



AlphaServer 2100A LP Rackmount

V96-2.6—7 Apr 1997

DIGITAL Systems and Options Catalog

Product Description

AlphaServer 2100A LP 5/250, 5/300 and 5/375 Rackmount Systems are compact versions of the AlphaServer 2100A Rackmount family. They have the same C-bus architecture, use the same CPUs and memory, support the same options, and run the same operating systems as the AlphaServer 2100A System. But they occupy only seven inches of vertical rack space. This makes the AlphaServer 2100A LP the ideal building block for densely-packed rackmounted systems and single-cabinet clusters.

Advanced server management features are provided with all AlphaServer 2100A shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

AlphaServer 2100A LP rackmount systems have two PCI buses with four PCI slots per bus. The high performance PCI I/O subsystem has a peak bandwidth of 264 MB per second. This feature makes the AlphaServer 2100A LP a superior I/O system for environments in which the I/O throughput/bandwidth of a single PCI bus would be functionally challenged.

AlphaServer 2100A LP rackmount systems support up to two CPUs. Packaged Systems that include two 5/300 or 5/375 CPU boards are now available.

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

DIGITAL conducts its business in a manner that conserves the environment and protects the safety and health of its employees, customers, and the community.

DIGITAL, the DIGITAL logo are trademarks of Digital Equipment Corporation.

Printed in USA. Copyright 1997 Digital Equipment Corporation. All rights reserved.

Step 1—Systems

- AlphaServer 2100A LP Rackmount systems include 120V or 240V Cabinet compatible power cord. Select country-specific power cord for other 240V use.
- Select AlphaServer 2100A LP Rackmount systems with one CPU or two CPUs installed.
- Systems **do not** include video graphics adapter, CD-ROM, keyboard or mouse, options can be ordered separately.
- Options ordered will be factory installed unless specified as **spares**.
- Uninterruptable Power Supplies are available; call for specific Rackmount configuration support.

AlphaServer 2100A LP Rackmount Systems include

- One Alpha microprocessor 21164 250-MHz CPU, with 4 MB onboard cache, **or**
- One or two Alpha microprocessor 21164 291-MHz CPU(s), each include 4 MB onboard cache, **or**
- One or two Alpha microprocessor 21164 375-MHz CPU(s), each include 8 MB onboard cache
- BA743 Rackmountable enclosure with:
 - Integral 10 MB/s 8-bit narrow Fast SCSI controller
 - Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
 - One parallel port, 25-pin D-subminiature connector
 - One RZxx hard disk slot (includes drive)
 - One 5.25-inch, half-height removable media slot
 - Nine expansion slots: Seven PCI slots, one EISA slot, one PCI/EISA combination slot
Note: PCI slots are split between two PCI buses with four slots each
 - 570-Watt power supply
- Integral Ethernet AUI or 10BaseT (twisted pair)
- 1.44 MB diskette drive in dedicated slot
- One 7200 RPM hard disk drive indicated below (installed in only internal hard disk slot)
- Memory indicated below
- Customer documentation
- EISA configuration utility
- Chassis rackmount slide kit
- Video/keyboard/mouse extension cables
- Hardware Warranty Three-year, on-site with 5 x 9 24-hour response time*
- Software Warranty:*
 - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
 - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days

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

DIGITAL UNIX Systems include

- DIGITAL UNIX V 4.0A operating system base license
- NAS Base Server 200 for DIGITAL UNIX license QL-306AG-AA; includes the following layered products (order media and documentation separately)
 - PATHWORKS for DIGITAL UNIX (kit only, no license)
 - Polycenter Advanced File System utilities
 - Objectbroker for DIGITAL UNIX Runtime
 - DECmessageQ for DIGITAL UNIX Runtime
 - DCE Runtime
 - DIGITAL UNIX Server Extensions
 - PrintServer software (kit only, licensed with printer)
- Base operating system is factory installed

Note: Operating system media and documentation is **required** for first system on site; see Step 8.

