AlphaServer 8200 and AlphaServer 8400 Windows NT Systems V2.6—13 July 1998

DIGITAL Systems and Options Catalog

Product Description

The AlphaServer 8200 and 8400 line brings Windows NT support to the industry's already recognized leading solution for mission critical enterprise applications. AlphaServer 8200 and 8400 systems extend their mainframe power into highly scaleable, highly available Windows NT Server solutions for the most demanding enterprise applications, i.e., datawarehousing/datamart, enterprise resource planning with SAP, BAAN, J.D. Edwards, SAS, Oracle applications, etc. These enterprise Windows NT servers offer a 12-15 month lead on the competition for enterprise Windows NT delivery with the power of large scale SMP, Very Large Memory and almost unlimited storage and I/O expandability.

AlphaServer 8200 and 8400 systems have the ability to increase capacity as the customer needs it in the same system package. Initial support under Windows NT Server 4.0/Enterprise Edition is 2-8 processors, 1-18 GB of memory and 12-48 PCI slots. Full configuration support will be available with future releases of Windows NT software. Digital AlphaServers are "Windows NT 64-bit VLM Ready" today.

Existing AlphaServer 8000 5/300, 5/350, 5/440 or 5/625 customers can easily migrate their DIGITAL UNIX or OpenVMS environments to Windows NT. Migrating to Windows NT requires the addition of the AlphaServer 8000 Windows NT Console Subsystem hardware the KFE72-xx, the appropriate Windows NT Server 4.0/Enterprise Edition software conversion kit with media, licenses, and miscellaneous firmware and documentation in five of the most popular language versions: English, Spanish, French, German and Japanese; and, installation service. Digital Services is required to install the conversion options at the end user's location.

Microsoft Cluster Server support is available on AlphaServer 8000 systems so that you can build two-node AlphaServer 8200 or 8400 Windows NT clusters to deliver even higher levels of system availability.

Digital’s Windows NT product family, with the AlphaServer 8200 and 8400 enterprise class servers included, is the only full range Windows NT source, with unequaled high-end performance and headroom for growth through the end of the century. These servers are supported by the best worldwide service organization with a range of Windows NT consulting services from which to choose.

Step 1—AlphaServer 8200 and 8400 Windows NT Expanded Base Servers

- Selection of a Windows NT Server 4.0/Enterprise Edition plus 25-client access license, media (CD-ROM) kit and documentation is **mandatory**, see Step 2 for country-specific language kits.
- SVGA video monitor for user station and PS2 style keyboard for video monitor are **required**; order separately if not available at customer site, see Step 9.
- Console terminal for system console use is **required** to follow system power-on process and for system diagnostics; order separately if not available at customer site, see Step 10.
- Select PCI I/O devices listed in this Windows NT configuration menu **only**.
- Note that Windows NT Servers **do not** support XMI, FutureBus, EISA, or DSSI adapters, controllers and options, see Step 14 for additional information.
- See Step 13 and the Digital Priority Service Packages for Supplemental Hardware and Software Service offerings

AlphaServer 8200 Windows NT Expanded Base Servers include

- Processor module with two Alpha microprocessor 21164 5/440 MHz or 5/625 MHz CPUs; each CPU includes 4 MB backup cache.
- Five-slot system backplane—three slots are used by dual CPU module, system I/O module (KFTHA-AA), and memory module.
- System I/O module with four I/O channels (KFTHA-AA)
- 1 GB, 2 GB or 4 GB of memory
- 12-slot PCI Shelf Mount Box (DWLPB-CA)
- Note: 4 open slots are available for additional PCI options after all Enterprise Base Server PCI options are installed
- KFE72-BA Windows NT console hardware subsystem with 2 asynchronous serial ports, 1 parallel port, keyboard and mouse ports, floppy drive, PCI TGA2 graphics accelerator adapter (PBXGB-AA PowerStorm 3D30), and extension cables for video, keyboard and mouse—uses 5 PCI slots
- 3-button mouse (PBXWS-WA)
- Digital Fast Ethernet Network Interface card (DE500-AA)—uses 1 PCI slot
- PCI-based SCSI controller and cable
  - 5/440 MHz CPU system with one KZPSA-BB and one BN21K-xx SCSI cable
  - 5/625 MHz CPU system with one KZPBA-CA UltraSCSI single-ended host adapter and one BN38C-02 SCSI cable
- 16-bit Wide StorageWorks Shelf
  - 5/440 MHz CPU Systems with one BA356-JB
  - 5/625 MHz CPU Systems with one DS-BA356-JG UltraSCSI shelf
- 4.3 GB 3.5" SCSI system disk drive
- Factory Installed Software (FIS)
- 600 MB CD-ROM drive housed in BA656-AA integrated storage drawer
- PCI single-ended SCSI controller (KZPAA-AA) for CD-ROM connection only, and BN21H-02 SCSI cable, connects CD-ROM to controller—uses 1 PCI slot
- Universal single-phase power supply, requires selection of power cord from Step 1a.
- Redundant power supply (N+1)—optional
- Shielded console cable for connection to console terminal
- ServerWorks Manager kit
- Hardware documentation
- One year hardware product warranty, on-site, 4-hour response, five days per week
- Software warranty on Microsoft's Windows NT Server 4.0/Enterprise Edition is conformance to the written material accompanying the software for a period of ninety days
- Product installation is included in Country List Price for 5/440 and 5/625 system units sold within the U.S. and some other countries.

AlphaServer 8200 Dual CPU Expanded Base Servers

Order Number	Operating System	CPU	Memory	Power
DN-282FE-A9	Windows NT	Two 5/440 MHz	1 GB	Single-phase
DN-282FF-A9	Windows NT	Two 5/440 MHz	2 GB	Single-phase
DN-282FG-A9	Windows NT	Two 5/440 MHz	4 GB	Single-phase
DN-282GE-A9	Windows NT	Two 5/625 MHz	1 GB	Single-phase
DN-282GF-A9	Windows NT	Two 5/625 MHz	2 GB	Single-phase
DN-282GG-A9	Windows NT	Two 5/625 MHz	4 GB	Single-phase

Step 1a

Selection of a power cord is **mandatory** for AlphaServer 8200 systems unless a redundant power supply is ordered. H7266-AD/AE Power Supplies include a power cord, see Step 11.

