New Products
Systems and
Options Catalog

1992 April–June

digital

VAX Systems
DECsystems

New Products

Introduction

This supplement to the *VAX Systems/DECsystems Systems and Options Catalog* includes ordering information for major new hardware products announced during the January–April timeframe. Customers should retain their January 1992 edition and use this supplement to obtain ordering and configuring information for Digital's full range of hardware product offerings. Sales representatives should refer to the Q4 online only version available through VTX OPAL.

Contents

ACCESSWORKS Data Integration Servers

Product Overview

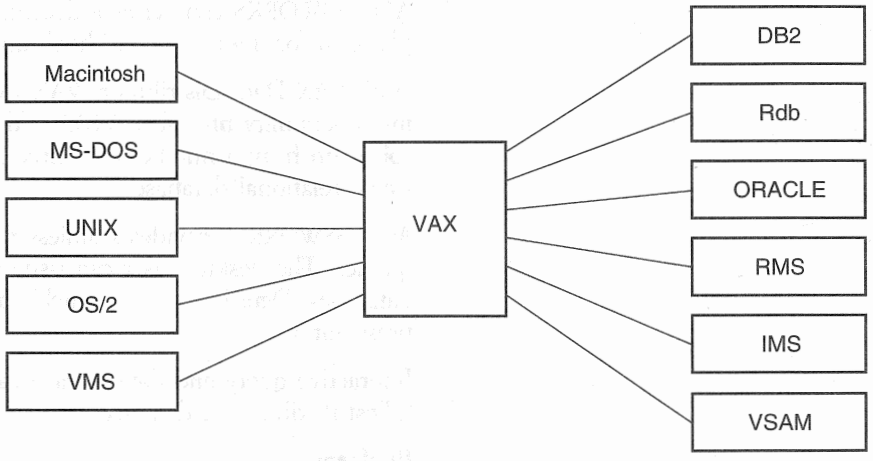
Desktop computing has delivered vast power and flexibility to the user. Providing these users with manageable access to enterprise data is the challenge faced by MIS organizations today.

ACCESSWORKS provides everything necessary to access database information as it consolidates, distributes, and manages data securely and automatically.

ACCESSWORKS provides an alternative to expensive mainframe upgrades. Datacenter capacity can be extended by offloading database query activities.

ACCESSWORKS systems provide the strategic direction sought by corporate data management organizations. ACCESSWORKS is the solution to their data distribution and desktop data access needs.

ACCESSWORKS framework consists of three components: desktop PCs, the ACCESSWORKS server, and the corporate data repository.



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Features

ACCESSWORKS provides:

- A strategic, flexible solution providing simplified data management compared with point-to-point solutions
- Database access that does not require specialized interconnect design
- A single vendor for support of hardware, software, and corporate data management strategy
- The unloading and freeing of the database mainframe with its associated performance extension
- Family of client/server integrated solutions that are preconfigured, tested, and characterized for optimal performance

Features *(Continued)*

Desktop Environment

ACCESSWORKS utilizes NAS tools, including SQL application programming interface, and PATHWORKS, to integrate the desktop computing environment. ACCESSWORKS supports DOS, Microsoft Windows, OS/2, Macintosh, VAX, ULTRIX, and SunOS systems.

Target Databases

ACCESSWORKS provides read access to a variety of corporate databases, including IBM DB2, VSAM, IMS, and VAX Oracle, as well as read/write access to Rdb and RMS.

IBM databases are accessed via high-performance DECnet/SNA-ST and -CT Gateways or through cost-effective DECnet/SNA software.

Data Storage and Ad-hoc Query Capability

ACCESSWORKS can act as a decentralized data storage point, or can be the platform for interactive "ad-hoc" queries.

With VAX Data Distributor, VAX Common Data Dictionary, and Digital's interoperability products (VIDA and RdbAccess), data can be extracted or rolled up from a number of sources, relational and non-relational, into a single relational database.

ACCESSWORKS provides seamless routing and translation of interactive queries. The desktop user can issue ad-hoc queries to remote corporate databases. Data is returned quickly and easily for local analysis and presentation.

Interactive query and data storage can be used in conjunction to provide the fullest flexibility of data access.

Platforms

ACCESSWORKS is a scaleable solution based on seven VAX platforms—MicroVAX 3100 Model 30 through the VAX 6000 Model 610.

Step 1—System

Select ACCESSWORKS base system.

ACCESSWORKS base systems include

- MicroVAX or VAX server system
- VMS
- NAS 200, NAS 300, or NAS 400 which include:
  - DECnet/OSI end-node license (with PATHWORKS for VMS)
  - VAX (with Rdb/VMS)
- Memory
- Disk
- Compact disk load device (except ACCESSWORKS 6610; see note 2 below)
- ACCESSWORKS media/documentation kit—Includes NAS and layered product images for ACCESSWORKS base systems and all ACCESSWORKS options
- Layered software licenses:
  - VAX Common Data Dictionary
  - DEC RdbAccess for VAX RMS

Order Number	System	Number of Clients Supported	Memory	Disk	NAS
DJ-DB3CA-AA	ACCESSWORKS 3130	70	16 MB	426 MB	NAS 200
DJ-DB3BA-AA	ACCESSWORKS 3180	120	16 MB	426 MB	NAS 200
DJ-DB4AA-AA	ACCESSWORKS 4300	100	32 MB	852 MB	NAS 300
DJ-DB4BA-AA	ACCESSWORKS 4500	175	64 MB	852 MB	NAS 300
DJ-DB6AA-AB	ACCESSWORKS 6610 (50 Hz)	256	64 MB	2 GB	NAS 300
DJ-DB6AA-AC	ACCESSWORKS 6610 (60 Hz)	256	64 MB	2 GB	NAS 300
DJ-DB4CA-AA	ACCESSWORKS 4500HA	175	64 MB	852 MB	NAS 400
DJ-DB6BA-AB	ACCESSWORKS 6610HA (50 Hz)	256	128 MB	2 GB	NAS 400
DJ-DB6BA-AC	ACCESSWORKS 6610HA (60 Hz)	256	128 MB	2 GB	NAS 400

Notes:

1. Each system requires the addition of a console. This can be a country-specific VT100/VT200-compatible terminal.
2. VAX 6000 Model 610 ACCESSWORKS requires the addition of an InfoServer 150 and associated country kit (**SEACD-AA** and **SEAKC-xx**) unless one is already resident on the local network.
3. Distribution media for ACCESSWORKS software and VMS is CD-ROM.

Step 2—IBM Connectivity

Select one of three SNA connectivity options: ACCESSWORKS/SNA, ACCESSWORKS/SNA-ST, and ACCESSWORKS/SNA-CT. Target IBM databases include DB2, VSAM, IMS.

