



AlphaServer 4100
V3.10 March 13, 2000
Systems and Options Catalog

Product Description

The AlphaServer 4100 mid-range, award winning servers deliver industry leading price/performance 5/600 MHz systems with 8 MB onboard cache. The AlphaServer 4100 is also offered with 5/533 MHz CPU and 4 MB onboard cache to complete the family line of EV56-based technology servers. System supports up to four CPU processors, up to four memory options, and eight PCI I/O slots.

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 Tru64 UNIX and OpenVMS systems, and mandatory for Universal Windows NT systems.

AlphaServer systems offer pedestal and rackmount configurations with a choice of Tru64 UNIX, OpenVMS, and Windows NT operating systems. Pedestal systems support one drawer and up to three StorageWorks shelves.

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 Compaq'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 for cabinet configuration.

AlphaServers continue to deliver on the Universal Platform Guarantee: that AlphaServers support any of the three operating systems offered by Compaq. The Universal AlphaServers in Top Gun Blue enclosures running Tru64 UNIX or OpenVMS can also run Windows NT. AlphaServer 4100 systems can migrate from Tru64 UNIX or OpenVMS to Windows NT Server with a simple license and software change. Compaq offers Windows NT Server 4.0 Enterprise Edition Conversion kits with installation and services by a team of qualified Compaq 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.

Compaq and the names of Compaq products referenced herein are either trademarks and/or service marks or registered trademarks and/or service marks of Compaq.

DIGITAL is a Trademark of Compaq Computer Corporation.

Microsoft, Windows, Windows NT, SQL Server, Office and BackOffice are either trademarks or registered trademarks of Microsoft Corporation.

Intel and Pentium are registered trademarks of Intel Corporation.

Other product and company names mentioned herein may be trademarks and/or service marks of their respective owners.

Step 1—AlphaServer 4100 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, 9.1 GB, or 18.2 GB disk* from Step 1c, and an 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.
 - 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
 - 5/600 MHz CPU, 8 MB secondary cache, or
 - 5/533 MHz CPU, 4 MB secondary cache
 - 8 PCI slots (eight available)¹
 - Onboard SCSI bus, supports internal removable media (CD-ROMs and tapes) only
 - 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. Service upgrades are available; see Step 14, Hardware and Software Supplemental Services.

Note: AlphaServer 4100 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.
-

AlphaServer 4100 Tru64 UNIX System Drawer—Selection of one System Drawer (8U) is required

Systems include pre-installed Tru64 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-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

Step 1a—AlphaServer 4100 Systems (*continued*)**AlphaServer 4100 OpenVMS System Drawer—Selection of one System Drawer (8U) is required**

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

Order Number	CPU	Cache	Memory	Disk	Disk Controller	Network Adapter	PCI Slots
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

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

Compaq's OEM license agreement for Windows NT mandates compliance with specific configuration rules:

- For factory installed systems, for the first Windows NT system drawer
 - Selection of language-specific Windows NT Server 4.0 license/media (CD-ROM) kit is mandatory, see Step 12.
 - Selection of system disk drive is mandatory, see Step 1c.
- For field installation of 2nd, 3rd, or 4th Windows NT system drawer
 - Selection of DS-RZ1CB-NT package which includes the system disk drive and Windows NT base server license is mandatory.
- Order additional mandatory items from Step 1c.

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

AlphaServer 4100 to EV6 Technology Upgrades

System upgrades include pre-installed base license for Open VMS and Tru64 UNIX systems. Order Mandatory language-specific license for Windows NT systems.

Note: The installation of the EV6 (ES40) System Drawer into an existing AlphaServer 4100 M-series Cabinet requires mandatory selection of a Cabinet Extender Kit.

Order Number	CPU/Cache	Memory	Disk	Disk Controller	Network Adapter	PCI Slots	Mandatory Extender Kit
DA-51MGA-AA	6/500 4MB	1GB	included	included	included	10	H9C10-TE H9C15-TE
DY-51MGA-AA	6/500 4MB	1GB	included	included	included	10	H9C10-TE H9C15-TE
DN-51MGA-AA	6/500 4MB	1GB	included	included	included	10	H9C10-TE H9C15-TE
DA-51MJA-AA	6/500 4MB	1GB	included	included	included	10	*
DY-51MJA-AA	6/500 4MB	1GB	included	included	included	10	*
DN-51MJA-AA	6/500 4MB	1GB	included	included	included	10	*

Note: Pedestal systems include pedestal enclosure.

Step 1b—Pedestal and Cabinet Enclosures

Configurations require the **mandatory** selection of a Pedestal or Cabinet enclosure.

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

M-series Cabinet Enclosures

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

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 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.

Note: Order a Mounting Kit for each system installed in a Cabinet Enclosure.

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)

Cabinet Configuration Chart for AlphaServer 4100 (8U) with StorageWorks Shelves (4U)

Cabinet Enclosure	Mounting Kit	Cabinet Height and Space		Drawers	Shelves	Ballast Kit
H9A10-MC/MD	CK-BA30A-BA/BB	54.2 inches	31U	1	6 ¹	
				2	6 ²	
				3	2 ³	
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1	6 ¹	1 ⁵
				2	6 ²	
				3	6 ³	
				4	2 ⁴	

1. One single-bus shelf (BA36R-RC) is required to support one system disk drive.
2. One split-bus shelf (BA36R-RD) is required to support two system disk drives, one disk per system.
3. One single-bus and one split-bus shelf are required to support three system disk drives, one disk per system.
4. Two split-bus shelves are required to support four system disk drives, one disk per system.
5. If only one drawer is ordered, one ballast kit is mandatory.

Step 1b—Pedestal and Cabinet Enclosures (*continued*)**Cabinet Configuration Chart for AlphaServer 4100 (8U) with StorageWorks RA3000 and disk shelves (12U)**

- 12U of vertical cabinet space are reserved for one RA3000 controller shelf and up to five disk shelves mounted in top of cabinet, front to back. An additional 2U of vertical space is required for RA3000 controller shelf UPS.
- Disk shelves can be a combination of RA3000 DS-SWXRA-GN disk shelves and StorageWorks BA36R-RC/RD disk shelves.
 - RA3000 controller shelf supports up to a maximum of four DS-SWXRA-GN disk shelves.
 - The third and fourth DS-SWXRA-GN disk shelf ordered will be installed in rear of an M-series cabinet. Rear mounted shelves requires a 2 meter SCSI cable; order BN37A-02 SCSI cable separately for installation of third and fourth disk shelves in rear of cabinet.
- Systems are supported in remaining vertical space.

Cabinet Enclosure	Mounting Kit	Cabinet Height and Space		Drawers	RA3000 + Shelves	Ballast Kit
H9A10-MC/MD	CK-BA30A-BA/BB	54.2 inches	31U	1	1 + 5 ¹	
				2	1 + 5 ²	
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1	1 + 5 ¹	1 ⁴
				2	1 + 5 ²	
				3	1 + 5 ³	

1. One single-bus shelf (BA36R-RC) is required to support one system disk drive.
2. One split-bus shelf (BA36R-RD) is required to support two system disk drives, one disk per system.
3. One single-bus and one split-bus shelf is required to support three system disk drives, one drive per system.
4. If only one drawer is ordered, one ballast kit is mandatory.

Cabinet Configuration Chart for AlphaServer 4100 (8U) with StorageWorks BA370 (20U)

- 20U of vertical cabinet space is reserved for one front mounted BA370 Rackmount enclosure, or one front mounted and one rear mounted BA370 enclosure in top of cabinet, front to back. Note: Top Fan (1U) is removed from cabinet when BA370 Rackmount enclosure is installed
- A Rear Cabinet Extender is **mandatory** when a second BA370 is ordered. Select H9C10-TE Rear Cabinet extender for an H9A10, or H9C15-TE Rear Cabinet extender for H9A15 Cabinet. Rear Cabinet Extender provides 5.5-inches of depth to H9A10 or H9A15 cabinets.
- Systems and StorageWorks shelves are supported in remaining vertical space.
- StorageWorks shelves are not supported in rear of Cabinet behind a front mounted BA370 Rackmount enclosure.