BN23H-4E 60 Hz - 4.5 m ac power cord for AlphaServer 8200, one per cabinet
BN20P-4E 50 Hz - 4.5 m ac power cord for AlphaServer 8200, one per cabinet

Step 1—AlphaServer 8200 and 8400 Windows NT Expanded Base Servers *(continued)*

AlphaServer 8400 Windows NT Expanded Base Servers include

- Processor module with two Alpha microprocessor 21164 5/440 MHz or 5/625 MHz CPUs; each CPU includes 4 MB backup cache
- Nine-slot system centerplane—three slots used by dual CPU module, system I/O module (KFTHA-AA), and memory module
- System I/O module with four I/O channels (KFTHA-AA)
- 2 GB or 4 GB of memory
- 12-slot PCI Plug-In Unit (DWLPB-AA)
  - Note: 4 open slots are available for additional PCI options after all Enterprise Base Server PCI options are installed.
- KFE72-AA Windows NT console hardware subsystem with 2 asynchronous serial ports, 1 parallel port, keyboard and mouse ports, floppy drive, PCI TGA2 graphics accelerator adapter (PBXGB-AA PowerStorm 3D30), and extension cables for video, keyboard and mouse—uses 5 PCI slots
- 3-button mouse (PBXWS-WA)
- Digital Fast Ethernet Network Interface card (DE500-AA)—uses 1 PCI slot
- PCI-based SCSI controller and cable
  - 5/440 MHz CPU system with one KZPSA-BB and one BN21K-xx SCSI cable
  - 5/625 MHz CPU system with one KZPBA-CA UltraSCSI single-ended host adapter and one BN38C-02 SCSI cable
- 16-bit Wide StorageWorks Plug-in-unit (PIU)
  - 5/440 MHz CPU system with one BA660-AB
  - 5/625 MHz CPU system with one BA670-AA UltraSCSI PIU
- 4.3 GB 3.5" SCSI system disk drive
- Factory Installed Software (FIS)
- 600 MB CD-ROM drive
- PCI single-ended SCSI controller (KZPAA-AA) for CD-ROM connection only, and BN21H-02 SCSI cable, connects CD-ROM to controller—uses 1 PCI slot
- Two H7263-AC or H7263-AD non-BBU capable three-phase power regulators, includes power cord
- Shielded console cable for connection to console terminal
- ServerWorks Manager kit
- Hardware documentation
- One year hardware product warranty, on-site, 4-hour response, five days per week
- Software warranty on Microsoft's Windows NT Server 4.0/Enterprise Edition is conformance to the written material accompanying the software for a period of ninety days
- Product installation is included in Country List Price for 5/440 and 5/625 system units sold within the U.S. and some other countries.

AlphaServer 8400 Dual CPU Expanded Base Servers

Order Number	Operating System	CPU	Memory	Power
DN-292FF-AA	Windows NT	Two 5/440 MHz	2 GB	Three-phase
DN-292FF-AB	Windows NT	Two 5/440 MHz	2 GB	Three-phase
DN-292FF-AC	Windows NT	Two 5/440 MHz	2 GB	Three-phase
DN-292FG-AA	Windows NT	Two 5/440 MHz	4 GB	Three-phase
DN-292FG-AB	Windows NT	Two 5/440 MHz	4 GB	Three-phase
DN-292FG-AC	Windows NT	Two 5/440 MHz	4 GB	Three-phase

Order Number	Operating System	CPU	Memory	Power
DN-292GF-AA	Windows NT	Two 5/625 MHz	2 GB	Three-phase
DN-292GF-AB	Windows NT	Two 5/625 MHz	2 GB	Three-phase
DN-292GF-AC	Windows NT	Two 5/625 MHz	2 GB	Three-phase
DN-292GG-AA	Windows NT	Two 5/625 MHz	4 GB	Three-phase
DN-292GG-AB	Windows NT	Two 5/625 MHz	4 GB	Three-phase
DN-292GG-AC	Windows NT	Two 5/625 MHz	4 GB	Three-phase

Note: **x**A = 60 Hz, 208 V, xB = 50 Hz, 416 V, xC = 50/60 Hz, 202 V Japan.
Three Phase power variations include attached power cord.
5/625 MHz CPU systems are clocked at 612.8 MHz for AlphaServer 8200 and 8400 applications

Step 2—Windows NT Country-Specific Language Kits

- Selection of a Windows NT Server 4.0/Enterprise Edition plus 25-client access license, media (CD-ROM) kit and documentation is **mandatory**.
- Windows NT Server 4.0/Enterprise Edition is the required version of software for AlphaServer 8200 and 8400 Windows NT systems.
- Windows NT Server kits are only orderable with Expanded Base Servers, they are **not** available separately.
- Kit includes: Windows NT Server 4.0/ Enterprise Edition plus 25-client access license, media (CD-ROM) kit and documentation in shrink-wrapped package. Kit also includes all unique AlphaServer 8x00 firmware and media required for Windows NT systems.

AlphaServer 8200 Windows NT Server 4.0/Enterprise Edition Kits

QB-5YUAA-WB	Windows NT Server 4.0/Enterprise Edition 1-8 CPU license and media	English
QB-5YUPA-WB	Windows NT Server 4.0/Enterprise Edition 1-8 CPU license and media	French
QB-5YUGA-WB	Windows NT Server 4.0/Enterprise Edition 1-8 CPU license and media	German
QB-5YUSA-WB	Windows NT Server 4.0/Enterprise Edition 1-8 CPU license and media	Spanish
QB-5YUJA-WB	Windows NT Server 4.0/Enterprise Edition 1-8 CPU license and media	Japanese

AlphaServer 8400 Windows NT Server 4.0/Enterprise Edition Kits

QB-5YUAA-WC	Windows NT Server 4.0/Enterprise Edition 1-16 CPU license and media	English
QB-5YUPA-WC	Windows NT Server 4.0/Enterprise Edition 1-16 CPU license and media	French
QB-5YUGA-WC	Windows NT Server 4.0/Enterprise Edition 1-16 CPU license and media	German
QB-5YUSA-WC	Windows NT Server 4.0/Enterprise Edition 1-16 CPU license and media	Spanish
QB-5YUJA-WC	Windows NT Server 4.0/Enterprise Edition 1-16 CPU license and media	Japanese

Step 3—Additional CPU Modules (SMP Expansion Options)

- **AlphaServer 8200 Windows NT systems** support up to two additional dual CPU modules for a maximum of three CPU modules (total of 6 CPUs).
- **AlphaServer 8400 Windows NT systems** support up to three additional dual CPU modules for a maximum of four CPU modules (total of 8 CPUs).
- CPU modules must be the same speed.
- For more than two processor modules in a system, a minimum of 2 two-bank memory modules are recommended for optimal system performance.
- All SMP upgrades include processor module with two Alpha microprocessors, and end-user product warranty.
- Base Windows NT license supports additional SMP add-ons.

756P5-AX	Windows NT 5/440 SMP add-on module, includes two 5/440 CPUs per module
758P5-AX	Windows NT 5/625 SMP add-on module, includes two 5/625 CPUs per module

Step 4—Memory

- **AlphaServer 8200** Windows NT systems support a maximum of 12 GB of memory
  - Up to 2 additional memory modules can be added for a system maximum of 3 memory modules, not to exceed AlphaServer 8200 maximum capacity of 12 GB
- **AlphaServer 8400** Windows NT systems support a maximum of 18 GB of memory
  - Up to 6 additional memory modules can be added for a system maximum of 7 memory modules, not to exceed AlphaServer 8400 maximum capacity of 18 GB.
- Memory modules
  - 512 MB through 2 GB memory modules have built in two-way interleaving; additional interleaving is accomplished by adding more memory modules
  - 4 GB memory modules have built in four-way interleaving. Best performance is achieved when two 2 GB modules are paired with one 4 GB module, **or** one 4 GB memory module is paired with another 4 GB memory module.

