

**AlphaServer 4100/4000**  
**V3.4—18 March 1999**  
Systems and Options Catalog**Product Description**

The AlphaServer 4000/4100 family of mid-range, award winning servers deliver industry leading price/performance 5/600 MHz systems with 8 MB onboard cache. The AlphaServer 4100 also deliver 5/533 and 5/466 systems to complete the family line of EV56-based technology servers. AlphaServer 4100 systems support up to 4 CPU processors, up to 4 memory options, and 8 PCI I/O slots. AlphaServer 4000 systems support up to 2 CPU processors, up to 2 memory options, and come standard with 16 PCI I/O slots.

**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. 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 4000/4100 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.

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## Step 1—AlphaServer 4100/4000 Systems

- Configurations require the mandatory selection of:
  - System Drawer from Step 1a
  - Pedestal or Cabinet Enclosure from Step 1b
  - SCSI Adapter, Network Adapter, and an UltraSCSI 4.3 GB, 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

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### Step 1a—AlphaServer System Drawer (8U)

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

#### System Drawer includes

- AlphaServer 4100 System Drawer with Alpha microprocessor 21164
    - 5/466 MHz CPU, 4 MB secondary cache, or 5/533 MHz CPU, 4 MB secondary cache, or 5/600 MHz CPU, 8 MB secondary cache
    - 8 PCI slots (eight available)<sup>1</sup>
  - AlphaServer 4000 System Drawer with Alpha microprocessor 21164
    - 5/533 MHz CPU, 4 MB secondary cache, or 5/600 MHz CPU, 8 MB secondary cache
    - 16 PCI slots<sup>1</sup> (16 available)
    - 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—including 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 warranty<sup>2</sup>
  - Software warranty<sup>2</sup>

1. Three I/O slots are EISA/PCI combination slots. Note: AlphaServer 4000 systems ship with 16 active I/O slots.

2. Service upgrades are available; see Step 14, Hardware and Software Supplemental Services.

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

- Ethernet (10/100 Mbit) Adapter—mandatory line item.
  - One-port UltraSCSI single-ended adapter—mandatory line item.
  - SCSI cable to connect UltraSCSI shelf to SCSI adapter—mandatory line item.
  - S3 TRIO 1 MB RAM graphics adapter—optional component; recommended line item.
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#### 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-EA	5/600	8 MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
DA-51LAD-FB	5/600	8 MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
DA-51LAD-GB	5/600	8 MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI

**Step 1a—AlphaServer 4100/4000 Systems (continued)****AlphaServer 4100 Tru64 UNIX System Drawer—Selection of one System Drawer (8U) is required**

<b>DA-51KAD-EA</b>	5/533	4 MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
<b>DA-51KAD-FB</b>	5/533	4 MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
<b>DA-51KAD-GB</b>	5/533	4 MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
<b>DA-51JAD-CA</b>	5/466	4 MB	128 MB	Mandatory	Mandatory	Mandatory	8 PCI
<b>DA-51JAD-EA</b>	5/466	4 MB	512 MB	Mandatory	Mandatory	Mandatory	8 PCI
<b>DA-51JAD-FB</b>	5/466	4 MB	1 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI
<b>DA-51JAD-GB</b>	5/466	4 MB	2 GB high performance	Mandatory	Mandatory	Mandatory	8 PCI

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

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

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

**AlphaServer 4000 Tru64 UNIX 16-Slot 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.

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

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

Systems include pre-installed OpenVMS, Base license, and 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-53LED-EA	5/600	8MB	512 MB	Mandatory	Mandatory	Mandatory	16 PCI
DY-53LED-FB	5/600	8MB	1 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DY-53LED-GB	5/600	8MB	2 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DY-53KED-EA	5/533	4MB	512 MB	Mandatory	Mandatory	Mandatory	16 PCI
DY-53KED-FB	5/533	4MB	1 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI
DY-53KED-GB	5/533	4MB	2 GB high performance	Mandatory	Mandatory	Mandatory	16 PCI

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

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

BA30P-AA 120 V Americas, Asia Pacific

BA30P-BA 240 V Europe; order two country-specific power cords

**M-series Cabinet Enclosures**

For additional information on M-series Cabinet Enclosures see [www.digital.com/alphaserver/products/m-series.html](http://www.digital.com/alphaserver/products/m-series.html)

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

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

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

**Cabinet Configuration Chart for AlphaServer 4x00 (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 2 3	6 <sup>1</sup> 6 <sup>2</sup> 2 <sup>3</sup>	
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1 2 3 4	6 <sup>1</sup> 6 <sup>2</sup> 6 <sup>3</sup> 2 <sup>4</sup>	1 <sup>5</sup>

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—Mandatory (continued)****Cabinet Configuration Chart for AlphaServer 4x00 (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 <sup>1</sup>	
				2	1 + 5 <sup>2</sup>	
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1	1 + 5 <sup>1</sup>	1 <sup>4</sup>
				2	1 + 5 <sup>2</sup>	
				3	1 + 5 <sup>3</sup>	

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 4x00 (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 HC15-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, <b>or</b>	2 <sup>1</sup>
				1	2 Front & Back BA370s	2 <sup>1</sup>
H9A15-MC/MD	CK-BA30A-BA/BB	66.5 inches	38U	1 <sup>3</sup>	1 Front BA370, <b>or</b>	4 <sup>1</sup>
				1 <sup>3</sup>	2 Front & Back BA370s	4 <sup>1</sup>
				2	1 Front BA370, <b>or</b>	2 <sup>2</sup>
				2	2 Front & Back BA370s	2 <sup>2</sup>

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. If only one drawer is ordered, one ballast kit is mandatory.

**M-series Cabinet Enclosure Options**

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

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

**Step 1b—Pedestal and Cabinet Enclosures—Mandatory (continued)****M-series Cabinet Enclosures**

<b>H9A10-MC</b>	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)
<b>H9A10-MD</b>	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)
<b>H9A15-MC</b>	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)
<b>H9A15-MD</b>	240 V dual 16 A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe Includes rear door, top fan tray (1U), and 2 H7600-DB power distribution units (2U)

For custom integration of systems, options, and additional 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.

**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.

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

**Cabinet Front Door**

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

**Factory Integration**

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

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

<b>H9C10-MC</b>	Two 35-40 lbs. steel plates
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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.