ACCESSWORKS/SNA includes:

- VMS/SNA software
- VIDA Client software license
- LU 6.2 software license
- VAX DTF server software license
- Wide area device driver software
- DF296 9600-bit/second modem
- Serial line controller

DJ-DB3CB-AA	SNA Connect for ACCESSWORKS 3130
DJ-DB3BB-AA	SNA Connect for ACCESSWORKS 3180
DJ-DB4AB-AA	SNA Connect for ACCESSWORKS 4300
DJ-DB4BB-AA	SNA Connect for ACCESSWORKS 4500
DJ-DB6AB-AA	SNA Connect for ACCESSWORKS 6610

Step 2—IBM Connectivity *(Continued)*

ACCESSWORKS/SNA-ST includes:

- DECnet/SNA Gateway-ST
- VIDA Client software license
- LU 6.2 software license
- VAX DTF server software license

DJ-DB3CC-AA	SNA-ST Connect for ACCESSWORKS 3130 and 3180
DJ-DB4AC-AA	SNA-ST Connect for ACCESSWORKS 4300
DJ-DB4BC-AA	SNA-ST Connect for ACCESSWORKS 4500
DJ-DB6AC-AA	SNA-ST Connect for ACCESSWORKS 6610

ACCESSWORKS/SNA-CT includes:

- DECnet/SNA Gateway-CT
- VIDA Client software license
- LU 6.2 software license
- VAX DTF server software license

DJ-DB3CD-AA	SNA-CT Connect for ACCESSWORKS 3130 and 3180
DJ-DB4AD-AA	SNA-CT Connect for ACCESSWORKS 4300
DJ-DB4BD-AA	SNA-CT Connect for ACCESSWORKS 4500
DJ-DB6AD-AA	SNA-CT Connect for ACCESSWORKS 6610

ACCESSWORKS/SNA-BASIC allows the utilization of existing -ST or -CT gateways in connecting to IBM systems. It provides SNA connectivity for incremental ACCESSWORKS base systems.

ACCESSWORKS/SNA-BASIC includes:

- VIDA Client software license
- LU 6.2 software license
- VAX DTF Server software license

QP-LBYAA-01	SNA-BASIC Connect for ACCESSWORKS 3130 and 3180
QP-LBYAA-02	SNA-BASIC Connect for ACCESSWORKS 4300
QP-LBYAA-03	SNA-BASIC Connect for ACCESSWORKS 4500
QP-LBYAA-04	SNA-BASIC Connect for ACCESSWORKS 6610

Notes:

1. Access to IBM databases by the ACCESSWORKS/SNA option requires the addition of an internal VAXBI (**DWMBB-DA**) to the VAX 6000 Model 610 system.
2. Access to IBM DB2 databases requires VIDA server software on the IBM host. This software (**QL-VTXAX-xx** and **QA-VTXAA-xx**) needs to be ordered unless already resident on the IBM host.
3. Access to IBM VSAM/IMS databases requires DTF server software on the IBM host unless already resident.

DTF for MVS	
QL-1GQA9-AA	Software license
QA-1GQAA-xx	Software media
QA-1GQAA-GZ	Software documentation
QA-1GQA*-xx	Software Product Services

DTF for VM	
QL-GUYA9-AA	Software license
QA-GUYAA-xx	Software media
QA-GUYAA-GZ	Software documentation
QA-GUYA*-xx	Software Product Services

4. Batch access to IBM IMS databases requires Data Extract, an IBM product, to be resident on the IBM host. The order number is 5668-788—Data Extract, Version 2, Release 4 for MVS and VM. This software needs to be ordered unless already resident on the IBM host.

* denotes processor code, xx denotes media type. For additional information on available licenses, services, and media, refer to the appropriate price book.

Step 3—ACCESS for ORACLE Databases

ACCESS to ORACLE databases is provided through RdbAccess for ORACLE software.

QL-YQVA9-JC	RdbAccess for ORACLE for ACCESSWORKS 3130 and 3180
QL-YQVA9-JB	RdbAccess for ORACLE for ACCESSWORKS 4300
QL-YQVA9-JK	RdbAccess for ORACLE for ACCESSWORKS 4500
QL-YQVA9-JL	RdbAccess for ORACLE for ACCESSWORKS 6610

Step 4—ACCESSWORKS/Data Store

ACCESSWORKS/Data Store provides the ability to store and manage data at the ACCESSWORKS system.

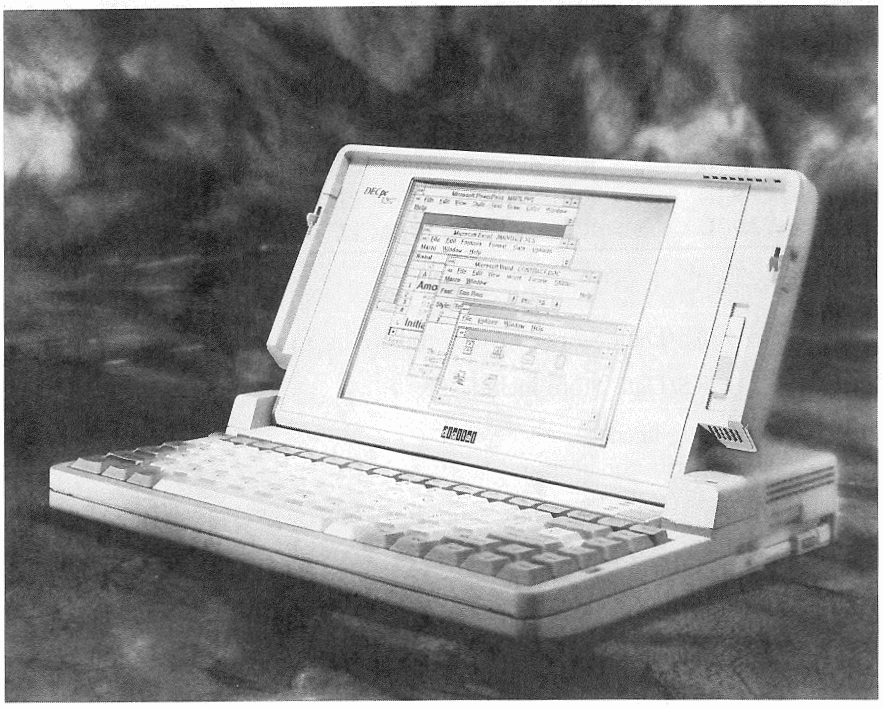
ACCESSWORKS/Data Store includes:

- Rdb interactive license
- VAX data distributor license

QP-LBZAA-01	Data Store for ACCESSWORKS 3130 and 3180
QP-LBZAA-02	Data Store for ACCESSWORKS 4300
QP-LBZAA-03	Data Store for ACCESSWORKS 4500
QP-LBZAA-04	Data Store for ACCESSWORKS 6610

Note: ACCESSWORKS Data Store requires additional disks sized to customer needs for data storage. See Chapter 8, *Mass Storage Devices*, for disk selection.

DECpc 320P Portable Computers



Product Description

The newest addition to Digital's line of portable computers, the DECpc 320P, is a 6.5-pound 80386sx-based portable, for users whose jobs frequently take them away from their offices. Running at 20 MHz, this slim, entry-level machine offers 2 Mbytes of standard memory, expandable to 8 Mbytes, and a battery life of three hours.

