



AlphaServer 2100
V96-1.2—20 Aug 96
Digital Systems and Options Catalog

Product Description

AlphaServer 2100 systems are low-cost Alpha symmetric multiprocessing (SMP) PCI/EISA-based servers. They offer support for OpenVMS, Digital UNIX, and Windows NT, and are suitable for general-purpose commercial, high-performance application and database, and PC LAN Superserver computing environments.

The AlphaServer 2100 Family consists of:

- AlphaServer 2100 4/275 (21064A microprocessor) features a 275 MHz CPU with 4 MB cache
- AlphaServer 2100 5/250 (21164 microprocessor) features a 250-MHz CPU with 4 MB cache, and
- AlphaServer 2100 5/300 (21164 microprocessor) features a 291 MHz CPU with 4 MB cache.

Each can be configured with up to four processors of the same speed for symmetric multiprocessing. The systems support up to 2 GB of memory and 64 GB of internal disk storage.

The system bus bandwidth is 667 MB/second and the high-performance PCI I/O subsystem has a peak bandwidth of 132 MB/second. The 33 MB/second EISA I/O bus supports a variety of industry-standard EISA options.

AlphaServer 2100 systems supports StorageWorks storage devices. High-availability features, including internal RAID and hot swap of disks, offer data security in mission-critical environments. RAID levels supported are 0 (striping), 1 (shadowing), 0+1 (striped shadowing), and 5 (striping with parity).

AlphaServer 2100 systems are offered in a compact pedestal enclosure.

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Step 1—Systems

- Digital UNIX and OpenVMS operating system media and documentation kit is required for first system on site; see Step 9.
- Windows NT systems include Windows NT Server plus 5-client access V3.51 media (CD-ROM) and license in shrink-wrapped package.
- Systems ordered in the Americas and Asia Pacific (AP) include 120 V U.S. power cord and keyboard unless alternate is specified. Select country specific power cord and keyboard for **all** systems ordered in Europe.
- Uninterruptable Power Supplies are available; see UPS Information following System Specifications.
- Options ordered will be factory installed unless specified as **spares**.

AlphaServer 2100 4/275, 5/250 and 5/300 Systems include

- Alpha microprocessor 21064A
 - 275-MHz CPU with 4 MB onboard cache **or**
- Alpha microprocessor 21164
 - 250 MHz CPU with 4 MB onboard cache **or**
 - 291 MHz CPU with 4 MB onboard cache
- BA740 large pedestal enclosure which includes:
 - Integral 10 MB/s Fast SCSI-2 controller (8-bit)
 - Integral 10-Mbit/s Ethernet controller, AUI or 10BaseT (twisted pair) selectable
 - Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
 - One parallel port, 25-pin D-subminiature connectors
 - Keyboard port and mouse port
 - 8-slot RZxx storage assembly (8/16-bit)
 - Three 5.25-inch, half-height removable media slots
 - Eight EISA slots
 - Three PCI slots
- 602-Watt power supply
- 2.88 MB diskette drive in dedicated slot
- 600 MB CD-ROM (uses one removable media slot)
- 2.1 GB disk drive (uses one storage assembly slot)
- Video Graphics Adapter (uses one EISA slot)
 - 1280 x 1024 graphics resolution
- Memory indicated below
- 3-button mouse
- Keyboard (Americas and AP orders only)
- Power cord (Americas and AP orders only)
- Customer documentation
- EISA Configuration Utility
- Hardware Warranty: Three-year, on-site, with 5 x 9, 24-hour response time*
- Software Warranty: 90-day SPD conformance with advisory telephone support*

* Service upgrades are available; see Step 11, Hardware and Software Supplemental Services.

Windows NT Systems include

Windows NT Server plus 5-client access V3.51 media (CD-ROM) and license in shrink-wrapped package

Order Number	Memory	Hard Drive	EISA/PCI slots available for additional options
AlphaServer 2100 4/275—275 MHz Windows NT Systems			
DN-252P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DN-252P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI
AlphaServer 2100 5/250—250 MHz Windows NT Systems			
DN-253P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DN-253P1-K9	512 MBs	1 x 2.1 GB	7 EISA / 3 PCI
AlphaServer 2100 5/300—291 MHz Windows NT Systems			
DN-254P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DN-254P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI

Step 1—Systems (continued)**Digital UNIX Systems include**

- Digital UNIX V3.2 operating base license
- Digital NAS Base Server 200 for Digital UNIX license (QL-306AG-AA) includes the following layered products: (order media and documentation separately)
 - PrintServer Software (Licensed with appropriate Digital Printer)
 - DECmessageQ for Digital UNIX Run-Time only
 - Digital DCE Run-Time Services for Digital UNIX
 - Objectbroker for Digital UNIX Run-Time only
- POLYCENTER Advanced File System utilities
- POLYCENTER NetWorker Save and Restore for Digital UNIX (Server)
- PATHWORKS for Digital UNIX LAN Manager
- PATHWORKS for Digital UNIX Netware
- Digital UNIX Server Extensions
- Logical Storage Manager
- Digital UNIX operating system is factory installed.

Order Number	Memory	Hard Drive	EISA/PCI slots available for additional options
AlphaServer 2100 4/275—275 MHz Digital UNIX systems			
DA-252P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DA-252P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI
AlphaServer 2100 5/250—250 MHz Digital UNIX systems			
DA-253P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DA-253P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI
AlphaServer 2100 5/300—291 MHz Digital UNIX systems			
DA-254P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DA-254P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI

OpenVMS Systems include

- OpenVMS V6.2 operating system base license.
- Digital NAS Base Server 200 for OpenVMS license (QL-23EAG-AA) includes the following layered products: (order media and documentation separately)
 - DECwindows Motif for OpenVMS Alpha
 - DECwindows Motif Worldwide support for OpenVMS Alpha
 - DECprint Supervisor for OpenVMS Alpha, (Base, Plus, Open)
 - PrintServer Software (Licensed with appropriate Digital printer)
 - DECmessageQ for OpenVMS Alpha Run-time option only
- Objectbroker for OpenVMS Alpha Run-time option only
- Polycenter Software Distribution for OpenVMS Alpha (Client)
- DECnet for OpenVMS Alpha End System
- DECnet/OSI for OpenVMS Alpha End System
- DEC TCP/IP services for OpenVMS Alpha.
- PATHWORKS for OpenVMS (LAN Manager)
- PATHWORKS for OpenVMS (Macintosh [R])
- PATHWORKS for OpenVMS (Netware)
- OpenVMS operating system is factory installed

Order Number	Memory	Hard Drive	EISA/PCI slots available for additional options
AlphaServer 2100 4/275—275 MHz OpenVMS systems			
DY-252P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DY-252P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI
AlphaServer 2100 5/250—250 MHz OpenVMS systems			
DY-253P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DY-253P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI
AlphaServer 2100 5/300—291 MHz OpenVMS systems			
DY-254P1-J9	128 MB	1 x 2.1 GB	7 EISA / 3 PCI
DY-254P1-K9	512 MB	1 x 2.1 GB	7 EISA / 3 PCI

Step 1—Systems (*continued*)

- Use System Bus Slot Table for slot configuration rules when adding additional CPUs and memory.