Cabinet Enclosure	Mounting Kit	Cabinet Height and Space		Drawers	BA370	Shelves
H9A10-MC/MD	CK-BA30A-BA/BB	54.2 inches	31U	1	1 Front BA370	2 ¹
				1	1 Front & 1 Back BA370	2 ¹
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1	1 Front BA370	4 ¹
				1	1 Front & 1 Back BA370	2 ¹
				2	1 Front BA370	2 ²
				2 ³	1 Front & 1 Back BA370	1 ²

1. One single-bus shelf (BA36R-RC) is required to support one system disk drive.
2. One split-bus shelf (BA36R-RD) is required to support two system disk drives, one disk per system.
3. Requires Power Distribution Units to be mounted front and rear.

M-series Cabinet Enclosure Options

For custom integration of systems, options, and additional Compaq and third party devices, or for other cabinets, doors, and trim kits of a different color, contact Compaq CustomSystems at 1-800-AT-COMPAQ (1-800-282-6672), or contact your local authorized Compaq Certified Integration Partner.

 Step 1b—Pedestal and Cabinet Enclosures (*continued*)
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

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

For configurations that may require additional onsite re-configuration, see Step 14 for Value Added Services. For custom integration of systems, options, and additional Compaq and third party devices, or for other cabinets, doors, and trim kits of a different color, contact Compaq CustomSystems at 1-800-AT-COMPAQ (1-800-282-6672), or contact your local authorized Compaq Certified Integration Partner.

Rackmounted System Management Station for M-series cabinets.

- Order one retractable 14.5in. opal flat panel display, (332662-001). Occupies 2U when retracted; flips up when removed from cabinet.
- Order one blue keyboard, mouse and shelf (2T-IODEV-LB), 1U
- Order one 4 or 8 port switch: (2T-AIOSW-B4 or 2T-AIOSW-B8). Fits in space behind keyboard
- For each server order one 12 ft. switch-to-server cable (2T-ACCSW-12).
- Field installed only; for factory installation please contact Custom Systems Integration Services.

2T-AIOSW-B4 4 port 1U KVM switch. Blue

2T-AIOSW-B8 8 port 1U KVM switch. Blue

332662-001 3R-A0464-AA Retractable 14.5in opal, 2461 Flat Panel Screen A0464

2T-IODEV-LB 1U Rackmount keyboard and mouse Blue with shelf

2T-ACCSW-12 12ft. KVM switch to server cable

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.
- Selection of a SCSI cable to connect UltraSCSI shelf to SCSI adapter is mandatory.
- Selection of a graphics adapter mandatory for Windows NT systems and recommended for Tru64 UNIX and OpenVMS systems.

Select one System Disk Drive—Mandatory

Order Number	System Disk and Minimum O/S version supported	Tru64 UNIX	OpenVMS	Windows NT
DS-RZ1DA-VW ¹	9.1 GB UltraSCSI 7200 RPM hard disk drive	V4.0B	V7.1-1H1	4.0
DS-RZ1DD-VW ¹	9.1 GB UltraSCSI 10000 RPM disk drive	V3.2G	V6.2-1H3	4.0
DS-RZ1EA-VW ²	18.2 GB UltraSCSI 7200 RPM hard disk drive	V4.0B	V7.1-1H1	4.0
DS-RZ1ED-VW ²	18.2 GB UltraSCSI 10000 RPM disk drive	V3.2G	V6.2-1H3	4.0
DS-RZ1FB-VW ²	36.4 GB UltraSCSI 7200 RPM hard disk drive	V4.0B	V7.1-1H1	4.0

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 Storage RAID 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 cables required.

Order Number	SCSI Adapter and Minimum O/S version supported	Tru64 UNIX	OpenVMS	Windows NT
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	4.0
KZPBA-CA	PCI-based one port UltraSCSI Single-ended adapter	V3.2G	V6.2-1H3	3.51
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	3.51
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	3.51
KZPAC-CB ^{1,2}	Same as –CA above with 8 MB cache memory	V3.2G	V6.2-1H3	3.51

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 and 36.4 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	Tru64 UNIX	OpenVMS	Windows NT
DE500-BA	PCI-based 10/100 Mbit Fast Ethernet adapter Cat 5 UTP	V4.0D	V7.1-1H1	4.0
DE504-BA	PCI-based 10/100 Mbit Quad Channel Ethernet adapter Cat 5 UTP	V4.0D	V7.1-1H1	4.0

Step 1c—Mandatory Options (*continued*)**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
Tru64 UNIX V4.0D	Tru64 UNIX V3.2G	Tru64 UNIX V3.2F	Tru64 UNIX V4.0D
OpenVMS V7.1-1H2	OpenVMS V7.1-1H1	OpenVMS V6.2-1H3	OpenVMS V7.1-1H1 with patch. Patches are available for V6.2

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

- AlphaServer 4100 System Drawer supports three additional CPUs
- 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 Tru64 UNIX V3.2G and V4.0B, OpenVMS V6.2-1H3 and V7.1-1H1, and Windows NT Server 4.0.

KN305-DB	Tru64 UNIX SMP upgrade includes one 5/533 (4MB) CPU and Tru64 UNIX SMP license
KN306-AB	Tru64 UNIX SMP upgrade includes one 5/600 (8MB) CPU and Tru64 UNIX 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
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 US from Step 10.

H7291-AA 450 Watt power supply

Power Supply Chart AlphaServer 4100	
1 st 450 W power supply (included)	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
3 rd 450 W power supply	Provides N+1 for up to 4 CPUs

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.
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 Compaq CustomSystems at 1-800-AT-COMPAQ (1-800-282-6672).

Step 4—Memory

AlphaServer 4100 memory options come in memory pairs. Do not mix 50 ns memory and 60 ns 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:
 - Tru64 UNIX and OpenVMS systems support a maximum of 8 GB of memory
 - Windows NT 3.51 supports a maximum of 2 GB memory
 - Windows NT 4.0 supports a maximum of 4 GB memory
- Note:** Windows NT is a 32-bit operating system that limits memory to a maximum of 4 GB on Windows NT 4.0.

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

MS330-EA	512 MB memory option (EDO, 60 ns)
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.

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.

Note: First Windows NT system drawer ordered for factory installation in a pedestal or cabinet includes Windows NT Server 4.0 installed on mandatory system hard disk drive, selected from Step 1c.
Each additional Windows NT system drawer ordered for field installation in a cabinet enclosure requires DS-RZ1CB-NT hard disk drive.

DS-RZ1CB-NT	4.3 GB UltraSCSI 7200 RPM disk drive (for Windows NT system drawers field installed in cabinet enclosure)
DS-RZ1DA-VW	9.1 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1DD-VW	9.1 GB 16-bit UltraSCSI 10000 RPM disk drive in top gun blue SBB
DS-RZ1EA-VW¹	18.2 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1ED-VW¹	18.2 GB 16-bit UltraSCSI 10000 RPM disk drive in top gun blue SBB
DS-RZ1FB-VW¹	32.4 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

- System Drawer includes CD-ROM drive in integral 5.25-inch drive slot connected to onboard 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 onboard 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-LB	12/24 GB 4 mm DAT 93 MB/min (compressed) internal narrow SCSI tape drive, frost white
3X-SD20X-LB	20/40GB DDS4 Tape TGB
3X-SZ35X-LB	35 GB 35/70 AIT internal tape drive 5.25" top gun blue carrier
3X-SZ50X-LB	50/100GB AIT Tape TGB

Step 5b—Removable Media (*continued*)

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/alphasrv4100/4100_options.html

Selection of an additional adapter/controller may be required; selection will be configuration dependent, call 1-800-AT-COMPAQ (1-800-282-6672) for configurations that 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 3.5" StorageWorks carrier
DS-AIT35-VW	35 GB 35/70 AIT Tape Drive in 3.5" SBB
DS-TLZ10-VA	12/24 GB 4 mm DAT narrow SCSI tape drive in 3.25" 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
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
- UltraSCSI drives and Fast10 devices can be mixed in BA36R-xx UltraSCSI shelf. Drives negotiate maximum transfer speeds with UltraSCSI adapter/controller.