With the DECpc 320P computer, users can stay in touch with their offices via modem or Ethernet connections. The portable computer features a 40- or 80-Mbyte internal hard disk drive, 3.5-inch 1.44-Mbyte internal diskette drive, backlit LCD VGA display, 84-key keyboard, and MS-DOS V5.0 operating system with Microsoft Windows V3.0.

The base system includes a modem; VGA, external serial/parallel ports; carrying case; and battery pack with an ac adapter. System does not support external expansion boxes. Fax/modem option must be selected at initial order; it may not be added later as an option. It also includes utilities and user documentation.

DECpc 320P Portable Computers

Step 1—Base System

Select system.

DECpc 320P Entry-Level Notebook includes:

- 2 Mbytes of memory expandable to 8 Mbytes
- 1.44-Mbyte 3.5-inch diskette drive
- 40-Mbyte or 80-Mbyte 2.5-inch hard drive
- 84-key keyboard
- LCD VGA display (640 × 480)
- Battery pack (3 hour)
- AC adapter
- 2400-baud data modem (see below)
- Serial/parallel ports: video and keyboard
- Serial mouse port
- Dedicated modem/fax option slot
- 120-V U.S. power cord
- Carrying case

PCP11-AA	Base system, 20-MHz, 40-Mbyte internal hard disk drive, 2400-baud data modem, 120-V power cord, QA Plus, MS-DOS V5.0 operating system with Microsoft Windows V3.0. Add general-purpose options to meet user's needs.
PCP11-CA	Same as above with no modem, software, or power cord
PCP11-FA	Base system, 20-MHz, 80-Mbyte internal hard disk drive, 2400-baud data modem, 120-V power cord, QA Plus, MS-DOS V5.0 operating system with Microsoft Windows V3.0. Add general-purpose options to meet user's needs.
PCP11-FZ	Same as above with no modem, software, or power cord
PCP11-IA	Base system, 20-MHz, 80-Mbyte internal hard disk drive, 9600-baud send/receive fax/2400-baud data modem, 120-V power cord, QA Plus, MS-DOS V5.0 operating system with Microsoft Windows V3.0. Add general-purpose options to meet user's needs.

Step 2—Operating System

Select operating system if required.

QB-MESAA-SA	MS-DOS V5.0 and Microsoft Windows V3.1
PCPXQ-BA	MS-DOS V4.0, Microsoft Windows, and QEMM V5.1
PCPXQ-AA	MS-DOS V3.3, Microsoft Windows, and QEMM V5.1
PCPXQ-CA	MS OS/2 V1.21 with Presentation Manager

Step 3—Power Cord (Not required for 120-V systems)

BN24R-2E	Australia, New Zealand
BN19W-2E	Austria, Belgium, France, Germany, Holland, Spain, Sweden, Portugal
BN26J-1K	Canada, Japan, U.S. (120 V)
BN19K-2E	Denmark
BN22Z-2E	India
BN22P-2E	Israel
BN19Z-2E	Italy
BN24T-2E	Switzerland
BN26B-2E	U.K./Ireland

Step 4–Memory

System includes 2 Mbytes of memory; maximum is 8 Mbytes. Memory ordered with base unit ships separately for customer installation. Select maximum of one additional memory card:

PCP1M-BA	2-Mbyte DECpc 320P memory card; system maximum 4 Mbytes
PCP1M-BB	4-Mbyte DECpc 320P memory card; system maximum 6 Mbytes
PCP1M-BC	6-Mbyte DECpc 320P memory card; system maximum 8 Mbytes

Step 5—Math Coprocessor

Math coprocessor ordered with base unit ships separately for customer installation.

PCXAP-BB	DECpc 320P 20-MHz math coprocessor

Step 6—Ethernet Controller Card

Q6VU5-CZ	Pocket Ethernet adapter

Step 7—Video Monitor (optional)

Monitors include country-specific power cord, 120-V/240-V Northern Hemisphere/240-V Southern Hemisphere.

PC4XV-B2/B6/B7	14-inch multisynchronous color monitor; supports VGA (640 × 480), SVGA (800 × 600), SVGA plus (1024 × 768), and 8514/A (1024 × 768).

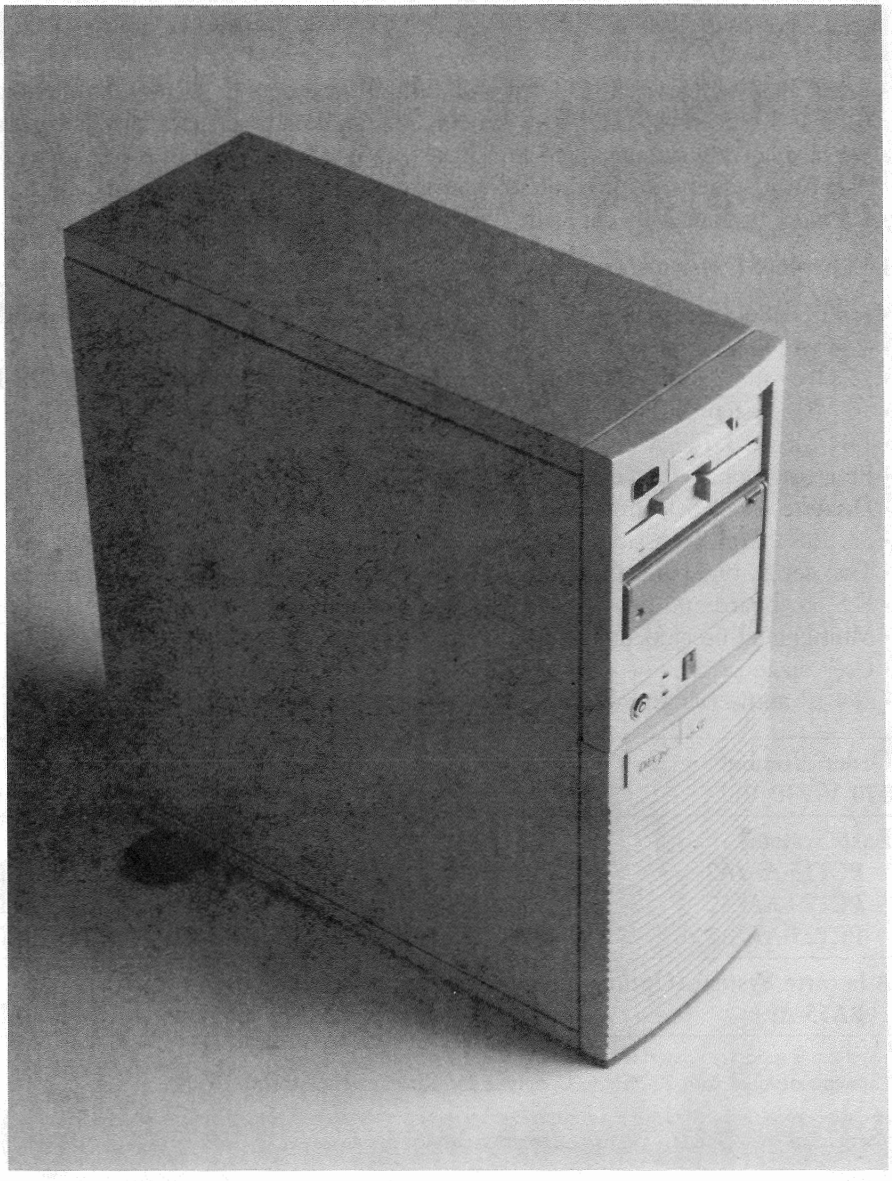
Step 8—Full-Size Keyboard (Optional)

PCXAL-AA	101-key PC-style keyboard

Step 9—Additional Optional Devices

PCPAS-AA	Logitech track-ball pointing device
PCP1H-BB	Extra battery pack
PCP1H-EA	Extra ac adapter
PCP1C-XA	Extra leather carrying case

DECpc 400ST Deskside Computers



Product Description

The DECpc 400ST series is a family of industry-standard, 80486-based personal computers that are compliant with the Extended Industry Standard Architecture (EISA). Each DECpc 400ST system offers six internal 32-bit expansion slots and five half-height storage bays for hard disk, diskette, or tape drives and carries a 254-W autosensing power supply.