System Bus Slot Table

Recommended Slots	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7
1 CPU system	—	CPU 0	—	Memory 0	Memory 1	Memory 2	Memory 3
2 CPUs system	—	CPU 0	CPU 1	Memory 0	Memory 1	Memory 2	Memory 3
3 CPUs system	CPU 2	CPU 0	CPU 1	Memory 0	Memory 1	Memory 2	Memory 4
4 CPUs system	CPU 3	CPU 0	CPU 1	Not available	CPU 2	Memory 0	Memory 1

Step 2—CPU Symmetrical Multiprocessing (SMP) Upgrade

Order up to three additional CPUs, for a maximum of four—See System Bus Slot Table for configuration rules

- Additional CPUs **must** match the speed of CPU in system
- Four-CPU systems are restricted to two memory slots.

Note: Adding CPUs may require an additional power supply (see Step 7).

460NR-AA	Windows NT SMP upgrade, includes one 4/275 MHz CPU processor; SMP license is not required.
470NR-AA	Windows NT SMP upgrade, includes one 5/250 MHz CPU processor; SMP license is not required.
480NR-AA	Windows NT SMP upgrade, includes one 5/300 MHz CPU processor; SMP license is not required.
460AR-AA	Digital UNIX SMP upgrade includes one 4/275 MHz CPU processor and Digital UNIX SMP license.
470AR-AA	Digital UNIX SMP upgrade includes one 5/250 MHz CPU processor and Digital UNIX SMP license
480AR-AA	Digital UNIX SMP upgrade includes one 5/300 MHz CPU processor and Digital UNIX SMP license
460YR-AA	OpenVMS SMP upgrade includes one 4/275 MHz CPU processor and OpenVMS SMP license.
470YR-AA	OpenVMS SMP upgrade includes one 5/250 MHz CPU processor and OpenVMS SMP license.
480YR-AA	OpenVMS SMP upgrade includes one 5/300 MHz CPU processor and OpenVMS SMP license.

Step 3—Memory

See System Bus Slot Table for slot configuration rules.

- One to three CPU systems support a total of four memory boards in any combination.
- Four-CPU systems support total of two memory boards in any combination.
- Windows NT V3.51 supports up to 2 GB memory, requires Windows NT V3.51 Service Pack 4
- Digital UNIX V3.2 supports up to 2 GB memory.
- OpenVMS V6.2 supports up to 2 GB memory.

MS450-BA	64 MB memory module (AlphaServer 2100 4/275 systems only)
MS451-DA	128 MB memory module
MS451-FA	512 MB memory module

Step 3a—Prestoserve Non-Volatile Random Access Memory

- Supported on Digital UNIX systems **only**. Requires Digital UNIX operating system software V3.0 or above.
- Maximum one Prestoserve option per system.

PB2SX-AA	Prestoserve Non-Volatile Random Access Memory option; includes Prestoserve license and documentation kit (requires one EISA slot)
DJ-ML200-AA	2-MB PCI Prestoserve option
DJ-ML200-BA	4-MB PCI Prestoserve option
DJ-ML200-CA	8-MB PCI Prestoserve option

Step 4—Monitors

Graphics monitors other than those listed below can be used if compatible with graphics adapter included with system.

Windows NT systems

- Windows NT systems **require** a graphics monitor to run **all** system functions.
- Video adapter included in system supports 1024 x 768 and 1280 x 1024 resolution, 72-Hz monitors.

Digital UNIX and OpenVMS systems

- All console functions, including the EISA Configuration Utility (ECU) and the RAID Configuration Utility (RCU) can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, VT5xx) connected to one of the system's serial ports (See Step 8).
- For graphics console functionality, order a graphics monitor.
- Video adapter included in system supports 1024 x 768 resolution, 72-Hz monitors.

VRC15-KA/K4	15" (13.9" viewable image size) high-resolution color monitor with Light Gray enclosure. Flat-square CRT with 0.28 mm dot pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1024 x 768 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 1.4 meter HD15 male to male video cable. Select -KA for Northern Hemisphere or -K4 for Southern Hemisphere operation. If purchased in North America, -KA includes 120V power cord, otherwise power cords for -KA and -K4 not included, order separately.
VRT17-PA/P4	17" (16.0" viewable image size) high-resolution color monitor with Light Gray enclosure. Trinitron aperture grille CRT with 0.26mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1280 x 1024 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0 meter HD15 male to BNC video cable. Select -PA for Northern Hemisphere or -P4 for Southern Hemisphere operation. If purchased in North American, -PA includes 120V power cord, otherwise power cords for -PA and -P4 not included, order separately.
VRC21-LA/L4	21" (19.6" viewable image size) ultra high-resolution color monitor with Ligh Gray enclosure. Diamondtron aperture grille CRT with 0.30 mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1600 x 1200 at 75Hz NI refresh rates. On Screen display (OSD). Stereo viewing compatible. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0 meter HD15 male to BNC video cable. Select -LA for Northern Hemisphere, or -L4 for Southern Hemisphere operation. If purchased in North America, -LA includes 120V power cord, otherwise power cords for -LA and -L4 not included, order separately.

