



AlphaServer 4100/4000
V3.2—01 December 1998
DIGITAL Systems and Options Catalog

Product Description

The AlphaServer 4000/4100 family of mid-range, award-winning servers deliver industry-leading price/performance 5/600 MHz systems with 8 MB on-board cache. The AlphaServer 4100 also deliver 5/533 and 5/466 systems to complete the family line of EV56-based technology servers. To boost application performance even further, AlphaServer 4000 and 4100 packaged systems include 1 GB and 2 GB high-performance memory across all processor speeds. AlphaServer 4100 systems support up to 4 CPU processors, up to 4 memory options, and 8 PCI I/O slots. AlphaServer 4000 systems support up to 2 CPU processors, up to 2 memory options, and come standard with 16 PCI I/O slots.

Improved System Drawer Configuring Rules: Users can specify exactly which options best suit their needs. For greater flexibility, users can select a network adapter, a disk adapter, and a system disk to meet configuration needs; these line items are mandatory. A graphics adapter is optional for DIGITAL UNIX and OpenVMS systems, and mandatory for Universal Windows NT systems.

AlphaServer systems offer pedestal and rackmount configurations. Pedestal systems support one drawer and up to three StorageWorks shelves.

DIGITAL M-series Cabinet Enclosures:

- Cabinet enclosures are available in two sizes: 67-inch and 79-inch; see Cabinet Configuration Chart for maximum systems and StorageWorks shelves supported in M-series Cabinet Enclosures.

Regardless of configuration choice, the AlphaServer 4100 continues to be Digital's mid-range product with industry-leading benchmarks in several categories—the performance leader for mid-range computing.

To order a complete system, order: (1) System Drawer, (2) Enclosure, (3) System disk drive, (4) SCSI adapter, (5) SCSI cable, and (6) Network Adapter. Select a Cabinet Door if a cabinet enclosure is selected, Factory Installation for Systems, and Ballast if applicable.

DIGITAL AlphaServers continue to deliver on the Universal Platform Guarantee: that DIGITAL AlphaServers support any of the three operating systems offered by DIGITAL. The Universal AlphaServers in Top Gun Blue enclosures running DIGITAL UNIX or OpenVMS can also run Windows NT. AlphaServer 4000/4100 systems can migrate from DIGITAL UNIX or OpenVMS to Windows NT Server with a simple license and software change. DIGITAL offers Windows NT Server 4.0 Enterprise Edition Conversion kits with installation and services by a team of qualified DIGITAL professionals to make this system migration easy and timely. These universal systems also include ServerWORKS Manager for advanced server and network management capabilities, and Internet software for global Internet solutions.

DIGITAL believes the information in this publication is accurate as of its publication date; such information is subject to change without notice. DIGITAL is not responsible for any inadvertent errors.

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Step 1—AlphaServer 4100/4000 Systems

- Configurations require the mandatory selection of:
 - System Drawer from Step 1a
 - Pedestal or Cabinet Enclosure from Step 1b
 - SCSI Adapter, Network Adapter, and an UltraSCSI 4.3 GB, or 9.1 GB, or 18 GB disk* from Step 1c:
 - UltraSCSI Shelf (split-bus or single-bus) and SCSI cable from Step 5c.

* Exceptions are common disk for OpenVMS clusters or system disk connected to HSZxx controllers.

Note: See Step 1b for M-series Enclosure and UltraSCSI shelf configuration rules

Step 1a—AlphaServer System Drawer (8U)

- Selection of one System Drawer for installation in a Pedestal or Cabinet enclosure selected from Step 1b is mandatory.
 - AlphaServer 4100 System Drawer supports up to four CPUs and up to four memory options.
 - AlphaServer 4000 System Drawer supports up to two CPUs and up to two memory options.
 - System Drawers shipped in a pedestal or cabinet enclosure require a system disk.
- A System Drawer Mounting Kit is **mandatory** for each System Drawer ordered for mounting in a Cabinet enclosure.

System Drawer includes

- AlphaServer 4100 System Drawer with Alpha microprocessor 21164
 - 5/466 MHz CPU, 4 MB secondary cache, or
 - 5/533 MHz CPU, 4 MB secondary cache, or
 - 5/600 MHz CPU, 8 MB secondary cache
 - 8 PCI slots (eight available)¹
- AlphaServer 4000 System Drawer with Alpha microprocessor 21164
 - 5/533 MHz CPU, 4 MB secondary cache, or
 - 5/600 MHz CPU, 8 MB secondary cache
 - 16 PCI slots¹ (16 available) with PCI slot expansion option installed, or if 16-slot AlphaServer 4000 is ordered
 - Integral (internal-only SCSI bus) to support removable media (CD-ROMs and tapes)
 - Integral CD-ROM drive (standard)
 - 1.44 MB diskette drive (standard)
- Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
- One parallel port, 25-pin D-subminiature connectors
- Keyboard and mouse ports
- 450 W auto sensing power supply
- Memory—included memory pair uses one memory option slot
- 3-button mouse
- Keyboard (Americas and Asia Pacific orders only). Select country specific keyboard for all systems ordered in other countries.
- Integral remote system console
- Operating system license
- Customer documentation
- Hardware warranty²
- Software warranty²

1. Three I/O slots are EISA/PCI combination slots

2. For Warranty description and available service upgrades, see Step 12

Note: AlphaServer 4x00 System Drawers no longer include the following embedded components:

- Ethernet (10/100 Mbit) Adapter—mandatory line item.
- One-port UltraSCSI single-ended adapter—mandatory line item.
- SCSI cable to connect UltraSCSI shelf to SCSI adapter—mandatory line item.
- S3 TRIO 1 MB RAM graphics adapter—optional component; recommended line item.

Step 1a—AlphaServer 4100/4000 Systems**AlphaServer 4100 DIGITAL UNIX System Drawer—Selection of one System Drawer (8U) is required**

Systems include pre-installed DIGITAL UNIX, Base license, Unlimited User license, Server Extension license, and Internet Access Software license. Order media and documentation separately. Order mandatory items from Step 1c.

Order Number	CPU	Cache	Memory	Disk	SCSI Adapter	Network Adapter	PCI Slots
DA-51LAD-EA	5/600	8 MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
DA-51LAD-FB	5/600	8 MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DA-51LAD-GB	5/600	8 MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DA-51KAD-EA	5/533	4 MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
DA-51KAD-FB	5/533	4 MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DA-51KAD-GB	5/533	4 MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DA-51JAD-CA	5/466	4 MB	128 MB	Mandatory	Mandatory	Mandatory	8 PCI
DA-51JAD-EA	5/466	4 MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
DA-51JAD-FB	5/466	4 MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DA-51JAD-GB	5/466	4 MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI

AlphaServer 4100 OpenVMS System Drawer—Selection of one System Drawer (8U) is required

Systems include pre-installed OpenVMS, Base license, and DIGITAL Enterprise Integration Package V2.0. Order media and documentation separately. See Step 12. Order mandatory items from Step 1a.

Order Number	CPU	Cache	Memory	Disk	Disk Controller	Network Adapter	PCI Slots
DY-51LAD-EA	5/600	8MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
DY-51LAD-FB	5/600	8MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DY-51LAD-GB	5/600	8MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DY-51KAD-EA	5/533	4MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
DY-51KAD-FB	5/533	4MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DY-51KAD-GB	5/533	4MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DY-51JAD-CA	5/466	4MB	128 MB	Mandatory	Mandatory	Mandatory	8 PCI
DY-51JAD-EA	5/466	4MB	512MB	Mandatory	Mandatory	Mandatory	8 PCI
DY-51JAD-FB	5/466	4MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DY-51JAD-GB	5/466	4MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI

AlphaServer 4000 DIGITAL UNIX 16-Slot System Drawer—Selection of one System Drawer (8U) is required

Systems include pre-installed DIGITAL UNIX, Base license, Unlimited User license, Server Extension license, and Internet Access Software license. Order media and documentation separately. Order mandatory items from Step 1c.

Order Number	CPU	Cache	Memory	Disk	Disk Controller	Network Adapter	PCI Slots
DA-53LED-EA	5/600	8MB	512 MB	Mandatory	Mandatory	Mandatory	16 PCI
DA-53LED-FB	5/600	8MB	1 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DA-53LED-GB	5/600	8MB	2 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DA-53KED-EA	5/533	4MB	512 MB	Mandatory	Mandatory	Mandatory	16 PCI
DA-53KED-FB	5/533	4MB	1 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DA-53KED-GB	5/533	4MB	2 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI

Step 1a—AlphaServer 4100/4000 Systems (continued)**AlphaServer 4000 OpenVMS 16-Slot System Drawer—Selection of one System Drawer is required**

Systems include pre-installed OpenVMS, Base license, and DIGITAL Enterprise Integration Package V2.0. Order media and documentation separately. See Step 12. Order mandatory items from Step 1c.

Order Number	CPU	Cache	Memory	Disk	Disk Controller	Network Adapter	PCI Slots
DY-53LED-EA	5/600	8MB	512 MB	Mandatory	Mandatory	Mandatory	16 PCI
DY-53LED-FB	5/600	8MB	1 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DY-53LED-GB	5/600	8MB	2 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DY-53KED-EA	5/533	4MB	512 MB	Mandatory	Mandatory	Mandatory	16 PCI
DY-53KED-FB	5/533	4MB	1 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DY-53KED-GB	5/533	4MB	2 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI

Step 1b—Pedestal and Cabinet Enclosures and Accessories—Mandatory**Pedestal Enclosure**

- Pedestal enclosure supports one System Drawer and up to three UltraSCSI StorageWorks shelves.
- Selection of first UltraSCSI StorageWorks shelf and SCSI cable is **mandatory**.
- Selection of system disk is **mandatory**. Select a 4.3 GB, 9.1 GB, or 18.2 GB disk drive from Step 1c.

BA30P-AA 120 V Americas, Asia Pacific

BA30P-BA 240 V Europe; order two country-specific power cords from Step 9.

Cabinet Enclosure

For additional information on M-series Cabinet Enclosures visit www.digital.com/alphaserver/products/m-series.html

M-series Top Gun Blue Cabinet Enclosures are available in two sizes:

- 67" high Cabinet Enclosure (H9A10-xx) 31U or 54.2" of usable vertical space
- 79" high Cabinet Enclosure (H9A15-xx) 38U or 66.5" of usable vertical space

Cabinet Configuration Chart

Cabinet Enclosure	Mounting Kit	Cabinet Height and Space		Drawers	Shelves	Ballast Kit
H9A10-MC/MD	CK-BA30A-BA/BB	54.2 inches	31U	1 2 3	6 6 2 ¹	
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1 2 3 4	6 6 6 2 ²	1 ³

1. One shelf must be a split-shelf (BA36R-RD); three drawers require 3 system disks; one shelf = 4U.
2. Both shelves must be split-shelves (BA36R-RD).
3. If only one drawer is ordered, one ballast kit is mandatory.

Cabinet Power Strip Configuration Chart

		H9A10	H9A11	H9A15
3X-H7601-AA	6 outlet power strip assembly—120V	Maximum 4	Maximum 2	Maximum 4
3X-H7601-AB	6 outlet power strip assembly—240V	Maximum 2	Maximum 1	Maximum 2

Step 1b—Pedestal and Cabinet Enclosures and Accessories (continued)
M-series Cabinet Enclosure Options

M-series Cabinet Enclosures require the **mandatory** selection of:

- H9A10 or H9A15 Cabinet, 120V or 240V variant
- System Drawer mounting kit for each drawer ordered
- First UltraSCSI StorageWorks shelf
- System disk (4.3 GB, 9.1 GB, or 18.2 GB disk drive)
- Cabinet front door based on cabinet height
- Factory Integration
- Ballast Kit for H9A15 if only one drawer ordered

M-series Cabinet Enclosures

H9A10-MC	120 V dual 24 A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific Includes rear door, top fan tray (1U), and 2 H7600-AA power distribution units (2U)
H9A10-MD	240 V dual 16 A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe Includes rear door, top fan tray, (1U), and 2 H7600-DB power distribution units (2U)
H9A15-MC	120 V dual 24 A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific Includes rear door, top fan tray (1U), and 2 H7600-AA power distribution units (2U)
H9A15-MD	240 V dual 16 A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe Includes rear door, top fan tray (1U), and 2 H7600-DB power distribution units (2U)

For custom integration of systems, options, and additional Digital and third party devices, or for other cabinets, doors, and trim kits of a different color, contact Digital CustomSystems at 1-800-DIGITAL, or contact your local authorized Digital Certified Integration Partner.