The DECpc 400ST family is built on a modular design that allows each member of the family to start with the same chassis, power supply, and motherboard. All speed-graded parts are on a plug-in processor card that is user-interchangeable and upgradeable. The design also supports increases in chip speeds. Initial variations are the Intel 80486sx at 25 MHz, the 80486 at 33 MHz, and the 80486 at 50 MHz.

Suited to the desktop or deskside environment, the DECpc 400ST family offers increased storage in a small-tower design that can be used either vertically or horizontally, depending on user preference and need.

Step 1—Systems

- Select Base System with CPU kit and all hardware options factory installed and tested. 120-V systems include power cord and U.S. keyboard. 240-V systems require country-specific power cord and keyboard.
- Select a-la-carte system with CPU kit and all hardware options as line items for field/customer installation **only**. A-la-carte systems require country-specific power cord and keyboard.
- Software options arrive at same time, but are not factory installed.

DECpc 400ST systems include:

- Intel 80486 processors with choice of 25-MHz, 33-MHz or 50-MHz CPU module
- 4-Mbyte memory, expandable to 192 Mbytes
- 25-MHz and 33-MHz systems support an external cache upgrade (64 or 128 Kbytes)
- 50 MHz system includes 256-Kbyte external cache
- 1.44-Mbyte 3.5-inch diskette drive
- Four additional storage bays (one 3.5-inch, three 5.25-inch)
- Diskette and IDE controllers
- Six EISA expansion slots
- Two serial, one parallel, mouse and keyboard ports
- U.S. keyboard and power cord (120-V Base Systems)
- Multilingual user documentation
- User diagnostics
- 254-W autosensing power supply

Order Number 120 V/240 V	Model	CPU	Memory	Cache
Base Systems				
PCT15-AA/A2	DECpc 425ST	25 MHz	4-Mbyte	0-Kbyte[1]
PCT20-AA/A2	DECpc 433ST	33 MHz	4-Mbyte	0-Kbyte[1]
PCT25-AA/A2	DECpc 450ST	50 MHz	4-Mbyte	256-Kbyte
A-la-carte System (Options Field/Customer Installable ONLY)				
BA55-A9	DECpc 400ST	Option	4-Mbyte	Option[2]

[1] Systems support an external cache upgrade (64 or 128 Kbytes)
[2] Systems ordered with 50-MHz CPU include 256-Kbyte external cache

Step 1a—CPU Kit (Field/Customer Installable)

PCT16-A2	25-MHz CPU upgrade kit with user-installable 486sx processor card, installation guide, and snap-in DECpc logo
PCT21-A2	33-MHz CPU upgrade kit with user-installable 486DX processor card, installation guide, and snap-in DECpc logo
PCT26-A2	50-MHz CPU upgrade kit with user-installable 486DX processor card, installation guide, and snap-in DECpc logo

Step 2—Operating System (Required for all systems)

QB-MESAA-SA	MS-DOS V5.0 operating system with Microsoft Windows V3.1; English
PC4XQ-BA	MS-DOS V4.01 basic operating system software, English documentation
PC4XQ-AA	MS-DOS V3.3 basic operating system software, English documentation
PC4XQ-AP	MS-DOS V3.3 and QEMM V5.1; French

U.S./Canada:

QB-MN8AW-VA	SCO UNIX V3.2.4 operating system, two-user, 3.5-inch diskette
QB-MN8AW-VB	SCO UNIX V3.2.4 operating system, multiuser, 3.5-inch diskette
QB-MN8AW-VC	SCO UNIX V3.2.4 operating system, two-user, QIC tape
QB-MN8AW-VD	SCO UNIX V3.2.4 operating system, multiuser, QIC tape

International:

QB-MN8AW-VE	SCO UNIX V3.2.4 operating system, two-user, 3.5-inch diskette
QB-MN8AW-VF	SCO UNIX V3.2.4 operating system, multiuser, 3.5-inch diskette
QB-MN8AW-VG	SCO UNIX V3.2.4 operating system, two-user, QIC tape
QB-MN8AW-VH	SCO UNIX V3.2.4 operating system, multiuser, QIC tape

Step 3—Power Cords and Keyboards

Select country-specific power cord and keyboard for a-la-carte and 240-V systems.

Power Cord and Keyboard	Country	Language
BN26J-1K* **PCXAL-AA***	U.S./Canada/Japan	English
BN19W-2E **PCXAL-AB**	Belgium	Belgian
BN19K-23 **PCXAL-AD**	Denmark	Danish
BN19W-2E **PCXAL-AP**	France	French
BN19W-2E **PCXAL-AG**	Germany	Austrian/German
BN19W-2E **PCXAL-AN**	Norway	Norwegian
BN19W-2E **PCXAL-AV**	Portugal	Portuguese
BN19W-2E **PCXAL-AR**	Spanish	Spanish (international)
BN19W-2E **PCXAL-AS**	Spain	Spanish
BN19W-2E **PCXAL-CA**	Sweden	Swedish/Finnish
BN24R-2E **PCXAL-AA**	Australia/N.Z.	English
BN19A-2E **PCXAL-AE**	U.K./Ireland	English/U.K.
BN24T-2E **PCXAL-CH**	Switzerland	Swiss
BN22P-2E **PCXAL-AT**	Israel	Hebrew
BN19Z-2E **PCXAL-AI**	Italy	Italian
BN22Z-2E **PCXAL-AA**	India	English

*Included in 120-V Base Systems

Step 4—Memory

Systems includes 4 Mbytes of memory. Main logic board accommodates two memory banks, two slots per bank. Optional memory expansion card accommodates four banks, two slots per bank for a system total of 12 memory slots. SIMMs **must** be installed in pairs of matching size and speed.

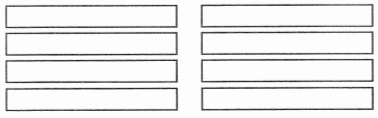
Some memory configurations require removal of two 2-Mbytes SIMMs standard in all systems.

Digital recommends a minimum of 4 Mbytes of memory on systems using MS-DOS and Microsoft Windows together and minimum of 8 Mbytes of memory on systems using the SCO UNIX operating system.