StorageWorks UltraSCSI Shelf Kits

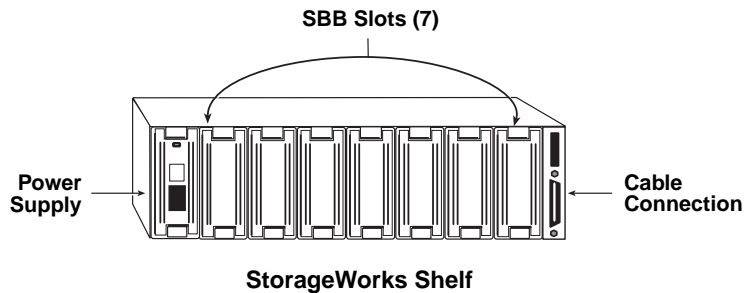
StorageWorks UltraSCSI Shelf kits include 16-bit UltraSCSI shelf and 16-bit UltraSCSI personality module with doc chip, and 180 Watt power supply in system building block (SBB), mounting hardware, and power cord. UltraSCSI shelves operate in UltraSCSI mode when connected to UltraSCSI KZPBA-CA adapters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

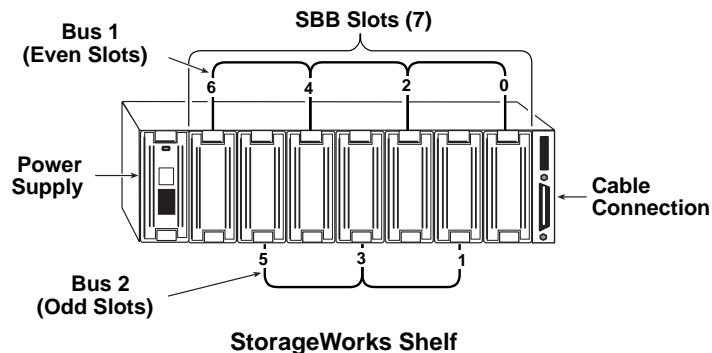
Step 5c—StorageWorks Shelves (*continued*)

- 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

Single Bus StorageWorks Shelf



Split Bus StorageWorks Shelf



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

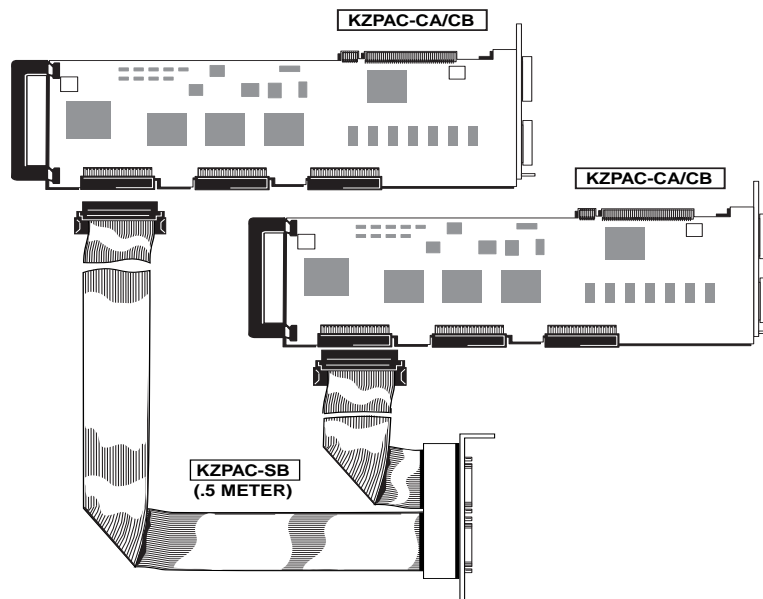
- Selection of one SCSI adapter/controller and a SCSI cable is mandatory for Pedestal or Cabinet Enclosure, see Step 1c.
- Additional adapters/controllers are supported.

O/S Support required : Tru64 UNIX V4.0D or OpenVMS V7.1-1H1 or Windows NT 4.0		Max # Supported
Order Number		4100 8-slots
KZPCM-DA	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet Combo adapter, uses 1 PCI slot	2
BN37A-03	3 m VHDCI male to VHDCI male UltraSCSI cable. Required for each UltraSCSI shelf attached to KZPCM.	
BN37A-05, -10	5–0 m VHDCI male to VHDCI male UltraSCSI cable	
O/S Support required : Tru64 UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Max # Supported
Order Number		4100 8-slots
KZPBA-CA	PCI-based one-port UltraSCSI Single-ended adapter	5
BN38C-03	3 m VHDCI male to 68HD male SCSI cable. Required for each UltraSCSI shelf connected to KZPBA	
BN38C-05, -10, -20	5–20 m VHDCI male to 68HD male cable	

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

KZPBA-CB¹	PCI-based one port UltraSCSI Differential adapter	5
BN38C-03	2 m VHDCI male to 68HD male UltraSCSI cable. Required for each external UltraSCSI shelf attached to KZPBA	
BN38C-05, -10, -20	5–20 m VHDCI male to 68HD male cable	
O/S Support required : Tru64 UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Max # Supported
Order Number		4100 8-slots
KZPAC-AA²	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
BN37A-03	3 m VHDCI male to VHDCI male cable. Required for each UltraSCSI shelf attached to KZPAC.	
KZPAC-CA²	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
KZPAC-CB²	Same as above with 8 MB cache memory	4
KZPSC-UB³	Cache battery-backup for KZPAC controller	
BN31K-0E⁴	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-SB⁴	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-03, -05, -10, -20	3–20 m VHDCI male to VHDCI male cable. Required for each UltraSCSI shelf attached to KZPAC.	

1. OpenVMS V7.1-1H1 currently supports KZPBA-CB in direct attachment and multi-host shared SCSI bus configurations. Tru64 UNIX operating system supports KZPBA-CB in direct attachment. Tru64 UNIX V4.0D supports KZPBA-CB in clusters using the DWZZH-05; requires BL11 operating system patch kit DUV40DAS00003-19981208.tar.
2. 18.2 GB and 36.4 GB disk drives are not supported on KZPAC-xx PCI-based RAID controllers.
3. KZPSC-UB is recommended for KZPAC controllers.
4. 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 : Tru64 UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Max # Supported
Order Number		4100 8-slots
KZPSA-BB	PCI-based one-port FWD SCSI adapter; requires DWZZB-VW signal converter if connecting directly to Fast10 SCSI StorageWorks shelf.	5
BN21K-02 BN21K-03, 05, 10, 15 20	2 m 16-bit SCSI cable (internal) 3–20 m 16-bit SCSI cable (external)	

O/S Support required: OpenVMS V6.2-1H3		Max # Supported
Order Number		4100 8-slots
KFPSA-AA	PCI-based DSSI controller. Requires HSDxx controller to connect directly to StorageWorks shelf	4
BC29S-06 BC29S-09	Connection to HSD10 installed in BA36R Pedestal shelf Connection to HSD10 installed in BA36R Cabinet shelf	

O/S Support required: OpenVMS V6.2-1H3		Max # Supported
Order Number		4100-8 slots
CIPCA-BA	PCI-based CI adapter -BA requires two PCI slots and one CI cable per adapter	3 ¹
CIPCA-AA	PCI-based CI adapter -AA requires 1 EISA and 1 PCI and one CI cable per adapter	2 ¹
BNCIA-10 BNCIA-20 BNCIA-45	10 m CI cable 20 m CI cable 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.