MS7CC-DA	512 MB memory module
MS7CC-EA	1 GB memory module
MS7CC-FA	2 GB memory module
MS7CC-GA	4 GB memory module
MS7CC-UB	512 MB to 1 GB Memory upgrade

Step 5—I/O Expansion Buses

- Select PCI I/O devices listed in this Windows NT Server configuration menu **only**.
- Systems include one KFTHA I/O module with four I/O channels, for a total of 48 PCI slots (40 open slots for customer use). Maximum of one KFTHA supported per system.

AlphaServer 8200—PCI Shelf Mount Box

- Systems include one 12-slot PCI Shelf Mount Box (DWLPB-CA), up to a maximum of three supported in system cabinet.
- Each DWLPB-CA PCI Shelf Mount Box includes a 12-slot PCI bus and required cable for connection to I/O channel.
- Each PCI Shelf Mount Box requires one I/O channel connection to KFTHA-AA.

Note: Each 12-slot PCI Shelf Mount Box DWLPB-CA installed in System Cabinet reduces available StorageWorks Shelf bays by two.

DWLPB-CA	PCI shelf mount box for AlphaServer 8200 system cabinet only—maximum three per cabinet.

AlphaServer 8400—PCI Plug-in Unit

- Systems include one 12-slot PCI Plug-in Unit (PIU) DWLPB-AA, up to a maximum of two supported.
- Each DWLPB-AA/AB PCI PIU includes a 12-slot PCI bus and uses one rear expansion bay. StorageWorks BA6x0-AB PIU can occupy the corresponding front expansion bay.
- Each DWLPB-AA/AB PCI PIU has one open space for addition of DWLPB-BA/BB (second PCI expansion box) or BA6x1-AA Wide SCSI StorageWorks shelf.

DWLPB-AA	PCI plug-in unit with one PCI box for AlphaServer 8400 system cabinet only, maximum two per system cabinet, two per system. Requires one I/O channel connection on KFTHA-AA.
DWLPB-BA	Second PCI expansion box for mounting in DWLPB-AA—maximum one per DWLPB-AA. Requires one I/O channel connection on KFTHA-AA.

Step 6—PCI-based Storage Controllers

Up to 33 SCSI buses supported on systems running Windows NT Operating System.

KZPBA-CA	**PCI one-port UltraSCSI Single-ended Adapter**—Requires one PCI slot, maximum 8 supported per PCI, maximum 8 per system.
KZPBA-CB	**PCI one-port UltraSCSI Differential Adapter**—Requires one PCI slot, maximum 8 supported per PCI, maximum 8 per system.
BN38C-01/02	1/2 meter UltraSCSI cable—VHDCI male to HD 68-pin male. Connects KZPBA-Cx to rear mounted UltraSCSI shelf (DS-BA356-Jx in AlphaServer 8200, or BA671-Ax in AlphaServer 8400)
KZPSA-BB	**PCI one-port Fast Wide Differential SCSI Adapter**—Requires one PCI slot, maximum 8 supported per PCI (DWLPB), maximum 32 per system.
BN21K-xx	SCSI-2 Fast Wide Differential cables—68-pin male straight to 68-pin male right-angle. Connects KZPSA-BB to DWZZB-VW signal converter. Select cable length required to connect KZPSA controller to DWZZB in BA356-xx or BA66x shelves.
KZPAC-AA	**PCI one-port RAID Array (FWSE) Controller with 4 MB cache memory**—Requires one PCI slot. Provides one SCSI connection. Allows RAID levels 0, 1 and 5. Includes RAID Array 230/Plus subsystem software and documentation kit. Tape and optical drives **not** supported. Maximum 4 supported per PCI (DWLPB), maximum 4 per system.
KZPAC-CA	**PCI three-port RAID Array (FWSE) Controller with 4MB cache memory**—Requires two PCI slots. Provides three SCSI connections. Allows RAID levels 0, 1 and 5. Includes RAID Array 230/Plus subsystem software and documentation kit. Tape and optical drives **not** supported. Maximum 4 supported per PCI (DWLPB), maximum 4 per system if third port not used (otherwise maximum of three per PCI (DWLPB), three per system). Order BN31K-0E or KZPAC-SB for third port connection.
KZPAC-CB	**Same as above with 8 MB cache memory**
MS100-BB	8 MB cache memory option; upgrades KZPAC-CA to KZPAC-CB, field installable only
KZPSC-UB	Cache memory battery back-up for KZPAC controllers

Step 6—PCI-based Storage Controllers *(continued)*

KZPAC-SB	SCSI cable/bulkhead assembly kit with two ports for KZPAC-CA/CB, allows connection of two third-port outputs using one PCI bulkhead slot
BN31K-0E	SCSI cable/bulkhead assembly kit for KZPAC-CA/CB; required for connection of third port to second PCI bulkhead slot.
BN31S-1E	1.5 meter SCSI cable, required for each Fast-10 shelf connected to KZPAC controller. Manufacturing may substitute BN31S-02 cable for certain cabinet configurations.
BN31S-02	2.0 meter SCSI cable, required for each Fast-10 shelf connected to KZPAC controller.
BN37A-01/02	1/2 meter UltraSCSI cable, VHDCI male to VHDCI male, required for each UltraSCSI shelf connected to KZPAC controller.

Step 6a—External Storage Controllers

- Controllers require KZPSA-BB or KZPBA-CB SCSI controller.
  - DS-HSZ70-Ax requires one QB-5SBAD-SA/SB kit
  - HSZ50-Ax requires one QB-5CJAA-SA kit
  - HSZ52-Ax requires two QB-5CJAA-SA kits
  - HSZ54-AJ requires four QB-5CJAA-SA kits
- Controllers are supported in SW800 cabinets.

DS-HSZ70-AH	**StorageWorks UltraSCSI RAID Array controller** includes 64 MB cache, expandable to 128 MB. Requires DS-HS35X-BC external cache battery and HSZ70 Solution Software kit, order separately.
HSZ50-AF	**StorageWorks RAID Array 450/HSZ50 32 MB SCSI controller** includes 6 SCSI channels, 36 SCSI-2 device connections in redundant configurations (42 when non-redundant), 32 LUN maximum, 32 MB cache module, single external cache battery system building block.
HSZ50-AH	**StorageWorks RAID Array 450/HSZ50 64 MB SCSI controller** includes 6 SCSI channels, 36 SCSI-2 device connections in redundant configurations (42 when non-redundant), 32 LUN maximum, 64 MB cache module, single external cache battery system building block.
HSZ50-AJ	**StorageWorks RAID Array 450/HSZ50 128 MB SCSI controller** includes 6 SCSI channels, 36 dual, 42 single SCSI-2 device connections, 32 LUN maximum, 128 MB cache module, single external cache battery system building block.
HSZ52-AF	**StorageWorks RAID Array 450/HSZ50 64 MB dual SCSI controller** includes 12 SCSI channels, 36 SCSI-2 device connections, 32 LUN maximum, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2 meter cables.
HSZ52-AH	**StorageWorks RAID Array 450/HSZ50 128 MB dual SCSI controller** includes 12 SCSI channels, 36 SCSI-2 device connections, 32 LUN maximum, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2 meter cables.
HSZ52-AJ	**StorageWorks RAID Array 450/HSZ50 256 MB dual SCSI controller** includes 12 SCSI channels, 36 SCSI-2 device connections, 32 LUN maximum, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2 meter cables.
HSZ54-AJ	**StorageWorks RAID Array 450/HSZ50 512 MB quad SCSI controller** includes 12 SCSI channels, 72 SCSI-2 device connections, 64 LUN maximum, four cache modules, two dual external cache battery system building blocks, four external cache batteries, four 2 meter cables.