System memory board

Bank 1 (PCTAM-CC standard in all systems)
Bank 2

Optional memory expansion card (PCTXM-AA)



Bank 1
Bank 2
Bank 3
Bank 4

PCTAM-CC	4 Mbytes (2 × 2-Mbytes, 80 ns, 36-bit SIMMs)
PCTAM-CD	8 Mbytes (2 × 4-Mbytes, 80 ns, 36-bit SIMMs)
PCTAM-CE	16 Mbytes (2 × 8-Mbytes, 80 ns, 36-bit SIMMs)
PCTAM-DF	32 Mbytes (2 × 16-Mbytes, 70 ns, 36-bit SIMMs)
PCTXM-AA	Memory expansion card; four banks, two SIMM slots per bank; maximum of one expansion card per system

Note: If factory installation is selected, two additional SIMM kits ordered without memory expansion card require removal of standard 4-Mbyte (2 × 2 Mbytes) SIMMs. These SIMMs will be shipped to customer for future upgrades.

Step 5—Cache Memory Upgrade (Optional)

External cache upgrades supported on 25-MHz and 33-MHz systems only. Maximum of one upgrade kit per systems.

PCWXM-AA	64-Kbyte external cache upgrade kit
PCWXM-AB	128-Kbyte external cache upgrade kit

Step 6—Video Monitors

Select video monitor and video adapter. Monitors include video cable and country-specific power cord.

120 V/ 240 V/S.H.

PCXAV-CA/C3/C4	16-inch color monitor, 1280 × 1024, 66 Hz, (VRT16) Trinitron
PCXAV-DA/D3/D4	19-inch color monitor, 1280 × 1024, 66 Hz, (VRT19) Trinitron
PCXAV-BA/B3/B4	19-inch color monitor, 1280 × 1024, 72 Hz (VR320)
PCXAV-AA/A3/A4	19-inch monochrome monitor, 1280 × 1024, 72 Hz (VR319)
	Note above monitors require video adapter PCXAG-AD.
PC4XV-A2/A3/A4	14-inch VGA monochrome monitor, 64 shades of gray
PC4XV-B2/B6/B7	14-inch VGA multisynchronous color monitor; supports VGA (640 × 480), SVGA (800 × 600), SVGA Plus (1024 × 768), and 8514/A (1024 × 768)
PCXCV-B2/B3/B4	14-inch VGA color monitor, supports 640 × 480
	Note above monitors require video adapter PC4XG-AC.

Step 6a—Video Adapter

PCXAG-AD	1280 × 1024 high-resolution graphics adapter used with PCXAV-Ax, PCXAV-Bx, PCXAV-Cx, and PCXAV-Dx monitors above.
PC4XG-AC	SVGA+ high-resolution graphics adapter; used with PC4XV-Ax, PC4XV-Bx and PCXCV-B monitors above.
PC4XG-BA	8514/A (1024 × 768) high-resolution graphics adapter; requires PC4XG-AC video adapter
PCXAG-AC	SVGA+ graphics adapter for non-interlaced monitors up to 1024 × 768.

Step 7—Mass Storage

Systems include one 1.44-Mbyte 3.5-inch diskette drive, four additional storage bays are available (one 3.5-inch, three 5.25-inch). SCSI devices require a controller; see Step 7a. Select additional devices if required.

- Maximum of two IDE devices
- Maximum of four 42-mm-high devices
- Maximum of three 5.25-inch, half-height devices
- Maximum of one 5.25-inch, full-height device (uses two half-height bays)
- Maximum of one additional diskette drive

Select maximum of one additional diskette drive:

PCXDR-AA	1.44-Mbyte 3.5-inch, 42-mm half-height diskette drive	One bay
PC4XR-EA	1.2-Mbyte 5.25-inch, half-height diskette drive	One bay

Select maximum of two IDE disks:

PC4XR-BD	52-Mbyte 3.5-inch, 25-mm half-height IDE disk	One bay
PC4XR-EB	105-Mbyte 3.5-inch, 25-mm half-height IDE disk	One bay

SCSI devices require SCSI controller from Step 7a.

PCXAR-AA	209-Mbyte 3.5-inch, 42-mm full-height SCSI hard drive	One bay
PCXAR-AB	426-Mbyte 3.5-inch, 42-mm full-height SCSI hard drive	One bay
PCXAR-AC	852-Mbyte 3.5-inch, 42-mm full-height SCSI hard drive	One bay
PCXBR-AA	650-Mbyte 5.25-inch, full-height SCSI disk drive	Two bays
PCXBR-AB	1-Gbyte 5.25-inch, full-height SCSI disk drive	Two bays
PCXAT-AA	525-Mbyte 5.25-inch, half-height QIC tape drive for SCO	One bay
PCXAT-AB	525-Mbyte 5.25-inch, half-height QIC tape drive for DOS	One bay

Step 7a—SCSI Controller (Required if SCSI devices are selected)

PCTAZ-AB	32-bit high-performance EISA SCSI controller
PCTAZ-AA	16-bit low-cost SCSI controller

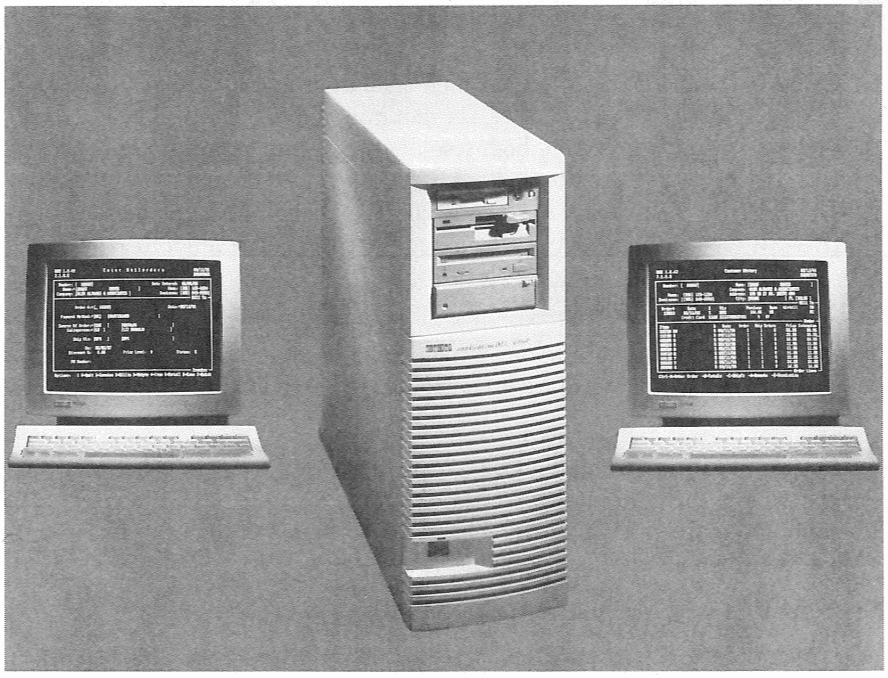
Step 8—Ethernet Controller Cards

DE100-AA	EtherWORKS LC Ethernet adapter
DE101-AA	EtherWORKS LC/TP Ethernet adapter
DE200-AC	EtherWORKS Turbo Ethernet adapter
DE201-AC	EtherWORKS Turbo/TP Ethernet adapter