System Drawer Mounting Kit

- A System Drawer Mounting Kit is **mandatory** for each System Drawer ordered for mounting in a Cabinet enclosure.
- System Drawer mounting kit includes two 6-foot extender cables for mouse and keyboard, one 10-foot video cable, and appropriate power cords.

Note: Mounting kits for each System Drawer installed in a Cabinet Enclosure must be the same type. For example, a front access kit (CK-BA30A-BA) cannot be installed with a front/rear access kit (CK-BA30A-AA) in the same cabinet.

CK-BA30A-BA	Full extension, ball-bearing slide rail, provides front access, Americas, ASIA PACIFIC
CK-BA30A-BB	Full extension, ball-bearing slide rail, provides front access, Europe

Cabinet Front Door

H9C10-TF	Top Gun Blue front door for H9A10-MC/MD Cabinet Enclosure
H9C15-TF	Top Gun Blue front door for H9A15-MC/MD Cabinet Enclosure

Factory Integration

YS-ASCAA-AA	Factory Integration of systems and storage devices assembled and configured in cabinet enclosure in pre-defined locations
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Ballast Kit

Ballast is dead weight that is added to a cabinet at specific locations for specific configurations to meet safety regulations for installation, operation, and service. It is required in H9A15 cabinets where only one System Drawer is installed. Refer to Cabinet Configuration Chart.

H9C10-MC	Two 35-40 lbs. steel plates
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For configurations that may require additional onsite re-configuration, see Step 11 for Value Added Services.

For custom integration of systems, options, and additional Digital and third party devices, or for other cabinets, doors, and trim kits of a different color, contact Digital CustomSystems at 1-800-DIGITAL, or contact your local authorized Digital Certified Integration Partner.

Step 1c—Mandatory Options

- Selection of a SCSI adapter, a System Disk Drive, and a Network Adapter is mandatory.
- Selection of an UltraSCSI split-bus or single-bus shelf is mandatory and SCSI cable, see Step 5c.
- Selection of a SCSI cable to connect UltraSCSI shelf to SCSI adapter is mandatory.
- Selection of a graphics adapter is recommended.

Select one System Disk Drive—Mandatory

Order Number	System Disk and Minimum O/S version supported	DIGITAL UNIX	OpenVMS
DS-RZ1CF-VW	4.3 GB UltraSCSI 7200 RPM hard disk drive	V3.2G	V6.2-1H3
DS-RZ1DF-VW ¹	9.1 GB UltraSCSI 7200 RPM hard disk drive	V3.2G	V6.2-1H3
DS-RZ1EF-VW ²	18.2 GB UltraSCSI 7200 RPM hard disk drive	V3.2G	V6.2-1H3

1. KZPAC RAID Array 230/Plus Controller supports 9 GB Drives—for configuration information on getting around the 32 GB Logical Drive Limit of the KZPAC, see the *Systems and Option Catalog* file for DIGITAL Storage RAID Controllers dated 10 September 1998 and Customer Update dated 15 August 1997 at: <http://webir.das.dec.com/info/CU5911/CU5911HM.HTM>
2. Not supported on KZPAC-xx PCI-based RAID controllers.

Select one SCSI Adapter and SCSI cable—Mandatory

Selection of a SCSI cable to connect UltraSCSI shelf to SCSI adapter is mandatory, see Step 5d for SCSI cable information.

Order Number	SCSI Adapter and Minimum O/S version supported	DIGITAL UNIX	OpenVMS
KZPCM-DA	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet Combo adapter, uses 1 PCI slot	V4.0D	V7.1-1H1
KZPBA-CA	PCI-based one port UltraSCSI Single-ended adapter	V3.2G	V6.2-1H3
KZPAC-AA ^{1,2}	PCI-based one port RAID controller with 4 MB cache, not factory configured as RAID set	V3.2G	V6.2-1H3
KZPAC-CA ^{1,2}	PCI-based three-port RAID controller with 4 MB cache, not factory configured as RAID set	V3.2G	V6.2-1H3
KZPAC-CB ^{1,2}	Same as -CA above with 8 MB cache memory	V3.2G	V6.2-1H3
KZPDA-AA	PCI-based one port Fast Wide Single-ended SCSI adapter	—	V6.2-1H3

1. If KZPAC-xx UltraSCSI adapter is selected, manufacturing will not configure disks as a RAID set. Disks will be configured as JBOD (just a bunch of disks).
2. 18.2 GB disk drives are not supported on KZPAC-xx PCI-based RAID controllers.

Select one Network Adapter—Mandatory

Note: Network adapter is not required if KZPCM is selected as a SCSI adapter.

Order Number	Network Adapter and Minimum O/S version supported	DIGITAL UNIX	OpenVMS
DE500-AA	PCI-based 10/100 Mbit Fast Ethernet adapter Cat 5 UTP	V3.2G	V6.2-1H3
DE500-BA	Same as -AA above with cluster failover	V4.0D	V7.1-1H1
DE504-BA	PCI-based 10/100 Mbit Quad Channel Ethernet adapter Cat 5 UTP	V4.0D	V7.1-1H1

Minimum Operating System Support Chart

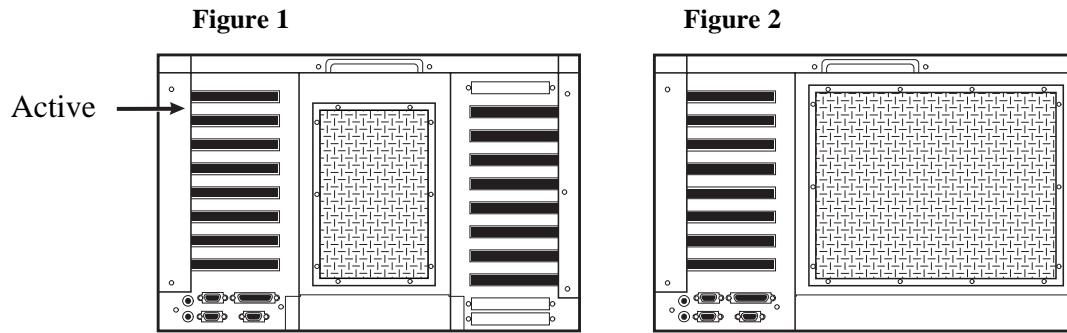
O/S Currently Shipping	Minimum O/S required for UltraSCSI	Minimum O/S required for Non UltraSCSI	Year 2000- Ready Version
Windows NT 4.0	Windows NT 3.51	Windows NT 3.51	Windows NT V4.0
DIGITAL UNIX V4.0D	DIGITAL UNIX V3.2G	DIGITAL UNIX V3.2F	DIGITAL UNIX V4.0D
OpenVMS V7.1-1H2	OpenVMS V7.1-1H1	OpenVMS V6.2-1H3	OpenVMS V7.1-1H1 with patch. Patches also available for OpenVMS V6.2

Step 1d—AlphaServer 4000 System Drawer 16 PCI Slot Expansion Option (for Field Installation)

- All AlphaServer 4000 System Drawers now include 16 PCI knockouts on PCI bulkhead with 16 active PCI slots (see Figure 1).
- To convert an existing 8 PCI slot AlphaServer 4000 system to a 16 PCI slot AlphaServer 4000 system, order PCI Slot Expansion Option (H7150-AA).

H7150-AA 8 PCI slot expansion option for AlphaServer 4000 System Drawer, includes one H7291-AA power supply

Note: AlphaServer 4100 and 4000 systems with 8 PCI knockouts on PCI bulkhead (Figure 2), can be upgraded to an AlphaServer 4000 with 16 PCI slots. See Step 10.

**Step 1e—PCI I/O Upgrades****System Upgrades**

AlphaServer 4100 users who require 16 PCI I/O slots can upgrade their existing AlphaServer 4100 to an AlphaServer 4000 with 16 PCI slots via a field installable PCI I/O System Drawer upgrade. The upgrade includes the H7150-AA and requires customers to swap out CPU and memory to a new AlphaServer 4000 drawer which is limited to a maximum of two CPUs and 4 GB of memory. An upgrade requires the return of the existing AlphaServer 4100 drawer.

Order Number	From	To	Includes
DN-53ZEA-AA	AlphaServer 4100	AlphaServer 4000 ¹ with 16 I/O Slots (Windows NT 4.0)	AlphaServer 4000 System Drawer Upgrade for Windows NT with I/O Expansion Option Note: Mandatory return of existing AlphaServer 4100 System Drawer
DA-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 ¹ with 16 I/O Slots (DIGITAL UNIX)	AlphaServer 4000 System Drawer Upgrade with DIGITAL UNIX base system license and I/O Expansion Option Note: Mandatory return of existing AlphaServer 4100 System Drawer
DY-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 with 16 I/O Slots (OpenVMS)	AlphaServer 4000 System Drawer Upgrade with OpenVMS base system license and I/O Expansion Option Note: Mandatory return of existing AlphaServer 4100 System Drawer

1. 5/300 MHz CPUs numbered B3001-AA and B3002-AA are not supported in the new AlphaServer 4000 8/16 PCI slot System Drawers. B3002-AA CPUs must be upgraded to B3004-BA CPUs before installation in new AlphaServer 4000 System Drawer.

Step 2—Additional CPU Modules (CPU Add-On or CPU Upgrades)

- AlphaServer 4100 System Drawer supports three additional CPUs
- AlphaServer 4000 System Drawer supports one additional CPU
- CPUs (i.e., 5/533 4 MB) and operating system must be of the same type in each System Drawer.
- Minimum revision of SRM console for 5/600MHz is V5.2-1. The console must be at this minimum revision, or greater, prior to installing the 5/600MHz (B3006-EB) modules; 5/600 MHz supports DIGITAL UNIX V3.2G and V4.0B and OpenVMS V6.2-1H3 and V7.1-1H1
- See Step 11 for Windows NT Conversion Software Kits.

KN304-DB	DIGITAL UNIX SMP upgrade includes one 5/466 (4 MB) CPU and DIGITAL UNIX SMP license
KN305-DB	DIGITAL UNIX SMP upgrade includes one 5/533 (4MB) CPU and DIGITAL UNIX SMP license
KN306-AB	DIGITAL UNIX SMP upgrade includes one 5/600 (8MB) CPU and DIGITAL UNIX SMP license
KN304-DC	OpenVMS SMP upgrade includes one 5/466 (4 MB) CPU and OpenVMS SMP license
KN305-DC	OpenVMS SMP upgrade includes one 5/533 (4MB) CPU and OpenVMS SMP license
KN306-AC	OpenVMS SMP upgrade includes one 5/600 (8MB) CPU and OpenVMS SMP license
KN304-DD	Windows NT SMP upgrade includes one 5/466 (4 MB) CPU; SMP license not required
KN305-DD	Windows NT SMP upgrade includes one 5/533 (4 MB) CPU; SMP license not required
KN306-AD	Windows NT SMP upgrade includes one 5/600 (8MB) CPU; SMP license not required

Step 3—Additional Power Supply

Power supply included with System Drawer provides support for two processors, memory, and I/O adapters. Includes U.S. power cord, order country-specific power cord for use outside U.S.

H7291-AA 450 Watt power supply

		AlphaServer 4100	AlphaServer 4000 with 8 PCI slots	AlphaServer 4000 with 16 PCI slots
1 st	450 W power supply (included)	Supports up to 2 CPUs	Supports up to 2 CPUs	Supports up to 2 CPUs
2 nd	450 W power supply	Supports 3 rd or 4 th CPU or Provides N+1 for up to 2 CPUs	Provides N+1 for 2 CPUs	See Note.
3 rd	450 W power supply	Provides N+1 for up to 4 CPUs	N/A	See Note.