Step 7—Storage

When multiple storage devices are configured with the system, specify which devices should be installed inside the system cabinet, inside the system expansion cabinet, or installed in the external StorageWorks cabinet. Line item sequencing allows Manufacturing to configure storage options in the appropriate cabinet.

- List storage options to be integrated in system cabinet immediately following system part number.
- List storage options to be integrated in StorageWorks cabinet immediately following StorageWorks cabinet part number.
- Order appropriate SCSI cables for connecting controllers and storage options.

Step 7a—Internal Storage Shelves and Plug-in Units—System Cabinet

AlphaServer 8200 Windows NT System Cabinets

- **5/440 MHz CPU** Systems include
  One 12-slot PCI Shelf Mount Box (DWLPB-CA) and one Fast-10 SCSI StorageWorks shelf (BA356-JB)
- **5/625 MHz CPU** Systems include
  One 12-slot PCI Shelf Mount Box (DWLPB-CA) and one UltraSCSI single channel StorageWorks shelf (DS-BA356-JG)
- Systems cabinet supports up to six SCSI StorageWorks shelves, or up to three PCI Shelf Mount Boxes, or a combination of StorageWorks shelves and PCI Shelf Mount Boxes. Each DWLPB-CA installed reduces number of StorageWorks shelves supported by two. For example:
  System cabinet with **one** DWLPBA-CA PCI Shelf Mount Box installed supports **four** StorageWorks shelves.
  System cabinet with **two** DWLPBA-CA PCI Shelf Mount Boxes installed supports **two** StorageWorks shelves.
- StorageWorks shelves support maximum of seven 3.5” devices, or two 5.25” devices and one 3.5” device. Shelves support narrow and wide SCSI 5400 RPM and 7200 RPM disk drives. Drives negotiate maximum transfer speeds with UltraSCSI adapters/controllers.
- System configurations with DWZZB-VW signal converter installed reduces available 3.5" device slots by one.
- UltraSCSI and Fast-10 disk drives can be mixed in DS-BA356-JG/JH UltraSCSI StorageWorks shelves. Drives negotiate maximum transfer speeds with UltraSCSI adapters/controllers.
- Each StorageWorks shelf requires a SCSI controller for each active SCSI port and SCSI cable to connect controller to shelf.
- BA656 Internal Storage Drawer included in system cabinet provides space for four narrow 5400 RPM and 7200 RPM 3.5" SCSI devices.

BA356-JB **Wide SCSI StorageWorks Shelf**—includes 16-bit I/O personality module, 48V/150W dc power supply, dc fans, and rackmounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum revision levels.

DS-BA356-JG **UltraSCSI Single Channel StorageWorks Shelf**—includes 16-bit I/O personality module, 48V/150W dc power supply, dc fans, and rackmounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum revision levels.

DS-BA356-JH **UltraSCSI Dual Channel StorageWorks Shelf**—includes 16-bit I/O personality module, 48V/150W dc power supply, dc fans, and rackmounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum revision levels.

AlphaServer 8400 Windows NT System Cabinets

- **5/440 MHz CPU** Systems include:
  One 12-slot PCI Plug-In Unit (DWLPB-AA) and one Wide SCSI Plug-In-Unit (BA660-AB)
- **5/625 MHz CPU** Systems include:
  One 12-slot PCI Plug-In Unit (DWLPB-AA) and one UltraSCSI Plug-In-Unit (BA670-AA)
- System supports up to a maximum of two 12-slot PCI Plug-In Units, and up to a maximum of seven StorageWorks shelves, i.e., three BA660 or BA670 Plug-In Units (each BA660/BA670 includes two SCSI shelves), and one BA661 or BA671 StorageWorks shelf (each BA661/BA671 includes one SCSI shelf).
- StorageWorks shelves support maximum of seven 3.5” devices, or two 5.25” devices and one 3.5” device. Shelves support narrow and wide SCSI 5400 RPM and 7200 RPM disk drives.
- System configurations with DWZZB-VW signal converter installed reduces available 3.5" device slots by one.
- UltraSCSI and Fast-10 disk drives can be mixed in BA670 or BA671 UltraSCSI Plug-in Units. Drives negotiate maximum transfer speeds with UltraSCSI adapters/controllers.
- Each StorageWorks shelf requires a SCSI controller for each active SCSI port and SCSI cable to connect controller to shelf.

BA660-AB **Wide SCSI StorageWorks PIU**—includes two shelves, 16-bit I/O personality module, 48 V/150 W dc power supply, dc fans, and AlphaServer 8400 mounting hardware. Supports 16-bit and some 8-bit SCSI devices depending on compliance with minimum hardware revision levels.

BA670-AA **Ultra SCSI Single Channel StorageWorks PIU**—includes two shelves, 16-bit I/O personality module, single channel I/O module, 48 V/150 W dc power supply, and AlphaServer 8400 mounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum hardware revision levels.

BA670-AB **Ultra SCSI Dual Channel StorageWorks PIU**—includes two shelves, 16-bit I/O personality module, dual channel I/O module, 48 V/150 W dc power supply, and AlphaServer 8400 mounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum hardware revision levels.

Step 7a—Internal Storage Shelves and Plug-in Units—System Cabinet *(continued)*

AlphaServer 8400 StorageWorks Shelves

BA661-AA **Wide SCSI StorageWorks Shelf**—includes 16-bit I/O personality module, 48V/150 W dc power supply, dc fans, mounting hardware. Can be added to DWLPB-AA/AB in place of second PCI expansion box (DWLPB-BA/BB). Maximum one BA661-AA per DWLPB-AA/AB; maximum six BA661-AA per system. Supports 16-bit and some 8-bit SCSI devices depending on compliance with minimum hardware revision levels.

BA671-AA **Ultra SCSI- Single Channel StorageWorks Shelf**—includes 16-bit I/O personality module, single channel I/O module, 48V/150W DC power supply, mounting hardware. Can be added to DWLPB-AA/AB in place of second PCI expansion box (DWLPB-BA/BB). Maximum one BA671-AA per DWLPB-AA/AB; maximum six BA671-AA per system. Supports 16-bit (wide) SCSI and some 8-bit (narrow) SCSI devices.