Step 9–Accessories (Optional)

LK250-PA	Digital Gold-key keyboard, English
LK250-AC	Digital Gold-key keyboard, Canadian French
LK250-AS	Digital Gold-key keyboard, Spanish
PC4XD-AA	One serial and one parallel port adapter
PC4XD-AB	Two-port serial adapter
PC4XD-CA	2400-baud modem
PC4XD-BA	Internal 1200/300-bit/s modem adapter
PCXAS-AA	Extra 3-button mouse (included with system)
PCT15-UD	Multilingual documentation set for DECpc 425ST, 433ST, and 450ST
PCT15-TR	Technical reference manual for DECpc 425ST, 433ST, and 450ST

applicationDEC 400xP



Product Description

The applicationDEC 400xP is a floor-mounted uniprocessor tower based on the Intel-based i486 technology. Base design allows for plug-in processor choice of three processor speeds: 25SX, 33DX, or 50DX. Flexibility designed into the enclosure and logic design allows for processor speeds upgrade path, expansion of memory, and internal and external storage devices. The applicationDEC 400xP functions well in all application environments: multi-user timeshare, server, or single-user workstation. Operating systems supported include SCO UNIX, MS-DOS and Windows, OS/2, as well as certification for Novell NetWare and Banyan Vines.

Configuration Examples:

	Single-User Workstation	Multi-User Timeshare	Server
Base CPU	486/25	486/50	486/33
Cache	0 KB	256 KB standard	64 KB add-on
Memory	8 MB: 2 × 2 MB standard + 2 × 2 MB add-on	36 MB: 2 × 2 MB standard + memory expansion card with two 2 × 8 MB add-on	20 MB: 2 × 2 MB standard + 2 × 8 MB add-on
VGA	1024 × 768 256 color 512 KB standard + 512 KB VRAM add-on	1024 × 768 16 color standard	1024 × 768 16 color standard
Accessible Storage	1.44-MB 3.5-inch floppy standard + 1.2-MB 5.25-inch floppy	1.44-MB 3.5-inch floppy standard + 320/525 MB QIC tape	1.44-MB 3.5-inch floppy standard + 320/525 MB QIC tape
Fixed Disk	105-MB IDE	852-MB SCSI	418-MB SCSI (2 × 209 MB)
Disk Controller	IDE (std) + internal IDE cable	AHA 1540B	AHA 1740A
Console	16-inch color VGA, keyboard, mouse	14-inch monochrome VGA, keyboard, mouse	14-inch monochrome VGA, keyboard
Multiplexer Options	None	e.g., 48 users: 2 MUX + 4 additional terminal concentrators	None
Ethernet	None	None	None
Operating System	MS-DOS 5.0 with Microsoft Windows 3.0	SCO UNIX 3.2.4	Novell NetWare
Accessory	2400-baud internal modem	None	None

Step 1—Systems

applicationDEC 400xP hardware is customer installable. There are three methods of ordering/configuring these systems:

1. Select Base System with CPU kit and all hardware options factory installed and tested.
2. Select Base System with CPU kit factory installed **only** and all hardware options as line items for field/customer installation **only**.
3. Select a-la-carte system with CPU kit and all hardware options as line items for field/customer installation **only**.

Note: • 120-V systems include power cord, 240-V systems require country-specific power cord from Step 2.
• Software options arrive at the same time, but are not factory installed.

applicationDEC 400xP systems include:

- Intel 80486 processors with choice of 25-MHz, 33-MHz or 50-MHz CPU module
- 4-Mbyte memory, expandable to 192 Mbytes
- 25-MHz and 33-MHz systems support one external cache upgrade, 64 or 128 Kbytes
- 50-MHz systems include 256-Kbyte external cache
- 1.44-Mbyte 3.5-inch diskette drive
- Seven additional half-height storage bays, three accessible, four hidden
- Standard on-board controllers: IDE, diskette, 1024 × 768 VGA (512-Kbyte video RAM standard, with expansion to 1 Mbyte)
- I/O expansion: eight 32-bit EISA slots (six master, two slave)
- Ports: two serial, one parallel, mouse, keyboard,
- Auxiliary IEC 320 monitor outlet
- Installation guide
- User diagnostics
- 350-W autosensing line voltage

Order Number 120 V/240 V	Model	CPU	Memory	Cache[2]
Base Systems—Options Factory Installed and Tested				
PS201-AA/A3	applicationDEC 400xP	25 MHz	4-Mbyte	0-Kbyte[1]
PS202-AA/A3	applicationDEC 400xP	33 MHz	4-Mbyte	0-Kbyte[1]
PS203-AA/A3	applicationDEC 400xP	50 MHz	4-Mbyte	256-Kbyte
Base Systems—Options Field/Customer Installable Only				
PS201-BA/B3	applicationDEC 400xP	25 MHz	4-Mbyte	0-Kbyte[1]
PS202-BA/B3	applicationDEC 400xP	33 MHz	4-Mbyte	0-Kbyte[1]
PS203-BA/B3	applicationDEC 400xP	50 MHz	4-Mbyte	256-Kbyte
A-la-Carte Systems (Select CPU and Options, Field/Customer Installable Only)				
PS200-AA/A3	applicationDEC 400xP	Option	4-Mbyte	Option[2]

[1] Systems support one external cache upgrade (64 or 128 Kbyte)
[2] Systems ordered with 50-MHz CPU include 256-Kbyte external cache.

Step 1a—CPU Kit (Required for A-la-Carte systems)

PS2XK-AA	25-MHz CPU card for applicationDEC 400xP, 0-Kbyte cache[1]
PS2XK-BA	33-MHz CPU card for applicationDEC 400xP, 0-Kbyte cache[1]
PS2XK-CA	50-MHz CPU card for applicationDEC 400xP, 256-Kbyte external cache

[1] Systems support one external cache upgrade (64 or 128 Kbyte)

Step 2—Power cords (Not required for 120-V systems)

BN26J-1K	U.S./Canada/Japan, 120 V (included with 120-V systems)
BN24R-2E	Australia/New Zealand
BN19W-2E	Austria, Belgium, France, Holland, Norway, Sweden, Portugal, Spain
BN26B-2E	U.K./Ireland
BN24T-2E	Switzerland
BN19K-2E	Denmark
BN22P-2E	Israel
BN19Z-2E	Italy
BN22Z-2E	India

Step 3—Operating System (Required for all systems)

Kits include software licenses, distribution media, and documentation. If mixing multiple operating systems, refer to operating system support hot line(s). No restriction mixing MS-DOS V5.0 and SCO UNIX V3.2.4.