Step 5—Storage

Internal Disk Storage Assembly

- Included storage assembly supports eight 3.5-inch disk drives.
- One additional storage assembly in system enclosure supports an additional eight 3.5-inch disk drives. Additional storage assembly requires an additional power supply (see Step 7).
- Internal storage assemblies are normally configured for split-bus (two buses), four drives per bus. By reversing the positions of the terminator and jumper plugs, internal storage assemblies can be reconfigured for single-bus operation with a maximum of seven disk drives per storage assembly.
- Manufacturing normally configures internal storage assemblies in split-bus mode. If there are not enough storage controllers to support the number of internal disk drives ordered, manufacturing will configure the internal storage assemblies for single-bus mode.
- Internal storage assembly drive slots are physically interleaved with electrically contiguous drives in every other slot.
- Internal storage assemblies support 8-bit (**narrow**) and 16-bit (**wide**) modes of operation.
 - For **Wide** mode, select controllers and disk from Step 5a.
 - For **Narrow** mode, select controllers and disks from Step 5b.
 - Internal storage assemblies can be configured for split-bus mode to support **wide** mode on first bus and **narrow** mode on second bus.
- Integral Fast SCSI-2 controller supports maximum of seven devices in system enclosure (three 5.25-inch removable media devices and four 3.5-inch disk drives). All disk drives connected to this controller will operate in **narrow** mode.
- **Note:** **Wide** disk drives configured on a **narrow** bus will operate in **narrow** mode. **Narrow** disk drives configured on a **wide** bus will operate in **narrow** mode. **Wide** and **narrow** devices can be mixed on a single bus.

Additional Storage Assembly for Internal Disk Storage

- Storage assembly supports 16-bit **wide** and/or 8-bit **narrow** modes.
- Requires an additional power supply (see Step 7).
- Includes SCSI cables for factory integration and for field installation if ordered as **spare**.

BA35E-SA Storage assembly supports eight 3.5-inch, half-height hard drives

Step 5a—Controllers and Storage Devices for 16-bit (Wide) Mode

Configuration Rules

- Wide Storage Assembly Shelf
 - 16-bit devices require **wide** (16-bit) shelves.
 - System has wide-ready shelf. Internal StorageWorks shelf is electrically compatible with 16-bit drives.
- PCI-based one- and three-port (KZPSC-AA/BA) controllers, and one-port Fast Wide Differential (KZPSA-BB) controller allow wide devices to operate in 16-bit mode.
- Wide drives operate in narrow (8-bit) mode when connected to narrow SCSI controllers, such as Integral Internal Fast SCSI-2 controller, PCI-based Fast SCSI-2 controller (KZPAA-AA) and EISA-based controller (KZESC-xx).
- Maximum of three PCI-based one- and three-port KZPSC-xx controllers supported per system.
- One- and three-port StorageWorks RAID Array 230 controllers (KZPSC-xx) support hard drives **only**; tape drives are not supported.
- Three-port StorageWorks RAID 230 (KZPSC-BA) supports up to 21 disk drives in up to eight logical groups. RAID slots must be created to support more than eight physical disk drives.
- PCI-based Fast Wide Differential (FWD) SCSI controller (KZPSA-BB) supports externally connected wide disks in BA356 using DWZZB wide differential to wide single-ended converter, or narrow disks using DWZZA wide differential to narrow single-ended converter in BA350.
- KZPSA-BB controller on Windows NT systems support supports up to 15 disks. Digital UNIX and OpenVMS systems support 7 disks.
- Cabling information for Fast-SCSI-2 controllers
 - Internal cables are supplied as needed for factory installed configurations. BC25T-2L cable is used from KZPSC-xx controller to internal shelf.
 - External cables are **not** included and must be ordered separately.
 - KZPSA-BB External cables: BN21K-xx from KZPSA to DWZZA, DWZZB and HSZ40 (straight to right angle) BN21W-0B Y SCSI-2 cable 68-pin for KZPSA in mid-bus configurations
 - KZPSC-xx External cables: BN31L-1E from KZPSC-xx to BA350 BN31S-1E from KZPSC-xx to BA356
 - If all three ports on KZPSC-BA controller are used, use SCSI cable BN31K-0E for third port external connection. **Note:** Third external port blocks one EISA slot.

Step 5a—Controllers and Storage Devices for 16-bit (Wide) Mode (*continued*)
Storage Controllers for Wide Mode

KZPSC-AA	One-port PCI backplane RAID controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, Digital UNIX, and Windows NT
KZPSC-BA	Three-port PCI backplane RAID controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, Digital UNIX, and Windows NT
KZPSA-BB	PCI-based Fast Wide Differential (FWD) SCSI controller
KZPSM-AA	PCI-based combination Ethernet and Fast Wide Single-Ended (FWSE) controller

Hard Drives for Wide Mode

RZ26L-VW	1.05 GB, 3.5-inch half-height disk drive
RZ28M-VW	2.1 GB, 3.5-inch half-height disk drive
RZ29B-VW	4.3 GB, 3.5-inch half-height disk drive

Storage Option Packs for Wide Mode

- Storage option packs are factory installed **only**.
- Additional RZxx disk drives may be added.

SD001-CA	One-Port RAID Storage Option Pack includes: One KZPSC-AA and Three RZ28 disk drives
SD001-DA	Three-Port RAID Storage Option Pack includes: One KZPSC-BA and Five RZ28 disk drives

External Disk Expansion for Wide Mode

- External BA356 StorageWorks modular storage pedestals are supported on all Fast Wide SCSI-2 controllers listed in Step 5a.
- External BA356 is not supported on integral Fast SCSI-2 controller due to insufficient remaining external bus length.
- SCSI cable BN21K-xx for KZPSA, and BN31S-1E for KZPSC, is required to connect an external BA356 modular storage pedestal to controller.

BA356-KC	Modular storage pedestal includes BA356-xx basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord; requires SCSI cable (BN31S-1E) for KZPSC-xx controllers. Order country specific power cord for 240 V use from Step 10.
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Step 5b—Controllers and Storage Devices for 8-bit (Narrow) Mode
Configuration Rules

- StorageWorks RAID Array 210 (KZESC-xx) includes EISA backplane RAID controller (SWXCR-Ex) and StorageWorks RAID Array 210 Subsystem family software and documentation kit for OpenVMS, Digital UNIX and Windows NT.
- For maximum number of **each** EISA-based controller supported per system see EISA Bus IRQ Address Table.
- Each controller requires one bus slot.
- One- and three-port StorageWorks RAID Array 210 controllers (KZESC-xx) support hard drives **only**; tape drives are **not** supported.
- Three-port StorageWorks RAID Array 210 controller (KZESC-BA) supports up to 21 disk drives in up to eight logical groups; RAID sets must be created to support more than eight physical disk drives.
- Cabling information for Fast-SCSI-2 controllers
 - Internal cables are supplied as needed for factory installed configurations.
 - External cables are **not** included and must be included on order.
 - KZESC-AA options use BC25R-3B for internal connection or BN21H-02 for external connection to BA350 and BN21N-02 for connection to BA356.
 - KZESC-BA options use one to three BC25R-3B for internal connection or BN21H-02 for port 0 and CK-SWXCR-AA cable kit for ports 1 and 2 external connection to BA350.
 - KZPAA-AA option uses BC25R-3B for internal connection or BN21H-02 for external connection to BA350 and BN21N-02 for connection to BA356.