BA671-AB **Ultra SCSI Dual Channel StorageWorks Shelf**—includes 16-bit I/O personality module, dual channel I/O module, 48V/150W DC power supply, and mounting hardware. Can be added to DWLPB-AA/AB in place of second PCI expansion box (DWLPB-BA/BB). Maximum one BA671-AB per DWLPB-AA/AB; maximum six BA671-AB per system. Supports 16-bit (wide) SCSI and some 8-bit (narrow) SCSI devices.

Step 7b—Disk Drives

DS-RZ28L-VA	2.1 GB 7200 RPM 8-bit narrow SCSI disk drive
DS-RZ1CF-VA	4.3 GB 7200 RPM 8-bit narrow SCSI disk drive
DS-RZ1DF-VA	9.1 GB 7200 RPM 8-bit narrow SCSI disk drive
DS-RZ1EF-VA	18.2 GB 7200 RPM 8-bit narrow SCSI disk drive
DS-RZ1BB-VW[1]	2.1 GB 7200 RPM 16-bit wide disk drive
DS-RZ1CF-VW[1]	4.3 GB 7200 RPM 16-bit wide disk drive
DS-RZ1DF-VW[12]	9.1 GB 7200 RPM 16-bit wide disk drive
DS-RZ1EF-VW[1]	18.2 GB 7200 RPM 16-bit wide SCSI disk drive

1. DS-RZ1xx-VW UltraSCSI disk drives are not supported in a BA356 shelf on the same SCSI bus with a 5.25” SBB.
2. 9.1 GB disk drive is not currently supported with an HSD05 or HSD10 StorageWorks Array controller.

Step 7c—Removable Media

TLZ09-VA	8.0 GB 4 mm DAT drive 93 MB/min (compressed) in 5.25” StorageWorks carrier
TLZ9L -VA	32/64 GB 4 mm DAT tape loader in StorageWorks carrier
TZ88N-VA	20/40 GB DLT 5.25-inch SCSI tape drive in StorageWorks carrier
TZK11-VA	2 GB QIC tape drive in StorageWorks carrier

Note: Tape drives and optical devices are not supported on KZPAC SCSI RAID controller

Additional Tape Drives supported

TZ87, TZ875, TZ877, TZ885, TZK10, TZK12, TZK20, TLZ06, TLZ07,DS-TL891-NE/NT, DS-TL892-UA, TKZ62

Step 7d—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions

UltraSCSI RAID Array Controller

DS-HSZ70-AH StorageWorks UltraSCSI RAID Array controller includes 64 MB cache, 6 UltraSCSI single-ended channels, CLI cable kit, controller to controller jumper cable, and two ECB cables. Requires HSZ70 Solutions Software Kit and external cache battery.

Step 7d—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions

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 8200 and AlphaServer 8400 systems running Windows NT Server 4.0 Enterprise Edition
- The HSZ70 is supported on the KZPSA-BB Fast Wide Differential controller and KZPBA-CB UltraSCSI Differential controller.

ESA 10000 Enterprise Storage Arrays

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

DS-SWXES-AA/AB ESA 10000 high capacity/general business base unit

Includes**:** Data Center 600 mm enclosure
2 BA370-AA Rackmounted shelves with 5 shelf power supplies each, expandable to 8
2 HSZ70 six port controllers 64 MB mirrored write back cache each, expandable to 128 MB each
6 Ultra SCSI expansion cables
1 10 meter host to controller cable (BN37A-10)
Serial line assembly with adapters (9 pin and 25 pin)
Power cord and documentation
Supports up to 48 drives

Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately
Options: 64 MB cache upgrade and fully redundant power

DS-SWXES-BA/BB ESA 10000 high bandwidth base unit

Includes: Data Center 600 mm enclosure
2 BA370-AA Rackmounted shelves with 5 shelf power supplies each, expandable to 8
4 HSZ70 six port controllers 64 MB mirrored write back cache each, expandable to 128 MB each
2 10 meter host to controller cables (BN37A-10)
Serial line assembly with adapters (9 pin and 25 pin)
Power cord and documentation
Supports up to 48 drives

Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately
Options: 64 MB cache upgrade and fully redundant power

DS-SWXES-CA/CB ESA 10000 dual expansion base unit

Includes: Data Center 600 mm enclosure
2 BA370-AA Rackmounted shelves with 5 shelf power supplies each, expandable to 8
12 Ultra SCSI expansion cables
SW600 cabinet joiner kit
Power cord and documentation
Supports up to 48 drives

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

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

Includes: Data Center 600 mm enclosure
1 BA370-AA Rackmounted shelf with 5 shelf power supplies, expandable to 8
2 HSZ70 six port controllers 64 MB mirrored write back cache each, expandable to 128 MB each
1 10 meter host to controller cable (BN37A-10)
Serial line assembly with adapters (9 pin and 25 pin)
Power cord and documentation
Supports 24 drives, expandable to 48 with BA370 rackmount upgrade.

Requires: HSZ70 Solutions Software kit for platform, host adapter, and disks to be ordered separately
Options: 64 MB cache upgrade, fully redundant power, and BA370 rackmount upgrade.

Step 7d—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions *(continued)*

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 meter host to controller cable BN37A-05 with BN38E-0B VHDCI to 68 HD conversion cable,
Serial line kit, controller to controller jumper cable for redundant controllers, and U.S. power cord.

Requires: HSZ70 Solutions Software Kit for platform, host adapter, and disks to be ordered separately
Options: 64 MB cache upgrade, Up to two RA7000 Expansion cabinets. Optional power supplies.

DS-SWXRA-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 meter 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.

Adapters and Platform Specific Solutions Software

- Each KZPSA or KZPBA adapter ordered to support HSZ70(s) requires an HSZ70 Solutions Software Kit
- 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.

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 Windows NT

Supported Adapters	HSZ70 Solutions Software Kit	Host Platform
KZPBA-CB or KZPSA-BB	**QB-5SBAD-SA/SB**	Windows NT

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

Step 7d—UltraSCSI RAID Array Controller and UltraSCSI RAID Packaged Solutions *(continued)*

DS-BA35X-HH	180 Watt Power Supply. Fully redundant power requires three additional power supplies, one additional DS-BA35X-HE power control unit, and one additional DS-SW6XP-AA/AB power distribution unit.
DS-BA35X-HE	AC Power Control Unit, required when more than five 180 Watt power supplies are installed
DS-SW6XP-AA/AB	SW600 Power Distribution Unit, quantity of 1 required for each SW600 for full power redundancy.