O/S Support required : Windows NT V4.0, SP3		Max # Supported
Order Number		4100 8-slots
FR-PCTAZ-FB	PCI to Ultra Wide Differential SCSI Adaptec 2944UW SCSI Adapter	5
BN38C-03 BN38C-05, -10, -20,	3 m VHDCI male to 68HD male SCSI cable 5-20 m VHDCI male to 68HD male SCSI cable	

O/S Support required: Windows NT V4.0, SP3		Max # Supported
Order Number		4100 8-slots
FR-PCTAR-IB	3 Channel Mylex Adapter 32MB Cache	4
FR-PCTAR-IC	3 Channel Mylex Adapter 64MB Cache	4
BN21N-02,-03,-05	2-5 m 50HD male to 68HD male SCSI cable. Required for each UltraSCSI shelf attached to FR-PCTAR-xx.	

O/S Support required : Tru64 UNIX V4.0F, OpenVMS V7.2 ¹		Max # Supported
Order Number		4100 8-slots
380574-001 ²	PCI-to ANSI Fibre Channel Adapter. Requires one PCI slot.	4
234457-B21	Fibre Channel Cable, 2M	
234457-B22	Fibre Channel Cable, 5M	
234457-B23	Fibre Channel Cable, 10M	
234457-B24	Fibre Channel Cable, 30M	
234457-B25	Fibre Channel Cable, 50M	

1. The following OpenVMS Tima Kit is required: DEC-AXPVMS-VMS72_HARDWARE-V0100—4.PCSI
2. Field installation only; for factory installation please request Custom Systems.

Step 5e—External Storage Controllers

- Maximum of two BA35R-MR controller shelves for HSZ5x are supported in the H9A10-xx and H9A15-xx cabinets.

SCSI controllers

- Minimum operating system support: Tru64 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 controllers are supported by the DS-DWZZH-03/05 UltraSCSI Hub under VMS V7.1-1H1 and UNIX V4.0D operating systems in cluster configurations only. Please reference the OpenVMS Cluster Software (SPD 29.78.14) for details regarding SCSI OpenVMS Cluster System support. For TruCluster Environment support information, please reference the AlphaServer 4100 Supported Options List at http://www.digital.com/alphaserver/alphasrv4100/4100_options.htm
- 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

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

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

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	150 W power supply for n+1 redundant support in Fast10 shelves
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 Controllers and UltraSCSI RAID Packaged Solutions

RAID Array 3000 (HSZ22) Product Set

RAID Array 3000 (RA3000) is a low cost fully integrated UltraSCSI RAID subsystem supported on AlphaServer 4100 Windows NT and Tru64 UNIX operating systems.

- For Tru64 UNIX
 - RA3000 is currently supported on Tru64 UNIX running minimum of V4.0D operating system software.
 - Supported SCSI adapter: KZPBA-CB PCI-based one port UltraSCSI Differential adapter.
 - Selection of QB-5TWAB-SA, RA3000 Solutions Software Kit for Tru64 UNIX, is required:
- For Windows NT
 - RA3000 is currently supported on Windows NT4.0, SP3, operating system.
 - Supported SCSI adapter: FR-PCTAZ-FB PCI to Ultra Wide Differential SCSI Adaptec 2944UW Adapter.
 - Direct attachment to storage shelves is not supported. Selection of DS-DWZHH-03/05 UltraSCSI Hub is required. For NT Cluster Environment support information please reference the appropriate platform supported options list from the home web site: http://www.digital.com/info/alphaserver/tech_docs/.
 - Selection of QB-5TWAD-SA, RA3000 Solutions Software Kit for Windows NT, is required

See StorageWorks Packaged Solutions in StorageWorks Chapter of Compaq *Systems and Options Catalog*, or on the WEB at <http://webir.das.dec.com/objects/SOHOME/> for supported options and configuration information for the RA3000.

RAID Array 3000 Pedestal Subsystems

DS-SWXRA-GA	RA3000 Pedestal subsystem with one controller, 120 V (Blue) Includes: Seven slot pedestal for wide UltraSCSI disk SBBs, HSZ22 two channel controller with 16 MB cache, Environmental Monitoring Unit (EMU), two 204 W power supplies with fans, 5 meter host SCSI cable (BN37A-05), BN38E-0B adapter, UPS serial cable, PC connection serial cable (DB-9f), 700 VA 120 V UPS, North American power cords. Disks are not included. Requires: Solutions Software Kit for platform, host adapter, and disks Options: Second HSZ22 controller, cache memory upgrade
--------------------	--

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

DS-SWXRA-GC	RA3000 Pedestal subsystem with one controller, 230 V (Blue) Includes: Seven slot pedestal for wide UltraSCSI disk SBBs, HSZ22 two channel controller with 16 MB cache, Environmental Monitoring Unit (EMU), two 204 W power supplies with fans, 5 meter host SCSI cable (BN37A-05), BN38E-0B adapter, UPS serial cable, PC connection serial cable (DB-9f), 700 VA 230 V UPS. Disk are not included. Order country-specific power cords separately. Requires: Solutions Software Kit for platform, host adapter, and disks Options: Second HSZ22 controller, cache memory upgrade
--------------------	--

RA3000 Rackmount Controller and Disk Shelves

RA3000 Rackmount Controller and Disk Shelves may be configured in the M-series cabinet with the AlphaServer 4100 system drawers and StorageWorks shelves. See Step 1b for configuration rules.

- Select one controller shelf and one disk shelf; up to three additional disk shelves are supported.
- Third and fourth disk shelf ordered will be installed in rear of cabinet. Rear mounted shelves require a 2 meter SCSI cable (BN37A-02)—order SCSI cable separately for installation of third and fourth disk shelves.
- Up to 24 disk drive SBBs are supported

DS-SWXRA-GH	RA3000 Rackmount controller shelf with one controller, 110 V (Blue). Includes: Ultra SCSI BA356 controller shelf, one HSZ22 two channel controller with 16 MB cache, integrated Environmental Monitoring Unit (EMU), two 180 Watt power supplies, two dual port host differential UltraSCSI I/O SBBs, Dual channel UltraSCSI single-ended personality modules, one 120V 1000VA rackmount UPS, 5 meter host SCSI cable (BN37A-05), BN38E-0B adapter, UPS serial cable, PC connection serial cable (DB-9), two 68 HD tri-link adapters (H8861-AA), North American power cords, and RETMA mounting bracket. Disk shelves and disks are not included. Requires: Solutions Software Kit for platform, host adapter, RA3000 disk shelf, and disks Options: Second HSZ22 controller, up to 3 additional RA3000 disk shelves, cache memory upgrade
--------------------	---

DS-SWXRA-GK	RA3000 Rackmount controller shelf with one controller, 230 V (Blue). Includes: UltraSCSI BA356 controller shelf, one HSZ22 two channel controller with 16 MB cache, integrated Environmental Monitoring Unit (EMU), two 180 Watt power supplies, two dual port host differential UltraSCSI I/O SBBs, Dual channel UltraSCSI single-ended personality modules, one 230V 1000VA rackmount UPS, 5 meter host SCSI cable (BN37A-05), BN38E-0B adapter, UPS serial cable, PC connection serial cable (DB-9), two 68 HD tri-link adapters (H8861-AA), RETMA mounting bracket. Disk shelves and disks are not included. Requires: Solutions Software Kit for platform, two 40 volt power cords, host adapter, RA3000 disk shelf, and disks Options: Second HSZ22 controller, up to 3 additional RA3000 disk shelves, cache memory upgrade
--------------------	---

DS-SWXRA-GN	RA3000 Rackmount disk shelf (Blue) Includes: UltraSCSI BA356 disk shelf, two 180 W power supplies, single-ended UltraSCSI personality card, one half meter SCSI cable (BN37A-0E), two North American power cords, and RETMA mounting bracket. Disks are not included. Order two 40 volt power cords for non North American use
--------------------	---

HSZ22 Controller

Note: Second HSZ22 controller ordered is field installable **only**, it will not be factory installed. Requires BN37A-0E SCSI jumper cable, order separately.