Step 5b—Controllers and Storage Devices for 8-bit (Narrow) Mode *(continued)*
Storage Controllers for Narrow Mode

KZESC-AA	One-port EISA backplane RAID controller; includes StorageWorks RAID Array 210 Subsystem family software and documentation kit for OpenVMS, Digital UNIX and Windows NT
KZESC-BA	Three-port EISA backplane RAID controller; includes StorageWorks RAID Array 210 Subsystem family software and documentation kit for OpenVMS, Digital UNIX and Windows NT
KZPAA-AA	PCI-based one port high-performance Fast SCSI-2 controller

Hard Drives for Narrow Mode

RZ26L-VA	1.05 GB, 3.5-inch half-height disk drive
RZ28D-VA	2.1 GB, 3.5-inch half-height disk drive
RZ29B -VA	4.3 GB, 3.5-inch half-height disk drive

Storage Option Packs for Narrow Mode

- Storage option packs are factory installed only.
- Additional RZxx disk drives may be added.

SD001-AA	One-Port RAID Storage Option Pack includes: One KZESC-AA and Three RZ28 disk drives
SD001-BA	Three-Port RAID Storage Option Pack includes: One KZESC-BA and Five RZ28 disk drives

External Disk Expansion for Narrow Mode

- External BA350 StorageWorks modular storage pedestals are supported on all Fast SCSI-2 controllers listed in Step 5b.
- External BA350-KB supports RZ26L and RZ28M, (RZ29B requires BA350-KF) connected to controllers listed in Step 5b. Tapes are supported only on KZPAA-AA controller.
- External BA350 is not supported on integral Fast SCSI-2 controller due to insufficient remaining external bus length.
- SCSI cable (BN21H-02) is required to connect a single BA350 modular storage pedestal to controllers.
- AlphaServer 2100 cabinet system is recommended for larger configurations using multiple external BA350 modular storage assemblies. Refer to Cabinet system ordering menu for details.

BA350-KB	Modular storage pedestal includes BA350-SB basic shelf, BA35X-HF universal ac power supply, single speed blower, BA35X-VA pedestal mounting kit, and 120 V power cord; requires SCSI cable (BN21H-xx) for KZPAA-AA and KZESC-xx controllers. Order country specific power cord for 240 V use from Step 10.
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Step 5c—Internal Removable Media Devices

Systems include 600 MB CD-ROM; system supports two additional 5.25-inch half-height removable media devices, or one 5.25-inch full-height removable media device.

Removable Media Devices

RRD45-AC	600 MB 5.25-inch half-height CD-ROM
TLZ07-LG	8.0 GB 5.25-inch half-height SCSI 4-mm DAT
TZK11-LG	2.0 GB 5.25-inch half-height SCSI QIC tape

Step 5d—External Storage

Tabletop Tape Expansion

- Integral Fast SCSI-2 controller, if not connected to internal storage assembly, can be extended outside the system enclosure via the SCSI-out port to support external SCSI devices. If not used for external expansion, SCSI-out port must be terminated with external terminator (12-37004-04) included with system.
- External tape drives are supported on optional Fast SCSI-2 (**Narrow**) controllers **only**. Maximum external bus length, including cable and tape device cannot exceed 3.0 meters. External tape drives are not supported on KZESC-xx and KZPSC-xx controllers.
- Each tabletop tape device **requires** three-foot SCSI cable (BC09D-03).

TLZ07-DA	8.0 GB, DAT tabletop tape drive
TLZ7L-DA ^{1,2}	32.0-96.0 GB 4-mm DAT autoloader
TZ87-TA	20.0 GB 5.25-inch tabletop tape drive
SZ107-AA	140.0 GB loader(Digital UNIX and OpenVMS only)
TSZ07-BA/CA	1600/6250-bit/inch 9-track tabletop magtape drive (Digital UNIX and OpenVMS only)
TKZ15-TA	5.0 GB 8mm tabletop tape drive (Digital UNIX and OpenVMS only)

1 Includes four cartridge loader. Twelve cartridge magazine supported (TLZ7L-12).

2 Windows NT operating system does not support unattended back-up mode without third-party software.

Step 5e—DSSI Storage (OpenVMS systems only)

- System supports up to two KFESA or four KFESB EISA/DSSI adapters; KFESA and KFESB adapters can be mixed on the same system.
 - Maximum of two adapters if all KFESA.
 - Maximum of two adapters if one is KFESA.
 - Maximum of four adapters if all KFESB.
- Maximum of three KFPSA adapters.
- Maximum number of EISA-based controllers of all types in combination is governed by EISA bus IRQ address assignments; see EISA Bus IRQ Address Table.
- Each internal storage assembly in system in single/split-bus mode supports one/two HSD10 DSSI/SCSI converters.
- Disk drives installed "behind" HSD10 must be 8-bit Narrow.
- Cabling information for DSSI controllers:
 - DSSI devices supported on OpenVMS only.
 - DSSI cables must be ordered separately.
- KFESB/KFPSA uses "Micro-Ribbon" connection.
- KFESB/KFPSA to any external "Pin-Socket" DSSI connection requires BC22Q-xx.
- KFESB/KFPSA to any external "Micro-Ribbon" DSSI straight connection requires BC21Q-xx.
- KFESB/KFPSA to any external "Micro-Ribbon" DSSI right-angle connection requires BC29S-xx DSSI cable.
- KFESB/KFPSA to HSD10 requires BC29S-xx. If HSD10 is factory installed, BC29S-06 cable is included.
- HSD10 to HSD10 (inside system) requires BC29U-02.
- BC29U-06 (KFESB/KFPSA to HSD10) is provided if factory installed.
- HSD10 to HSD10 (between systems) requires BC29T-09.
- HSD10 to any external "Micro-Ribbon" DSSI connection (all other DSSI systems and storage devices) requires BC29S-xx for straight connection to external device; or BC29T-09 for right-angle connection to external device.

DSSI Adapters

KFESB-AA	EISA-based single-DSSI controller (OpenVMS systems only); maximum four per system.
KFPSA-AA	PCI-to-DSSI controller (OpenVMS systems only); maximum three per system.
HSD10-AA	StorageWorks Array Controller. Supports seven SCSI-2 disks, tape, SSD, and optical device.