DIGITAL UNIX Rackmount Systems—Requires cabinet

Single-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-A253V-B9	5/250	128 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A253V-C9	5/250	512 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A254V-B9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A254V-C9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-B9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-C9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
Two-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-A254V-D9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A254V-E9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-D9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-E9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA

Step 1—Systems (continued)**OpenVMS Systems include**

- .. OpenVMS V7.1 operating system base license.
- .. NAS Base Server 200 for OpenVMS license (QL-23EAG-AA), includes the following layered products (order media and documentation separately)
 - DECnet for OpenVMS End System
 - DECnet/OSI for OpenVMS End Node
 - PATHWORKS for OpenVMS (LAN Manager); kit only, no license
 - DEC TCP/IP services for OpenVMS
 - Polycenter Software Distribution (Client)
- DECwindows Motif for OpenVMS
- Objectbroker for OpenVMS (ACA Services)
- DECmessageQ for OpenVMS Runtime
- DECprint Supervisor for OpenVMS , Base
- DECprint Supervisor for OpenVMS , Plus
- DECprint Supervisor for OpenVMS , Open
- PrintServer software (kit only, licensed with printer)
- .. OpenVMS operating system is factory installed.

Note: Operating system media and documentation is required for first system on site; see Step 8

OpenVMS Rackmount Systems—Requires cabinet

Single-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-Y253V-B9	5/250	128 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y253V-C9	5/250	512 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y254V-B9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y254V-C9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
Two-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-Y254V-D9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y254V-E9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA

Windows NT Rackmount Systems include

- .. Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit.
 - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders, see Step 8.
- .. Windows NT systems require a graphics option, see Step 4.

Windows NT Rackmount Systems—Requires cabinet

Single-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-N253V-B9	5/250	128 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N253V-C9	5/250	512 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N254V-B9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N254V-C9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-B9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-C9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
Two-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-N254V-D9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N254V-E9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-D9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-E9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA

PCI Option Slot Table

Order Number	Description	Max #	Supported in PCI Hose 0 slots only	Restrictions apply to
PB2GA-JB	S3-Trio64 Graphics option 1MB	1	6, 7, 8, 9	DIGITAL UNIX, Windows NT, OpenVMS
CCMAA-BA	PCI to MEMORY CHANNEL controller	2	6, 7, 8, 9	DIGITAL UNIX

Step 2—CPU Symmetrical Multiprocessing (SMP) Upgrade

System Bus Slot Table

Slot Assignments	Slot 1	Slot 2	Slot 3	Slot 4
1 CPU system	Memory	Memory	CPU	Memory
2 CPUs system	Memory	Memory	CPU	CPU

CPU Upgrades

- .. Order up to one additional CPU for a maximum of two.
- .. Additional CPUs must match the speed of CPU in system.
- .. Two-CPU systems are restricted to two memory slots.

Note: Two-CPU Packaged systems include two CPUs and are restricted to two memory options

470NR-UD	Windows NT SMP upgrade includes one 5/250 MHz CPU processor; SMP license is not required
480NR-UD	Windows NT SMP upgrade includes one 5/300 MHz CPU processor; SMP license is not required
490NR-AA	Windows NT Server upgrade includes one 5/375 MHz CPU processor; SMP license is not required
470AR-UD	DIGITAL UNIX SMP upgrade includes one 5/250 MHz CPU processor and DIGITAL UNIX SMP license
480AR-UD	DIGITAL UNIX SMP upgrade includes one 5/300 MHz CPU processor and DIGITAL UNIX SMP license
490AR-AA	DIGITAL UNIX SMP upgrade includes one 5/375 MHz CPU processor and DIGITAL UNIX SMP license
470YR-UD	OpenVMS SMP upgrade includes one 5/250 MHz CPU processor and OpenVMS SMP license
480YR-UD	OpenVMS SMP upgrade includes one 5/300 MHz CPU processor and OpenVMS SMP license

Step 3—Memory

- .. One-CPU systems support a total of three memory boards in any combination.
- .. Two-CPU systems support total of two memory boards in any combination.
- .. Windows NT 4.0 supports up to 1.5 GB memory.
- .. DIGITAL UNIX V3.2 supports up to 1.5 GB memory.
- .. OpenVMS V6.2 supports up to 1.5 GB memory.

MS451-DA	128 MB memory module
MS451-FA	512 MB memory module

Step 3a—Prestoserve Nonvolatile Random Access Memory (NVRAM)

- .. Supported on DIGITAL UNIX systems only.
 - .. Maximum one Prestoserve option per system.
- | | |
|--------------------|-----------------------------|
| 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—Graphics Option and Monitors

Windows NT systems

- .. Windows NT systems require a graphics option to run **all** system functions.

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 7).
- .. For graphics console functionality, select graphics option, mouse, keyboard and monitor.