Note: 1st power supply supports 2 CPUs and 8 active PCI slots.
 2nd power supply provides N+1 for 2 CPUs and 8 active PCI slots.
 H7150-AA 8 PCI slot expansion option includes a Power Supply. Supports 2 CPUs and 16 active PCI slots.
 3rd power supply provides N+1 support for 2 CPU systems and 16 active PCI slots.

For Cabinet system configurations that require a third power distribution unit (H7600-xx), contact Digital CustomSystems at 1-800-DIGITAL.

Step 4—Memory

AlphaServer 4100/4000 memory options come in memory pairs. Do not mix 50ns memory and 60ns memory within the same memory pair. For installed base systems or add on memory, the AlphaServer 4100 motherboard (54-23803-01) must be of minimum Revision B07.0 for high-performance memory options (MS332-xx).

- All System Drawers include one memory option.
- AlphaServer 4100 System Drawer supports up to three additional memory options:
 - DIGITAL UNIX and OpenVMS systems support a maximum of 8 GB of memory
 - Windows NT 3.51 supports a maximum of 2 GB of memory, 4.0 supports a maximum of 4 GB of memory**Note:** Windows NT is a 32-bit operating system that limits memory to a maximum of 4 GB on Windows NT 4.0.
- AlphaServer 4000 System Drawer supports one additional memory option for maximum of 4 GB total.

Note: Field installation of memory requires largest memory option to be placed in Memory Slot 0.

MS320-CA	128 MB memory option (Synch, 60ns)
MS330-EA	512 MB memory option (EDO, 60ns)
MS330-FA	1 GB memory option (EDO, 60ns)

Step 4—Memory (continued)

MS330-GA	2 GB memory option (EDO, 60ns)
MS332-FA	1 GB high-performance memory option (EDO, 50ns)
MS332-GA	2 GB high-performance memory option (EDO, 50ns)

Step 5—Storage

- Pedestal and Cabinet Enclosures require the mandatory selection of:
 - UltraSCSI single-bus or split-bus shelf and a SCSI cable to connect UltraSCSI shelf to SCSI adapter.
 - UltraSCSI 4.3 GB, 9.1 GB, or 18.2 GB system disk.
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Step 5a—Disk Drives

- Selection of one System Disk Drive is mandatory from Step 1c.
- 2.1 GB disk drive is **not** supported as a system disk drive.
- If more than one size of disk is ordered Operating System will be installed on smallest disk drive, except the 2.1 GB.

DS-RZ1BB-VW	2.1 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1CF-VW	4.3 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1DF-VW	9.1 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1EF-VW ¹	18.2 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB

1. Not supported on KZPAC-xx PCI-based RAID controllers.

Step 5b—Removable Media

- All System Drawers include CD-ROM drive in integral 5.25-inch drive slot connected to integral FNSE SCSI-2 controller.
- System Drawer installed in Pedestal Enclosure supports one additional removable media device. Optional 5.25-inch half-height removable media slot in Pedestal systems is connected to integral FNSE SCSI-2 controller.

Tape Drive and additional CD-ROM for Pedestal systems only

TLZ09-LK	8 GB 4 mm DAT 93 MB/min (compressed) internal narrow SCSI tape drive, frost white
TLZ10-LK	12/24 GB 4 mm DAT 93 MB/min (compressed) internal narrow SCSI tape drive, frost white
RRD47-AC	600 MB 32x speed CD-ROM drive in 5.25" top gun blue carrier
RRD47-AB	600 MB 32x speed CD-ROM drive in 5.25" frost white carrier

Tape Drives and additional CD-ROM for StorageWorks shelves in Pedestal and Cabinet systems

Note: Additional tape drives and devices are supported. Refer to the Supported Options List for operating system support at http://www.digital.com/alphaserver/tech_docs/alphasrv4100/docs/supported_options.html

Selection of an additional adapter/controller may be required; selection will be configuration dependent, call 1-800-DIGITAL for configurations may require a differential adapter with a tape device, or a controller with a tape device.

TLZ09-VA	8 GB 4 mm DAT 93 MB/min (compressed) narrow SCSI tape drive in 5.25" StorageWorks carrier
DS-TLZ10-VA	12/24 GB 4 mm DAT narrow SCSI tape drive in 3.25" StorageWorks carrier
DS-TZS20-VW	25/50 GB 8mm AIT SCSI tape drive in 3.5" StorageWorks carrier
DS-TZ89N-VW	35/70 GB DLT wide SCSI tape drive in 5.25" StorageWorks carrier
TZK11-VA	2 GB QIC tape drive in 5.25" StorageWorks carrier
DS-RRD47-VA	600 MB 32X CD-ROM drive in 5.25" StorageWorks carrier
TLZ9L-VA	32/64 GB 4mm DAT SCSI tape loader in full height 5.25" StorageWorks carrier

Step 5b—Removable Media (continued)

DS-TLZ10-DB	12/24 GB 4 mm DAT narrow SCSI tabletop tape drive with 50-pin LD SCSI connector
DS-TZ89N-TA	35/70 GB DLT wide SCSI tabletop tape drive with 68-pin HD female SCSI connector
TLZ9L-DB	32/64 GB 4mm DAT SCSI tabletop tape loader with 50-pin HD female SCSI connector
DS-TL890-NE¹	DLT Mini-Library Expansion unit with bar code reader, 16 cartridge, wide differential SCSI robotic controller with 68-pin HD female SCSI connector, universal mounting rails (Metric/RETMA), Top Gun Blue
DS-TL891-NE¹	10 slot Rackmount mini library with one TZ89N-AV, Interlock Kit required (2T-TL891-SL), 68-pin HD female SCSI connector. Requires differential controller.
DS-TL891-NT¹	10 slot Tabletop mini library with one TZ89N-AV, 68-pin HD female SCSI connector. Requires differential controller.

1. For maximum performance, tape libraries must be configured with Fast Wide Differential (FWD) controllers for tape backup.

Step 5c—StorageWorks Shelves

- Selection of an UltraSCSI split-bus or single-bus StorageWorks shelf is mandatory for Pedestal or Cabinet Enclosure.
- Pedestal Enclosure supports maximum of three BA36R-SD/SE UltraSCSI StorageWorks Shelves.
- Cabinet Enclosure supports maximum of six (6) BA36R-RC/RD UltraSCSI StorageWorks shelves.
- Maximum of two BA35R-MR controller shelves supported in Cabinet Enclosure.
- Additional StorageWorks UltraSCSI shelves require controller(s) and cables.

UltraSCSI Configuration Rules

- UltraSCSI configurations require UltraSCSI components (adapters/shelves/disks/cables).
- UltraSCSI adapters and RAID controllers support UltraSCSI disks at UltraSCSI speeds in UltraSCSI shelves (BA36R-xx) shelves.
- Fast-10 SCSI shelves may not be retrofitted. When connecting to an UltraSCSI adapter, replace Fast-10 SCSI shelf with UltraSCSI (BA36R-xx) shelf.
- UltraSCSI drives and Fast-10 devices can be mixed in BA36R-xx UltraSCSI shelf. Drives negotiate maximum transfer speeds with UltraSCSI adapter/controller.

StorageWorks UltraSCSI Shelf Kits

StorageWorks UltraSCSI Shelf kits include 16-bit UltraSCSI shelf and 16-bit UltraSCSI personality module with doc chip, and 180-Watt power supply in system building block (SBB), mounting hardware, and power cord. UltraSCSI shelves operate in UltraSCSI mode when connected to UltraSCSI KZPBA-CA adapters and KZPAC-AA/CA/CB controllers.

- Each BA36R shelf supports:
 - Seven 3.5-inch hard disk drives or
 - One 5.25-inch device and four 3.5-inch hard disk drives or
 - Two 5.25-inch devices and one 3.5-inch hard disk drive
- Installation of redundant power supply reduces number of 3.5-inch devices by one.

BA36R-SD/SE	Pedestal StorageWorks UltraSCSI shelf kit (single-bus/split-bus)
BA36R-RC/RD	Cabinet StorageWorks UltraSCSI shelf kit (single-bus/split-bus)
CK-BA35X-HH	180-Watt universal ac input redundant power supply; 125V power cord; included in shelf kits

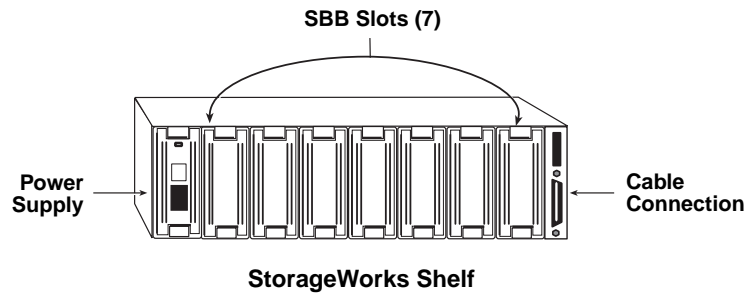
StorageWorks Fast-10 SCSI Shelf Kits

StorageWorks Fast-10 SCSI Shelf kits include a BA356 16-bit Wide StorageWorks shelf, and a 16-bit personality module with a power supply in system building block (SBB), mounting hardware, and power cord. Fast-10 shelves operate in Fast-10 mode when connected to KZPDA-AA, KZPAA-AA, and KZPSA-BB adapters and controllers.

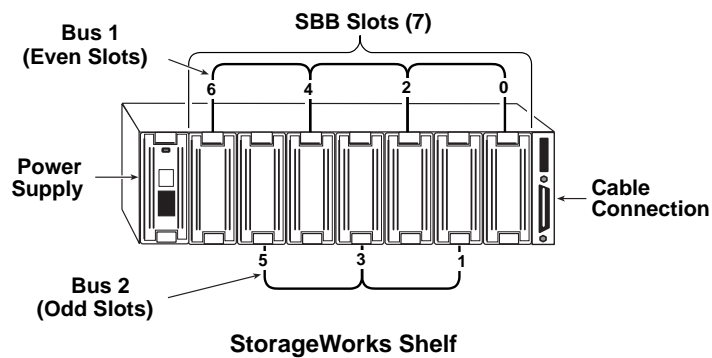
Note: BA36R-SB/and -RA shelves are not supported when connected to KZPBA and KZPCM UltraSCSI adapters.

BA36R-SB	Pedestal StorageWorks Fast-10 SCSI shelf kit (Worldwide)
BA36R-RA	Cabinet StorageWorks Fast-10 shelf kit (Worldwide)
BA35X-ME	Split bus mode active terminator for BA36R shelf (for Fast-10 SCSI shelf kits only)

Single Bus StorageWorks Shelf



Split Bus StorageWorks Shelf



Step 5d—PCI-based Adapters, Controllers, Connectors, and Cables

- Selection of one SCSI adapter/controller and a SCSI cable is mandatory for Pedestal or Cabinet Enclosure, see Step 1c.
- Additional adapters/controllers are supported.