DSSI Option Pack

- OpenVMS DSSI starter option pack includes:
 - Three RZ28 2-GB disk drives
 - Two KFESB-AA EISA-based DSSI adapters
 - Two HSD10-AA DSSI/SCSI converter
 - Two BC29S-06 DSSI cables (KFESA to HSD10)*
 - VMScluster license (QL-MUZAG-AA)

SD002-AA OpenVMS DSSI Starter Option Pack

* Additional cables are required to connect to external DSSI storage devices or systems.

Step 5f—PCI to CI Storage Host Adapter (OpenVMS Systems only)

CIPCA-AA	PCI-to-CI adapter Maximum two per system; requires one PCI slot and one EISA slot. Minimum Operating System Version: OpenVMS 6.2-1H2 Minimum Console Revision: V4.4 Requires one of the following CI cables per adapter.
BNCIA-10	10-meter CI cable
BNCIA-20	20-meter CI cable
BNCIA-45	45-meter CI cable

Step 6—Networks and Communications

- Systems include integral Ethernet controller (AUI or 10BaseT selectable).
- Select networking cable:
 - BNE4G-02 for AUI
 - BN25G-02 for 10BaseT (twisted pair)
- Maximum of three PCI-based network controllers supported.
- See EISA Bus IRQ Address Table for maximum number of **each** EISA-based network controller, and total number of EISA-based controllers of all types in combination, supported per system.

Order Number	Description	Maximum # supported		
		Digital UNIX	OpenVMS	Windows NT
DEFEA-AA	EISA-based DEC FDDIcontroller Single Attachment	2	2	2
DEFEA-DA	EISA-based DEC FDDIcontroller Dual Attachment (requires 2 EISA slots)	1	1	1
DEFEA-UA	EISA-based DEC FDDIcontroller UTP Attachment	2	2	2
DW300-AA	EISA-based Token-Ring adapter includes NetWare V2.15 driver, LAN Manager Driver, and documentation (Not supported by DECnet/OSI for OpenVMS)	4	4	1
DNSES-AA	EISA-based synchronous communications controller	3	3	0
CXI01-AA/AD	ISA-based asynchronous multiplexer	2	0	2
DIIAA-AA	Digiboard ISA Datafire-U ISDN controller (available as spare only)	0	0	1
DIIAA-AB	Digiboard ISA Datafire-ST ISDN controller (available as spare only)	0	0	1
DE435-AA	PCI-based Digital Etherworks 32-bit high-performance network interface card	3	3	3
DE500-XA	PCI-based Fast Ethernet controller	2	2	2
DEFPA-AA*	PCI to FDDI Adapter, SAS, MMF, SC	2	2	2
DEFPA-DA*	PCI to FDDI Adapter, DAS, MMF, SC	2	2	2
DEFPA-UA*	PCI to FDDI Adapter, SAS, TP-PMD	2	2	2
PBXNP-AA	PCI Token Ring Adapter	1	1	0

* Cables: Fiber, Duplex, "SC" to "MIC" (concentrator): BN34D-xx; Fiber, Duplex, "SC" to "SC": BN34B-xx; Fiber, Duplex, "SC" to "ST": BN34A-xx; Copper STP, 8 cond, wired pin-pin: BN26M-xx; Copper STP, 8 cond, wired cross-over: BN26S-03.

Step 6a—PCI to Memory Channel Interconnect

Supported on Digital UNIX systems only; requires Digital UNIX V3.E (Digital UNIX V3.2D plus TruCluster software or Memory Channel Driver software). Each system node in a Memory Channel cluster requires a software license.

- Servers in a compute-server array require a Digital UNIX Driver for Memory Channel License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for Digital UNIX.

Memory Channel requirements for currently installed AlphaServer 2100's:

- Console firmware at revision 4.4 or higher.
- B2110-AA module at revision L or higher; if not at this level order H3096-AA option.

Step 6a—PCI to Memory Channel Interconnect (*continued*)

Note: Since systems with Memory Channel typically employ robust disk storage arrays that benefit from multiple high-performance controllers, new customers should order AlphaServer 2100A systems which include eight PCI slots. Existing AlphaServer 2100 customers are strongly encouraged to upgrade their I/O system to increase the number of available PCI slots. The following I/O upgrades are available:

KFPEA-AA	Digital UNIX I/O Upgrade
KFPEN-AA	Windows NT I/O Upgrade
KFPEY-AA	OpenVMS I/O Upgrade

Check installed AlphaServer 2100 for Memory Channel readiness:

- P00>>> examine -b econfig:20008
 - At the console prompt, enter **examine -b econfig:20008**
- econfig:20008 04
 - If a hexadecimal value, **04** or greater is returned, I/O module supports Memory Channel.
 - If a hexadecimal value less than **04** is returned, order the following

H3096-AA Standard I/O module, Revision L

Note: New AlphaServer 2100 systems shipped from the factory are Memory Channel ready.

- For two-system nodes, order one CCMAA-AA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (Memory Channel Hub) one CCMAA-AA 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.

CCMAA-AA	PCI to Memory Channel Adapter —Maximum two supported on AlphaServer 2100
CCMHA-AA	Memory Channel Hub with 4 Line Cards
CCMLA-AA	Memory Channel Line Card for use with Memory Channel Hub (CCMHA-AA)
BC12N-10	Memory Channel Cable
QB-3RLAG-AA	TruCluster Software for Digital UNIX
QB-4ZCAG-AA	Digital UNIX Driver for Memory Channel license

CCMHA-AA, Memory Channel Hub, includes BN19P-2E line cord for Canada, Japan, US operation. For other regions, order one of the following:

BN19A-2E	Ireland, United Kingdom
BN19S-2E	Egypt, India
BN19C-2E	Central Europe
BN18L-2E	Israel
BN19E-2E	Switzerland
BN24X-2E	Italy
BN19K-2E	Denmark
BN19H-2E	Australia, New Zealand

Step 7—Additional Power Supply

- Additional power supply is **required** if configured system includes second storage assembly, **or**
 - More than two CPUs are installed, or
 - Two CPUs and more than one memory board is installed
 - In lesser configurations, the additional power supply may be ordered for n+1 redundancy.
- **Americas and Asia Pacific orders:**
 - If additional power supply is factory installed, 120 V U.S. power cord is included when alternate is not selected.
 - If additional power supply is ordered as **spare**, power cord **must** be ordered separately, see Step 10.
- **European orders:**
 - If additional power supply is factory installed **or** ordered as **spare**, country specific power cord **must** be ordered separately, see Step 10.

H7893-AA 602-watt power supply

Step 8—Terminals and Printers

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

Digital UNIX and OpenVMS systems

Console terminals can either be graphics monitor connected to the included video graphics adapter (See Step 4), 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. These terminals have the graphics capability required for the EISA Configuration Utility.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required for each connection. A cable must be ordered unless otherwise provided.