Video Graphics Adapter (VGA)

PB2GA-JB S3-Trio64 Graphics option, supports 1024x768 resolution, 72-Hz monitors, uses one PCI slot

Mouse

PBXWS-AA 3-button mouse

Keyboard

Select keyboard from Step 9.

Monitor

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

- 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** 21" (19.6" viewable image size) ultra high-resolution color monitor with Light 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. If purchased in North America, -LA includes 120V power cord, otherwise power cord not included, order separately.

Step 5—Storage

- .. Integral Fast SCSI-2 controller supports internal devices only (CD-ROM or tape, and hard disk drive inside base chassis). Disk drive connected to this controller operates in **Narrow** (8-bit) mode.
- .. Select **Wide** (16-bit) mode controllers, disks and StorageWorks shelves from Step 5b for external expansion.

Note: **Wide** disk drives configured on a **Narrow** bus operate in **narrow** mode. **Narrow** disk drives configured on a **wide** bus operate in **narrow** mode. **Wide** and **narrow** devices can be mixed on a single bus.

Step 5a—Internal Storage

- .. Systems include one internal RZ29B disk drive and one internal RX23L floppy drive.

Removable Media Devices (select one device)

RRD46-AA	600 MB 5.25-inch 12X speed half-height CD-ROM
TZK11-LG	2.0 GB 5.25-inch half-height SCSI QIC tape drive
TLZ09-LG	8.0 GB 4 mm DAT 93 Mb/minute 5.25" half-height SCSI tape drive (DIGITAL UNIX, OpenVMS)

Step 5b—External Storage for 16-bit (Wide) Mode

- .. Additional storage is supported outside AlphaServer 2100A LP Rackmount system unit. BA36R-AF/-AR rackmountable 16-bit StorageWorks shelves are recommended.

Configuration Rules

- .. 16-bit Wide devices require Wide StorageWorks Shelves (BA36R) to operate in wide mode.
- .. PCI-based one- and three-port (KZPSC-AA/BA) RAID controllers, and one-port Fast Wide Differential (KZPSA-BB) controller allow wide devices to operate in 16-bit mode.
- .. Maximum of four PCI-based one- and three-port (KZPSC-xx) RAID controllers supported per system.
 - One- and three-port StorageWorks RAID 230 controllers (KZPSC-xx) support hard disk 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 BA36R using DWZZB wide differential to wide single-ended converter, or narrow disks using DWZZA wide differential to narrow single-ended converter in BA35R.
 - .. KZPSA-BB controller on Windows NT systems supports up to 15 disks. DIGITAL UNIX and OpenVMS systems support 7 disks.
 - .. SCSI cables are **not** included and must be ordered separately.
 - .. KZPSA-BB 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 or DECsafe configurations.
 - .. KZPSC-xx Cables
 - BN31L-1E from KZPSC-xx to BA35R
 - BN31S-1E from KZPSC-xx to BA36R
 - If all three ports on KZPSC-BA are used, select 2T-KZPSC-KT cable kit for third port connection.
 - .. KZPSM-AA Cables
 - BC25V-1H from KZPSM to external 68-pin bulkhead
 - BN21K-02 from bulkhead to external BA36R wide storage.
 - .. KZPDA-AA Cables
 - BN21K-02 from KZPDA to BA36R wide storage

Storage Controllers for Wide Mode

KZPSC-AA	One-port PCI-based controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX, and Windows NT
KZPSC-BA	Three-port PCI-based controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX, and Windows NT
MS100-AA	16 MB Cache memory option for KZPSC-AA/BA, maximum one per controller
MS100-AB	32 MB Cache memory option for KZPSC-AA/BA, maximum one per controller
KZPSC-UB	Battery back-up for Cache memory option
KZPSA-BB	PCI-based Fast Wide Differential (FWD) SCSI controller
KZPSM-AA	PCI-based combination Ethernet and Fast Wide SCSI controller
KZPDA-AA	PCI based Fast Wide Single Ended (FWSE) SCSI controller

Hard Disk Drives for Wide Mode

RZ26N-VW	1.05 GB 3.5-inch half-height disk drive
RZ28D-VW	2.1 GB 3.5-inch half-height disk drive
RZ29B-VW	4.3 GB 3.5-inch half-height disk drive

Step 5b—External Storage for 16-bit (Wide) Mode *(continued)***Rackmountable StorageWorks Shelves for Wide Mode**

- .. BA36R StorageWorks shelves are supported on all Fast Wide SCSI-2 controllers listed in Step 5b.
- .. SCSI cable BN21K-xx for KZPSA, and BN31S-1E for KZPSC, is required to connect BA36R to controller.
- .. See Step 9 for additional power cords.