**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 is recommended.

**Select one System Disk Drive—Mandatory**

Order Number	System Disk and Minimum O/S version supported	Tru64 UNIX	OpenVMS
DS-RZ1CF-VW	4.3 GB UltraSCSI 7200 RPM hard disk drive	V3.2G	V6.2-1H3
DS-RZ1DF-VW <sup>1</sup>	9.1 GB UltraSCSI 7200 RPM hard disk drive	V3.2G	V6.2-1H3
DS-RZ1EF-VW <sup>2</sup>	18.2 GB UltraSCSI 7200 RPM hard disk drive	V3.2G	V6.2-1H3

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

**Select one SCSI Adapter and SCSI cable—Mandatory**

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

Order Number	SCSI Adapter and Minimum O/S version supported	Tru64 UNIX	OpenVMS
KZPCM-DA	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet Combo adapter, uses 1 PCI slot	V4.0D	V7.1-1H1
KZPBA-CA	PCI-based one port UltraSCSI Single-ended adapter	V3.2G	V6.2-1H3
KZPAC-AA <sup>1,2</sup>	PCI-based one port RAID controller with 4 MB cache, not factory configured as RAID set	V3.2G	V6.2-1H3
KZPAC-CA <sup>1,2</sup>	PCI-based three-port RAID controller with 4 MB cache, not factory configured as RAID set	V3.2G	V6.2-1H3
KZPAC-CB <sup>1,2</sup>	Same as -CA above with 8 MB cache memory	V3.2G	V6.2-1H3

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

**Select one Network Adapter—Mandatory**

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

Order Number	Network Adapter and Minimum O/S version supported	Tru64 UNIX	OpenVMS
DE500-AA	PCI-based 10/100 Mbit Fast Ethernet adapter Cat 5 UTP	V3.2G	V6.2-1H3
DE500-BA	Same as -AA above with cluster failover	V4.0D	V7.1-1H1
DE504-BA	PCI-based 10/100 Mbit Quad Channel Ethernet adapter Cat 5 UTP	V4.0D	V7.1-1H1

**Minimum Operating System Support Chart**

O/S Currently Shipping	Minimum O/S required for UltraSCSI	Minimum O/S required for Non UltraSCSI	Year 2000- Ready Version
Windows NT 4.0	Windows NT 3.51	Windows NT 3.51	Windows NT V4.0
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 also available for OpenVMS V6.2

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

- AlphaServer 4100 System Drawer supports three additional CPUs
- AlphaServer 4000 System Drawer supports one additional CPU
- CPUs (i.e., 5/533 4 MB) and operating system must be of the same type in each System Drawer.
- Minimum revision of SRM console for 5/600MHz is V5.2-1. The console must be at this minimum revision, or greater, prior to installing the 5/600MHz (B3006-EB) modules; 5/600 MHz supports Tru64 UNIX V3.2G and V4.0B and OpenVMS V6.2-1H3 and V7.1-1H1
- See Step 13 for Windows NT Conversion Software Kits.

<b>KN304-DB</b>	Tru64 UNIX SMP upgrade includes one 5/466 (4 MB) CPU and Tru64 UNIX SMP license
<b>KN305-DB</b>	Tru64 UNIX SMP upgrade includes one 5/533 (4MB) CPU and Tru64 UNIX SMP license
<b>KN306-AB</b>	Tru64 UNIX SMP upgrade includes one 5/600 (8MB) CPU and Tru64 UNIX SMP license
<b>KN304-DC</b>	OpenVMS SMP upgrade includes one 5/466 (4 MB) CPU and OpenVMS SMP license
<b>KN305-DC</b>	OpenVMS SMP upgrade includes one 5/533 (4MB) CPU and OpenVMS SMP license
<b>KN306-AC</b>	OpenVMS SMP upgrade includes one 5/600 (8MB) CPU and OpenVMS SMP license
<b>KN304-DD</b>	Windows NT SMP upgrade includes one 5/466 (4 MB) CPU; SMP license not required
<b>KN305-DD</b>	Windows NT SMP upgrade includes one 5/533 (4 MB) CPU; SMP license not required
<b>KN306-AD</b>	Windows NT SMP upgrade includes one 5/600 (8MB) CPU; SMP license not required

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## 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

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

**Note:** 1<sup>st</sup> power supply supports 2 CPUs and 8 active PCI slots.  
 2<sup>nd</sup> power supply provides N+1 for 2 CPUs and 8 active PCI slots.  
 H7150-AA 8 PCI slot expansion option includes a Power Supply. Supports 2 CPUs and 16 active PCI slots.  
 3<sup>rd</sup> 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).

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## Step 4—Memory

AlphaServer 4100/4000 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
- AlphaServer 4000 System Drawer supports one additional memory option for maximum of 4 GB total.

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

<b>MS320-CA</b>	128 MB memory option (Synch, 60 ns)
<b>MS330-EA</b>	512 MB memory option (EDO, 60 ns)

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**Step 4—Memory (continued)**

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

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**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.

DS-RZ1BB-VW	2.1 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1CF-VW	4.3 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1DF-VW	9.1 GB 16-bit UltraSCSI 7200 RPM disk drive in top gun blue SBB
DS-RZ1EF-VW <sup>1</sup>	18.2 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-RZ1ED-VW <sup>1</sup>	18.2 GB 16-bit UltraSCSI 10000 RPM disk drive in top gun blue SBB

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

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

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

**Note:** Additional tape drives and devices are supported. Refer to the Supported Options List for operating system support at [http://www.digital.com/alphaserver/tech\\_docs/alphasrv4100/docs/supported\\_options.html](http://www.digital.com/alphaserver/tech_docs/alphasrv4100/docs/supported_options.html)

Selection of an additional adapter/controller may be required; selection will be configuration dependent, call 1-800-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-TLZ10-VA	12/24 GB 4 mm DAT narrow SCSI tape drive in 3.25" StorageWorks carrier
DS-TZS20-VW	25/50 GB 8mm AIT SCSI tape drive in 3.5" StorageWorks carrier
DS-TZ89N-VW	35/70 GB DLT wide SCSI tape drive in 5.25" StorageWorks carrier
TZK11-VA	2 GB QIC tape drive in 5.25" StorageWorks carrier
DS-RRD47-VA	600 MB 32X CD-ROM drive in 5.25" StorageWorks carrier
TLZ9L-VA	32/64 GB 4mm DAT SCSI tape loader in full height 5.25" StorageWorks carrier

**Step 5b—Removable Media (continued)**

<b>DS-TLZ10-DB</b>	12/24 GB 4 mm DAT narrow SCSI tabletop tape drive with 50-pin LD SCSI connector
<b>DS-TZ89N-TA</b>	35/70 GB DLT wide SCSI tabletop tape drive with 68-pin HD female SCSI connector
<b>TLZ9L-DB</b>	32/64 GB 4mm DAT SCSI tabletop tape loader with 50-pin HD female SCSI connector
<b>DS-TL890-NE<sup>1</sup></b>	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
<b>DS-TL891-NE<sup>1</sup></b>	10 slot Rackmount mini library with one TZ89N-AV, Interlock Kit required (2T-TL891-SL), 68-pin HD female SCSI connector. Requires differential controller.
<b>DS-TL891-NT<sup>1</sup></b>	10 slot Tabletop mini library with one TZ89N-AV, 68-pin HD female SCSI connector. Requires differential controller.