DS-HSZ22-AA	Second HSZ22 controller with 16 MB of cache and two 16 MB SIMMs for mirror cache, one BN37A 05 5 meter UltraSCSI cable, one BN38E-0B cable adapter—field installable only. Note: Second HSZ22 controller does not require an additional Solution Software Kit.
DS-HSZ22-AB	Second HSZ22 controller with 32 MB of cache and two 32 MB SIMMs for mirror cache, one BN37A 05 5 meter UltraSCSI cable, one BN38E-0B cable adapter—field installable only. Note: Second HSZ22 controller does not require an additional Solution Software Kit.

 Step 5f—UltraSCSI RAID Array Controllers and UltraSCSI RAID Packaged Solutions (*continued*)
RA3000 Solutions Software Kit for Tru64 UNIX and Windows NT

Includes:

- StorageWorks Command Console (SWCC) software
- Platform specific software
- Installation scripts, and installation documentation.

QB-5TWAB-SA RA3000 Solutions Software Kit for Tru64 UNIX

QB-5TWAD-SA RA3000 Solutions Software Kit for Windows NT

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 4100 systems with Tru64 UNIX, Open VMS, and Windows NT operating systems.
- The HSZ70 is supported on KZPSA-BB Fast Wide Differential adapter, KZPBA-CB UltraSCSI Differential controller, and FR-PCTAZ-FB PCI to Ultra Wide Differential SCSI Adaptec 2944UW SCSI Adapter.
- The HSZ70 controller is supported by the DS-DWZZH-03/05 UltraSCSI Hub under VMS V7.1-1H1 and UNIX V4.0D operating systems. UltraSCSI configuration rules must be followed when operating in Ultra mode. The differential KZPSA-BB and KZPBA-CB adapters fully support the DS-DWZZH-03/05 within OpenVMS Clusters and non-clustered environments. Please reference the OpenVMS Cluster Software (SPD 29.78.14) for details regarding SCSI OpenVMS Cluster system support. For TruCluster Environment support information, please reference the AlphaServer 4100 Supported Options List on the Web at http://www.digital.com/alphaserver/alphasrv4100/4100_options.html
- Each KZPSA, KZPBA, FR-PCTAZ-FB adapter ordered to support HSZ70(s) requires an HSZ70 Solutions Software Kit
- See StorageWorks Packaged Solutions in StorageWorks Chapter of Compaq *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.

ESA 10000 Enterprise Storage Arrays

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

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

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-CA/CB ESA 10000 dual expansion base unit

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

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

Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately

Options: Fully redundant power

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

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.

Requires: HSZ70 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.

RAID Array 7000 (RA7000)

DS-SWXRA-HA RAID Array 7000 with Dual controllers

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.

Requires: HSZ70 Solutions Software Kit for platform, host adapter, and disks to be ordered separately

Options: 64 MB cache upgrade, Up to two RA7000 Expansion cabinets. Optional power supplies.

DS-SWXRA-HB RAID 24 UltraSCSI SBB Pedestal Expansion cabinet

DS-SWXRA-HC RAID Array 7000 with Single controller

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.

Requires: HSZ70 Solutions Software Kit for platform, host adapter, and disks to be ordered separately

Options: Second HSZ70 controller and cache battery; 64 MB cache upgrade; Up to two RA7000 Expansion cabinets. Optional power supplies.

BA370 Rackmount Enclosure for HSZ70

The BA370 Rackmount Enclosure with the HSZ70 product set may be configured in the M-series cabinet with the Alpha Server 4100 system drawers and Storage Works shelves. See Step 1b for configuration rules.

- Select one or two BA370 Rackmounted Enclosures
- A rear Cabinet Extender is **mandatory** when a second BA370 is ordered for an H9A10 or H9A15 M-Series Cabinet. Rear Cabinet Extender provides 5.5-inches of depth to H9A10 or H9A15 cabinets to allow two BA370 enclosures to be installed front to back in cabinet.
- See Digital StorageWorks UltraSCSI BA370 Rackmount Enclosure Chapter of *Compaq Systems and Options Catalog*; or on the WEB at <http://webir.das.dec.com/objects/SOHOME/> for supported options and configuration information on HSZ70 controllers in BA370 Rackmount Enclosures

2T-BA370-AS BA370 Front mount rackmount enclosure

Includes: DS-BA370-AA Rackmount enclosure, RETMA slide front mount rackmount kit. First BA370 enclosure must be front mounted in cabinet, 20U height

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

2T-BA370-AR	BA370 Rear mount rackmount enclosure. Includes: DS-BA370-AA Rackmount enclosure, RETMA rear mount rackmount kit. Second BA370 enclosure must be rear mounted in cabinet, 20U height. Rear Cabinet Extender, H9C10-TE or H9C15-TE, is mandatory for second BA370
H9C10-TE	Rear Cabinet Extender, Top Gun Blue, for H9A10-MC/MD cabinets
H9C15-TE	Rear Cabinet Extender, Top Gun Blue, for H9A15-MC/MD cabinets
BN35S-4E	Power cord required for 2T-BA370-AS/AR and for DS-BA35X-HE mounted in H9A10-MD and H9A15-MD 240 V cabinets

HSZ70 Solutions Software Kits

HSZ70 Solutions Software Kits provide tools needed to link HSZ70 controllers to a wide variety of vendor platforms. HSZ70 Solutions Software Kits must be ordered for each new HSZ70 controller in a configuration.

Software Kits include:

- PCMCIA card containing software for storage controller
- StorageWorks Command Console (SWCC) software, and software licenses
- HSZ70 Solutions Software Kits with -SA variants include HSZ70 and SWCC supporting documentation.
- HSZ70 Solutions Software Kits with -SB variants do not include documentation; select for each additional adapter ordered if documentation is available on-site.

Select Adapter and HSZ70 Solutions Software Kit for appropriate platform

Supported Adapters	HSZ70 Solutions Software Kit	Host Platform
KZPSA-BB	QB-5SBAB-SA/SB	Tru64 UNIX V4.0B (direct connection)
	QB-5SBAC-SA/SB	Tru64 UNIX V4.0D with DS-DWZZH-03/05
	QB-5SBAD-SA/SB	OpenVMS V6.2-1H3 (direct connection) OpenVMS V7.1-1H1 with DS-DWZZH-03/05 Windows NT V4.0 ¹
KZPBA-CB	QB-5SBAB-SA/SB	Tru64 UNIX V3.2G (direct connection)
	QB-5SBAC-SA/SB	Tru64 UNIX V4.0D with DWZZH-03/05
	QB-5SBAD-SA/SB	OpenVMS V6.2-1H3 (direct connection) OpenVMS V7.1-1H1 with DS-DWZZH-03/05 Windows NT
FR-PCTAZ-FB	QB-5SBAD-SA/SB	Windows NT V4.0 SP3 with DWZZH-05/03 (clusters) ²

1. Requires WNT V4 Standalone and Wolfpack Beta 2, HSZ70 plus Service Pack 3.

2. For NT Cluster Environment support information, please reference the appropriate platforms supported options list from the home web site: (http://www.digital.com/info/alphaserver/tech_docs/).

HSZ70 Controller

DS-HSZ70-AH	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 Tru64 UNIX, QB-5SBAC-SA/SB for OpenVMS, QB-5SBAD-SA/SB for Windows NT) and external cache battery (DS-HS35X-BC). See Step 1b for HSZ70 and BA370 UltraSCSI shelf configuration rules in M-series enclosure.
--------------------	---

Cache Upgrade

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

DS-HSSIM-AB	64 MB Cache Upgrade for HSZ70
--------------------	-------------------------------

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

Additional Options

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

DS-BA35X-HE ac Input Box for BA370, 50/60 Hz switchable--Required when installing more than five 180-watt power supplies in a cabinet or rack, two supported per BA370.