BA36R-AF	Front mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply
BA36R-AR	Rear mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply

Step 5c—DSSI Storage (OpenVMS systems only)

- .. System supports up to four KFPSA PCI/DSSI adapters.
- .. Each BA35R StorageWorks shelf in single/split-bus mode supports one/two HSD10 DSSI/SCSI converters.
- .. Wide disks installed "behind" HSD10 will run in **narrow** mode.
- .. Cabling information for DSSI controllers:
 - DSSI devices supported on OpenVMS only
 - DSSI cables must be ordered separately
 - KFPSA uses "Micro-Ribbon" connection
 - KFPSA to any external "Pin-Socket" DSSI connection requires BC22Q-xx
 - KFPSA to any external "Micro-Ribbon" DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx
 - KFPSA to any external "Micro-Ribbon" DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable
 - Order BC29S-09 DSSI cable for HSD10 in BA36R-Ax shelves
 - Order BC29U-02 DSSI cable for HSD10 in adjacent BA36R-Ax shelves
 - Order BC29V-06 DSSI cable for HSD10 in non-adjacent BA36R-Ax shelves

DSSI Adapter

KFPSA-AA	PCI-based single-DSSI controller, maximum four per system (OpenVMS systems only)
HSD10-AA	StorageWorks Array controller; supports seven SCSI-2 disks, tape, and optical devices. (See Storage section for supported devices)

Step 5d—External Storage for Storage Controllers

Rackmount BA350-xx controller shelves requires seven inches of vertical space; a front and rear shelf can be mounted back-to-back in the same seven inch space. See Step 9 for additional power cords

BA35R-MF	Rackmountable BA350-MA controller shelf; front access
BA35R-MR	Rackmountable BA350-MA controller shelf; rear access

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

- .. Systems support mixing CIPCA-AA and CIPCA-BA for maximum of three per system
- .. Minimum Operating System Version: OpenVMS 6.2-1H2
- .. Minimum Console Revision: V4.4
- .. Select one CI cable per adapter

CIPCA-AA	PCI-to-CI adapter, requires one PCI slot and one EISA slot. Maximum three per system
CIPCA-BA	PCI-to-CI adapter, requires two PCI slots. Maximum three per system
BNCIA-10	10-meter CI cable
BNCIA-20	20-meter CI cable
BNCIA-45	45-meter CI cable

Step 6—Networks and Communications

- .. See PCI Option Slot Chart for slot configuration rules.
- .. Systems include integral Ethernet adapter (AUI or 10BaseT selectable)
- .. Select networking cable
 - BNE4G-xx for AUI
 - BN25G-xx for 10BaseT
- .. Maximum of 4 PCI-based network controllers supported.

Order Number	Description	Maximum # supported		
		DIGITAL UNIX	OpenVMS	Windows NT
DNSES-AA	EISA-based synchronous communications controller	2	2	0
CXI01-AA/AD	ISA-based asynchronous multiplexer	2	2	2
DI1AA-AA	Digiboard ISA datafire-U ISDN Controller (available as spare only)	0	0	1
DI1AA-AB	Digiboard ISA datafire-ST ISDN Controller (available as spare only)	0	0	1
DEFPA-AB*	PCI to FDDI Adapter, SAS, MMF, SC	4	6	4
DEFPA-DB*	PCI to FDDI Adapter, DAS, MMF, SC	4	6	4
DEFPA-UB*	PCI to FDDI Adapter, SAS, TP-PMD	4	6	4
DEFPA-MB	PCI to FDDI Adapter, DAS, TP-PMD	4	6	4
DE450-CA	PCI 10-Mbit Ethernet controller; AUI, 10BaseT, or 10Base2	4	6	4
DE435-AA	PCI-based DIGITAL Etherworks 32-bit High Performance Network Interface Card	4	4	4
DE500-AA	Fast EtherWORKS PCI 10/100 network interface card	2	2	2
PBXNP-AA	PCI-based Token ring network adapter	1	1	0
DGLPB-AB	PCI based ATMworks 350 Interface Card	2	0	0

* OpenVMS does not have boot support. 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—MEMORY CHANNEL Interconnect

DIGITAL UNIX Systems

- .. Require DIGITAL UNIX V3.2E (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.