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

**Step 5c—StorageWorks Shelves**

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

**UltraSCSI Configuration Rules**

- UltraSCSI configurations require UltraSCSI components (adapters/shelves/disks/cables).
- UltraSCSI adapters and RAID controllers support UltraSCSI disks at UltraSCSI speeds in UltraSCSI shelves (BA36R-xx) shelves.
- Fast10 SCSI shelves may not be retrofitted. When connecting to an UltraSCSI adapter, replace Fast10 SCSI shelf with UltraSCSI (BA36R-xx) shelf.
- 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.

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

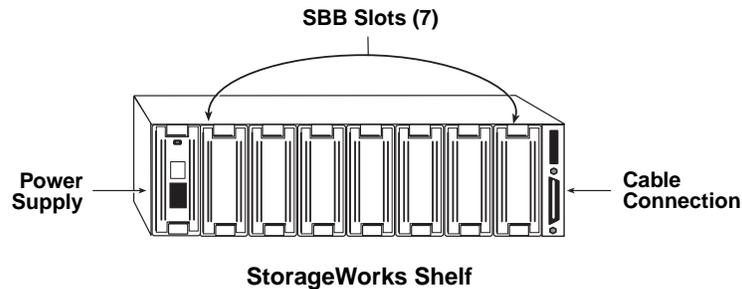
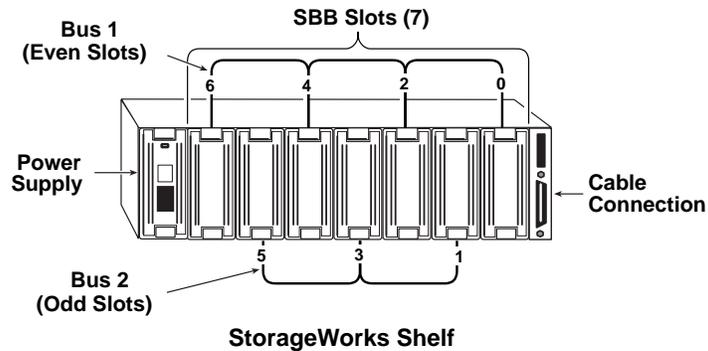
**StorageWorks Fast10 SCSI Shelf Kits**

StorageWorks Fast10 SCSI Shelf kits include a BA356 16-bit Wide StorageWorks shelf, and a 16-bit personality module with a power supply in system building block (SBB), mounting hardware, and power cord. Fast10 shelves operate in Fast10 mode when connected to KZPAA-AA, and KZPSA-BB adapters and controllers.

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

<b>BA36R-SB</b>	Pedestal StorageWorks Fast10 SCSI shelf kit (Worldwide)
<b>BA36R-RA</b>	Cabinet StorageWorks Fast10 shelf kit (Worldwide)
<b>BA35X-ME</b>	Split bus mode active terminator for BA36R shelf (for Fast10 SCSI shelves only)

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**Step 5c—StorageWorks Shelves (continued)**
**Single Bus StorageWorks Shelf****Split Bus StorageWorks Shelf**


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

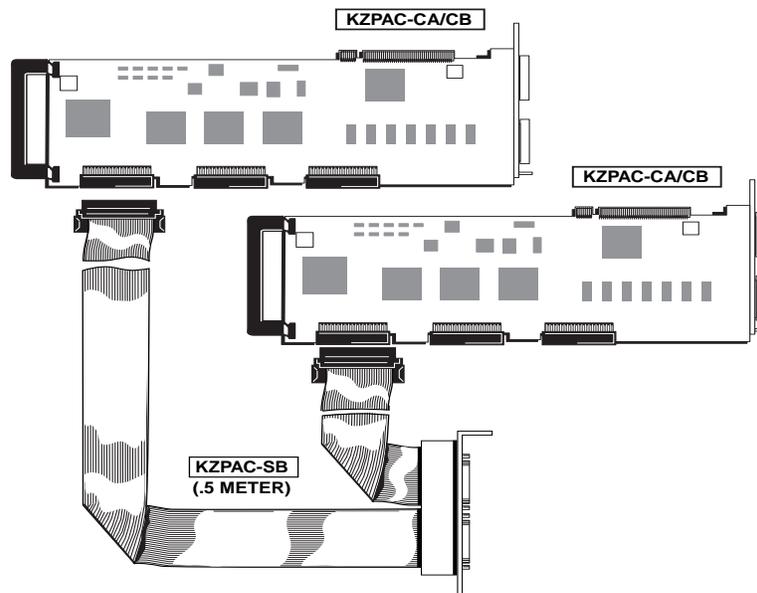
- Selection of one SCSI adapter/controller and a SCSI cable is mandatory for Pedestal or Cabinet Enclosure, see Step 1c.
- Additional adapters/controllers are supported.

O/S Support required : Tru64 UNIX V4.0D or OpenVMS V7.1-1H1		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
<b>KZPCM-DA</b>	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet Combo adapter, uses 1 PCI slot	2	2
<b>BN37A-03</b>	3 m VHDCI male to VHDCI male UltraSCSI cable. Required for each UltraSCSI shelf attached to KZPCM.		
<b>BN37A-05, -10</b>	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		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
<b>KZPBA-CA</b>	PCI-based one-port UltraSCSI Single-ended adapter	5	8
<b>BN38C-03</b>	3 m VHDCI male to 68HD male SCSI cable. Required for each UltraSCSI shelf connected to KZPBA		
<b>BN38C-05, -10, -20</b>	5–20 m VHDCI male to 68HD male cable		
<b>KZPBA-CB<sup>1</sup></b>	PCI-based one port UltraSCSI Differential adapter	5	8
<b>BN38C-03</b>	2 m VHDCI male to 68HD male UltraSCSI cable. Required for each external UltraSCSI shelf attached to KZPBA		
<b>BN38C-05, -10, -20</b>	5–20 m VHDCI male to 68HD male cable		