QB-MESAA-SA	MS-DOS V5.0 operating system with Microsoft Windows V3.1, English
PC4XQ-BA	MS-DOS V4.01 operating system, English
PC4XQ-AA	MS-DOS V3.3 operating system, English
PCWXQ-CA	OS/2 V1.21 English

U.S./Canada

QB-MN8AW-VA	SCO UNIX V3.2.4 operating system, two-user, 3.5-inch diskette
QB-MN8AW-VB	SCO UNIX V3.2.4 operating system, multi-user, 3.5-inch diskette
QB-MN8AW-VC	SCO UNIX V3.2.4 operating system, two-user, QIC tape
QB-MN8AW-VD	SCO UNIX V3.2.4 operating system, multiuser, QIC tape

International

QB-MN8AW-VE	SCO UNIX V3.2.4 operating system, two-user, 3.5-inch diskette
QB-MN8AW-VF	SCO UNIX V3.2.4 operating system, multiuser, 3.5-inch diskette
QB-MN8AW-VG	SCO UNIX V3.2.4 operating system, two-user, QIC tape.
QB-MN8AW-VH	SCO UNIX V3.2.4 operating system, multiuser, QIC tape.

Note: SCO UNIX variants listed are for use on applicationDEC 400xP and DECpc 400ST series platforms **only.**

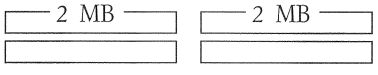
Step 4—Memory

Systems include 4 Mbytes of memory with maximum expansion to 192 Mbytes. Main logic board accommodates two memory banks, two slots per bank. Optional memory expansion card accommodates four banks, two slots per bank for a system total of 12 memory slots. SIMMs MUST be installed in pairs of matching size and speed.

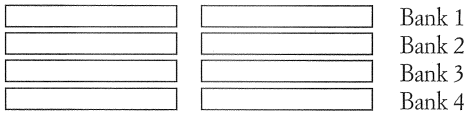
Some memory configurations require removal of two 2-Mbytes SIMMs standard in all systems.

Digital recommends a minimum of 4 Mbytes of memory on systems using MS-DOS and Microsoft Windows, 4 Mbytes for OS/2 operating systems, and 8 Mbytes for SCO UNIX operating systems. An additional 0.5 Mbyte is recommended on SCO UNIX systems for each concurrent user, or each additional graphical application.

System memory board



Optional memory expansion card (PCTXM-AA)



PS2XM-AA	4 Mbytes (2 × 2-Mbytes, 80 ns, 36-bit SIMM kit)
PS2XM-AB	8 Mbytes (2 × 4-Mbytes, 80 ns, 36-bit SIMM kit)
PS2XM-AC	16 Mbytes (2 × 8-Mbytes, 80 ns, 36-bit SIMM kit)
PS2XM-AD	32 Mbytes (2 × 16-Mbytes, 70 ns, 36-bit SIMM kit)
PS2XM-AE	Memory expansion card; maximum of one expansion card per system

Note: If factory installation is selected, two additional SIMM kits ordered without memory expansion card require removal of standard 4-Mbyte (2 × 2 Mbytes) SIMMs. These SIMMs will be shipped to customer for future upgrades.

Step 5—External Cache Upgrade (Optional)

External cache upgrades are supported on 25-MHz and 33-MHz systems only. Maximum of one upgrade kit per system.

PSWXM-AA	64-Kbyte external cache upgrade kit
PSWXM-AB	128-Kbyte external cache upgrade kit

Step 6—Mass Storage (Optional)

System includes one 1.44-Mbyte 3.5-inch diskette drive. Seven additional half-height storage bays or three full-height and one half-height are available (three accessible, four hidden). SCSI devices require a controller; see Step 6a. Select additional devices if required.

Minimum fixed disk storage recommended for operating systems:

MS-DOS	40 Mbytes
OS/2	40 Mbytes
SCO UNIX	80 Mbytes + 5 Mbytes per user (typical for office environment)

Select maximum of one additional 1.2-Mbyte 5.25-inch diskette drive, internal cabling included with base system.

PS20R-FA	1.2-Mbyte 5.25-inch half-height diskette drive	One bay

Select maximum of two IDE fixed disks, IDE controller standard on base system. Requires selection of internal IDE cable; cable harness assembly supports two drives. IDE drives not recommended for use with SCO UNIX.

PCWXR-BB	105-Mbyte 3.5-inch 25-mm half-height IDE disk drive	One bay
PSWXR-AA	Internal IDE cable for applicationDEC 400xP	

SCSI devices require SCSI controller from Step 6a.

PS20R-AA	209-Mbyte 3.5-inch 42-mm full-height SCSI hard drive	One bay
PS20R-BA	426-Mbyte 3.5-inch 42-mm full-height SCSI hard drive	One bay
PS20R-CA	665-Mbyte 5.25-inch full-height SCSI disk drive	Two bays
PS20R-DA	1-Gbyte 5.25-inch full-height SCSI disk drive	Two bays
PS20R-HA	1.3-Gbyte 5.25-inch full-height SCSI disk drive	Two bays
PS20R-EA	320/525-Mbyte 5.25-inch half-height QIC tape	One bay

Step 6a—SCSI AHA Controllers

One controller per seven SCSI devices under SCO UNIX 3.2.4. SCSI devices are not recommended for OS/2 V1.21 systems. Controllers include internal SCSI cable and terminations.

PSXAZ-AA	AHA 1520 SCSI controller (8-bit)
PSXAZ-CA	AHA 1540B SCSI controller (16-bit)
PSXAZ-BA	AHA 1740A SCSI controller (32-bit bus master); requires external SCSI cable (BC09D-03)

Step 6b—External Storage

Systems support two SCSI controllers. Maximum of two tower storage expanders per system. Maximum of two expansion boxes per SCSI controller, four expansion boxes with two SCSI controllers. External SCSI cable must not exceed 6 meters (19.7 feet).

Each TKZ08 and PS1XR expansion device includes an external SCSI cable.

Note: xA variants include 120-V power cord; x3 require country-specific power cord.

Single Drive Expansion Box

TKZ08-AA	2.2-Gbyte 8-mm tape for backup, includes 120-V power cord

Dual Drive Expansion Box

PS1XR-EA/E3	Two 1-Gbyte RZ57 (2 Gbytes) SCSI disks
PS1XR-FA/F3	One 1-Gbyte RZ57 (1 Gbyte) SCSI disk, full-height bay available
PS1XR-GA	One 1-Gbyte RZ57 (1 Gbyte) SCSI disk upgrade for PS1XR-FA,F3

Step 6b—External Storage *(Continued)*

Tower Storage Expansion
Select maximum of two tower storage cabinets. Select SCSI devices for tower from Step 6.

- 14 half-height bays (four front accessible bays)
- Half-height bays convertible to full-height
- Internal cabling for two SCSI bus and two external SCSI cables
- Maximum of seven SCSI devices per bus under SCO UNIX 3.2.4.
- Each bus requires one SCSI controller in host system
- 350-W autosensing power supply
- AHA 1740A SCSI controller (PSXAZ-BA), requires external SCSI cable BC09D-03

Tower Expansion
SCSI devices ordered with PS2XR-AA/A3 are factory installed.

PS2XR-AA/A3	14-bay tower storage expander, SCSI options factory installed
PS2XR-BA/B3	14-bay tower storage expander, SCSI options field installable

Step 7—I/O Cards (Optional)

Base system has eight 32-bit EISA slots: six bus master, two slave.