O/S Support required : DIGITAL UNIX V4.0D or OpenVMS V7.1-1H1		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPCM-DA	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet Combo adapter, uses 1 PCI slot	2	2
BN37A-02	2 m VHDCI male to VHDCI male UltraSCSI cable. Required for each UltraSCSI shelf attached to KZPCM.		
BN37A-05 BN37A-10	5 m VHDCI male to VHDCI male UltraSCSI cable 10 m VHDCI male to VHDCI male UltraSCSI cable		
O/S Support required : DIGITAL UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPBA-CA	PCI-based one-port UltraSCSI Single-ended adapter	5	8
BN38C-02	2 m VHDCI male to 68HD male SCSI cable. Required for each UltraSCSI shelf connected to KZPBA		
BN38C-03 BN38C-05 BN38C-10 BN38C-20	3 m VHDCI male to 68HD male cable 5 m VHDCI male to 68HD male cable 10 m VHDCI male to 68HD male cable 20 m VHDCI male to 68HD male cable		

Step 5d—PCI-based Adapters, Controllers, Connectors, and Cables (continued)

O/S Support required : DIGITAL UNIX V3.2G, OpenVMS V7.1-1H1, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPBA-CB	PCI-based one port UltraSCSI Differential adapter	5	8
BN38C-02	2 m VHDCI male to 68HD male UltraSCSI cable. Required for each external UltraSCSI shelf attached to KZPBA		
BN38C-03 BN38C-05 BN38C-10 BN38C-20	3 m VHDCI male to 68HD male cable 5 m VHDCI male to 68HD male cable 10 m VHDCI male to 68HD male cable 20 m VHDCI male to 68HD male cable		

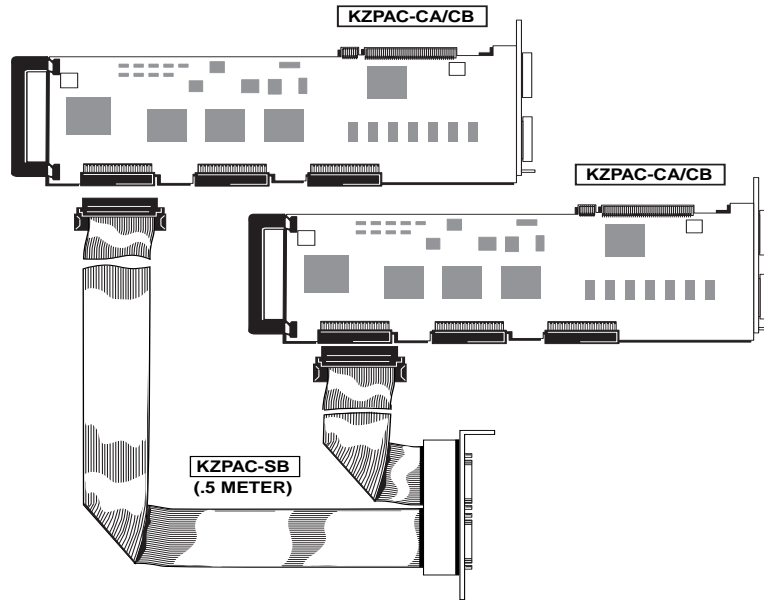
Note: OpenVMS V7.1-1H1 currently supports KZPBA-CB in direct attachment and multi-host shared SCSI bus configurations. DIGITAL UNIX operating systems currently support KZPBA-CB in direct attachment only.

O/S Support required : DIGITAL UNIX V3.2G, OpenVMS V7.1-1H1, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPAC-AA¹	PCI-based one port UltraSCSI Single-ended RAID controller with 4 MB cache memory; includes RAID Array 230/plus Subsystem software and documentation kit; tape drives/libraries not supported.	4	4
BN37A-02	2 m VHDCI male to VHDCI male cable. Required for each UltraSCSI shelf attached to KZPAC.		

O/S Support required : DIGITAL UNIX V3.2G, OpenVMS V7.1-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPAC-CA¹	PCI-based three-port UltraSCSI RAID controller (Single-ended) with 4 MB cache memory, includes RAID Array 230/Plus Subsystem Software and documentation kit, tape drives/libraries not supported.	4	4
KZPAC-CB¹	Same as above with 8 MB cache memory	4	4
KZPSC-UB²	Cache battery-backup for KZPAC controller		
BN31K-0E³	SCSI cable/bulkhead assembly kit with one port for KZPAC-CA/CB, allows connection of one third-port output using one PCI bulkhead slot.		
KZPAC-SB³	SCSI cable/bulkhead assembly kit with two ports for KZPAC-CA/CB, allows connection of two third-port outputs using one PCI bulkhead slot.		
BN37A-02	2 m VHDCI male to VHDCI male cable. Required for each UltraSCSI shelf attached to KZPAC.		
BN37A-03 BN37A-05 BN37A-10 BN37A-20	3 m VHDCI male to VHDCI male cable 5 m VHDCI male to VHDCI male cable 10 m VHDCI male to VHDCI male cable 20 m VHDCI male to VHDCI male cable		

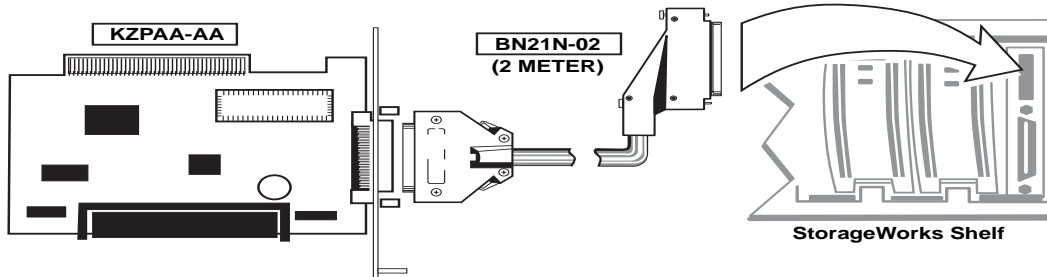
- 18.2 GB disk drives are not supported on KZPAC-xx PCI-based RAID controllers.
- KZPSC-UB is recommended for KZPAC controllers.
- SCSI cable/bulkhead assembly kit is required for third-port connection. Use BN31K-0E for single KZPAC-CA configuration. Use KZPAC-SB for 2 KZPAC-CA configurations. See diagram below.

Step 5d—PCI-based Adapters, Controllers, Connectors, and Cables (*continued*)



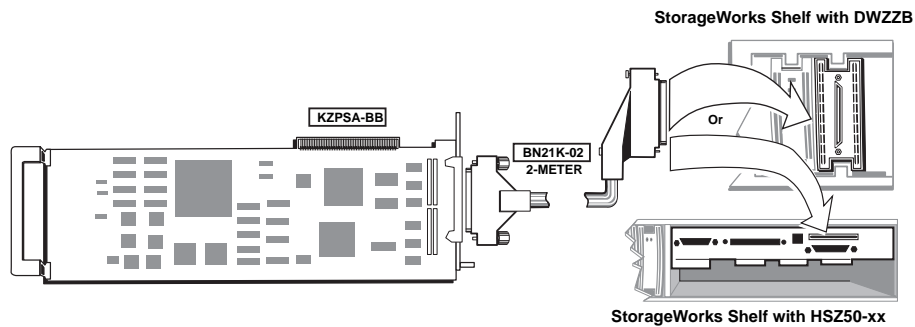
O/S Support required : OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPDA-AA	PCI-based one port Fast Wide Single-ended SCSI adapter	2	4
BN21K-02	2 m SCSI cable. Required for each Fast-10 shelf connected to KZPDA		
BN38C-02	2 m SCSI cable. Required for each UltraSCSI shelf connected to KZPDA		

O/S Support required: DIGITAL UNIX V3.2F, OpenVMS V7.1-1H1, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPAA-AA	PCI-based one port Fast Narrow Single-ended SCSI adapter	2	2
BN21N-02	2 m 8-bit to 16-bit SCSI cable, required for each 16-bit Fast-10 shelf connected to KZPAA To connect KZPAA to an UltraSCSI shelf, use BN21H-xx or BN38A-0B cable		



Step 5d—PCI-based Adapters, Controllers, Connectors, and Cables (continued)

O/S Support required: DIGITAL UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPSA-BB	PCI-based one-port FWD SCSI adapter; requires DWZZB-VW signal converter if connecting directly to Fast-10 SCSI StorageWorks shelf.	5	10
BN21K-02	02 m 16-bit SCSI cable (internal)		
BN21K-03	03 m 16-bit SCSI cable (external)		
BN21K-05	05 m 16-bit SCSI cable (external)		
BN21K-10	10 m 16-bit SCSI cable (external)		
BN21K-15	15 m 16-bit SCSI cable (external)		
BN21K-20	20 m 16-bit SCSI cable (external)		



O/S Support required: OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KFP5A-AA	PCI-based DSSI controller. Requires HSDxx controller to connect directly to StorageWorks shelf	4	4
BC29S-06	Connection to HSD10 installed in BA36R Pedestal shelf		
BC29S-09	Connection to HSD10 installed in BA36R Cabinet shelf		

O/S Support required: OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
CIPCA-BA	PCI-based CI adapter -BA requires two PCI slots and one CI cable per adapter	3 ¹	6 ¹
CIPCA-AA	PCI-based CI adapter -AA requires 1 EISA and 1 PCI and one CI cable per adapter	2 ¹	2 ¹
BNCIA-10	10 m CI cable		
BNCIA-20	20 m CI cable		
BNCIA-45	45 m CI cable		

1. Systems with 8 I/O slots support a maximum of three CIPCA-BA and CIPCA-AA options in mixed –BA and –AA configurations.
Systems with 16 I/O slots support a maximum of six CIPCA-BA and CIPCA-AA options in mixed –BA and –AA configurations.

Step 5e—External Storage Controllers

- Maximum of two BA35R-MR controller shelves for HSZ5x are supported in the **H9A10-xx and H9A15-xx** cabinets.
- The following controllers are supported for mounting in AlphaServer 4000/4100 systems.

SCSI controllers

- Minimum operating system support: DIGITAL UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51/4.0 or later.
- Controllers require KZPSA-BB Fast Wide Differential SCSI controller.
- HSZ50-Ax requires one QB-5CJAA-SA kit
HSZ52-Ax requires two QB-5CJAA-SA kits
HSZ54-AJ requires four QB-5CJAA-SA kits

HSZ50-AF	StorageWorks RAID Array 450/HSZ50 32 MB SCSI controller, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, 32 MB cache module, single external cache battery system building block
HSZ50-AH	StorageWorks RAID Array 450/HSZ50 64 MB SCSI controller, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, 64 MB cache module, single external cache battery system building block
HSZ50-AJ	StorageWorks RAID Array 450/HSZ50 128 MB SCSI controller, 6 SCSI channels, 36 dual, 42 single SCSI-2 device connections, 32 LUN max, 128 MB cache module, single external cache battery system building block
HSZ52-AF	StorageWorks RAID Array 450/HSZ50 64 MB dual-SCSI controllers, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2 m cables
HSZ52-AH	StorageWorks RAID Array 450/HSZ50 128 MB dual-SCSI controllers, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2 m cables
HSZ52-AJ	StorageWorks RAID Array 450/HSZ50 256 MB dual-SCSI controllers, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2 m cables
HSZ54-AJ	StorageWorks RAID Array 450/HSZ50 512 MB quad-SCSI controllers, 6 SCSI channels, 72 SCSI-2 device connections, 64 LUN max, four cache modules, two dual external cache battery system building blocks, four external cache batteries, four 2 m cables

DSSI Controllers

- Supported on OpenVMS systems only.
- Requires BA35R-MR StorageWorks Controller shelf.
- DSSI controllers are supported on KFPSA-AA DSSI adapters only.

HSD50-AF	StorageWorks DSSI Array controller with 32 MB cache; 6 channel and ECB
HSD50-AH	StorageWorks DSSI Array controller with 64 MB cache; 6 channel and ECB
HSD50-AJ	StorageWorks DSSI Array controller with 128 MB cache; 6 channel and ECB
HSD52-AF	StorageWorks Dual DSSI Array controller with 64 MB cache; 6 channel and ECB
HSD52-AH	StorageWorks Dual DSSI Array controller with 128 MB cache; 6 channel and ECB
HSD52-AJ	StorageWorks Dual DSSI Array controller with 256 MB cache; 6 channel and ECB

CI Controllers

- Supported on OpenVMS systems only.
- Requires CIPCA-AA/BA Storage controller and cables (See Step 5d), and BA35R-MR StorageWorks Controller shelf.