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		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
KZPAC-AA <sup>2</sup>	PCI-based one port UltraSCSI Single-ended RAID controller with 4 MB cache memory; includes RAID Array 230/plus Subsystem software and documentation kit; tape drives/libraries not supported.	4	4
BN37A-03	3 m VHDCI male to VHDCI male cable. Required for each UltraSCSI shelf attached to KZPAC.		
KZPSA-BB	PCI-based one-port FWD SCSI adapter; requires DWZZB-VW signal converter if connecting directly to Fast10 SCSI StorageWorks shelf.	5	10
BN21K-02	2 m 16-bit SCSI cable (internal)		
BN21K-03, 05, 10, 15, 20	3–20 m 16-bit SCSI cable (external)		
KZPAC-CA <sup>2</sup>	PCI-based three-port UltraSCSI RAID controller (Single-ended) with 4 MB cache memory, includes RAID Array 230/Plus Subsystem Software and documentation kit, tape drives/libraries not supported.	4	4
KZPAC-CB <sup>2</sup>	Same as above with 8 MB cache memory	4	4
KZPSC-UB <sup>3</sup>	Cache battery-backup for KZPAC controller		
BN31K-0E <sup>4</sup>	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-SB <sup>4</sup>	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.		

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



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

O/S Support required: Tru64 UNIX V3.2F, OpenVMS V7.1-1H1, Windows NT 3.51		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
<b>KZPAA-AA</b>	PCI-based one port Fast Narrow Single-ended SCSI adapter	2	2
<b>BN21N-02</b>	2 m 8-bit to 16-bit SCSI cable, required for each 16-bit Fast10 shelf connected to KZPAA To connect KZPAA to an UltraSCSI shelf, use BN21H-xx or BN38A-0B cable		
O/S Support required: OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00 8-slots	4000 16-slots
<b>KFPESA-AA</b>	PCI-based DSSI controller. Requires HSDxx controller to connect directly to StorageWorks shelf	4	4
<b>BC29S-06</b>	Connection to HSD10 installed in BA36R Pedestal shelf		
<b>BC29S-09</b>	Connection to HSD10 installed in BA36R Cabinet shelf		
O/S Support required: OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
<b>CIPCA-BA</b>	PCI-based CI adapter -BA requires two PCI slots and one CI cable per adapter	3 <sup>1</sup>	6 <sup>1</sup>
<b>CIPCA-AA</b>	PCI-based CI adapter -AA requires 1 EISA and 1 PCI and one CI cable per adapter	2 <sup>1</sup>	2 <sup>1</sup>
<b>BNCIA-10</b>	10 m CI cable		
<b>BNCIA-20</b>	20 m CI cable		
<b>BNCIA-45</b>	45 m CI cable		

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

**Step 5e—External Storage Controllers**

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

**SCSI controllers**

- Minimum operating system support: 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-Ax requires one QB-5CJAA-SA kit  
HSZ52-Ax requires two QB-5CJAA-SA kits  
HSZ54-AJ requires four QB-5CJAA-SA kits

<b>HSZ50-AF</b>	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
<b>HSZ50-AH</b>	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
<b>HSZ50-AJ</b>	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
<b>HSZ52-AF</b>	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
<b>HSZ52-AH</b>	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

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

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<b>HSZ52-AJ</b>	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
<b>HSZ54-AJ</b>	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.

<b>HSD50-AF</b>	StorageWorks DSSI Array controller with 32 MB cache; 6 channel and ECB
<b>HSD50-AH</b>	StorageWorks DSSI Array controller with 64 MB cache; 6 channel and ECB
<b>HSD50-AJ</b>	StorageWorks DSSI Array controller with 128 MB cache; 6 channel and ECB
<b>HSD52-AF</b>	StorageWorks Dual DSSI Array controller with 64 MB cache; 6 channel and ECB
<b>HSD52-AH</b>	StorageWorks Dual DSSI Array controller with 128 MB cache; 6 channel and ECB
<b>HSD52-AJ</b>	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.

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

**Controller Accessories**

<b>H879-AA</b>	External SCSI 68-pin male 8-bit or 16-bit differential terminator
<b>H885-AA</b>	SCSI Tri-link connector, 68-pin, two female and one male connector
<b>BN21W-0B</b>	SCSI Y cable 68-pin, two female and one male
<b>BN30B-02</b>	IEC to IEC power cord, gray for H9A10-MD/H9A15-MD Cabinet (Europe)
<b>BN35S-02</b>	IEC to IEC power cord, black for H9A10-MD H9A15-MD Cabinet (Europe)
<b>BA35R-MR</b>	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)
<b>BA35X-HF</b>	150 W power supply for n+1 redundant support in Fast10 shelves
<b>SC008-AC</b>	Star Coupler Passive Hub device, supports eight CI ports
<b>SC008-AD</b>	Additional 8 ports for Star Coupler Passive Hub device

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## Step 5f—UltraSCSI RAID Array Controllers and UltraSCSI RAID Packaged Solutions

### RAID Array 3000 Rackmount Controller Shelf

- 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 an RA3000 Solutions Software Kit (QB-5TWAB-SA) is required.

**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 country-specific power cords, host adapter, RA3000 disk shelf, and disks

**Options:** Second HSZ22 controller, up to 3 additional RA3000 disk shelves, cache memory upgrade

### RAID Array 3000 Rackmount Disk Shelf

- Select one to four disk shelves.
- Third and fourth DS-SWXRA-GN disk shelf ordered will be installed in rear of an M-series cabinet. Rear mounted shelves require a 2 meter SCSI cable (BN37A-02)—order SCSI cable separately for installation of third and fourth disk shelves.

**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 country-specific 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.

### RA3000 Solutions Software Kit for Tru64 UNIX

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

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

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


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**BA370 Rackmounted Enclosure**

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.

<b>2T-BA370-AS</b>	<b>BA370 Front mount rackmount enclosure</b> includes RETMA rackmount kit. First BA370 enclosure must be front mounted in cabinet, 20U height
<b>2T-BA370-AR</b>	<b>BA370 Rear mount rackmount enclosure</b> includes RETMA rackmount kit. Second BA370 enclosure must be rear mounted in cabinet, 20U height <b>Note:</b> Rear Cabinet Extender, H9C10-TE or H9C15-TE, is mandatory for second BA370.
<b>H9C10-TE</b>	Rear Cabinet Extender, Top Gun Blue, for H9A10-MC/MD cabinets
<b>H9C15-TE</b>	Rear Cabinet Extender, Top Gun Blue, for H9A15-MC/MD cabinets

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**ESA 10000 Storage Arrays and RAID Array 7000 (RA7000) Options**

- ESA 10000 Storage Arrays and RAID Array 7000 (HSZ70 Product Set) are supported on AlphaServer 4x00 systems
- The HSZ70 is supported on KZPSA-BB Fast Wide Differential adapter and the KZPBA-CB UltraSCSI Differential controller.