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

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-0E .5 m controller to controller cable

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

HSZ* Controller Accessories

DS-DWZZH-03/05 UltraSCSI Hubs are intended for use within Cluster environments

- Support HSZ22, HSZ50/52, HSZ70, and HSZ80 controllers. HSZ50/52 and HSZ80 controllers are not supported with Windows NT.
- Support KZPBA-CB and KZPSA-BB differential host adapters. FR-PCTAZ-FB host adapter is supported with Windows NT only.
- For DS-DWZZH-03/05 configuration guidelines refer to StorageWorks DS-DWZZH UltraSCSI Hub Systems and to AlphaServer 4100 Supported Options List on the WEB at http://www.digital.com/alphaserver/alphasrv4100/4100_options.html

DS-DWZZH-03 UltraSCSI Hub with 3 differential ports, in 3.5in SBB

DS-DWZZH-05 UltraSCSI Hub with 5 differential ports, 4 host ports and 1 storage port, in 5.25in SBB

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

To expand AlphaServer 4100 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 Compaq CustomSystems at 1-800-AT-COMPAQ (1-800-282-6672), or contact your local authorized Compaq 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, -03, -05 -10, -15, -20	02 – 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: Tru64 UNIX V4.0D or OpenVMS V7.1-1H1 or Windows NT 4.0		Max # Supported
Order Number		4100-8 slots
KZPCM-DA	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet combo adapter, uses 1 PCI slot	2
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection	

O/S Support required: Tru64 UNIX V4.0D or OpenVMS V6.2-1H3 or Windows NT 4.0		Max # Supported
Order Number		4100-8 slots
DE500-BA	PCI-based 10/100 Mbit Fast Ethernet adapter Cat 5 UTP	4
DE504-BA¹	PCI-based 10/100 Mbit quad channel Ethernet adapter Cat 5 UTP	1
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection	
BN24Q-xx	UTP crossover cable for 10/100BaseT Cat 5	
DE500-FA	PCI-based 10/100 Mbit Ethernet adapter MMF	4
BN34B-xx	SC-SC Dual FO cable, mm, pp. xx = m length	

O/S Support required: Tru64 UNIX V3.2F or OpenVMS V6.2-1H3 or Windows NT 3.51		Max # Supported
Order Number		4100-8 slots
DEGPA-SA	PCI-based Gigabit Ethernet adapter, SC connectors, MMF	4
BN34B-xx	SC-SC Dual FO cable, mm, pp. xx = length in meters	

Step 6—Networks and Communications (*continued*)

DE450-CA	PCI-based 10 Mbit Ethernet adapter; AUI, 10/100BaseT, or 10Base2	4
BNE4C-02 BNE4C-05	2 m (6.6 ft.) cable for AUI connection, Ethernet/IEEE 802.3 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	
DEFPA-AB	PCI-based FDDI Adapter, single attachment station (SAS), multi-mode fiber (MMF), SC connector	4
DEFPA-DB	PCI-based FDDI Adapter, DAS, MMF, SC connector	4
BN34D-xx	MIC-SC dual fiber optic cable	
BN34B-xx	SC to SC dual fiber optic cable	
DEFPA-UB	PCI-based FDDI Adapter, SAS, TP-PMD, requires BN25H-03	4
DEFPA-MB	PCI-based FDDI Dual Adapter, DAS, TP-PMD, requires BN25H-03	4
BN25H-03	3 m (9.8 ft) FDDI crossover cable	
PBXDA-AA²	PCI-based 4-port asynchronous controller; cable included	2
PBXDA-AB²	PCI-based 8-port asynchronous controller; cable included	2
PBXDA-AC²	PCI-based 16-port asynchronous controller; cable included	2

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

3. 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>

O/S Support required: Tru64 UNIX V4.0B, OpenVMS V6.2-1H3		Max # Supported
Order Number		4100-8 slots
PBXDP-AA	PCI-based 2 port Synchronous controller, X.25, SNA	2
PBXDP-AB	PCI-based 4 port Synchronous controller	2
PBXDP-AC	PCI-based 8 port Synchronous controller	2
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: Tru64 UNIX V3.2G or OpenVMS V6.2-1H3		Max # Supported
Order Number		4100-8 slots
SN-PBXNP-AC	PCI-based Token Ring adapter	4
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection	

Step 6—Networks and Communications (continued)

O/S Support required: Tru64 UNIX V3.2F/V3.2G or Windows NT 3.51		Max # Supported
Order Number		4100-8 slots
DGLPA-FA ¹	PCI-based ATMworks 351 Adapter MMF, SC connector	2-Tru64 UNIX 1-OpenVMS
DGLPA-UA ¹	PCI-based ATMworks 351 Adapter UTP CAT-5 with RJ45 connector	2-Tru64 UNIX 1-OpenVMS
CXI01-AA	ISA-based asynchronous multiport MUX 16 port XEM	1
CXI01-AC	ISA-based asynchronous MUX cable converter RJ45 to DB25	1
CXI01-AF	Eight RJ45 to DEC MJII adapters	1

1. OpenVMS V7.1-1H1 supports a maximum of one DGLPA-FA/UA per PCI bus segment. No other device is allowed on bus. Tru64 UNIX V4.0D supports a maximum of two DGLPA-FA/UA. One additional high speed NIC is supported for performance (not a DGLPA-FA/UA). A fourth high speed NIC is supported for connectivity (not DGLPA-FA/UA).

O/S Support required: Unix V4.0D ¹		Max # Supported
Order Number		4100 8-slots
3X-DAPBA-FA ^{2,3}	PCI to ATM155 MBIT Adapter - Fiber	4
3X-DAPBA-UA ^{2,3}	PCI to ATM155 MBIT adapter – Unshielded Twisted Pair	4
3X-DAPCA-FA ^{2,3}	PCI to ATM622 MBIT Adapter - Fiber	2

1. The following Unix Patch Kits are required to support 3X-DAPBA-FA/UA: UNIX V4.0D—Patch Kit 4; UNIX V4.0E—Patch Kit 2; UNIX V4.0F—Patch Kit 1. Please refer to the following web site for the most up-to-date information on patch kit availability:
<http://www.service.digital.com>
2. The SN-PBXNP-AC PCI Token Ring Adapter is not supported in the same system with the DAPBA/DAPCA adapter
3. If you have an ATMworks 351 (DGLPA) network interface card (NIC) installed in your system, make sure to follow that adapter's configuration rules. Only one ATM adapter can be installed on the same bus as the ATMworks 351NIC

O/S Support required: Tru64 UNIX V4.0F or OpenVMS V7.1-2		Max # Supported
Order Number		4100-8 slots
3X-DE600-AA ¹	One Channel Ethernet 10/100Mbit Adapter	4
3X-DE602-AA ¹	Multi-Channel Ethernet 10/100Mbit Adapter	2
3X-DE602-FA ¹	100BaseFX Upgrade module, daughter card that plugs into the 3X-DE602-AA	2

1. Under UNIX the SN-PBXNP-AC, PCI Token Ring Adapter, is not supported in the same system with the 3X-DE600-AA and 3X-DE602-AA/FA cards

Step 7—Memory Channel Controllers

Order one or two CCMAB System Area Network Controllers:

Tru64 UNIX Systems

- CCMAB-AA requires minimum operating system version Tru64 UNIX 4.0F, TCR 1.6.
- Each system node in a Memory Channel cluster requires a software license.
- Servers in a compute server array require a Tru64 UNIX Driver for Memory Channel License (QB-4ZCAG-AA).
- Servers in a TruCluster Production Server environment require TruCluster Production Server license (QB-3RLAG-AA).