HSJ50-AF	StorageWorks 6-channel CI array controller with 32 MB cache, cache battery
HSJ50-AH	StorageWorks 6-channel CI array controller with 64 MB cache, cache battery
HSJ50-AJ	StorageWorks 6-channel CI array controller with 128 MB cache, cache battery
HSJ52-AF	StorageWorks Dual CI array controller with 64 MB cache, cache battery
HSJ52-AH	StorageWorks Dual CI array controller with 128 MB cache, cache battery
HSJ52-AJ	StorageWorks Dual CI array controller with 256 MB cache, cache battery
HSJ54-AJ	StorageWorks Quad CI array controller with 512 MB cache, cache battery

Step 5e—External Storage Controllers (continued)**Controller Accessories**

H879-AA	External SCSI 68-pin male 8-bit or 16-bit differential terminator
H885-AA	SCSI Tri-link connector, 68-pin, two female and one male connector
BN21W-0B	SCSI Y cable 68-pin, two female and one male
BN30B-02	IEC to IEC power cord, gray for H9A10-MD/H9A15-MD Cabinet (Europe)
BN35S-02	IEC to IEC power cord, black for H9A10-MD H9A15-MD Cabinet (Europe)
BA35R-MR	Rackmount StorageWorks controller shelf with RETMA mounting kit, and NEMA power for H9A10-MC/ H9A15-MC Cabinet, Americas, Asia Pacific. Order BN30B-02 for mounting in H9A10-MD/ H9A15-MD cabinet (Europe)
BA35X-HF	Power supply for n+1 redundant support in UltraSCSI StorageWorks controller shelf
SC008-AC	Star Coupler Passive Hub device, supports eight CI ports
SC008-AD	Additional 8 ports for Star Coupler Passive Hub device

Step 5f—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions**UltraSCSI RAID Array Controller**

DS-HSZ70-AH	StorageWorks UltraSCSI RAID Array controller includes 64 MB cache, 6 UltraSCSI single-ended channels, CLI cable kit, controller to controller jumper cable, and two ECB cables. Requires HSZ70 Solutions Software Kit (QB-5SBAB-SA/SB for DIGITAL UNIX, QB-5SBAC-SA/SB for OpenVMS, QB-5SBAD-SA/SB for Windows NT) and external cache battery (DS-HS35X-BC).
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ESA 10000 Storage Arrays and RAID Array 7000 (RA7000) Options

- ESA 10000 Storage Arrays and RAID Array 7000 (HSZ70 Product Set) are supported on AlphaServer 4x00 systems
- Currently the HSZ70 is supported on KZPSA-BB Fast Wide Differential adapter (DIGITAL UNIX V4.0B; OpenVMS V6.2-1H3) and the KZPBA-CB UltraSCSI Differential controller (OpenVMS V6.2-1H3).

ESA 10000 Enterprise Storage Arrays

See StorageWorks Packaged Solutions in StorageWorks Chapter of *DIGITAL Systems and Options Catalog*, or on the WEB at <http://www.digital.com/info/SOHOME/> for additional configuration information on HSZ70 controllers in ESA 10000 and RA7000.

DS-SWXES-AA/AB	ESA 10000 high capacity/general business base unit Includes: Data Center 600 mm enclosure 2 BA370-AA Rackmounted shelves with 5 shelf power supplies each, expandable to 8 2 HSZ70 six port controllers 64 MB mirrored write back cache each, expandable to 128 MB each 6 Ultra SCSI expansion cables 1 10 meter host to controller cable (BN37A-10) Serial line assembly with adapters (9 pin and 25 pin) Power cord and documentation Supports up to 48 drives
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Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately

Options: 64 MB cache upgrade and fully redundant power

DS-SWXES-BA/BB	ESA 10000 high bandwidth base unit Includes: Data Center 600 mm enclosure 2 BA370-AA Rackmounted shelves with 5 shelf power supplies each, expandable to 8 4 HSZ70 six port controllers 64 MB mirrored write back cache each, expandable to 128 MB each 2 10 meter host to controller cables (BN37A-10) Serial line assembly with adapters (9 pin and 25 pin) Power cord and documentation Supports up to 48 drives
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Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately

Options: 64 MB cache upgrade and fully redundant power

Step 5f—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions (continued)

DS-SWXES-CA/CB	<p>ESA 10000 dual expansion base unit</p> <p>Includes: Data Center 600 mm enclosure 2 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 Supports up to 48 drives</p> <p>Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately</p> <p>Options: Fully redundant power</p> <hr/>
DS-SWXES-DA/DB	<p>ESA 10000 single expansion w/ dual controllers base unit</p> <p>Includes: Data Center 600 mm enclosure 1 BA370-AA Rackmounted shelf with 5 shelf power supplies, expandable to 8 2 HSZ70 six port controllers 64 MB mirrored write back cache each, expandable to 128 MB each 1 10 meter host to controller cable (BN37A-10) Serial line assembly with adapters (9 pin and 25 pin) Power cord and documentation Supports 24 drives, expandable to 48 with BA370 rackmount upgrade.</p> <p>Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately</p> <p>Options: 64 MB cache upgrade, fully redundant power, and BA370 rackmount upgrade.</p> <hr/>
RAID Array 7000 (RA7000)	
DS-SWXRA-HA	<p>RAID Array 7000 with Dual controllers</p> <p>Includes: 24 SBB Departmental Cabinet 2 HSZ70 6 port controllers with 64 MB mirrored write-back cache each, expandable to 128 MB each I/O expansion module Dual cache battery in SBB with cable Five 180 watt power supplies, expandable to eight Fully redundant cooling Environmental Monitor Unit (EMU) 5 m host to controller cable BN37A-05 with BN38E-0B VHDCI to 68 HD conversion cable, Serial line kit, controller to controller jumper cable for redundant controllers, and U.S. power cord.</p> <p>Requires: HSZ70 Solutions Software Kit for platform, host adapter, and disks to be ordered separately</p> <p>Options: 64 MB cache upgrade, Up to two RA7000 Expansion cabinets. Optional power supplies.</p> <hr/>
DS-SWXRA-HB	RAID 24 UltraSCSI SBB Pedestal Expansion cabinet
DS-SWXRA-HC	<p>RAID Array 7000 with Single controller</p> <p>Includes: 24 SBB Storage Cabinet 1 HSZ70 6 port controller with 64 MB mirrored write-back cache, expandable to 128MB I/O expansion module Single cache battery in SBB with cable Five 180 watt power supplies expandable to eight Fully redundant cooling Environmental Monitor Unit (EMU) 5 m host to controller cable BN37A-05 with BN38E-0B VHDCI to 68 HD conversion cable, Serial line kit, controller to controller jumper cable for redundant controllers, and U.S. power cord.</p> <p>Requires: HSZ70 Solutions Software Kit for platform, host adapter, and disks to be ordered separately</p> <p>Options: Second HSZ70 controller and cache battery; 64 MB cache upgrade; Up to two RA7000 Expansion cabinets. Optional power supplies.</p> <hr/>

Adapters and Platform Specific Solutions Software

- Each KZPSA and/or KZPBA adapter ordered to support HSZ70(s) requires an HSZ70 Solutions Software Kit
- HSZ70 Solutions Software Kits must be ordered for each new HSZ70 controller in a configuration.
- HSZ70 Solutions Software Kits provide tools needed to link ESA 10000 to a wide variety of vendor platforms.
- HSZ70 Solutions Software Kits with -SA variants included documentation
HSZ70 Solutions Software Kits with -SB variants do not include documentation, select for each additional adapter ordered if documentation is available on-site.

Step 5f—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions (continued)**HSZ70 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 HSZ70 Solutions Software Kit for appropriate platform

Supported Adapters	HSZ70 Solutions Software Kit	Host Platform
KZPSA-BB	QB-5SBAB-SA/SB QB-5SBAC-SA/SB	DIGITAL UNIX V4.0B OpenVMS V6.2-1H3
KZPBA-CB	QB-5SBAC-SA/SB	OpenVMS V7.1-1H1

Cache Upgrade

Select cache upgrade for HSZ70 controllers. Redundant controllers require equal amounts of cache

DS-HSSIM-AB 64 MB Cache Upgrade for HSZ70

Disk Expansion Cabinet

Note: Order Expansion Cable Kit for each Disk Expansion Cabinet selected.

DS-SWXRA-HB Disk Expansion Cabinet, includes 24 disk slots, 5 power supplies, redundant cooling, EMU and PVA, power cable

DS-BNK37-1E Expansion Cable Kit, required for each Disk Expansion Cabinet DS-SWXRA-HB

DS-BA35X-HH 180 Watt Power Supply. Fully redundant power requires three additional power supplies, one additional DS-BA35X-HE power control unit, and one additional DS-SW6XP-AA/AB power distribution unit.

DS-BA35X-HE AC Power Control Unit, required when more than five 180 Watt power supplies are installed

DS-SW6XP-AA/AB SW600 Power Distribution Unit, quantity of 1 required for each SW600 for full power redundancy.

Additional Options

DS-HS35X-BC Single replacement external cache battery, one battery in a single Blue SBB

DS-HS35X-BD Dual replacement external cache battery, two batteries in a single Blue SBB, supports cache of dual redundant controllers. Requires ordering 1 Power Verification and Addressing (PVA) DS-BA35X-EC

DS-BA35X-BA Battery shelf for SW600 cabinet

DS-BA35X-MK Dual speed fan kit

DS-BA35X-MN Single-Ended I/O module

DS-BA35X-EB Environmental Monitor Unit (EMU)

DS-BA35X-EC Power Verification and Addressing (PVA)

BN37A-xx Host to controller cable

BN38E-0B 68-pin HD to VHDCI UltraSCSI conversion cable

H9C10-JC H9A10 Cabinet Joiner Kit for SW600

H8865-AA UltraSCSI Single-Ended external terminator

H8863-AA UltraSCSI Differential external terminator

DS-BA370-AA Rackmountable BA370 shelf includes five 180 W power supplies, eight high power blowers, RETMA and Metric mounting kit, not supported in M-series Cabinet Enclosure.

DS-SW600-AA 60 Hz 600 mm Storage Cabinet includes single phase power distribution unit DS-SW6XP-AA

DS-SW600-AB 50 Hz 600 mm Storage Cabinet includes single phase power distribution unit DS-SW6XP-AA

Step 5g—AlphaServer 4100/4000 Cabinet Expansion for M-Series Enclosures

To expand AlphaServer 4100/4000 M-series Cabinet systems, order M-Series Cabinet, plus Cabinet joiner kit H9C10-JD or H9C15-JD.

H9A10-MC/MD	Blue M-series Cabinet, 67", 31U, 54.2" usable vertical space
H9A15-MC/MD	Blue M-series Cabinet, 79", 38U, 66.5" usable vertical space
H9C10-JD	Joiner Kit with brackets and trim (top gun blue) for H9A10-MC/MD cabinet
H9C15-JD	Joiner Kit with brackets and trim (top gun blue) for H9A15-MC/MD cabinet

For custom integration of cabinet expansion offerings, contact Digital CustomSystems at 1-800-DIGITAL, or contact your local authorized Digital Certified Integration Partner.

StorageWorks Cabinets

SW800-GA	SW800 Data Center Cabinet, 60Hz, top gun blue, 1700 mm high, 800 mm wide
SW800-GB	SW800 Data Center Cabinet, 50Hz, top gun blue, 1700 mm high, 800 mm wide
DS-SW600-AA	SW600 Departmental Cabinet, 60Hz, top gun blue, 1700 mm high, 600 mm wide
DS-SW600-AB	SW600 Departmental Cabinet, 50Hz, top gun blue, 1700 mm high, 600 mm wide

StorageWorks Accessories

DWZZB-VW	SCSI signal converter for BA356 shelves, 3.5" SBB, 68-pin HD FWD connector on one end and FWSE on BA356 shelf bus. Requires BN21K-xx cable.
BN21K-02	02 m 16-bit SCSI cable
BN21K-03	03 m 16-bit SCSI cable
BN21K-05	05 m 16-bit SCSI cable
BN21K-10	10 m 16-bit SCSI cable
BN21K-15	15 m 16-bit SCSI cable
BN21K-20	20 m 16-bit SCSI cable

Step 6—Networks and Communications

- Selection of a Network adapter is mandatory, see Step 1c.
- **Note:** If KZPCM-DA SCSI and Ethernet combo adapter is selected, an additional Ethernet controller is optional.
- Additional adapters are supported.