**ESA 10000 Enterprise Storage Arrays**

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.

<b>DS-SWXES-AA/AB</b>	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 <b>Requires:</b> HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately <b>Options:</b> 64 MB cache upgrade and fully redundant power
<b>DS-SWXES-BA/BB</b>	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 <b>Requires:</b> HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately <b>Options:</b> 64 MB cache upgrade and fully redundant power
<b>DS-SWXES-CA/CB</b>	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 <b>Requires:</b> HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately <b>Options:</b> Fully redundant power

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

**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.

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**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.

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**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.

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**Adapters and Platform Specific Solutions Software**

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

**Step 5f—UltraSCSI RAID Array Controllers and UltraSCSI RAID Packaged Solutions (continued)****HSZ70 Solutions Software Kits include:**

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

**Select Adapter and HSZ70 Solutions Software Kit for appropriate platform**

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

**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 UNX, 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

**Disk Expansion Cabinet**

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

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

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

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

**DS-BA35X-HE** ac power control unit, required when more than five 180 Watt power supplies are installed

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

**Additional Options**

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

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

**DS-BA35X-BA** Battery shelf for SW600 cabinet

**DS-BA35X-MK** Dual speed fan kit

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

**DS-BA35X-EB** Environmental Monitor Unit (EMU)

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

**BN37A-xx** Host to controller cable

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

**H9C10-JC** H9A10 Cabinet Joiner Kit for SW600

**H8865-AA** UltraSCSI Single-Ended external terminator

**H8863-AA** UltraSCSI Differential external terminator

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

<b>DS-BA370-AA</b>	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.
<b>DS-SW600-AA</b>	60 Hz 600 mm Storage Cabinet includes single phase power distribution unit DS-SW6XP-AA
<b>DS-SW600-AB</b>	50 Hz 600 mm Storage Cabinet includes single phase power distribution unit DS-SW6XP-AA

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

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

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

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

**StorageWorks Accessories**

<b>DWZZB-VW</b>	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.
<b>BN21K-02, -03, -05 -10, -15, -20</b>	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, OpenVMS V7.1-1H1		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
<b>KZPCM-DA</b>	PCI-based dual-port UltraSCSI Single-ended adapter and 10/100 Mbit Ethernet combo adapter, uses 1 PCI slot	2	2
<b>BN25G-xx</b>	Cable for 10/100BaseT Twisted Pair connection		
O/S Support required: Tru64 UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
<b>DE500-AA</b>	PCI-based 10/100 Mbit Fast Ethernet Adapter (Twisted Pair)	4	4
<b>BN25G-xx</b>	Cable for 10/100BaseT Twisted Pair connection		

**Step 6—Networks and Communications (continued)**

<b>O/S Support required: Tru64 UNIX V4.0D, OpenVMS V6.2-1H3, Windows NT 4.01</b>		<b>Maximum # Supported</b>	
<b>Order Number</b>		<b>4x00-8 slots</b>	<b>4000-16 slots</b>
<b>DE500-BA</b>	PCI-based 10/100 Mbit Fast Ethernet adapter Cat 5 UTP	4	4
<b>DE504-BA<sup>1</sup></b>	PCI-based 10/100 Mbit quad channel Ethernet adapter Cat 5 UTP	1	1
<b>BN25G-xx</b>	Cable for 10/100BaseT Twisted Pair connection		
<b>BN24Q-xx</b>	UTP crossover cable for 10/100BaseT Cat 5		
<b>DE500-FA</b>	PCI-based 10/100 Mbit Ethernet adapter MMF	4	4
<b>BN34B-xx</b>	SC-SC Dual FO cable, mm, pp. xx = m length		
<b>O/S Support required: Tru64 UNIX V3.2F, OpenVMS V6.2-1H3, Windows NT 3.51</b>		<b>Maximum # Supported</b>	
<b>Order Number</b>		<b>4x00-8 slots</b>	<b>4000-16 slots</b>
<b>DEGPA-SA</b>	PCI-based Gigabit Ethernet adapter, SC connectors, MMF	4	8
<b>BN34B-xx</b>	SC-SC Dual FO cable, mm, pp. xx = length in meters		
<b>DE450-CA</b>	PCI-based 10 Mbit Ethernet adapter; AU1, 10/100BaseT, or 10Base2	4	4
<b>BNE4C-02</b>	2 m (6.6 ft.) cable for AU1 connection, Ethernet/IEEE 802.3		
<b>BNE4C-05</b>	5 m (16.4 ft.) cable for AU1 connection		
<b>BN25G-xx</b>	Cable for 10/100BaseT Twisted Pair connection		
<b>BC16M-06</b>	Cable for 10/100Base2 ThinWire connection		
<b>DEFPA-AB</b>	PCI-based FDDI Adapter, single attachment station (SAS), multi-mode fiber (MMF), SC connector	4	4
<b>DEFPA-DB</b>	PCI-based FDDI Adapter, DAS, MMF, SC connector	4	4
<b>BN34D-xx</b>	MIC-SC dual fiber optic cable		
<b>BN34B-xx</b>	SC to SC dual fiber optic cable		
<b>DEFPA-UB</b>	PCI-based FDDI Adapter, SAS, TP-PMD, requires BN25H-03	4	4
<b>DEFPA-MB</b>	PCI-based FDDI Dual Adapter, DAS, TP-PMD, requires BN25H-03	4	4
<b>BN25H-03</b>	3 m (9.8 ft) FDDI crossover cable		
<b>PBXDA-AA<sup>2</sup></b>	PCI-based 4-port asynchronous controller; cable included	2	4
<b>PBXDA-AB<sup>2</sup></b>	PCI-based 8-port asynchronous controller; cable included	2	4
<b>PBXDA-AC<sup>2</sup></b>	PCI-based 16-port asynchronous controller; cable included	2	4

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
2. PBXDA-Ax asynchronous controllers installed in systems running OpenVMS V6.2-1H3 require a VMS Tima Kit: ALPCPU1603\_062. Digiboard drivers are also available at: <http://www.dgii.com>