OpenVMS Systems

- .. Require OpenVMS V7.1 and OpenVMS Cluster license

Configuring information:

- .. For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- .. For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-BA and one BC12N-10 cable per system node.
- .. CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.
- .. CCMRA-AA Rackmount Kit for Hub; takes 8.75-in rail space.

Note: CCMAA-BA (PCI to MEMORY CHANNEL controller) must be installed in PCI Hose 0 slots 6-9, and in redundant mode both CCMAA-BAs must be installed in PCI Hose 0 slots 6-9.

Step 6a—MEMORY CHANNEL Interconnect (continued)

CCMAA-BA	PCI to MEMORY CHANNEL controller —Maximum two supported
CCMHA-AA	MEMORY CHANNEL Hub with 4 Line Cards
CCMRA-AA	MEMORY CHANNEL Hub Rackmount Kit (8.75-in)
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, includes DIGITAL UNIX driver
QB-4ZCAG-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAG-AA	OpenVMS Cluster license for Alpha systems

Step 7—Terminals and Printers

System includes 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 ordered 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 (one included with system) for each connection. A cable must be ordered unless otherwise provided.

Step 8—Software**Windows NT Servers**

- .. Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit
 - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders.

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

QB-23CAA-SB	Windows NT Server license, media kit North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CTA-SB	Windows NT Server license, media kit Hebrew
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CQA-SB	Windows NT Server license, media kit Arabic
QB-23C5A-SB	Windows NT Server license, media kit Thai
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Brazilian/Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean
QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

Step 8—Software (continued)**Windows NT Server Optional software and documentation**QB-53V9A-SA Windows NT Server Cluster Kit

DIGITAL UNIX SystemsSelect user licenses 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 license provides the right to interactively use the operating system by the specified number of concurrent users on a designed DIGITAL UNIX system.
- .. 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

DECnet Licenses

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

OpenVMS SystemsSelect user licensees 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 Licenses**

- .. OpenVMS Concurrent Use license provides 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

Step 8—Software (*continued*)**OpenVMS Concurrent Use Licenses**

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-MT1AH-GZ	OpenVMS hardcopy documentation

OpenVMS Layered Products CD-ROM

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

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 (OpenVMS systems only)

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

Step 9—Power Cords and Keyboards

System Power Cords—Systems include 120V or 240V cabinet compatible power cord. Select country-specific power cord for other 240V use

Included*	U.S., Canada, Japan, 120 V
BN19J-2E	Australia, New Zealand
BN19D-2E	Central Europe
BN19B-2E	U.K., Ireland
BN04B-2E	Switzerland
BN19L-2E	Denmark
BN19N-2E	Italy
BN19T-2E	Egypt, India, South Africa
BN19Y-2E	Israel

* Orderable as 17-00083-51

Monitor Power Cords—Select country-specific power cord for 240V use.

BN27S-03	U.S., Canada, Japan, 120V
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	Egypt, India, South Africa
BN18L-2E	Israel

Step 9—Power Cords and Keyboards (*continued*)

StorageWorks Power Cords—Select additional power cords for N+1 power use

BN27S-03	U.S., Canada, Japan
BN27Z-03	240V Cabinet Systems

Keyboards—Order keyboard if graphics monitor was ordered in Step 4

Windows NT/ 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

Step 10—Cabinet Enclosure

Select cabinet enclosure for AlphaServer 2100A LP rackmount systems, if required.

- .. H9A10 19-inch EIA Cabinet Enclosure Dimensions
 - Outside 66.9-inches high, 23.62-inches wide, 33.8-inches deep
 - Internal useable rackmountable space: 56-inches high, 19-inches wide, 30.8 inches deep
- .. H9A15 19-inch EIA Cabinet Enclosure Dimensions
 - Outside 78.7-inches high, 23.62-inches wide, 33.4-inches deep
 - Internal useable rackmountable space: 68.25-inches high, 19-inches wide, 29.8 inches deep
- .. H9A11 19-inch EIA Cabinet Enclosure Dimensions
 - Outside 43.3-inches high, 23.62-inches wide, 33.8-inches deep
 - Internal useable rackmountable space: 35-inches high, 19-inches wide, 30.8 inches deep

Cabinet Power Plugs

- .. 120V Cabinets have one or two L5-30P Plugs
- .. 240V Cabinets have one or two IEC 309 pin and sleeve 316P6 plugs