OpenVMS Systems,

CMAB-AA PCI-based System Area Network (SAN) Controller (Memory Channel 2), requires OpenVMS V7.1-2 or later and OpenVMS Cluster License. The CCMAB SAN Controller requires an OpenVMS Remedial Kit:

- OpenVMS V7.1-2 requires DEC-AXPVMS-VMS712-HARDWARE-V0100—4.PCSI.
- OpenVMS V7.2 requires DEC-AXPVMS-VMS72-HARDWARE-V0100—4.PCSI.

Step 7—Memory Channel Controllers (*continued*)
Configuring information:

- Maximum two CCMAB-AA are supported per System Drawer for redundancy/failover
- If more than one CCMAB-AA controller is used in each system in the cluster to create multiple planes for availability or bandwidth, each controller in a system must be connected to a separate hub or plane
- Components of the CCMAB and CCMAA families (cables, hubs, and controllers) cannot be interconnected, however, they can be used in the same system in different planes for additional bandwidth availability. See CCMAB System Area Network Controller Chapter of *Compaq Systems and Options Catalog*, or on the WEB at <http://www.digital.com/info/SOHOME/> for additional information on multi-plane configuration.
- For two-system clusters, order one CCMAB-AA per system and one BN39B-xx cable to directly connect controllers. This is a “virtual hub mode” configuration.
- For three to eight system clusters order one CCMAB Hub with one CCMAB-AA and one BN39B-xx cable per system node.
- CCMAB Hub (CCMHB-AA) includes four CCMLB-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLB-AA Line Cards.

Nodes	CCMAB SAN Controllers	CCMAB Hubs	Line Cards
2	2 CCMAB-AA		
3-4	3-4 CCMAB-AA	1 CCMHB-AA	
5-8	5-8 CCMAB-AA	1 CCMHB-AA	1-4 CCMLB-AA

CCMAB-AA PCI-based System Area Network Controller

CCMHB-AA CCMAB Hub with 4 Line Cards

CCMLB-AA Line Card for use with CCMHB-AA; use one each as needed for system nodes 5-8

2T-MAVRK-AA Universal Rackmount kit for CCMAB Hub

BN39B-04 4-meter Cable; use to connect CCMAB-AA to another CCMAB-AA or to CCMAB Hub.

BN39B-10 10-meter Cable; use to connect CCMAB-AA to another CCMAB-AA or to CCMAB Hub.

Note: For stand alone configuration, the CCMAB Hub includes a BN19P-1K power cord for Canada and US operation. For other regions, order power cord from Step 10.

For rackmount configuration, the CCMAB Hub requires one BN35S-02, ASVR4xxx Black Power Cord, and one 2T-MAVRK-AA Universal Rackmount Kit. The CCMAB Hub requires 4U of vertical space. Allow 5U for configuration.

QB-3RLAG-AA TruCluster Production Server Software License/Documentation for Tru64 UNIX

QB-4ZCAG-AA TruCluster Memory Channel Software License/Documentation for Tru64 UNIX

QL-MUZAG-AA OpenVMS Cluster license for Alpha systems

Step 8—Monitors

- Systems do not include a graphics adapter. See Step 9 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 Tru64 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 8a for video extension cable

See Step 8b for country specific power cords

Step 8—Monitors (*continued*)

- 3R-VRQV5-24/11** 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 @ 85 Hz, TCO 95, MPRII, Energy Star, attached 1.8 meter video cable. Requires mandatory selection of video extension cable and country specific power cord for all variants.
 -24 = Northern Hemisphere without power cord
 -11 = Southern Hemisphere without power cord
- 3R-VRQP7-24/23** 17" (16" viewable image size) professional series auto-scanning color monitor, Flat Definition Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 at 75 Hz, TCO 99, MPR-II, Energy Star, attached. Requires mandatory selection of video extension cable and country specific power cord for all variants.
 -24 = Northern Hemisphere without power cord
 -23 = Southern Hemisphere without power cord
- 3R-VRQP1-24/23** 21" (19.6" viewable image size) auto-scanning color monitor, Trinitron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 at 85 Hz NI, TCO 99, Energy Star, includes 1.8-m video cable. Requires mandatory selection of video extension cable and country specific power cord for all variants.
 -24 = Northern Hemisphere without power cord
 -23 = Southern Hemisphere without power cord

Video Extension Cable

- BN39C-02** 1.8 m video extension cable—mandatory for each monitor ordered

Monitor Power Cords

- BN26J-1K** North America, 120 V, 75 inches long
3X-BN46F-02 Japan (Dentori approved) 2 m long, 125V, 12A
BN19H-2E Australia, New Zealand, 2.5m long
BN19C-2E Central Europe, 2.5 m long
BN19A-2E UK, Ireland, Hong Kong, 2.5 m long
BN19E-2E Switzerland, 2.5 m long
BN19K-2E Denmark, 2.5 m long
BN19M-2E Italy, 2.5 m long
BN19S-2E Egypt, India, South Africa, 2.5 m long
BN18L-2E Israel, 2.5 m long

Step 9—Graphics Adapters

- Systems do not include an embedded graphics adapter.
- Windows NT systems require the **mandatory** selection of a graphics adapter and a monitor to run all functions.
- Select graphics adapter for Tru64 UNIX and OpenVMS systems if required.

Graphics Adapters—Operating System Support required		Tru64 UNIX	OpenVMS	Windows NT
SN-PBXGI-AD	PowerStorm 4D51T 3D Graphics, 16 MB texture memory 1280 x 1024, High Performance 3D shading, texture mapping, OpenGL	V4.0B	—	—
SN-PBXGK-BB	ELSA Gloria Synergy graphics with 8 MB SGRAM 1600 x 1200, 2D/3D graphic accelerator	V4.0E	V7.1-1H2	4.0

Step 9—Graphics Adapters (*continued*)**Graphics Adapter Upgrade Kit for 3D High Performance Graphics**

PowerStorm 40D51T high performance 3D graphics adapter requires a 3.3 volt saddle (B3052) for 4100 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		Tru64 UNIX	OpenVMS	Windows NT
304XU-2W	Field Upgrade for PowerStorm 4D51T 3D Graphics, 16 MB texture memory 1280 x 1024	V4.0B	—	—

Step 10—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 gray.

Tru64 UNIX Keyboard	OpenVMS Keyboard	Windows NT Keyboard	Country
SN-LKQ47-AA	LK461-A2	SN-LKQ97-AA	US/English
SN-LKQ47-AB	LK461-AB	SN-LKQ97-AB	Belgian
SN-LKQ47-AC	LK461-AC	SN-LKQ97-AC	Canadian/French
SN-LKQ47-AD	LK461-AD	SN-LKQ97-AD	Danish
SN-LKQ47-AE		SN-LKQ97-AE	UK
SN-LKQ47-AF	LK461-AF	SN-LKQ97-AF	Finnish
SN-LKQ47-AG	LK461-AG	SN-LKQ97-AG	German
SN-LKQ47-AH	LK461-AH	SN-LKQ97-AH	Dutch
SN-LKQ47-AI	LK461-AI	SN-LKQ97-AI	Italian
		SN-LKQ97-AJ	Japanese
SN-LKQ47-AK	LK461-AK	SN-LKQ97-AK	Swiss/French
	LK461-AL		Swiss/German
SN-LKQ47-AM	LK461-AM	SN-LKQ97-AM	Swedish
SN-LKQ47-AN	LK461-AN	SN-LKQ97-AN	Norwegian
SN-LKQ47-AP	LK461-AP	SN-LKQ97-AP	French
	LK461-AQ		Canadian/English
SN-LKQ47-AR		SN-LKQ97-AR	Latin-American
SN-LKQ47-AS	LK461-AS	SN-LKQ97-AS	Spanish
SN-LKQ47-AT	LK461-AT	SN-LKQ97-AT	Hebrew
SN-LKQ47-AV	LK461-AV	SN-LKQ97-AV	Portuguese
SN-LKQ47-AX		SN-LKQ97-AX	Bhesy
SN-LKQ47-BA		SN-LKQ97-BA	International
SN-LKQ47-BK		SN-LKQ97-BK	Korean
	LK461-BL		Romanian
SN-LKQ47-BP	LK461-BP	SN-LKQ97-BP	Polish
SN-LKQ47-BQ	LK461-BQ	SN-LKQ97-BQ	Hungarian
SN-LKQ47-BR		SN-LKQ97-BR	Arabic
SN-LKQ47-BT	LK461-BT	SN-LKQ97-BT	Cyrillic