Additional Options

DS-HS35X-BC	Single replacement external cache battery, one battery in a single Blue SBB
DS-HS35X-BD	Dual replacement external cache battery, two batteries in a single Blue SBB, supports cache of dual redundant controllers. Requires ordering 1 Power Verification and Addressing (PVA) DS-BA35X-EC
DS-BA35X-BA	Battery shelf for SW600 cabinet
DS-BA35X-MK	Dual speed fan kit
DS-BA35X-MN	Single-Ended I/O module
DS-BA35X-EB	Environmental Monitor Unit (EMU)
DS-BA35X-EC	Power Verification and Addressing (PVA)
BN37A-xx	Host to controller cable
BN38E-0B	68-pin HD to VHDCI UltraSCSI conversion cable
H9C10-JC	H9A10 Cabinet Joiner Kit for SW600
H8865-AA	UltraSCSI Single-Ended external terminator
H8863-aa	UltraSCSI Differential external terminator
DS-BA370-AA	Rackmountable BA370 shelf includes five 180 W power supplies, eight high power blowers, RETMA and Metric mounting kit.
DS-SW600-AA	60 Hz 600 mm Storage Cabinet includes single phase power distribution unit DS-SW6XP-AA
DS-SW600-AB	50 Hz 600 mm Storage Cabinet includes single phase power distribution unit DS-SW6XP-AA

Step 7e—I/O Expansion Cabinet

AlphaServer 8200 I/O Expansion Cabinet

- H9B10-EA I/O expansion cabinet provides space for a maximum of 16 SCSI StorageWorks shelves and a maximum of four DWLPB-CB PCI Shelf Mount Boxes per system.
- Each DWLPB-CB installed in expansion cabinet reduces number of StorageWorks shelves supported by two.
- Disk and tape drives supported are the same as Step 7 Internal Storage.

H9B10-EA	AlphaServer 8200 I/O expansion cabinet—Single Phase power, maximum two per system
DWLPB-CB	PCI shelf mount box for AlphaServer 8200 expansion cabinet only—maximum four per cabinet.

AlphaServer 8400 I/O Expansion Cabinet

- H9F00-BA/BB/BC/BD I/O expansion cabinets provide space for up to six SCSI disk plug-in units (PIU). Each of the two pairs of expansion bays in the bottom of the cabinet can hold one Battery PIU, one PCI PIU or two SCSI disk PIUs. Two expansion bays in the top of the expansion cabinet can hold up to two SCSI disk PIUs.
- Disk and tape drives supported are the same as Step 7 Internal Storage.

H9F00-BA/BB/BC	AlphaServer 8400 I/O expansion cabinet—Three phase power, maximum two per system **Note:** -BA = 60 Hz, 208V, -BB = 50 Hz, 380/416V, -BC = 50/60 Hz, 202V
DWLPB-AB	PCI plug-in unit for AlphaServer 8400 expansion cabinet only, maximum two per expansion cabinet, four per system. Requires one I/O channel connection on KFTHA-AA.
DWLPB-BB	Second PCI expansion box for mounting in DWLPB-AB—maximum one per DWLPB-AB. Requires one I/O channel connection on KFTHA-AA.

Step 8—Networks and Communications

Systems include Fast Ethernet Network Interface card (DE500-AA)—uses 1 PCI slot

DE500-AA	**PCI 10/100 Mbit Fast Ethernet Controller**—Twisted Pair. Up to 8 supported per PCI (DWLPB), maximum 8 per system.
DE500-BA	**PCI 10/100 Mbit Fast Ethernet UTP Controller**—Unshielded Twisted Pair. Up to 8 supported per PCI (DWLPB), maximum 8 per system. Requires BN24Q, BN28Q, BN25G or BN26M cable.
BN24Q-xx	Category 5 Cross-over cable for point-to-point connections, unshielded for DE500-AB
BN28Q-xx	Category 5 Cross-over cable for point-to-point connections, shielded for DE500-AB
BN25G-03	3 meter (9.8 ft) cable for 10BaseT Twisted Pair connection
BN26M-xx	Twisted pair shielded cable (-03,-04,-07 lengths avail) for DE500-BA
DE450-CA	**PCI 10 Mbit Ethernet Controller**—AUI, 10BaseT, or 10Base2. Up to 8 supported per PCI (SWLPB), maximum 8 per system.
BNE4C-02	2 meter cable for AUI connection, Ethernet/IEEE 802.3 devices
BNE4C-05	5 meter cable for AUI connection
BN25G-04	4 meter (13.1 ft) cable for 10BaseT Twisted pair connection
BN25G-07	7 meter (22.3 ft) cable for 10BaseT Twisted Pair connection
BC16M-06	6-ft cable for 10Base2 ThinWire connection
BC16M-15	15-ft cable for 10Base2 ThinWire connection
BC16M-30	30-ft cable for 10Base2 ThinWire connection
DEFPA-AB	**PCI to FDDIcontroller Fiber—Single attachment station (SAS)**, MultiMode Fiber (MMF), SC connector. Up to 6 supported per PCI (DWLPB), maximum 6 per system.
DEFPA -DB	**PCI to FDDIcontroller Fiber—Dual attachment station (DAS)**, MultiMode Fiber (MMF), SC connector. Up to 6 supported per PCI (DWLPB), maximum 6 per system.
BN34D-xx	MultiMode Fiber Optic Duplex cable—SC connector to MIC connector
BN34B-xx	MultiMode Fiber Optic Duplex cable—SC connector to SC connector
DEFPA-UB	**PCI to FDDIcontroller Copper—Single attachment station (SAS)**, TP-PMD. Up to 6 supported per PCI (DWLPB), maximum 6 per system. Requires BN25H-03 connecting cable.
DEFPA-MB	**PCI to FDDIcontroller Copper—Dual attachment station (DAS)**, TP-PMD. Up to 6 supported per PCI (DWLPB), maximum 6 per system. Requires BN25H-03 connecting cable.
BN25H-03	3 meter Unshielded twisted pair RJ45 connectors

Step 9—Video Monitors and Keyboard

- Windows NT systems require a video monitor and keyboard for user stations unless available on site.
- Select country specific power cords for -W3 and W4 variants.

SN-VRCX5-W*	15" (13.9" viewable image size) high resolution color monitor (Corporate Series)
SN-VRTX7-W*	17" (16.0" viewable image size) high resolution color monitor (Professional Series), Trinitron
SN-VRCX1-W*	21" (19.7" viewable image size) high resolution color monitor (Professional Series), Diamondtron

***** WA=Northern Hemisphere with 120V power cord, W3=Northern Hemisphere without power cord, W4=Southern Hemisphere without power cord.

Monitor Power Cords

BN26J-1K	North American, Japan, 120 V, 75-inches long
BN19H-2E	Australia, New Zealand, 2.5m long
BN19C-2E	Central Europe, 2.5 m long
BN19A-2E	UK, Ireland, 2.5 m long
BN19E-2E	Switzerland, 2.5 m long
BN19K-2E	Denmark, 2.5 m long
BN19Z-2E	Italy, 2.5 m long
BN19T-2E	Egypt, India, 2.5 m long
BN18L-2E	Israel, 2.5 m long

Step 9—Video Monitors and Keyboard *(continued)*

Keyboards

LK47W-Ax	PS/2 PC-style Keyboard (Frost White)
LK97W-Ax	105 Key Windows 95 Keyboard (Frost White)

Step 10—Console Terminal

- System power-on and diagnostic console functions can be performed using a standard console terminal connected to the console serial port.
- All other console functions and utilities must be performed using a video monitor.