**Step 6—Networks and Communications (continued)**

O/S Support required: Tru64 UNIX V4.0B, OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
PBXDP-AA	PCI-based 2 port Synchronous controller, X.25, SNA	2	4
PBXDP-AB	PCI-based 4 port Synchronous controller	2	4
PBXDP-AC	PCI-based 8 port Synchronous controller	2	4
BC33L-06	EIA-232/V24/V28 Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33M-06	EIA-422 (EIA-530/V.11/X.27) Interface cable, MD25 pin to DB25 for PBXDP-AA/AB/AC		
BC33N-06	EIA-423 (V.10) Interface cable, MD25 pin to DB25 for PBXDP-AA		
BC33P-06	EIA-449 Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33R-06	EIA-485 Interface cable MD25 pin to DB25 for PBXDP-AA		
BC33T-06	V.35 Interface cable MD25 pin to Winchester Male for PBXDP-AA/AB/AC		
BC33S-06	X.21 Interface cable MD25 pin to DA15 for PBXDP-AA/AB/AC		
BC33P-06	EIA-449 Interface cable MD25 pin to DC37 for PBXDP-AA		
BC33U-06	EIA-232 to X.21 MD25F to DA15M for PBXDP-AB/AC		
BC33V-06	EIA-232 to EIA-422/530 Adapter MD25F to DB25M for PBXDP-AB/AC		
BC33W-06	EIA-232 to EIA-449/V.36 Adapter MD25F to DC37M for PBXDP-AB/AC		
BC33Y-06	EIA-232 to V.35 Adapter MD25 to Winchester Male for PBXDP-AB/AC		

O/S Support required: Tru64 UNIX V3.2G, OpenVMS V6.2-1H3		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
SN-PBXNP-AC	PCI-based Token Ring adapter	4	4
BN25G-xx	Cable for 10/100BaseT Twisted Pair connection		

O/S Support required: Tru64 UNIX V3.2F/V3.2G		Maximum # Supported	
Order Number		4x00-8 slots	4000-16 slots
DGLPA-FA <sup>1</sup>	PCI-based ATMworks 351 Adapter MMF, SC connector	2-Tru64 UNIX 1-OpenVMS	2-Tru64 UNIX 2-OpenVMS
DGLPA-UA <sup>1</sup>	PCI-based ATMworks 351 Adapter UTP CAT-5 with RJ45 connector	2-Tru64 UNIX 1-OpenVMS	2-Tru64 UNIX 2-OpenVMS
CXI01-AA	ISA-based asynchronous multiport MUX 16 port XEM	1	1
CXI01-AC	ISA-based asynchronous MUX cable converter RJ45 to DB25	1	1
CXI01-AF	Eight RJ45 to DEC MJII adapters	1	1

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).

**Step 7—MEMORY CHANNEL Controller****Tru64 UNIX Systems**

- Require Tru64 UNIX V3.2G or later and System Console Firmware Revision 2.0.
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a Tru64 UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high availability environment require a license for TruCluster for Tru64 UNIX.

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## Step 7—MEMORY CHANNEL Controller (*continued*)

### OpenVMS Systems

- Require OpenVMS V7.1 and OpenVMS Cluster license

### Configuring information:

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

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

<b>CCMAA-BA</b>	PCI to MEMORY CHANNEL Controller—Single port MEMORY CHANNEL option
<b>CCMHA-AA</b>	100 MB MEMORY CHANNEL Hub with 4 Line Cards
<b>CCMLA-AA</b>	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
<b>CCMRA-AA</b>	Rackmount kit for mounting MEMORY CHANNEL hub
<b>BC12N-10</b>	MEMORY CHANNEL cable
<b>QB-3RLAG-KA</b>	TruCluster Software for Tru64 UNIX; includes TruCluster and Memory Channel licenses
<b>QB-4ZCAG-AA</b>	Tru64 UNIX Driver for MEMORY CHANNEL license; not required if QB-3RLAG-KA selected
<b>QL-MUZAG-AA</b>	OpenVMS Cluster license for Alpha systems

**Note:** For stand alone configurations, CCMHA-AA MEMORY CHANNEL Hub, includes BN19P-2E power cord for Canada, Japan, US operation. For other regions, order power cords from Step 10.  
In rackmount configurations MEMORY CHANNEL controller requires 4U of space.

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## 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

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

**Step 8—Monitors (continued)**

- SN-VRQPI-24/23** 21" (19.6" viewable image size) professional series auto-scanning color monitor, Diamondtron CRT, 0.25 mm aperture grill pitch, VGA to 1600 x 1200 at 75 Hz NI, TCO 98, Energy Star, includes a 1.8 m video cable. Requires mandatory selection of video extension cable and country specific power cord for all variants.  
 -24 = Northern Hemisphere without power cord  
 -23 = Southern Hemisphere without power cord

**Step 8a—Video Extension Cable**

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

**Step 8b—Monitor Power Cords**

- BN26J-1K** North America  
**BN19A-2E** UK/Ireland/Hong Kong  
**BN19C-2E** Central Europe  
**BN19E-2E** Switzerland  
**BN19H-2E** Australia/New Zealand  
**BN19K-2E** Denmark  
**BN18L-2E** Israel  
**BN19M-2E** Italy  
**BN19S-2E** India/South Africa

**Step 9—Graphics Adapters**

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

Graphics Adapters—Operating System Support required		Tru64 UNIX	OpenVMS	Windows NT
<b>SN-PBXGB-AA</b>	PowerStorm 3D30 graphics, 2 MB 1600 x 1200, 2D/3D graphic accelerator	V4.0D	V7.1-1H2	4.0
<b>SN-PBXGI-AD</b>	PowerStorm 4D51T 3D Graphics, 16 MB texture memory 1280 x 1024, High Performance 3D shading, texture mapping, OpenGL	V4.0B	—	—

**Graphics Adapter Upgrade Kit for 3D High Performance Graphics**

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

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

Graphics Adapter Upgrade Kit—Operating System Support required		Tru64 UNIX	OpenVMS	Windows NT
<b>304XU-2W</b>	Field Upgrade for PowerStorm 4D51T 3D Graphics, 16 MB texture memory 1280 x 1024	V4.0B	—	—

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**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.