Step 10—Keyboards and Power Cords (*continued*)

Tru64 UNIX Keyboard	OpenVMS Keyboard	Windows NT Keyboard	Country
SN-LKQ47-BU	LK461-BU	SN-LKQ97-BU	Turkish
SN-LKQ47-BV	LK461-BV	SN-LKQ97-BV	Czech
	LK461-BW		Turkish-French
	LK461-BY		Yugoslavian
SN-LKQ47-CB		SN-LKQ97-CB	Thai
SN-LKQ47-CV			S. Chinese
SN-LKQ47-CZ	LK461-CZ	SN-LKQ97-CZ	Slovak

Power Cords—Quantity of two required for Pedestals

3X-BN46F-02	Japan (Dentori approved) 2 m long, 125V, 12A
BN19H-2E	Australia, New Zealand, 2.5m long
BN19C-2E	Central Europe, 2.5 m long
BN19A-2E	UK, Ireland, Hong Kong, 2.5 m long
BN19E-2E	Switzerland, 2.5 m long
BN19K-2E	Denmark, 2.5 m long
BN19M-2E	Italy, 2.5 m long
BN19S-2E	Egypt, India, South Africa, 2.5 m long
BN18L-2E	Israel, 2.5 m long

Step 11—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).

Tru64 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 12—Software
AlphaServer 41000 Tru64 UNIX and OpenVMS to Windows NT Migration

Compaq 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.

Mid-range AlphaServers continue to deliver on the Universal Platform Guarantee: that AlphaServers support any of the three operating systems offered by Compaq. The Universal AlphaServers (blue boxes) running Tru64 UNIX or OpenVMS can also run Windows NT. AlphaServer 4100/4000 systems can migrate from Tru64 UNIX or OpenVMS to Windows NT Server with a simple license and software change.

Compaq offers Windows NT Server 4.0 Enterprise Edition Conversion kits with installation and services by a team of qualified Compaq professionals to make this system migration easy and timely.

Step 12—Software (*continued*)

To migrate from an AlphaServer 4100/4000 Tru64 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 Tru64 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/alphasrv4100/4100_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: Compaq 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

Compaq Services Installation

Compaq Services Installation is **mandatory** for all AlphaServer system conversions to Windows NT systems. Compaq Services will install conversion options at end user's location. Contact a Compaq 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 Server 4.0 plus 10-client access license, media (CD-ROM) kits

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

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
QB-23CUA-SE	Windows NT Server license, media kit—Italian
QB-23CJA-SE	Windows NT Server license, media kit—Japanese
QB-23C4A-SE	Windows NT Server license, media kit—Korean
QB-23C2A-SE	Windows NT Server license, media kit—PRC Chinese

 Step 12—Software (*continued*)
Tru64 UNIX**Software Processor Code = G for all software, 1-4 processors**

- Tru64 UNIX systems include Traditional unlimited user license (QL-MT7AG-AA), and Tru64 UNIX Server Extensions (QL-MT6AG-AA).
- Tru64 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 Tru64 UNIX (QC-02NAB-H8), Internet AlphaServer Administration (QB-3NCAA-SA).

QL-MT5AG-AA Tru64 UNIX developer's extension license

Tru64 UNIX Media and Documentation

QA-MT4AA-H8 Tru64 UNIX media and on-line documentation on CD-ROM

QA-MT4AA-GZ Tru64 UNIX full hardcopy documentation

Tru64 UNIX Layered Products CD-ROM

QA-054AA-H8 Layered products media and documentation for Tru64 UNIX on CD-ROM

DECnet Licenses

QL-MTJAG-AA DECnet/OSI end-system license for Tru64 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 Enterprise Integration Package V2.0 (QP-5LVAG-AC)
 - 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, OpenVMS Disk Services for Windows NT, DIGITAL Office Server for OpenVMS, 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 12—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 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 13—Hardware and Software Warranty and Supplemental Services
Hardware Warranty

The AlphaServer 4100 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

- Warranty on Tru64 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 Tru64 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 13—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-51CPU-IN	Add-on SMP Installation
FM-51MEM-IN	Add-on Memory Installation
FM-51DWR-IN	AlphaServer 4100 Drawer Installation
FM-51PED-IN	AlphaServer 4100 Pedestal Installation
FM-51CAB-IN	AlphaServer 4100 Cabinet Installation
FM-TRAVL-IN	One time travel charge per installation

AlphaServer 4100 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-AT-COMPAQ (1-800-282-6672) and request Americas Multi-vendor Customer Services (AMCS) support.

AlphaServer 4100 Tru64 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 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

Tru64 UNIX or OpenVMS SMP Upgrade

FM-51VMP-12	1-year, Tru64 UNIX or OpenVMS SMP Upgrade
FM-51VMP-36	3-year, Tru64 UNIX or OpenVMS SMP Upgrade
FM-51VMP-60	5-year, Tru64 UNIX or OpenVMS SMP Upgrade

 Step 13—Hardware and Software Warranty and Supplemental Services (*continued*)
AlphaServer 4100 Pedestal or Cabinet Enclosure with first System Drawer

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

AlphaServer 4100 Pedestal or Cabinet Enclosure with first System Drawer

FM-5H616-36	3-year 6 x 16, four hour, 1 GB AlphaServer 4100 Pedestal/Cabinet
FM-5H616-60	5-year 6 x 16, four hour, 1 GB AlphaServer 4100 Pedestal/Cabinet
FM-5H724-36	3-year 7 x 24, four hour, 1 GB AlphaServer 4100 Pedestal/Cabinet
FM-5H724-60	5-year 7 x 24, four hour, 1 GB AlphaServer 4100 Pedestal/Cabinet
FM-5VXHW-60	5-year 5 x 9, next day, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V4HR-36	3-year 5 x 9, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V4HR-60	5-year 5 x 9, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V512-36	3-year 5 x 12, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V512-60	5-year 5 x 12, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V616-36	3-year 6 x 16, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V616-60	5-year 6 x 16, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V724-36	3-year 7 x 24, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet
FM-5V724-60	5-year 7 x 24, four hour, 2 GB AlphaServer 4100 Pedestal/Cabinet

AlphaServer 4100 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

Step 13—Hardware and Software Warranty and Supplemental Services (*continued*)

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

AlphaServer 4100 Memory

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 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

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)	
			H9A15 M-Series			
Height			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(7.9in)	20cm(7.9in)
Rear	20cm(7.9in)	61 cm(24.1 in)	60cm(23.6in)	100cm(39.4in)	20cm(7.9in)	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 (-40°F ° - 150.8°F)		-40°C - 66°C (-40°F ° - 150.8°F)		-40°C - 66°C (-40°F - 150.8°F)	
Storage (60 days)	-40°C - 66°C (-40°F ° - 150.8°F)		-40°C - 66°C (-40°F ° - 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)	5-10 Hz	0.02 in-da	5-10 Hz	0.02in-da	5-10 Hz	0.02in-da
Operating	10-500 Hz	0.1 G	10-500 Hz	0.1 G	10-500 Hz	0.1 G
Acoustics	6.2 LNPEc (Bels)		6.7 LNPEc (Bels)		5.8 LNPEc (Bels)	
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	
Power Cord	450 cm (177 in)	200-250 cm	450 cm (177 in)	450 cm	250 cm (98.4 in)	
Length	NEMA 5-15P	Country specific	NEMA L5-30P	IEC309, 32A	IEC 320	
Plug						

AlphaServer 4100

Specifications *(continued)*

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