VT510-xx	VT510 terminal
LA30N-xx	LA30 printer
LK461-xx	Gray Keyboard
LK46W-xx	Frost White Keyboard

Step 11—Power Options

AlphaServer 8200 System Cabinet and Expansion Cabinet include: one single-phase power supply (H7266-AA) 200-240 V ac input voltage, 48 V dc, 2400 watt, output supply.

H7266-AD	**AlphaServer 8200** Single phase 48 V dc redundant power supply—60 Hz power connector, maximum one per cabinet
H7266-AE	**AlphaServer 8200** Single phase 48 V dc redundant power supply—50 Hz power connector, maximum one per cabinet
H7267-AA	**AlphaServer 8200** Battery backup option kit, (after up to 5 minute capacity)

AlphaServer 8400 System Cabinet and Expansion Cabinet include: two three-phase power supplies (H7263-AC or H7263-AD)—200-240 V ac input voltage, 48 V dc, 2400 watt, output supply.

H7263-AC/AD	**AlphaServer 8400** 48 V dc Non-BBU capable power regulator option
H7237-CA/CB	**AlphaServer 8400** Battery backup option kit, (up to 30 minute capacity)
H7238-BA/BB	**AlphaServer 8400** Battery Pack Replacement option

Step 12—Software

AlphaServer 8200 and 8400 Windows NT Expanded Base Servers require the selection of language specific Windows NT Server 4.0/Enterprise Edition license, media (CD-ROM) kit. See Step 2 for list of **mandatory** Windows NT kits.

Step 13—Hardware Supplemental Support Services

Hardware—Americas and Asia Pacific only

- Systems include one-year hardware warranty, on-site, same day, 4-hour response time.
- Select optional Hardware Supplemental Support Services if required.

AlphaServer 8200

Two CPUs with less than 2 GB memory	Two CPUs with 2 GB memory	Two CPUs with 4 GB memory	
FM-8D4HR-36	**FM-8G4HR-36**	**FM-8V4HR-36**	Years 1-3, 5 x 9, 4-hour response time
FM-8D512-36	**FM-8G512-36**	**FM-8V512-36**	Years 1-3, 5 x 12, 4-hour response time

Step 13—Hardware Supplemental Support Services

Two CPUs with less than 2 GB memory	Two CPUs with 2 GB memory	Two CPUs with 4 GB memory	
FM-8D616-36	**FM-8G616-36**	**FM-8V616-36**	Years 1-3, 6 x 16, 4-hour response time
FM-8D724-36	**FM-8G724-36**	**FM-8V724-36**	Years 1-3, 7 x 24, 4-hour response time
FM-8D4HR-60	**FM-8G4HR-60**	**FM-8V4HR-60**	Years 1-5, 5 x 9, 4-hour response time
FM-8D512-60	**FM-8G512-60**	**FM-8V512-60**	Years 1-5, 5 x 12, 4-hour response time
FM-8D616-60	**FM-8G616-60**	**FM-8V616-60**	Years 1-5, 6 x 16, 4-hour response time
FM-8D724-60	**FM-8G724-60**	**FM-8V724-60**	Years 1-5, 7 x 24, 4-hour response time

AlphaServer 8400

Two CPUs with 2 GB memory	Two CPUs with 4 GB memory	
FM-4Z4HR-36	**FM-8Z4HR-36**	Years 1-3, 5 x 9, 4-hour response time
FM-4Z512-36	**FM-8Z512-36**	Years 1-3, 5 x 12, 4-hour response time
FM-4Z616-36	**FM-8Z616-36**	Years 1-3, 6 x 16, 4-hour response time
FM-4Z724-36	**FM-8Z724-36**	Years 1-3, 7 x 24, 4-hour response time
FM-4Z4HR-60	**FM-8Z4HR-60**	Years 1-5, 5 x 9, 4-hour response time
FM-4Z512-60	**FM-8Z512-60**	Years 1-5, 5 x 12, 4-hour response time
FM-4Z616-60	**FM-8Z616-60**	Years 1-5, 6 x 16, 4-hour response time
FM-4Z724-60	**FM-8Z724-60**	Years 1-5, 7 x 24, 4-hour response time

Step 13a—Additional 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 system purchase, the right level of support for their information technology (IT) and business environment.

The AlphaServer Support Plan builds on the foundation Warranty and Installation Services to include Startup Services, Priority Service Packages, Silver/Gold Support, System Healthcheck, and Availability Review/Partnership. Contact your Digital Services account representative for assistance in determining the appropriate services for your sales opportunity.

Step 14—AlphaServer 8200 or 8400 DIGITAL UNIX or OpenVMS to Windows NT Migration

Existing AlphaServer 8000 5/350, 5/440, and 5/625 customers can easily migrate their DIGITAL UNIX or OpenVMS environments to Windows NT with the addition of the AlphaServer 8000 Windows NT Console Subsystem hardware, the KFE72-xx, along with the appropriate Windows NT Server 4.0/Enterprise Edition software conversion kit with miscellaneous firmware and documentation in five of the most popular language versions: English, Spanish, French, German, and Japanese, and installation services.

Note that some AlphaServer 8200 and 8400 options currently supported on DIGITAL UNIX and/or OpenVMS operating systems are **not** supported on Windows NT Servers. Select options listed in this Windows NT configuration menu **only**, or refer to the Supported Options List on the Web for AlphaServer 8x00 Windows NT supported hardware.

Digital Services is **mandatory** to install the conversion options at the end user's location. Windows NT migration requires SVGA video monitor and keyboard unless available on site. Refer to list of supported options in this menu.

AlphaServer 8200 or 8400 system configuration must include the following minimum components at time of Windows NT conversion.

Step 14—AlphaServer 8200 or 8400 DIGITAL UNIX or OpenVMS to Windows NT Migration

Minimum components required

- 1 **dual-CPU** 300*, 350, 440, or 625 MHz module.
- 512 MB memory.
- 1 KFTHA I/O module with KZPAA to CD-ROM, **or** 1 KFTIA I/O module with ISP3 to CD-ROM
  Note: Maximum of one I/O module is supported (KFTHA or KFTIA), must be installed in system bus slot 8.
- 1 DWLPB 12-slot PCI shelf
- 1 Ethernet Adapter and/or 1 FDDI Adapter
- 1 PCI SCSI Adapter (KZPSA or KZPBA)
- 1 SCSI disk shelf with 4 disk drives
- 1 RRD43 (or higher) CD-ROM drive

* Dual 300 MHz CPU modules must be Rev P08 or higher.

