The extensibility of the StorageWorks Command Console is virtually limitless, as it can manage multiple arrays across the enterprise.

## DIGITAL StorageWorks Enterprise Storage Array 10000 (continued)

### Ordering Information

Select from Steps 1 through 3 to configure a complete solution.

- Step 1—Select Base Building Block(s)
- Step 2—Select type and quantity of Platform Specific Solutions Software and Adapters
- Step 3—Select Options to meet performance and capacity requirements

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### Step 1—Base Building Blocks

#### DS-SWXES-AA/AB ESA 10000 high capacity/balanced subsystem

**Includes**

Datcenter 600 mm enclosure, dual BA370-AA rackmounted shelves with 5 shelf power supplies each (expandable to 8), dual HSZ70 six channel controllers with 64 MB mirrored write back cache each (expandable to 128 MB each), 6 Ultra SCSI expansion cables, 10 meter host to controller cable (BN37A-10), serial line assembly with adapters (9 pin and 25 pin), power cord and documentation. Holds up to 48 drives.

**Requires**

Ultra 70 Solutions software kit for platform, host adapter, and disks to be ordered separately

**Options**

64 MB cache upgrade and fully redundant power. See Step 3 for details

#### DS-SWXES-BA/BB ESA 10000 high bandwidth subsystem

**Includes**

Datcenter 600 mm enclosure, dual BA370-AA rackmounted shelves with 5 shelf power supplies each (expandable to 8), quad HSZ70 six channel controllers with 64 MB mirrored write back cache each (expandable to 128 MB each), two 10 meter host to controller cables (BN37A-10), serial line assembly with adapters (9pin and 25 pin), power cord and documentation. Holds up to 48 drives

**Requires**

Ultra 70 Solutions software kit for platform, host adapter, and disks to be ordered separately

**Options**

64 MB cache upgrade and fully redundant power. See Step 3 for details.

#### DS-SWXES-CA/CB ESA 10000 dual expansion subsystem

**Includes:** Datcenter 600 mm enclosure, dual BA370-AA rackmounted shelves with 5 shelf power supplies each (expandable to 8), 12 Ultra SCSI expansion cables, SW600 cabinet joiner kit, power cord and documentation. Holds up to 48 drives

**Requires**

Ultra 70 Solutions software kit for platform, host adapter, and disks to be ordered separately

**Options**

Fully redundant power. See Step 3 for details.

#### DS-SWXES-DA/DB ESA 10000 single expansion w/ dual controllers

**Includes:** Datcenter 600 mm enclosure, BA370-AA rackmounted shelf with 5 shelf power supplies (expandable to 8), dual HSZ70 six channel controllers with 64 MB mirrored write back cache each (expandable to 128 MB each), 10 meter host to controller cable (BN37A-10), serial line assembly with adapters (9 pin and 25 pin), power cord and documentation. Holds 24 drives (expandable to 48 with BA370 upgrade) BA370 rackmount upgrade.

**Requires**

Ultra 70 Solutions software kit for platform, host adapter, and disks to be ordered separately

**Options**

64 MB cache upgrade, fully redundant power, and BA370 rackmount upgrade. See Step 3 for details.

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## Step 2—Platform Specific Solutions Software and Adapters

An Adapter and Ultra 70 Solutions Software Kits for appropriate platform is **required**. Each adapter ordered requires an Ultra 70 Solutions Software Kit.

**Note:** QB-5SBAx-SA variants of Ultra 70 Solutions Software Kits included documentation, select -SB variant for each additional adapter ordered if you do not want duplicate documentation.

### Ultra 70 Solutions Software Kits include:

- PCMCIA card containing software for storage controller
- StorageWorks Command Console (SWCC) software, and software licenses
- HSZ70 and SWCC supporting documentation

### Select Adapter and Ultra 70 Solutions Software Kit for appropriate platform

Supported Adapters	Ultra 70 Solutions Software Kit	Host Platform
KZPBA-CB (Ultra), KZPSA-BB	QB-5SBAB-SA/SB	DIGITAL UNIX
KZPBA-CB (Ultra), KZPSA-BB	QB-5SBAC-SA/SB	DIGITAL OpenVMS
KZPSA-BB	QB-5SBAD-SA/SB	Windows NT/Alpha
SWXA3-BD (ultra)	QB-5SBAE-SA/SB	Windows NT Intel/PCI
SWXA3-BC		
SWSA3-CA (ultra)	QB-5SBAG-SA/SB, X1062	SUN Solaris
SWHAP-BC <sup>1</sup>	QB-5SBAJ-SA/SB	HP-UX 800 series
HP28696A or HPA2696A <sup>2</sup>		
Embedded 735/755/J/C/D	QB-5SBAJ-SA/-SB	HP-UX 700 series
HPA4107A <sup>1</sup>		
FC2416, FC2412, or FC2409 (PCI) <sup>3</sup>	QB-5SBAK-SA/-SB	IBM AIX

1. In Europe order from HP

2. Available from HP

3. FC2416 and FC2412 adapters are available from IBM and require BN31R 5-meter cable for host to controller connection.

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## Step 3—Options to meet performance and capacity requirements