O/S Support required: Digital UNIX V4.0D, OpenVMS V7.1-1H1		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
KZPCM-DA	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet combo adapter, uses 1 PCI slot	2	2
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection		

O/S Support required: Digital UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DE500-AA	PCI-based 10/100 Mbit Fast Ethernet Adapter (Twisted Pair)	4	4
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection		

O/S Support required: Digital UNIX V4.0D, OpenVMS V6.2-1H3, Windows NT 4.01		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DE500-BA	PCI-based 10/100 Mbit Fast Ethernet adapter Cat 5 UTP	4	4
DE504-BA¹	PCI-based 10/100 Mbit quad channel Ethernet adapter Cat 5 UTP	1	1
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection		
BN24Q-xx	UTP crossover cable for 10/100BaseT Cat 5		

1. OpenVMS V6.2-1H3 requires the following Tima Kits: ALPCLUSIO01_062 Cluster support; ALPBOOT13_062 Boot support; ALPLAN05_062 Runtime support; ALPCPU1602_062 CPU Routine

Step 6—Networks and Communications (continued)

O/S Support required: Digital UNIX V4.0D, OpenVMS V7.1-1H1, Windows NT 4.01		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DE500-FA	PCI-based 10/100 Mbit Ethernet adapter MMF	4	4
BN34B-xx	SC-SC Dual FO cable, mm, pp. xx = m length		
O/S Support required: Digital UNIX V3.2F, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DE450-CA	PCI-based 10 Mbit Ethernet adapter; AUI, 10/100BaseT, or 10Base2	4	4
BNE4C-02	2 m (6.6 ft.) cable for AUI connection, Ethernet/IEEE 802.3		
BNE4C-05	5 m (16.4 ft.) cable for AUI connection		
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection		
BC16M-06	Cable for 10/100Base2 ThinWire connection		
O/S Support required: Digital UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DEFPA-AB	PCI-based FDDI Adapter, single attachment station (SAS), multi-mode fiber (MMF), SC connector	4	4
DEFPA-DB	PCI-based FDDI Adapter, DAS, MMF, SC connector	4	4
BN34D-xx	MIC-SC dual fiber optic cable		
BN34B-xx	SC to SC dual fiber optic cable		
O/S Support required: Digital UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DEFPA-UB	PCI-based FDDI Adapter, SAS, TP-PMD, requires BN25H-03	4	4
DEFPA-MB	PCI-based FDDI Dual Adapter, DAS, TP-PMD, requires BN25H-03	4	4
BN25H-03	3 m (9.8 ft) FDDI crossover cable		
O/S Support required: Digital UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
PBXDA-AA¹	PCI-based 4-port asynchronous controller; cable included	2	4
PBXDA-AB¹	PCI-based 8-port asynchronous controller; cable included	2	4
PBXDA-AC¹	PCI-based 16-port asynchronous controller; cable included	2	4

1. PBXDA-Ax asynchronous controllers installed in systems running OpenVMS V6.2-1H3 require a VMS Tima Kit: ALPCPU1603_062. Digiboard drivers are also available at: <http://www.dgii.com>

Step 6—Networks and Communications (continued)

O/S Support required: Digital UNIX V4.0B, OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
PBXDP-AA	PCI-based 2 port Synchronous controller, X.25, SNA	2	4
PBXDP-AB	PCI-based 4 port Synchronous controller	2	4
PBXDP-AC	PCI-based 8 port Synchronous controller	2	4
BC33L-06	EIA-232/V24/V28 Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33M-06	EIA-422 (EIA-530/V.11/X.27) Interface cable MD25 pin to DB25 for PBXDP-AA/AB/AC		
BC33N-06	EIA-423 (V.10) Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33P-06	EIA-449 Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33R-06	EIA-485 Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33T-06	V.35 Interface cable MD25 pin to Winchester Male for PBXDP-AA/AB/AC		
BC33S-06	X.21 Interface cable MD25 pin to DA15 for PBXDP-AA/AB/AC		
BC33P-06	EIA-449 Interface cable MD25 pin to DC37 for PBXDP-AA		
BC33U-06	EIA-232 to X.21 MD25F to DA15M for PBXDP-AB/AC		
BC33V-06	EIA-232 to EIA-422/530 Adapter MD25F to DB25M for PBXDP-AB/AC		
BC33W-06	EIA-232 to EIA-449/V.36 Adapter MD25F to DC37M for PBXDP-AB/AC		
BC33Y-06	EIA-232 to V.35 Adapter MD25 to Winchester Male for PBXDP-AB/AC		
O/S Support required: Digital UNIX V3.2G, OpenVMS V6.2-1H3			
Order Number		4x00-8 slots	4000-16 slots
SN-PBXNP-AC	PCI-based Token Ring adapter	4	4
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection		
O/S Support required: Digital UNIX V3.2F/V3.2G		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DGLPA-FA	PCI-based ATMworks 351 Adapter MMF, SC connector	1	1
DGLPA-UA	PCI-based ATMworks 351 Adapter UTP CAT-5 with RJ45 connector	1	1
O/S Support required: Digital UNIX V3.2F/V3.2G		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
CXI01-AA	ISA-based asynchronous multiport MUX 16 port XEM	1	1
CXI01-AC	ISA-based asynchronous MUX cable converter RJ45 to DB25	1	1
CXI01-AF	Eight RJ45 to DEC MJII adapters	1	1

Step 6a—MEMORY CHANNEL Controller**DIGITAL UNIX Systems**

- Require DIGITAL UNIX V3.2G or later and System Console Firmware Revision 2.0.
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.

OpenVMS Systems

- Require OpenVMS V7.1 and OpenVMS Cluster license

Configuring information:

- Two PCI to MEMORY CHANNEL Controllers (CCMAA-BA) supported for redundancy/failover.
- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to directly connect adapters.
- For three or four system nodes order one CCMHA-AA (MEMORY CHANNEL Hub), and one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.
- Maximum two CCMAA-BA supported per System Drawer.

Nodes	MEMORY CHANNELs	MEMORY CHANNEL Hubs	Line Cards
2	2 CCMAA-BA		
3-4	3-4 CCMAA-BA	1 CCMHA-AA	
5-8	5-8 CCMAA-BA	1 CCMHA-AA	1-4 CCMLA-AA

CCMAA-BA PCI to MEMORY CHANNEL Controller —Single port MEMORY CHANNEL option

CCMHA-AA 100 MB MEMORY CHANNEL Hub with 4 Line Cards

CCMLA-AA MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)

CCMRA-AA Rackmount kit for mounting MEMORY CHANNEL hub

BC12N-10 MEMORY CHANNEL cable

QB-3RLAG-KA TruCluster Software for DIGITAL UNIX; includes TruCluster and Memory Channel licenses

QB-4ZCAG-AA DIGITAL UNIX Driver for MEMORY CHANNEL license; not required if QB-3RLAG-KA selected

QL-MUZAG-AA OpenVMS Cluster license for Alpha systems

Note: For stand alone configurations, CCMHA-AA MEMORY CHANNEL Hub, includes BN19P-2E power cord for Canada, Japan, US operation. For other regions, order power cords from Step 9.

In rackmount configurations MEMORY CHANNEL controller requires 4U of space.

Step 7—Monitors

- Systems do not include a graphics adapter. See Step 8 for recommended Graphics adapters.
- Windows NT systems require a graphics option and monitor to run all functions.
- All console functions, including RAID Configuration Utility (RCU), can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, or VT5xx) connected to one of system serial ports on DIGITAL UNIX and OpenVMS systems.
- Graphics monitors other than those listed below can be used if compatible with SVGA graphics ordered with a system.

Note: Selection of a video extension cable and a country specific power cord is **mandatory** for all monitor variants.
 See Step 7a for video extension cable
 See Step 7b for country specific power cords

SN-VRQV5-24/23	15" (13.8" viewable image size) Corporate Series auto-scan color monitor, flat square Invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 75 Hz, TCO 95, MPRII, Energy Star, attached 1.8 m video cable. Requires mandatory selection of video extension cable and country specific power cords for all variants. -24 = Northern Hemisphere without power cord -23 = Southern Hemisphere without power cord
SN-VRQP7-24/23	17" (16.0" viewable image size) professional series auto-scanning color monitor, Diamondtron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 at 75 Hz, TCO 95, MPR-II, Energy Star, attached 1.8 m video cable. Requires mandatory selection of video extension cable and country specific power cords for all variants. -24 = Northern Hemisphere without power cord -23 = Southern Hemisphere without power cord
SN-VRQP1-24/23	21" (19.6" viewable image size) professional series auto-scanning color monitor, Diamondtron CRT, 0.25 mm aperture grill pitch, VGA to 1600 x 1200 at 75 Hz NI, TCO 98, Energy Star, includes a 1.8 m video cable. Requires mandatory selection of video extension cable and country specific power cords for all variants. -24 = Northern Hemisphere without power cord -23 = Southern Hemisphere without power cord

Step 7a—Video Extension Cable

BN39C-02	1.8 m video extension cable—mandatory for each monitor ordered
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Step 7b—Monitor Power Cords

BN26J-1K	North America
BN19A-2E	UK/Ireland/Hong Kong
BN19C-2E	Central Europe
BN19E-2E	Switzerland
BN19H-2E	Australia/New Zealand
BN19K-2E	Denmark
BN18L-2E	Israel
BN19Z-2E	Italy
BN19S-2E	India/South Africa

Step 8—Graphics Adapters

- Systems do not include an embedded graphics adapter.
- Universal Windows NT systems require a graphics option and monitor to run all functions.
- Select graphics adapter for DIGITAL UNIX and OpenVMS systems if required.

Graphics Adapters—Operating System Support required		DIGITAL UNIX	OpenVMS	Windows NT
PB2GA-JC	S3 TRIO 1 MB RAM Entry 2D graphics adapter	V4.0D	V7.1-1H1	3.51, 4.0
PB2GA-JD	S3 TRIO 2 MB RAM Entry 2D graphics adapter	V4.0D	V7.1-1H1	3.51, 4.0
SN-PBXGB-CA	PowerStorm 4D20 graphics, 16 MB texture memory 1600 x 1200, Fast 2D, Entry 3D, OpenGL	V4.0D	—	—
SN-PBXGI-AD	PowerStorm 4D51T 3D Graphics, 16 MB texture memory 1280 x 1024, High Performance 3D shading, texture mapping, OpenGL	V4.0B	—	4.0

Graphics Adapter Upgrade Kit for 3D High Performance Graphics

PowerStorm 40D51T high-performance 3D graphics adapter requires a 3.3 volt saddle (B3052) for 4x00 System Drawers.

- Existing System users who require 3D graphics functionality must order a Graphics Adapter Upgrade Kit (304XU-2W). Upgrade kit includes B3052 saddle and the SN-PBXGI-AD graphics adapter with license, media, and documentation. Available as a Field Upgrade only.
- Current Systems ship with the 3.3 volt saddle included, systems are labeled “B3052 Installed.” These systems only require the SN-PBXGI-AD graphics adapter.

Graphics Adapter Upgrade Kit—Operating System Support required		DIGITAL UNIX	OpenVMS	Windows NT
304XU-2W	Field Upgrade for PowerStorm 4D51T 3D Graphics, 16 MB texture memory 1280 x 1024	V4.0B	—	4.0

Step 9—Keyboards and Power Cords

System ordered in the Americas and Asia Pacific includes keyboard, mouse and power cords. Select country-specific keyboard for all Pedestal and Cabinet systems in other countries. All keyboards are opal grey.