Step 9—Software

Windows NT systems

Systems include Windows NT Server plus 5-client access V3.51 media (CD-ROM) and license in shrink-wrapped package. Order documentation kit if required.

QA-23CAA-GZ Windows NT Server documentation kit

Digital UNIX systems

Select user licenses and additional software as required. Media and documentation is **required** for first system on site.

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

Digital UNIX Concurrent Use Licenses

Digital UNIX Concurrent Use licenses are not specific to a single system and can be moved from one system to another at user discretion

QL-MT7AM-3B	Digital UNIX Concurrent Use 1-user license
QL-MT7AM-3C	Digital UNIX Concurrent Use 2-user license
QL-MT7AM-3D	Digital UNIX Concurrent Use 4-user license
QL-MT7AM-3E	Digital UNIX Concurrent Use 8-user license
QL-MT7AM-3F	Digital UNIX Concurrent Use 16-user license
QL-MT7AG-AA	Digital UNIX Traditional unlimited user license
QL-MT5AG-AA	Digital UNIX developer's extension license

Digital UNIX Media and Documentation—required for first system on site

QA-MT4AA-H8	Digital UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	Digital UNIX full hardcopy documentation

Digital UNIX Layered Products CD-ROM

QA-054AA-H8	Layered products media and documentation for Digital UNIX on CD-ROM
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DECnet Licenses

QL-MTJAG-AA	DECnet/OSI end-system license for Digital UNIX
QL-MTKAG-AA	DECnet/OSI extended function license for Digital UNIX

Step 9—Software (*continued*)
OpenVMS systems

Select user licenses and additional software as required. Media and documentation is **required** for first system on site.

Software Processor Code = G for all software, 1-4 processors**OpenVMS Concurrent Use User 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—required for first system on site

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-MT1AG-H8	OpenVMS V6.2-1H1 media and documentation on CD-ROM, included with system
QA-001AA-GZ	OpenVMS hardcopy documentation

OpenVMS Layered Products CD-ROM

QA-03XAA-H8	Layered products media and documentation for OpenVMS on CD-ROM
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DECnet Licenses

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

DSSI Information

EK-410AB-MG	DSSI VMScLuster Installation Guide
EK-D4AXP-TS	DSSI VMScLuster Troubleshooting Guide

Step 10—Keyboards and Power Cords

Systems ordered in the Americas and Asia Pacific include 120 V U.S. power cord and keyboard unless alternate is specified. Select country specific power cord and keyboard for **all** systems ordered in Europe.

Keyboards

Windows NT and Digital UNIX	OpenVMS	
LK471-A2	LK461-A2	U.S./English
LK471-AB	LK461-AB	Belgian
	LK461-AC	Canadian/French
LK471-AD	LK461-AD	Danish
LK471-AE	LK461-AE	United Kingdom
	LK461-AF	Finnish
LK471-AG	LK461-AG	German
	LK461-AH	Dutch
LK471-AI	LK461-AI	Italian
LK471-AK	LK461-AK	Swiss/Generic
	LK461-AL	Swiss/German
	LK461-AM	Swedish
LK471-AN	LK461-AN	Norwegian
LK471-AP	LK461-AP	French
	LK461-AQ	Canadian/English
LK471-AS	LK461-AS	Spanish
LK471-AV	LK461-AV	Portuguese

Power Cords

BN27Y-1J*	U.S., Canada, Japan, 120 V
BN19H-2E	Australia/New Zealand
BN19C-2E	Central Europe
BN19A-2E	U.K./Ireland
BN19E-2E	Switzerland
BN19K-2E	Denmark
BN19M-2E	Italy
BN19S-2E	India/South Africa
BN18L-2E	Israel

* Orderable as 17-00083-15

Step 11—Hardware and Software Supplemental Support Services

Hardware—Americas and Asia Pacific only

- Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.
- Select optional Hardware Supplemental Support Services if required.

AlphaServer 2100 4/275 Systems

FM-454HR-36	Years 1-3, 5 x 9, 4-hour response time
FM-454HR-60	Years 1-5, 5 x 9, 4-hour response time
FM-45512-36	Years 1-3, 5 x 12, 4-hour response time
FM-45512-60	Years 1-5, 5 x 12, 4-hour response time
FM-45616-36	Years 1-3, 6 x 16, 4-hour response time
FM-45616-60	Years 1-5, 6 x 16, 4-hour response time
FM-45724-36	Years 1-3, 7 x 24, 4-hour response time
FM-45724-60	Years 1-5, 7 x 24, 4-hour response time

AlphaServer 2100 5/250 and 5/300 Systems

FM-S54HR-36	Years 1 - 3, 5 x 9, 4-hour response time
FM-S54HR-60	Years 1 - 5, 5 x 9, 4-hour response time
FM-S5512-36	Years 1 - 3, 5 x 12, 4-hour response time
FM-S5512-60	Years 1 - 5, 5 x 12, 4-hour response time
FM-S5616-36	Years 1 - 3, 6 x 16, 4-hour response time
FM-S5616-60	Years 1 - 5, 6 x 16, 4-hour response time
FM-S5724-36	Years 1 - 3, 7 x 24, 4-hour response time
FM-S5724-60	Years 1 - 5, 7 x 24, 4-hour response time

Software—Americas and Asia Pacific only

- Systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Software service upgrades for **Windows NT** include advisory and remedial software support for the time period indicated.
- Software service upgrades for **Digital UNIX** include advisory and remedial software support with new version license rights for operating system and Digital NAS Base Server 200 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 Digital NAS Base Server 200 for the time period indicated.