<b>Tru64 UNIX Keyboard</b>	<b>OpenVMS Keyboard</b>	<b>Country</b>
SN-LKQ47-AA	LK461-A2	US/English
SN-LKQ47-AB	LK461-AB	Belgian
SN-LKQ47-AC	LK461-AC	Canadian/French
SN-LKQ47-AD	LK461-AD	Danish
SN-LKQ47-AE		UK
SN-LKQ47-AF	LK461-AF	Finnish
SN-LKQ47-AG	LK461-AG	German
	LK461-AH	Dutch
SN-LKQ47-AI	LK461-AI	Italian
SN-LKQ47-AJ		Japanese
SN-LKQ47-AK	LK461-AK	Swiss/French
	LK461-AL	Swiss/German
SN-LKQ47-AM	LK461-AM	Swedish
SN-LKQ47-AN	LK461-AN	Norwegian
SN-LKQ47-AP	LK461-AP	French
	LK461-AQ	Canadian/English
SN-LKQ47-AR		Latin-American
SN-LKQ47-AS	LK461-AS	Spanish
SN-LKQ47-AT	LK461-AT	Hebrew
SN-LKQ47-AV	LK461-AV	Portuguese
SN-LKQ47-AX		Bhesy
SN-LKQ47-BA		International
SN-LKQ47-BK		Korean
	LK461-BL	Romanian
SN-LKQ47-BP	LK461-BP	Polish
SN-LKQ47-BQ	LK461-BQ	Hungarian
SN-LKQ47-BR		Arabic
SN-LKQ47-BT	LK461-BT	Cyrillic
SN-LKQ47-BU	LK461-BU	Turkish
SN-LKQ47-BV	LK461-BV	Czech
	LK461-BW	Turkish-French
	LK461-BY	Yugoslavian
SN-LKQ47-CB		Thai
SN-LKQ47-CV		S. Chinese
SN-LKQ47-CZ	LK461-CZ	Slovak

**Power Cords—Quantity of two required for Pedestals**

BN19A-2E	UK/Ireland/Hong Kong
BN19C-2E	Central Europe
BN19E-2E	Switzerland
BN19H-2E	Australia/New Zealand
BN19K-2E	Denmark
BN18L-2E	Israel
BN19M-2E	Italy
BN19S-2E	India/South Africa

## 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

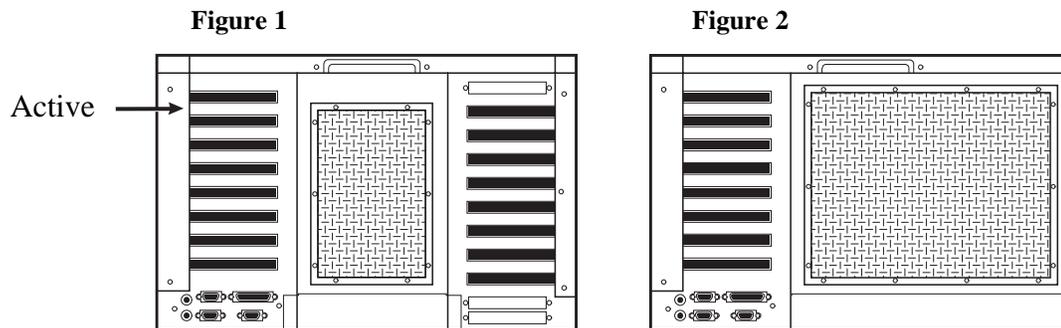
Console terminals can either be a graphics monitor connected to a graphics adapter or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT220, VT320, VT420, or VT520 compatible. Select terminals, printers, and cables as required.

## Step 12—AlphaServer 4000 System Drawer 16 PCI Slot Expansion Option (for Field Installation)

- AlphaServer 4000 System Drawers ship with 16 active I/O slots (see Figure 1).
- To convert an existing 8 PCI slot AlphaServer 4000 system to a 16 PCI slot AlphaServer 4000 system, order PCI Slot Expansion Option (H7150-AA).

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

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



## Step 12a—PCI I/O Upgrades

### System Upgrades

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

Order Number	From	To	Includes
DN-53ZEA-AA	AlphaServer 4100	AlphaServer 4000 <sup>1</sup> with 16 I/O Slots (Windows NT 4.0)	AlphaServer 4000 System Drawer Upgrade for Windows NT with I/O Expansion Option <b>Note:</b> Mandatory return of existing AlphaServer 4100 System Drawer
DA-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 <sup>1</sup> with 16 I/O Slots (Tru64 UNIX)	AlphaServer 4000 System Drawer Upgrade with Tru64 UNIX base system license and I/O Expansion Option <b>Note:</b> Mandatory return of existing AlphaServer 4100 System Drawer
DY-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 with 16 I/O Slots (OpenVMS)	AlphaServer 4000 System Drawer Upgrade with OpenVMS base system license and I/O Expansion Option <b>Note:</b> Mandatory return of existing AlphaServer 4100 System Drawer

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

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## Step 13—Software

### AlphaServer 4000/41000 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.

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.digitial.com/alphaserver/tech\\_docs/alphasrv4100/docs/supported\\_options.html](http://www.digitial.com/alphaserver/tech_docs/alphasrv4100/docs/supported_options.html)

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

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

**Note:** 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.

<b>QB-5Z6AB-WA</b>	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer—English
<b>QB-5Z6JB-WA</b>	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer—Japanese
<b>QB-5Z6PB-WA</b>	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer—French
<b>QB-5Z6SB-WA</b>	Windows NT Server V4.0 Enterprise Edition Conversion Software Kit for AlphaServer—Spanish
<b>QB-5Z6GB-WA</b>	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.

<b>QR-SMWNT-BA</b>	Windows NT Server 4.0 Enterprise Edition Base I & S Package
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### 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**.

<b>QB-23CAA-SE</b>	Windows NT Server license, media kit—English
<b>QB-23C8A-SE</b>	Windows NT Server license, media kit—International English
<b>QB-23CPA-SE</b>	Windows NT Server license, media kit—French
<b>QB-23CGA-SE</b>	Windows NT Server license, media kit—German
<b>QB-23CSA-SE</b>	Windows NT Server license, media kit—Spanish
<b>QB-23CUA-SE</b>	Windows NT Server license, media kit—Italian
<b>QB-23CJA-SE</b>	Windows NT Server license, media kit—Japanese
<b>QB-23CMA-SE</b>	Windows NT Server license, media kit—Swedish

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**Step 13—Software (continued)**

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

**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

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**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.

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## Step 13—Software (*continued*)

### 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

### 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-H8 <sup>1</sup>	Layered products media and documentation for OpenVMS on CD-ROM
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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

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## Step 14—Hardware and Software Warranty and Supplemental Services

### Hardware Warranty

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

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

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

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

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## Step 14—Hardware and Software Warranty and Supplemental Services (*continued*)

### Software Warranty

- 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.