DIGITAL UNIX Keyboard	OpenVMS Keyboard	Country
SN-LKQ47-AA	LK461-AA	US/English
SN-LKQ47-AB	LK461-AB	Belgian
SN-LKQ47-AC	LK461-AC	Canadian/French
SN-LKQ47-AD	LK461-AD	Danish
SN-LKQ47-AE		UK
SN-LKQ47-AF	LK461-AF	Finnish
SN-LKQ47-AG	LK461-AG	German
	LK461-AH	Dutch
SN-LKQ47-AI	LK461-AI	Italian
SN-LKQ47-AK	LK461-AK	Swiss/French
	LK461-AL	Swiss/German
SN-LKQ47-AM	LK461-AM	Swedish
SN-LKQ47-AN	LK461-AN	Norwegian
SN-LKQ47-AP	LK461-AP	French
	LK461-AQ	Canadian/English
SN-LKQ47-AR		Latin-American
SN-LKQ47-AS	LK461-AS	Spanish
	LK461-AT	Hebrew
SN-LKQ47-AV	LK461-AV	Portuguese
SN-LKQ47-AX		Bheshy
SN-LKQ47-BA		International
SN-LKQ47-BH	LK461-BH	Greek
SN-LKQ47-BI		Taiwanese
SN-LKQ47-BK		Korean
	LK461-BL	Romanian
SN-LKQ47-BP	LK461-BP	Polish
SN-LKQ47-BQ	LK461-BQ	Hungarian
SN-LKQ47-BR		Arabic
SN-LKQ47-BT	LK461-BT	Cyrillic
SN-LKQ47-BU	LK461-BU	Turkish
SN-LKQ47-BV	LK461-BV	Czech
	LK461-BW	Turkish-French
	LK461-BY	Yugoslavian
SN-LKQ47-CB		Thai
SN-LKQ47-CZ	LK461-CZ	Slovak

Power Cords—Quantity of two required for Pedestals

BN19A-2E	UK/Ireland/Hong Kong
BN19C-2E	Central Europe
BN19E-2E	Switzerland
BN19H-2E	Australia/New Zealand
BN19K-2E	Denmark
BN18L-2E	Israel
BN19Z-2E	Italy
BN19S-2E	India/South Africa

Step 10—Terminals and Printers

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors, and two 9-pin to MMJ adapters (H8571-J).

DIGITAL UNIX and OpenVMS systems

Console terminals can either be a graphics monitor connected to a graphics adapter or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT220, VT320, VT420, or VT520 compatible. Select terminals, printers, and cables as required.

Step 11—Software

Windows NT

AlphaServer 4000/41000 DIGITAL UNIX and OpenVMS to Windows NT Migration

DIGITAL also offers the DIGITAL Servers line (white boxes) of Intel and Alpha servers designed specifically to run Windows NT. For users who only want to run Windows NT, these systems should be the primary choice.

DIGITAL Mid-range AlphaServers continue to deliver on the Universal Platform Guarantee: that DIGITAL AlphaServers support any of the three operating systems offered by DIGITAL. The Universal AlphaServers (blue boxes) running DIGITAL UNIX or OpenVMS can also run Windows NT. AlphaServer 4100/4000 systems can migrate from DIGITAL UNIX or OpenVMS to Windows NT Server with a simple license and software change. DIGITAL offers Windows NT Server 4.0 Enterprise Edition Conversion kits with installation and services by a team of qualified DIGITAL professionals to make this system migration easy and timely.

To migrate from an AlphaServer 4100/4000 DIGITAL UNIX or OpenVMS system to a Windows NT System, order a Windows NT Server V4.0 Enterprise Edition Conversion Kit. The conversion kit contains all software media, license, documentation, and HAL kit required to install Windows NT Server 4.0 Enterprise Edition onto an AlphaServer System. The conversion kit is available in the 5 most popular languages: English, Japanese, French, Spanish and German.

Note that some options currently supported on DIGITAL UNIX and/or OpenVMS operating systems are not supported on Windows NT Servers. Refer to the Supported Options List on the Web for AlphaServer 4100 Windows NT supported hardware at URL= http://www.digital.com/alphaserver/tech_docs/alphasrv4100/docs/supported_options.html

AlphaServer 4000/4100 Windows NT Server 4.0 Enterprise Edition Conversion Software Kits

Windows NT Enterprise Edition Conversion Kits include all software media, license, documentation, and HAL kit required to install and operate Windows NT Server 4.0 Enterprise Edition. Conversion kit supports Mid-range AlphaServer Systems listed on Microsoft Hardware Compatibility List (HCL). The conversion kit includes an 8-way SMP server license plus 25 Client Access Licenses (CALs).

Note: DIGITAL Services is **mandatory** to install the conversion options at the end user's location. Windows NT migration requires an SVGA video monitor and keyboard unless available on site.

QB-5Z6AB-WA	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer–English
QB-5Z6JB-WA	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer–Japanese
QB-5Z6PB-WA	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer–French
QB-5Z6SB-WA	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer–Spanish
QB-5Z6GB-WA	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer–German

Step 11—Software (continued)
DIGITAL Services Installation

DIGITAL Services Installation is **mandatory** for all AlphaServer system conversions to Windows NT systems. DIGITAL Services will install conversion options at end user's location. Contact a DIGITAL Services representative for assistance in determining whether services other than the base installation service indicated below is appropriate for customer situation.

QR-SMWNT-BA Windows NT Server 4.0 Enterprise Edition Base I & S Package

Windows NT systems

Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is mandatory.

Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kits

QB-23CAA-SE Windows NT Server license, media kit—English
QB-23C8A-SE Windows NT Server license, media kit—International English
QB-23CPA-SE Windows NT Server license, media kit—French
QB-23CGA-SE Windows NT Server license, media kit—German
QB-23CSA-SE Windows NT Server license, media kit—Spanish

Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kits

QB-23CUA-SE Windows NT Server license, media kit—Italian
QB-23CJA-SE Windows NT Server license, media kit—Japanese
QB-23CMA-SE Windows NT Server license, media kit—Swedish
QB-23CHA-SE Windows NT Server license, media kit—Dutch
QB-23C4A-SE Windows NT Server license, media kit—Korean
QB-23C3A-SE Windows NT Server license, media kit—Taiwanese
QB-23C2A-SE Windows NT Server license, media kit—PRC Chinese
QB-23CTA-SE Windows NT Server license, media kit—Hebrew
QB-23CQA-SE Windows NT Server license, media kit—Arabic
QB-23C5A-SE Windows NT Server license, media kit—Thai

Step 11—Software (*continued*)**DIGITAL UNIX****Software Processor Code = G for all software, 1-4 processors**

- DIGITAL UNIX systems include Traditional unlimited user license (QL-MT7AG-AA), and DIGITAL UNIX Server Extensions (QL-MT6AG-AA).
- DIGITAL UNIX Packaged and Base systems require operating system media and documentation for first system on site (QA-MT4AA-H8).
- Internet Tools software includes NetScape Enterprise Server (QB-3PBAB-WB), Internet Innovators Solutions for DIGITAL UNIX (QC-02NAB-H8), Internet AlphaServer Administration (QB-3NCAA-SA).

QL-MT5AG-AA DIGITAL UNIX developer's extension license

DIGITAL UNIX Media and Documentation

QA-MT4AA-H8 DIGITAL UNIX media and on-line documentation on CD-ROM

QA-MT4AA-GZ DIGITAL UNIX full hardcopy documentation

DIGITAL UNIX Layered Products CD-ROM

QA-054AA-H8 Layered products media and documentation for DIGITAL UNIX on CD-ROM

DECnet Licenses

QL-MTJAG-AA DECnet/OSI end-system license for DIGITAL UNIX

OpenVMS**Software Processor Code = G for all software, 1-4 processors**

- OpenVMS systems include OpenVMS AlphaServer Base license (QL-MT1AG-6L or QI-MT1AG-6M) and DIGITAL Enterprise Integration Package V2.0 (QP-5LVAG-AC)
 - DIGITAL Enterprise Integration Package includes licenses for DIGITAL TCP/IP Services for OpenVMS, DECwindows Motif for OpenVMS Alpha, DECprint Supervisor for OpenVMS Alpha Plus, DECprint Supervisor for OpenVMS Open, DECnet-Plus for OpenVMS Alpha End System, Archive/Backup System for OpenVMS Management Tools, Archive/Backup Agent for Windows NT, Datametrics ViewPoint Data Collector, DIGITAL OpenVMS Disk Services for Windows NT, DIGITAL Office Server for OpenVMS, DIGITAL PATHWORKS 32, PATHWORKS V6 for OpenVMS (Advanced Server), and DIGITAL Office Server Client Access License.

OpenVMS Concurrent Use Licenses

- OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system.
- OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K OpenVMS Concurrent Use 256-user license
QL-MT2AG-AA OpenVMS Traditional unlimited user license

Step 11—Software (*continued*)

OpenVMS Media and Documentation

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-09SAA-GZ	OpenVMS base hardcopy documentation

OpenVMS Layered Products CD-ROM

QA-03XAA-H8¹ Layered products media and documentation for OpenVMS on CD-ROM

1. Includes DIGITAL Enterprise Integration Server for OpenVMS media and documentation.

DECnet Licenses

QL-MTGAG-AA	DECnet extended function license for OpenVMS
QL-MTHAG-AA	DECnet end-system to extended function upgrade license for OpenVMS

Step 12—Hardware and Software Warranty and Supplemental Services

Hardware Warranty

The AlphaServer 4100/4000 System Drawer and components installed in the System Drawer (CPU, memory, PCI controllers, power supplies) have a 3-year onsite, 5-day per week, 9-hour per day hardware warranty, with next day response time.

StorageWorks components contained in the Pedestal or Cabinet Systems are supported by the comprehensive StorageWorks Warranty: 5-years for disks, 3-years for controllers, 2-years for tape devices, and 1-year for other components. The first year includes onsite next day response time.

Network products in the Pedestal or Cabinet Systems carry the Network Products Warranty.

Users can upgrade to higher levels of service through a variety of hardware supplemental services.

Software Warranty

- Software warranty:
 - Warranty on DIGITAL UNIX and OpenVMS software is conformance to SPD with advisory telephone support for a period of ninety days.
 - Warranty on the Microsoft Windows NT Server 4.0 software is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX include advisory and remedial software support with new version license rights for operating system for the time period indicated.
- Software service upgrades for OpenVMS include advisory and remedial software support with new version license rights for operating system and Enterprise Integration Package for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

Value Added Services

The AlphaServer support plan is designed to accommodate critical system availability needs. The comprehensive suite of recommended services will maximize uptime and satisfaction, by enabling customers to select, at the time of their system purchase, the appropriate level of support for their information technology (IT) and business environment.

The AlphaServer Support Plan builds on the foundation of Installation and Supplemental Services to include Startup Services, Silver/Gold Support, System Healthcheck, and Availability Review/Partnership.

Step 12—Hardware and Software Warranty and Supplemental Services (*continued*)
Installation

It is recommended that onsite installation service be included as a separate entry on any quotation.

FM-4XPCI-IN	PCI I/O expansion option installation
FM-51CPU-IN	Add-on SMP Installation
FM-51MEM-IN	Add-on Memory Installation
FM-51DWR-IN	AlphaServer 4100/4000 Drawer Installation
FM-51PED-IN	AlphaServer 4100/4000 Pedestal Installation
FM-51CAB-IN	AlphaServer 4100/4000 Cabinet Installation
FM-TRAVL-IN	One time travel charge per installation

AlphaServer 4100/4000 Software Support Supplemental Services**Windows NT**

FM-WNTO2-12	1-year, Software Support Supplemental Service
FM-WNTO2-36	3-year, Software Support Supplemental Service
FM-WNTO2-60	5-year, Software Support Supplemental Service

For additional Hardware and Software supplemental services assistance, call 1-800-DIGITAL and request Americas Multi-vendor Customer Services (AMCS) support.