AlphaServer 2100 4/275, 5/250, and 5/300 systems

FM-45NTS-12	12-month Software Supplemental Support for Windows NT AlphaServer 2100 systems
FM-45NTS-36	36-month Software Supplemental Support for Windows NT AlphaServer 2100 systems
FM-45NTS-60	60-month Software Supplemental Support for Windows NT AlphaServer 2100 systems
FM-SEOSF-12	12-month Software Supplemental Support for Digital UNIX AlphaServer 2100 systems
FM-SEOSF-36	36-month Software Supplemental Support for Digital UNIX AlphaServer 2100 systems
FM-SEOSF-60	60-month Software Supplemental Support for Digital UNIX AlphaServer 2100 systems
FM-SEVMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 2100 systems
FM-SEVMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 2100 systems
FM-SEVMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 2100 systems

Step 11b—Hardware and Software Supplemental Support Services (Europe only)

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

AlphaServer 2100 EISA Bus IRQ Address Table

Option	EISA Bus IRQ Addresses									Maximum of Each Supported		
	5	7	8	9	10	11	12	14	15	OpenVMS	Digital UNIX	Windows NT
DE422	0	–	–	N	0	0	–	–	–	3	3	3
PB2GA	–	–	–	0	–	–	–	–	–	1	1	1
DEFEA	–	–	–	N	0	0	–	–	0	2	2	2
DNSES	–	–	–	N	0	0	0	0	0	5	5	0
DW300	0	–	–	N	0	0	–	–	0	4	4	4
PB2HA	–	–	–	N	0	0	0	0	0	1	1	1
KZESC	–	–	–	–	–	0	0	0	0	4	4	4
KFESA	–	–	–	N	0	0	0	0	0	2	0	0
KFESB	–	–	–	N	0	0	0	0	0	4	0	0
PB2SX	–	–	–	–	–	–	–	–	–	0	1	0
CXI01	–	–	–	–	–	–	–	–	–	0	2	2

Table Codes:

0 = address is available for device

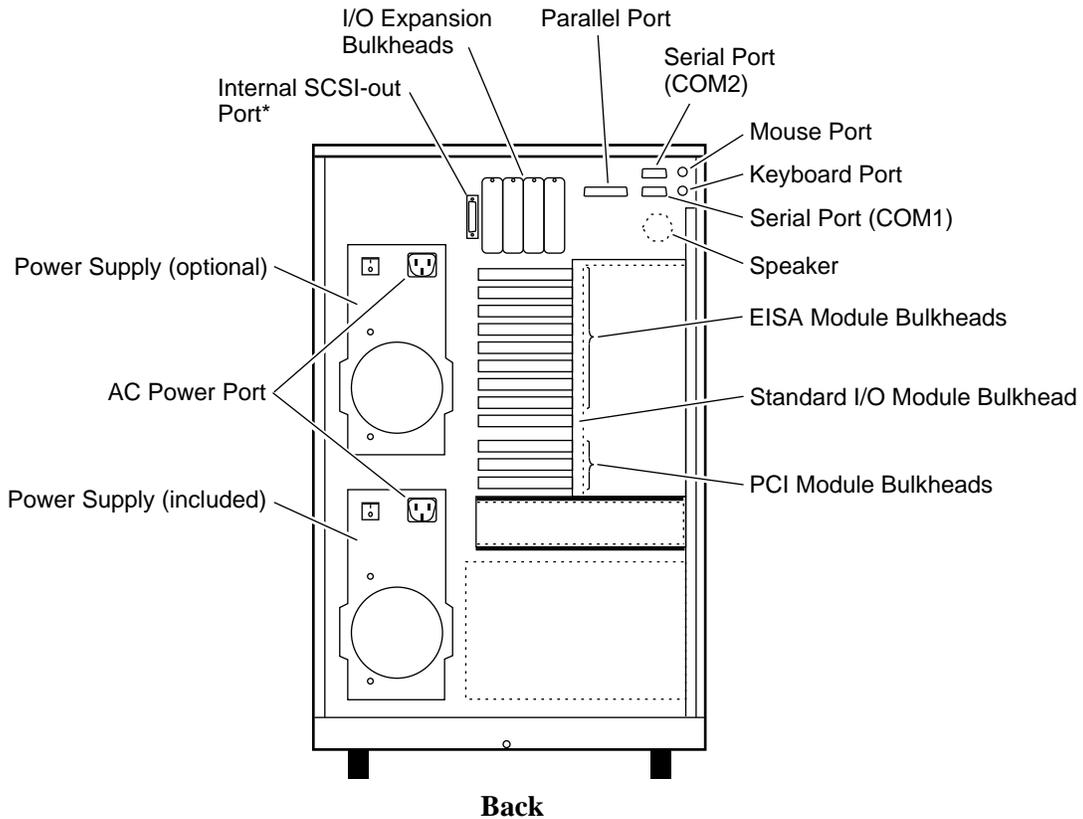
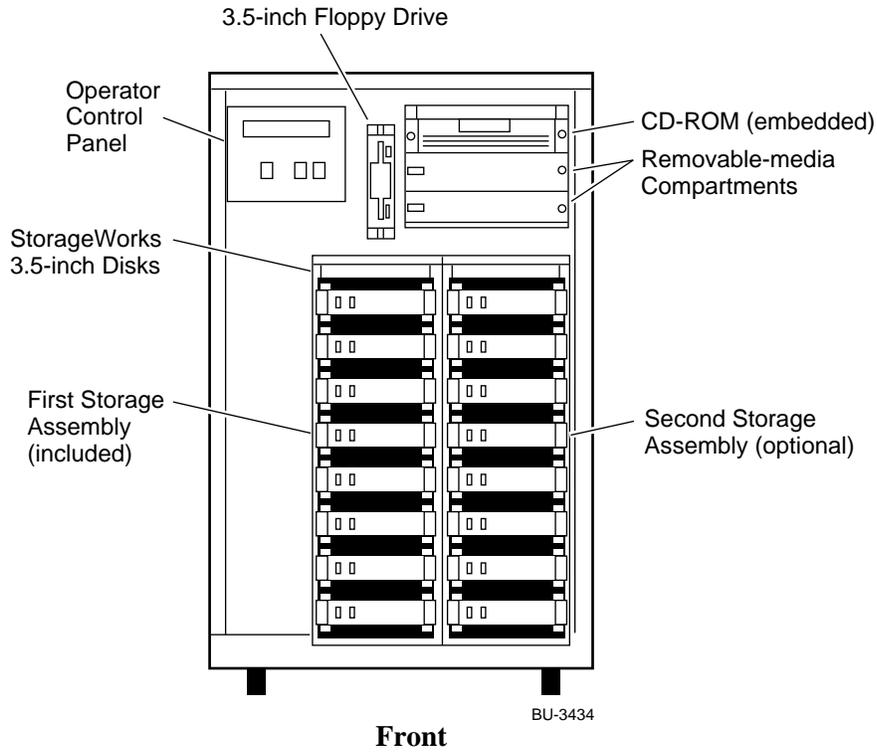
– = address not available for device

N in address location 9 = address is assigned, but its use is precluded due to presence of PB2GA-xx Video Graphics Adapter

Configuration Rules and Information

- EISA Bus IRQ address assignments are for Digital UNIX and OpenVMS systems only
- Video Graphics Adapter is included in all systems listed in Step 1. It occupies one EISA bus slot, leaving seven physical slots for all other EISA-based controllers.
- In some cases, the **maximum each [device] supported** is less than the number of EISA bus addresses available; this is due to other limitations.
- Only one device can occupy any given IRQ address; if multiples of a device are configured, each device occupies a separate address.
- Match **each** device to be configured to ONE available address. (**Note:** With the table as a worksheet, use a pencil to fill in an “0” for each device; fill in only one “0” per column.)
- The actual IRQ address assignment will be made by the EISA Configuration Utility (ECU) which is run during system manufacture, or in the installed system if the EISA bus is re-configured.
- Prestoserve option (PB2SX) does not require an IRQ address. Supported on Digital UNIX systems only.