### Cache Upgrade

Select cache upgrade. Redundant controllers require equal amounts of cache

**DS-HSSIM-AB** 64 MB Cache Upgrade

### Fully Redundant Power Upgrade

**DS-BA35X-HH** 180 Watt Power Supply, quantity of 3 required for each BA370

**DS-BA35X-HE** AC Input Box, quantity of 1 required for each BA370

**DS-SW6XP-AA/AB** SW600 Power Dist Unit, quantity of 1 required for each SW600

### ESA 10000 Disk Support

2 GB, and 4 GB and 9 GB UltraSCSI disks are recommended

**DS-RZ1DB-VW** 2 GB 7200 RPM UltraSCSI disk drive

**DS-RZ1CB-VW** 4 GB 7200 RPM UltraSCSI disk drive

**DS-RZ1BB-VW** 9 GB 7200 RPM UltraSCSI disk drive

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### Step 3—Options to meet performance and capacity requirements (*continued*)

#### F10 Wide Disk Drives

The following F10 Wide disk drives are also supported.

<b>RZ26L-VW</b>	1.05 GB
<b>RZ26N-VW</b>	1.05 GB
<b>SWXD3-WF</b>	1.05 GB
<b>DS-RZ26N-VZ</b>	1.05 GB
<b>RZ28-VW</b>	2.1 GB
<b>RZ28D-VW</b>	2.1 GB
<b>SWXD3-WG</b>	2.1 GB
<b>RZ28M-VW</b>	2.1 GB
<b>DS-RZ28M-VZ</b>	2.1 GB
<b>SWXD3-VH</b>	2.1 GB
<b>RZ29B-VW</b>	4.3 GB
<b>SWXD3-WE</b>	4.3 GB

#### Specifications

Major solution components:

- HSZ70 RAID controller 64 MB cache per controller standard, upgrades to 128 MB available
- HSOV V7.0
- SW600 data center cabinet
- Capacity points starting from 50 GB up to multiple terabytes
- StorageWorks Command Console V2.0
  - Client support for Windows NT or Windows 95; minimum PC requirements are Intel 486, 66 MHz, 16 MB RAM, 10 MB free hard disk space
  - Agent support for DIGITAL UNIX V3.2G, 4.0B; HP-UX 10.01, 10.10, 10.2; Sun Solaris 2.4, 2.5, 2.5.1; IBM-AIX 4.1.4, 4.1.5, 4.2; Windows NT Alpha 4.0; Windows NT Intel 4.0; and OpenVMS V6.2, V7.1

## Specifications (continued)

### Physical Characteristics

Height	66.93" (1700mm)
Width	23.62" (600 mm)
Depth	35.43" (900mm)
Weight	650 lbs (295Kgs)

### Power requirements

Domestic/Japan -AC plug type	3 Wire NEMA No. L6-30P (220-240V 60Hz 30A)
Europe	3 Wire, 2 pole IEC 309 (220-240V 50Hz 30A)
Number of phases	Single
Rated current	10A
BTU rating	6140 per hour
Nominal airflow	400 cubic ft/minute
Wattage	1800 watts maximum (input)

### Operating Environment

Temperature	10°C to 35°C (50°F to 95°F) Reduce rating by 1.8°C for each 1000M altitude (1.0°F/1000FT)
Humidity	10 to 85% at maximum wet bulb temp of 32°C (90°F) and minimum dew point of 2°C (36°F)
Altitude	Up to 2400M (8000FT)
Air Quality	Not to exceed 500,000 particles per cubic foot of air at a size of 0.5 micron or larger

Host interface	16-bit Differential UltraSCSI
Drive interface	16-bit SE UltraSCSI
Maximum/Peak I/O rate	14,000 I/O per second per controller pair
Maximum/Peak transfer rate	32 MB per second per controller pair
Device channels per controller pair	6
RAID levels supported	0, 1, 0+1, 3, 5
Maximum disks per controller pair	72
Controller cache	up to 256 MB per controller pair
Battery backup for cache	Yes
Redundant fans	Yes
Redundant power supplies	Yes
Serviceability	Hot-swappable components
Regulatory approvals	UL,CSA,TUV,FCC,CE MARK, C TICK

### Warranty support included as standard:

- First year, on-site hardware service, 8 am to 5 pm, Monday through Friday, next business day response
- One year conformance to SPD on all software included, 90 day telephone advisory
- Additional year(s) of Return-to-DIGITAL for selected storage products:
  - Controllers—3 years
  - Disks—5 years
  - Power supplies/batteries—1 year
  - Packaging—1 year

The following optional enterprise class service and support are available for StorageWorks ESA models. Contact sales representative or local DIGITAL Services office for prices and details.

- Each solution is installed (hardware and software) by DIGITAL at the user's site
- RAID setup and performance consulting via statement of work
- 7 x 24 onsite hardware support for 1, 3, or 5 years
- 7 x 24 telephone software support for 1, 3, or 5 years
- StorageWorks Hierarchical Operating Firmware and StorageWorks Command Console software update contracts.