AlphaServer 4000 DIGITAL UNIX

FM-40UNS-12	1-year, Full Software Support Supplemental Service
FM-40UNS-36	3-year, Full Software Support Supplemental Service
FM-40UNS-60	5-year, Full Software Support Supplemental Service
FM-40UNN-12	1-year, Node Software Support Supplemental Service
FM-40UNN-36	3-year, Node Software Support Supplemental Service
FM-40UNN-60	5-year, Node Software Support Supplemental Service

AlphaServer 4100 DIGITAL UNIX

FM-41UNS-12	1-year, Full Software Support Supplemental Service
FM-41UNS-36	3-year, Full Software Support Supplemental Service
FM-41UNS-60	5-year, Full Software Support Supplemental Service
FM-41UNN-12	1-year, Node Software Support Supplemental Service
FM-41UNN-36	3-year, Node Software Support Supplemental Service
FM-41UNN-60	5-year, Node Software Support Supplemental Service

AlphaServer 4000 OpenVMS

FM-40VMS-12	1-year, Full Software Support Supplemental Service
FM-40VMS-36	3-year, Full Software Support Supplemental Service
FM-40VMS-60	5-year, Full Software Support Supplemental Service
FM-40VNS-12	1-year, Node Software Support Supplemental Service
FM-40VNS-36	3-year, Node Software Support Supplemental Service
FM-40VNS-60	5-year, Node Software Support Supplemental Service

Step 12—Hardware and Software Warranty and Supplemental Services (*continued*)
AlphaServer 4100 OpenVMS

FM-41VMS-12	1-year, Full Software Support Supplemental Service
FM-41VMS-36	3-year, Full Software Support Supplemental Service
FM-41VMS-60	5-year, Full Software Support Supplemental Service
FM-41VNS-12	1-year, Node Software Support Supplemental Service
FM-41VNS-36	3-year, Node Software Support Supplemental Service
FM-41VNS-60	5-year, Node Software Support Supplemental Service

DIGITAL UNIX or OpenVMS SMP Upgrade

FM-51VMP-12	1-year, DIGITAL UNIX or OpenVMS SMP Upgrade
FM-51VMP-36	3-year, DIGITAL UNIX or OpenVMS SMP Upgrade
FM-51VMP-60	5-year, DIGITAL UNIX or OpenVMS SMP Upgrade

AlphaServer 4100/4000 Pedestal or Cabinet Enclosure with first System Drawer

FM-5BXHW-60	5-year 5 x 9, next day, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B4HR-36	3-year 5 x 9, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B4HR-60	5-year 5 x 9, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B512-36	3-year 5 x 12, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B512-60	5-year 5 x 12, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B616-36	3-year 6 x 16, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B616-60	5-year 6 x 16, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B724-36	3-year 7 x 24, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B724-60	5-year 7 x 24, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5HXHW-60	5-year 5 x 9, next day, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H4HR-36	3-year 5 x 9, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H4HR-60	5-year 5 x 9, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H512-36	3-year 5 x 12, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H512-60	5-year 5 x 12, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H616-36	3-year 6 x 16, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H616-60	5-year 6 x 16, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H724-36	3-year 7 x 24, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H724-60	5-year 7 x 24, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5VXHW-60	5-year 5 x 9, next day, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V4HR-36	3-year 5 x 9, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V4HR-60	5-year 5 x 9, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V512-36	3-year 5 x 12, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V512-60	5-year 5 x 12, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V616-36	3-year 6 x 16, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V616-60	5-year 6 x 16, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V724-36	3-year 7 x 24, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V724-60	5-year 7 x 24, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet

Step 12—Hardware and Software Warranty and Supplemental Services (*continued*)
AlphaServer 4100/4000 Memory

FM-5LXHW-60	5-year 5 x 9, next day, 128 / 512 MB Memory option
FM-5L4HR-36	3-year, 5 x 9, four hour, 128 / 512 MB Memory option
FM-5L4HR-60	5-year, 5 x 9, four hour, 128 / 512 MB Memory option
FM-5L512-36	3-year 5 x 12, four hour, 128 / 512 MB Memory option
FM-5L512-60	5-year 5 x 12, four hour, 128 / 512 MB Memory option
FM-5L616-36	3-year 6 x 16, four hour, 128 / 512 MB Memory option
FM-5L616-60	5-year 6 x 16, four hour, 128 / 512 MB Memory option
FM-5L724-36	3-year 7 x 24, four hour, 128 / 512 MB Memory option
FM-5L724-60	5-year 7 x 24, four hour, 128 / 512 MB Memory option
FM-5QXHW-60	5-year 5 x 9, next day, 1 GB Memory option
FM-5Q4HR-36	3-year, 5 x 9, four hour, 1 GB Memory option
FM-5Q4HR-60	5-year, 5 x 9, four hour, 1 GB Memory option
FM-5Q512-36	3-year 5 x 12, four hour, 1 GB Memory option
FM-5Q512-60	5-year 5 x 12, four hour, 1 GB Memory option
FM-5Q616-36	3-year 6 x 16, four hour, 1 GB Memory option
FM-5Q616-60	5-year 6 x 16, four hour, 1 GB Memory option
FM-5Q724-36	3-year 7 x 24, four hour, 1 GB Memory option
FM-5Q724-60	5-year 7 x 24, four hour, 1 GB Memory option
FM-5TXHW-60	5-year 5 x 9, next day, 2 GB Memory option
FM-5T4HR-36	3-year, 5 x 9, four hour, 2 GB Memory option
FM-5T4HR-60	5-year, 5 x 9, four hour, 2 GB Memory option
FM-5T512-36	3-year 5 x 12, four hour, 2 GB Memory option
FM-5T512-60	5-year 5 x 12, four hour, 2 GB Memory option
FM-5T616-36	3-year 6 x 16, four hour, 2 GB Memory option
FM-5T616-60	5-year 6 x 16, four hour, 2 GB Memory option
FM-5T724-36	3-year 7 x 24, four hour, 2 GB Memory option
FM-5T724-60	5-year 7 x 24, four hour, 2 GB Memory option

AlphaServer 4100/4000 CPU Add-on Options

FM-5JXHW-60	5-year 5 x 9, next day, CPU SMP Add-on option
FM-5J4HR-36	3-year, 5 x 9, four hour, CPU SMP Add-on option
FM-5J4HR-60	5-year, 5 x 9, four hour, CPU SMP Add-on option
FM-5J512-36	3-year 5 x 12, four hour, CPU SMP Add-on option
FM-5J512-60	5-year 5 x 12, four hour, CPU SMP Add-on option
FM-5J616-36	3-year 6 x 16, four hour, CPU SMP Add-on option
FM-5J616-60	5-year 6 x 16, four hour, CPU SMP Add-on option
FM-5J724-36	3-year 7 x 24, four hour, CPU SMP Add-on option
FM-5J724-60	5-year 7 x 24, four hour, CPU SMP Add-on option

AlphaServer 4100/4000

Specifications

External Dimensions	Pedestal System		Cabinet System		System Drawer	
Height	75 cm (29.5 in)		H9A10 M-Series 170 cm (67.0 in)		30 cm (11.8 in)	
Width	49 cm (19.3 in)		60 cm (23.6 in) Rack		45 cm (17.7 in)	
Depth	90 cm (35.4 in)		90 cm (35.4 in)		69 cm (27.2 in)	
Weight	113.6 kg (250 lb)		350.9 kg (772 lb)		45.5 kg (100 lb)	
Height			H9A15 M-Series 200 cm (79.0 in)			
Width			60 cm (23.6 in) Rack			
Depth			90 cm (35.4 in)			
Weight			450 kg (1000 lb)			
Clearances	Operating/	Service	Operating/	Service	Operating/	Service
Front	20cm(7.9in)	61 cm(24.1 in)	60cm(23.6in)	100cm(39.4in)	20cm(7.9 in)	20cm(7.9in)
Rear	20cm(7.9in)	61 cm(24.1 in)	60cm(23.6in)	100cm(39.4in)	20cm(7.9 in)	20cm(7.9in)
Sides	20cm(7.9in)	61 cm(24.1 in)	20cm(7.9in)	61 cm(24.0in)	0	0
Environmental						
Temperature (min/max)						
Operating ¹	10°C - 40°C (50°F - 104°F)		10°C - 40°C (50°F - 104°F)		10°C - 40°C (50°F - 104°F)	
Nonoperating	-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40°F - 150.8°F)	
Storage (60 days)	-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40°F - 150.8°F)	
Rate of Change	11°C - 19.8°C/hr (20°F - 36°F/hr)		11°C - 19.8°C/hr (20°F - 36°F/hr)		11°C - 19.8°C/hr (20°F - 36°F/hr)	
Relative Humidity						
Operating	20% -90% noncondensing		20% -90% noncondensing		20% 90% noncondensing	
Nonoperating	10% -95%		10% -95%		10% -95%	
Storage (60 days)	10% -95%		10% -95%		10% -95%	
4100 Max Heat Dissipation	1800 ² W, 6143 BTU/hr		4800 W, 16382 BTU/hr		1100 W, 3754 BTU/hr	
4000 Max Heat Dissipation	1450 ² W, 6143 BTU/hr		4800 W, 16382 BTU/hr		700 W, 3754 BTU/hr	
Airflow						
Quantity	200 CFM		300 CFM ³		200 CFM	
Intake	Rear		Rear		Rear	
Exhaust	Front		Front and Top		Front	
Altitude						
Operating	3,050 m (10,000 ft)		3,050 m (10,000 ft)		3,050 m (10,000 ft)	
Nonoperating	12,200 m (40,000 ft)		12,200 m (40,000 ft)		12,200 m (40,000 ft)	
Mechanical Shock						
Operating	7.5 G, 10+/-3 ms		5 G, 10+/-3 ms		10 G, 10+/-3 ms	
Vibration (min/max)						
Operating	5-10 Hz	0.02 in-da	5-10 Hz	0.02in-da	5-10 Hz	0.02in-da
Acoustics	10-500 Hz	0.1 G	10-500 Hz	0.1 G	10-500 Hz	0.1 G
Electrical (min/max)						
	U.S.	Europe	U.S.	Europe		
Voltage	100-120 V	200-240 V	100-120 V	200-240 V	100-120/200-240 V	
Phase	Single	Single	Single	Single	Single	
Nominal Frequency	50 Hz -60 Hz	50 Hz -60 Hz	50 Hz -60 Hz	50 Hz -60 Hz	50 Hz -60 Hz	
Maximum rated current	12 A (multiple cord set)	10 A (multiple cord set)	24 + 24 A dual controllers	16 + 16 A dual controllers	8.4 A/4.2 A (single cord set) 8 A/4 A (multiple cord set)	
AlphaServer 4100 typical power	720 W	920 W	config-specific	config-specific	650 W	
AlphaServer 4000 typical power	550 W	550 W	config-specific	config-specific	430 W	
Power Cord Length	450 cm (177 in)	200-250 cm	450 cm (177 in)	450 cm	250 cm (98.4 in)	
Plug	NEMA 5-15P	Country specific	NEMA L5-30P	IEC309, 32A	IEC 320	

Specifications (continued)

Agency Approvals			
	CUL Marked for Canada 3 UL 1950, Ed.3 TUV EN 60 950/ A3 GS FCC part 15.B Class A verified CE Class A	cUL Marked for Canada 3 UL 1950, Ed.3 TUV EN 60 950/ A3 GS FCC part 15.B Class A verified CE Class A	cUL Marked for Canada 3 UL 1950, Ed.3 TUV EN 60 950/ A3 GS FCC part 15.B Class A verified CE Class A BCIQ CB Cert. UL, UL927- 44877/USA IEC 950 2 nd Ed. 3 rd Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 rd Ed. Rev July 1995, UL standard 73/23/EEC
	IEC 950 2 nd Ed. 3 rd Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 rd Ed. Rev July 1995, UL standard 73/23/EEC	IEC 950 2 nd Ed. 3 rd Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 rd Ed. Rev July 1995, UL standard 73/23/EEC	IEC 950 2 nd Ed. 3 rd Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 rd Ed. Rev July 1995, UL standard 73/23/EEC

1. Maximum operating temperature at sea level. Reduce by 1C (1.8F) for every 600 m (2000 ft) above sea level.
2. Maximum power consumption for two line cords. Cabinet fans only.
3. CSA has been replaced by CUL for Canada.
4. Australian C-Tick Mark submittals are in progress.