H9A10-CE	Retma Cabinet, 56" x 30.83", No front door, Dual Power controller, 120V
H9A10-CJ	Retma Cabinet, 56" x 30.83", No front door, Dual Power controller, 240V
H9A10-CG	Retma Cabinet, 56" x 30.83", Front door, Dual Power controller, 120V
H9A10-CK	Retma Cabinet, 56" x 30.83", Front door, Dual Power controller, 240V
H9A15-BA	Retma Cabinet, 68.25" x 29.75", No front door, Dual Power controller, 120V
H9A15-BG	Retma Cabinet, 68.25" x 29.75", No front door, Dual Power controller, 240V
H9A11-BA	Retma Cabinet, 35" x 30.83", No front door, 120V
H9A11-BG	Retma Cabinet, 35" x 30.83", No front door, 120V

Step 11—Hardware and Software Supplemental Support Services

Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.

Hardware—Americas and Asia Pacific only

- .. Select optional Hardware Supplemental Support Services if required.

AlphaServer 2100A LP 5/250 and 5/300 DIGITAL UNIX, OpenVMS, and Windows NT Systems

FM-S54HR-36	3 year 5 x 9 4-hour response time
FM-S54HR-60	5 year 5 x 9 4-hour response time
FM-S5724-36	3 year 7 x 24 4-hour response time
FM-S5724-60	5 year 7 x 24 4-hour response time

AlphaServer 2100A LP 5/375 DIGITAL UNIX and Windows NT Systems

FM-S94HR-36	3 year 5 x 9 4-hour response time
FM-S94HR-60	5 year 5 x 9 4-hour response time
FM-S9724-36	3 year 7 x 24 4-hour response time
FM-S9724-60	5 year 7 x 24 4-hour response time

Software—Americas and Asia Pacific only

- .. Software Warranty:
 - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
 - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- .. Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.
- .. Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

AlphaServer 2100A LP systems

FM-WNT02-12	12-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNT02-36	36-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNT02-60	60-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-SEOSF-12	12-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-36	36-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-60	60-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEVMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems

Step 11a—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.

Specifications

Installed Dimensions	
Height	17 cm (7 in.)
Width	45 cm (19 in.)
Depth	67.3 cm (26.5 in.)
Weight	34.1 kg (75 lb)
Environmental	
Temperature	
Operating*	10-35° C (50°-95° F)
Nonoperating	-40°-66° C (-40°-151° F)
Rate of change	11° C/hr (20° F/hr)
Relative humidity	
Operating	10-90% noncondensing
Maximum wet bulb temp	
Nonoperating	28° C (82° F) 10-95% noncondensing
Maximum wet bulb temp	46° C (115° F)
Rate of change	20% / hr
Maximum heat dissipation	800 Watt (2,766 BTU/hr)
Air flow	
Intake location	100 CFM Front
Exhaust location	Rear
Altitude	
Operating **	3048 m (10,000 ft)
Nonoperating	12,192 m (40,000 ft)
Mechanical shock	
Operating	20 g pk for 10 ± 3 ms
Nonoperating	20 g pk for 10 ± 3 ms
Vibration	
Operating	5-15.65 Hz @0.020" DA 15.65-200 Hz @0.25g peak 200-500 Hz @0.10g peak
Non-operating	5-300 Hz @1.034g rms
Acoustics	
Operating LNPEc (Bels)	6.5 max per ISO 7779
Electrical	
Voltage range (AVS)	100-120/220-240 Vac
power source phase	Single
Nominal frequency (Hz)	50 - 60 Hz
Frequency range (Hz)	47 - 63 Hz
Maximum rated current	8.2 a / 4.1 a
Maximum power consumption (Watts)	810 W (PFC = 0.99, 8.2A @ 100 V)
Agency approvals	UL Listed to UL1950 CSA Certified to CAN/CSA 22.2 No. 950-M93 TUV EN 60950GS VDE 0805 IEC 950 FCC 15J Part 15 (Class A) CE
Power cord	Type IEC 320 C13 Length 300 cm (118 in.) U.S. plug NEMA 5-15, Socket IEC 320 Sheet, C-15
Reviewed to	AS3260 Australian Standard NZS 6661:1989 New Zealand Standard EN 60 950:1992 European Norm

* Maximum operating temperature at Sea Level. Reduced by 1°C (1.8°F) for each 600 m (2000 feet) 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 disk drives.