Maximum CPUs, Memory and I/O Controller Modules supported under Windows NT Server 4.0 Enterprise Edition

		AlphaServer 8200		AlphaServer 8400	
CPU Speed	**System I/O Module**	**CPUs**	**Memory**	**CPUs**	**Memory**
300 MHz	**1 (KFTHA or KFTIA)**	**6 (3modules)**	**Up to 12 GB**	**6 (3 modules)**	**Up to 18 GB**
350/440/625 MHz				**8 (4 modules)**	

Components not supported

- The following options must be removed before converting DIGITAL UNIX or OpenVMS servers to Windows NT operating system.
  - **Uni** 300 MHz and 350 MHz CPU modules
  - Multiple system I/O modules. One KFTIA **or** one KFTHA is supported in system bus slot 8 only
  - All DWLPA-xx PCI shelves
  - EISA bridge options (KFE70-AA, KFE70-BA, and KFE70-CA)
  - All EISA controllers and options
  - All FutureBus controllers and options
  - All DSSI controllers and options
  - All XMI controllers and options
  - All CI controllers and options
  - Prestoserve Non-Volatile Random Access Memory (NVRAM) installed in DIGITAL UNIX servers (DJ-ML200-BA, DJ-ML200-CA, and DJ-ML300-BA)
  - MEMORY CHANNEL options (CCMAA-BA, CCMHA-AA, and CCMLA-AA)
  - XMI options (DWLMA-AA, KZMSA-AB. DEMNA-M, and DEMFA-AA)
  - RRD42 CD-ROM must be upgraded to RRD43 or higher

Note: Only those PCI I/O options shown in this menu or on the Web Supported Options List are supported on AlphaServer 8x00 Windows NT systems. Any options installed in slots 0-4 must be relocated to make these slots available for the KFE72 modules required for Windows NT conversion.

Mandatory components

- The following components are mandatory to convert an existing AlphaServer 8200 or 8400 DIGITAL UNIX or OpenVMS server to Windows NT server.
  - KFE72 Hardware
  - Windows NT Server Enterprise Edition conversion software and media kit
  - Digital Services Installation

KFE72 Hardware

Mandatory KFE72 Windows NT console hardware subsystem includes 2 asynchronous serial ports, 1 parallel port, keyboard and mouse ports, floppy drive, PCI TGA2 graphics accelerator adapter (PBXGB-AA PowerStorm 3D30), 3-button mouse (PBXWS-WA), and, extension cables for video, keyboard and mouse. The KFE72 uses 5 PCI slots, and must be installed in slots 0-4. **Note:** KFE70 is not supported on Windows NT servers.

KFE72-AA	AlphaServer 8400 Windows NT console subsystem hardware
KFE72-BA	AlphaServer 8200 Windows NT console subsystem hardware
KFE72-CA	AlphaServer 8000 Rackmount Systems Windows NT console subsystem hardware

Step 14—AlphaServer 8200 or 8400 DIGITAL UNIX or OpenVMS to Windows NT Migration

Windows NT Server Enterprise Edition Conversion Software and Media Kits

Mandatory Windows NT Conversion Software Kit includes Windows NT Server 4.0/Enterprise Edition license, media (CD-ROM) and documentation **plus** all miscellaneous software unique to AlphaServer 8200/8400 Windows NT operation. Conversion software kit must be ordered with the conversion hardware shown above and is **not** available separately.

QB-5Z6AA-WA	Windows NT Server 4.0/Enterprise Edition Conversion Software Kit for AlphaServer 8x00 license and media (CD-ROM)—English
QB-5Z6PA-WA	Windows NT Server 4.0/Enterprise Edition Conversion Software Kit for AlphaServer 8x00 license and media (CD-ROM)—French
QB-5Z6GA-WA	Windows NT Server 4.0/Enterprise Edition Conversion Software Kit for AlphaServer 8x00 license and media (CD-ROM)—German
QB-5Z6SA-WA	Windows NT Server 4.0/Enterprise Edition Conversion Software Kit for AlphaServer 8x00 license and media (CD-ROM)—Spanish
QB-5Z6JA-WA	Windows NT Server 4.0/Enterprise Edition Conversion Software Kit for AlphaServer 8x00 license and media (CD-ROM)—Japanese

DIGITAL Services Installation

DIGITAL Services Installation is **mandatory** for all AlphaServer 8200 or 8400 DIGITAL UNIX and OpenVMS system conversions to Windows NT systems. Digital Services will install conversion options at end user's location. Contact a Digital Services representative for assistance in determining whether services other than the base installation service indicated below is appropriate for customer situation.

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

Step 15—Microsoft Cluster Server (MSCS) V1.0 Support for AlphaServer 8000 Systems

Two-node AlphaServer 8200 or 8400 Windows NT clusters can be configured with the following hardware and software to deliver even higher levels of system availability.

Software Required

- Windows NT Server 4.0 Enterprise Edition Software Kit for 8x00 Systems (see step 2)
- Microsoft Cluster Server V1.0 (included with Windows NT Server 4.0 Enterprise Edition)
- HSZ70 Solutions Software Kit for Windows NT (see Step 7d)

Note: Digital Clusters for Windows NT is not supported on AlphaServer 8x00 systems

Clustered Systems Certified To Date

- 8400 5/xxx to 8400 5/xxx with KZPSA and RA7000/ESA10000
- 8400 5/xxx to 8400 5/xxx with KZPBA and RA7000/ESA 10000
- 8200 5/xxx to 8200 5/xxx with KZPSA and RA7000/ESA 10000
- 8200 5/xxx to 8200 5/xxx with KZPBA and RA7000/ESA 10000

5/xxx = CPU speeds 5/300, 5/350, 5/440 and 5/625 as specified in Step 14

Note: AlphaServer 8200 and AlphaServer 8400 mixed node cluster support is not currently certified.

Step 15—Microsoft Cluster Server (MSCS) V1.0 Support for AlphaServer 8000 Systems *(continued)*

Microsoft Windows NT Cluster SCSI Adapters

- KZPSA-BB—maximum of 2 shared buses supported
- KZPBA-CB (UltraSCSI)—maximum of 2 shared buses supported*

Shared Storage Subsystems

Shared Storage Subsystems (Cluster RAID)	Maximum # per shared bus	Maximum # shared buses = 2 Maximum # per cluster
HSZ70	1	2
RA7000	1	2
ESA10000	1	2

Note: Shared standalone disks or other storage subsystems are not currently supported.
* Certification pending. Check HCL listings for updates at **Error! Bookmark not defined.**

Cluster Restrictions

1. Maximum of 2 shared SCSI drives supported per cluster. This can be configured as one shared SCSI bus with 2 shared drives, or as two shared SCSI buses with 1 shared drive on each bus.
2. Shared SCSI RAID sets cannot exceed 108 GB in size
   Maximum shared disk Configuration Example:
   Shared Disk #1: 12 x 9 GB drives configured as RAID0 (stripe set)
   Total GB = 108 GB. RAID set approximate size = 104 GB
   Shared Disk #2: 12 x 9 GB drives configured as RAID0 (stripe set)
   Total GB = 108 GB. RAID set approximate size = 104GB
3. Microsoft Cluster server (MSCS) 8x00 Cluster configurations are limited at this time, however we are working to qualify larger cluster configurations in the near future.