### Installation

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

<b>FM-51CPU-IN</b>	Add-on SMP Installation
<b>FM-51MEM-IN</b>	Add-on Memory Installation
<b>FM-51DWR-IN</b>	AlphaServer 4100/4000 Drawer Installation
<b>FM-51PED-IN</b>	AlphaServer 4100/4000 Pedestal Installation
<b>FM-51CAB-IN</b>	AlphaServer 4100/4000 Cabinet Installation
<b>FM-TRAVL-IN</b>	One time travel charge per installation

### AlphaServer 4100/4000 Software Support Supplemental Services

#### Windows NT

<b>FM-WNTO2-12</b>	1-year, Software Support Supplemental Service
<b>FM-WNTO2-36</b>	3-year, Software Support Supplemental Service
<b>FM-WNTO2-60</b>	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 4000 Tru64 UNIX

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

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## Step 14—Hardware and Software Warranty and Supplemental Services

### 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 4000 OpenVMS

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

### 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

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

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

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**Step 14—Hardware and Software Warranty and Supplemental Services (*continued*)**
**AlphaServer 4100/4000 Pedestal or Cabinet Enclosure with first System Drawer**

<b>FM-5H616-36</b>	3-year 6 x 16, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5H616-60</b>	5-year 6 x 16, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5H724-36</b>	3-year 7 x 24, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5H724-60</b>	5-year 7 x 24, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5VXHW-60</b>	5-year 5 x 9, next day, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V4HR-36</b>	3-year 5 x 9, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V4HR-60</b>	5-year 5 x 9, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V512-36</b>	3-year 5 x 12, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V512-60</b>	5-year 5 x 12, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V616-36</b>	3-year 6 x 16, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V616-60</b>	5-year 6 x 16, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V724-36</b>	3-year 7 x 24, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
<b>FM-5V724-60</b>	5-year 7 x 24, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet

**AlphaServer 4100/4000 Memory**

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

**Step 14—Hardware and Software Warranty and Supplemental Services (continued)****AlphaServer 4100/4000 CPU Add-on Options**

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

**Specifications**

External Dimensions	Pedestal System		Cabinet System		System Drawer	
			<b>H9A10 M-Series</b>			
Height	75 cm (29.5 in)		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)	
			<b>H9A15 M-Series</b>			
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 <sup>1</sup>	10°C - 40°C (50°F - 104°F)		10°C - 40°C (50°F - 104°F)		10°C - 40°C (50°F - 104°F)	
Nonoperating	-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40°F - 150.8°F)	
Storage (60 days)	-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40F ° - 150.8°F)		-40°C - 66°C (-40°F - 150.8°F)	
Rate of Change	11°C - 19.8°C/hr (20°F - 36°F/hr)		11°C - 19.8°C/hr (20°F - 36°F/hr)		11°C - 19.8°C/hr (20°F - 36°F/hr)	
Relative Humidity						
Operating	20%-90% noncondensing		20%-90% noncondensing		20%90% noncondensing	
Nonoperating	10%-95%		10%-95%		10%-95%	
Storage (60 days)	10%-95%		10%-95%		10%-95%	
4100 Max Heat Dissipation	1800 <sup>2</sup> W, 6143 BTU/hr		4800 W, 16382 BTU/hr		1100 W, 3754 BTU/hr	
4000 Max Heat Dissipation	1450 <sup>2</sup> W, 6143 BTU/hr		4800 W, 16382 BTU/hr		700 W, 3754 BTU/hr	
Airflow						
Quantity	200 CFM		300 CFM <sup>3</sup>		200 CFM	
Intake	Rear		Rear		Rear	
Exhaust	Front		Front and Top		Front	
Altitude						
Operating	3,050 m (10,000 ft)		3,050 m (10,000 ft)		3,050 m (10,000 ft)	
Nonoperating	12,200 m (40,000 ft)		12,200 m (40,000 ft)		12,200 m (40,000 ft)	
Mechanical Shock						
Operating	7.5 G, 10+/-3 ms		5 G, 10+/-3 ms		10 G, 10+/-3 ms	
Vibration (min/max)						
Operating	5-10 Hz	0.02 in-da	5-10 Hz	0.02in-da	5-10 Hz	0.02in-da
	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)	

## AlphaServer 4100/4000

### Specifications *(continued)*

Electrical (min/max)	U.S.	Europe	U.S.	Europe	
Voltage	100-120 V	200-240 V	100-120 V	200-240 V	100-120/200-240 V
Phase	Single	Single	Single	Single	Single
Nominal Frequency	50 Hz -60 Hz	50 Hz -60 Hz	50 Hz -60 Hz	50 Hz -60 Hz	50 Hz -60 Hz
Maximum rated current	12 A (multiple cord set)	10 A (multiple cord set)	24 + 24 A dual controllers	16 + 16 A dual controllers	8.4 A/4.2 A (single cord set) 8 A/4 A (multiple cord set)
AlphaServer 4100 typical power	720 W	920 W	config-specific	config-specific	650 W
AlphaServer 4000 typical power	550 W	550 W	config-specific	config-specific	430 W
Power Cord Length Plug	450 cm (177 in) NEMA 5-15P	200-250 cm Country specific	450 cm (177 in) NEMA L5-30P	450 cm IEC309, 32A	250 cm (98.4 in) IEC 320
<b>Agency Approvals</b>	CUL Marked for Canada 3 UL 1950, Ed.3 TUV EN 60 950/ A3 GS FCC part 15.B Class A verified CE Class A  IEC 950 2 <sup>nd</sup> Ed. 3 <sup>rd</sup> Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 <sup>rd</sup> Ed. Rev July 1995, UL standard 73/23/EEC		cUL Marked for Canada 3 UL 1950, Ed.3 TUV EN 60 950/ A3 GS FCC part 15.B Class A verified CE Class A  IEC 950 2 <sup>nd</sup> Ed. 3 <sup>rd</sup> Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 <sup>rd</sup> Ed. Rev July 1995, UL standard 73/23/EEC		cUL Marked for Canada 3 UL 1950, Ed.3 TUV EN 60 950/ A3 GS FCC part 15.B Class A verified CE Class A BCIQ CB Cert. UL, UL927- 44877/USA IEC 950 2 <sup>nd</sup> Ed. 3 <sup>rd</sup> Amend. EN 60 950: 1995 AS/NZS 3260:1963, Australian/ New Zealand Standard CAN/CSA-C22.2 No. 950-95, CSA Standard UL 1950, 3 <sup>rd</sup> 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.