AlphaServer 2100



* If not used, internal SCSI-out port must be terminated with External Terminator (12-37004-04) included with system.

BU-3435

Specifications

Shipping Dimension		
Height	119 cm (46.9 in.)	
Width*	102 cm (40.0 in.)	
Depth*	61 cm (24.0 in.)	
Weight	85 kg (187 lb) typical 114 kg (250 lb) maximum	
Installed Dimensions		
Height	70 cm (27.6 in.)	
Width	43 cm (16.9 in.)	
Depth	81 cm (31.9 in.)	
Weight	75 kg (165 lb) typical 100 kg (220 lb) maximum	
Clearances	Operating	Service
Front	75 cm (29.5 in.)	75 cm (29.5 in.)
Rear	15.2 cm (6 in.)	76.2 cm (30 in.)
Sides	None	76.2 cm (30 in.)
Environmental		
Temperature	Operating**	10°-35° C (50°-95° F)
	Nonoperating	
	Storage (60 days)	-40°-66° C (-40°-151° F)
	Rate of change	11° C/hr (20° F/hr)
Relative humidity	Operating	20–80%
	Nonoperating	20–80%
	Storage (60 days)	10–95%
	Rate of change	20%/hr
Maximum wet bulb temperature	Operating	28° C (82° F)
	Storage (60 days)	46° C (115° F)
Minimum dew point temperature	Operating	2° C (36° F)
	Storage (60 days)	Not tested
Maximum heat dissipation	Current	Theoretical
	Dual supply	800 Watt, 3005 Btu/hr 1280 Watt, 4371 Btu/hr
Air flow and quality	Intake location	Front
	Exhaust location	Rear
Altitude	Operating†	2000 m (6562 ft)
	Nonoperating	3600 m (12,000 ft)
Mechanical shock	Operating	7.5 G 10 ms
	Nonoperating	20 G peak 30 ms
Vibration	Operating	10-500 Hz .1 G peak
Acoustics	Operating	LNPEc (Bels) 6.6 maximum per ISO 7779
Electrical		
Nominal ac voltage	100-120 Vac	220-240 Vac
Voltage range (Vac)	88-132 Vac	180-264 Vac
Power source phase	Single	Single
Nominal frequency (Hz)	60 Hz	50 Hz
Frequency range (Hz)	47-63 Hz	47-63 Hz
Maximum inrush current	50 Amps	50 Amps
RMS current at nominal voltage (steady state)	8.5 Amps	4.0 Amps
Power cord	Type	IEC 320 C16
	Length	240 cm (113 in.)
	U.S. plug	NEMA 5-15, Socket EIC 320 Sheet, C-15

* Dimensions of shipping pallet; fork-lift access is on the width dimension.

** Maximum operating temperature at Sea Level. Reduce by 1° C (1.8° F) for each 600 m (2000 ft) above Sea Level.

† Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drives.

Specifications (continued)

Regulatory	
Agency approvals	UL Listed to UL1950 CSA Certified to CAN/ C22.2 No. 950-M89 TUV EN 60950 GS VDE 0805 Gsmarke ZH1/61 IEC 950 FCC 15J Part 15 (Class A) CE
Reviewed to	AS 3260 Australian Standard SS 436 14 50 Swedish Standard NZS 6661:1989 New Zealand Standard EN 60 950: 1992 European Norm

Recommended Power Protection/UPS Solutions for AlphaServer 2100 Systems

UPS offerings feature on-line design and include EIA232 port for local or network monitoring. Prestige units feature a three piece modular design that allows users to safely swap out components without disconnecting the critical load and “plug and play” battery and receptacle extensions. Units include 7 minute battery at full UPS rated output (14 minutes for fully configured system). U.S. models include a three-year, 24-hour hot swap warranty.

Prestige UPS - North American Model

4N-AEAAH-AM	UPS, 3.0kVA/2.0KW Rating, 208V in, 120/208V out, L6-30P Input Plug, (1) L5-30R, (4) 5-15R Output Receptacles, call for information on 120V models
4N-AEACH-xx	Optional Receptacle Extension, -AA - AE available
4N-AEAAH-AB	Add-on Battery

Prestige UPS - International Model

4N-AEAAH-AS	UPS, 3.0kVA/2.1KW Rating, 200-240V selectable in/out, IEC 309 Input Plug, (3) IEC 320 10A, (1) IEC 320 20A
4N-AEACH-xx	Optional Receptacle Extension, -DA - DD available (Shuko, French, British, Australian)
4N-AEAAH-AB	Add-on Battery
4N-AEWAR-G2	Prestige 5-year on-site exchange warranty upgrade for models sold and serviced in the U.S.
4N-AEACH-HA	Optional mobile module stacker standard unit for above UPS HB/HC/HD=1/2/3 added battery modules

Companion Data Surge Protection

4N-GA249-AB	Modem connection (wall plug-in unit)
4N-GA249-CA	10BaseT connection (wall plug-in unit)
4N-GA510-BF	ThinWire connection (device port)
4N-GA245-xx	Multi-port connection (din rail/rackmount)
4N-GA240-xx	Additional plug-in data modules for 4N-GA249 series devices. AC panel protection also available. All devices include 5 year hot-swap warranty.

UPS Monitoring and Unattended Shutdown Software (for above UPS systems only)

Includes cable, media and documentation.

Monitoring Software	Windows NT	Digital UNIX	OpenVMS
Single system shutdown	4N-AEAES-AA	4N-AEAES-AK	4N-AEAES-EM
Network Management and multiple system shutdown*	4N-AEAES-BA	4N-AEAES-BK	Call for information

* Connect-UPS Adapter required DA/DB=twisted pair, DC/DD=ThinWire

4N-AEAEO-DA/DC	Connect UPS Adapter 120V (North American)
4N-AEAEO-DB/DD	Connect UPS Adapter 220V (International)