- No configuration restriction on filling backplane (with exception of 32-bit bus master card in slots 3–8 only)
- Select maximum of eight total I/O cards
- Select maximum of six 32-bit EISA bus-master cards

Option card types accepted per slot type:	**Slave (Slots 1 and 2)**	**Master (Slots 3–8)**
AT (8-bit)	Yes	Yes
ISA (16-bit)	Yes	Yes
ISA master (16-bit)	Yes	Yes
EISA slave (32-bit)	Yes	Yes
EISA (32-bit) bus master	No	Only

Step 7a—Terminal Multiplexer Options

Multiplexer card:

- Each multiplexer board supports one to four terminal concentrators.
- Based on memory configuration, system will support the following number of multiplexer cards under SCO UNIX 3.2.4:
  Less than 16 Mbytes: Maximum of 1 MUX (limit 32 users)
  16 Mbytes or greater: Maximum of 4 MUX (limit 128 users)

Terminal concentrators:

- Each terminal concentrator supports one to eight asynchronous devices such as terminals and printers.
- Supports full modem control.
- Supports serial printers which require hardware handshakes.
- Maximum of three additional terminal concentrators per MUX kit (PC4XD-DA).

Extension kit:

- An extension kit is available if terminal concentrator is to be placed more than 3 meters (10 feet) from system box.
- Allows terminal concentrator to be placed up to 305 meters (1,000 feet) away from system.
- Includes wall-mounted power supply. **Note:** Cable is not available from Digital; customers need to purchase EIA-422 shielded twisted-pair cable at the desired length.
- Requires SCO UNIX 3.2.4.

PC4XD-DA	Terminal multiplexer (16-bit card) with one 8-port terminal concentrator
PC4XD-DB	8-port terminal concentrator
PC4XD-DC	Terminal concentrator extension

Step 7b—Ethernet Cards

3C305	3Com—reference sell only
WD8013	Western Digital—reference sell only

Step 7c—Internal Modem Card

PC4XD-CA	2400-baud internal modem (16-bit)

Step 8—Console Monitors

Note: The EISA System Configuration Utility requires VGA (standard with system), VGA monitor, and a PC keyboard. A serial I/O terminal cannot be used as a console device to configure the system. 120-V monitors include power cord; select country-specific power cords for 240-V variants from Step 2.

VRT13-CA	13-inch VGA, color, 120-V power cord included
VRT13-DA	13-inch VGA, color, 240 V, requires country-specific power cord
PC4XV-A2	14-inch VGA, monochrome, 120-V power cord included
PC4XV-A3	14-inch VGA monochrome, 240-V Northern Hemisphere, requires country power cord
PC4XV-A4	14-inch VGA monochrome, 240-V Southern Hemisphere, requires country power cord
VRC16-DA	16-inch multisynchronous, color, 120-V power cord included
VRC16-D3	16-inch multisynchronous, color, 240-V Northern Hemisphere, requires country power cord
VRC16-D4	16-inch multisynchronous, color, 240-V Southern Hemisphere, requires country power cord

Step 9—Keyboard

PCXAL-AA	U.S. keycaps—101 keys
PCXAL-AB	Belgian keycaps—102 keys
PCXAL-AD	Danish keycaps—102 keys
PCXAL-AE	U.K. keycaps—102 keys
PCXAL-AG	German keycaps—102 keys
PCXAL-AI	Italian keycaps—102 keys
PCXAL-AN	Norwegian keycaps—102 keys
PCXAL-AP	French keycaps—102 keys
PCXAL-AR	Spanish (international) keycaps—102 keys
PCXAL-AS	Spanish keycaps—102 keys
PCXAL-AT	Hebrew keycaps—102 keys
PCXAL-AV	Portuguese keycaps—102 keys
PCXAL-CA	Swedish/Finnish keycaps—102 keys
PCXAL-CH	Swiss keycaps—102 keys

Step 10—Accessories

Hardware-specific accessories for applicationDEC 400xP

PSWXM-BA	512-Kbyte video RAM upgrade to 1 Mbytes, 256 color, for applicationDEC 400xP
PCXAS-AA	3-button Logitec mouse
PSWXR-BA	Internal IDE cable for two IDE fixed disks
PSXAZ-DA	Internal SCSI cable, 7-connector, for use with third-party SCSI controllers; not required if DEC SCSI controllers selected
BC09D-03	Exernal SCSI cable for 1740A SCSI controller (PSXAZ-BA)

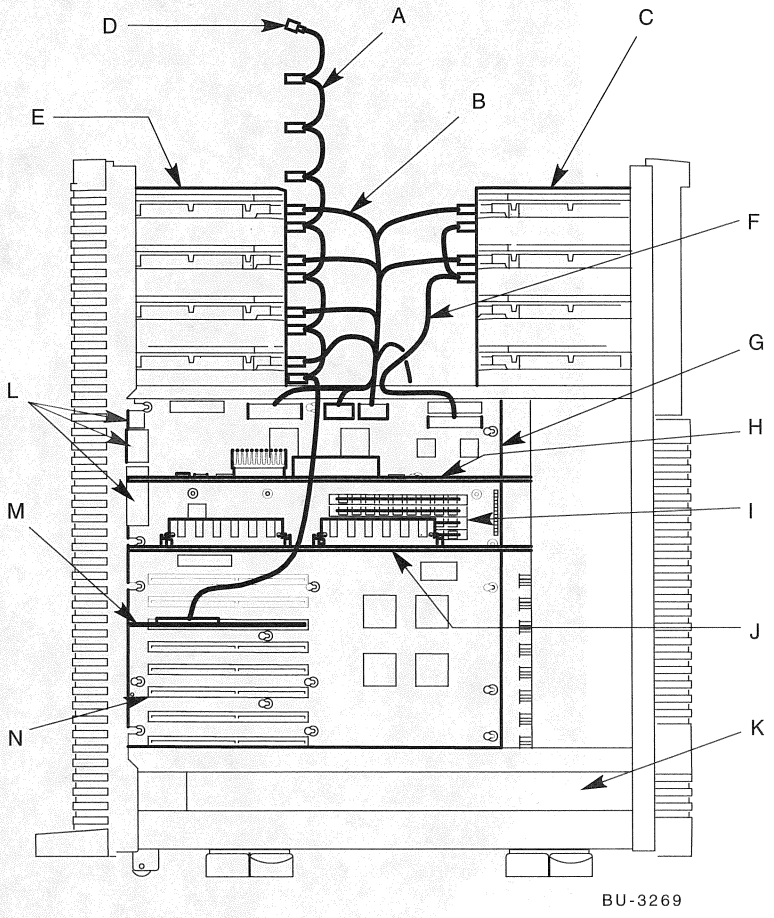
Supported Terminals and Printers

- VT420, VT330, VT340 and industry-standard terminals are supported for connection to the multiplexer, not as a system monitor
- LA70 dot matrix impact personal printer
- LA324 dot matrix impact, wide-carriage printer
- LN05/LN06 DEClaser printers
- Serial and parallel variants
- Industry-standard printers

applicationDEC 400xP Specifications

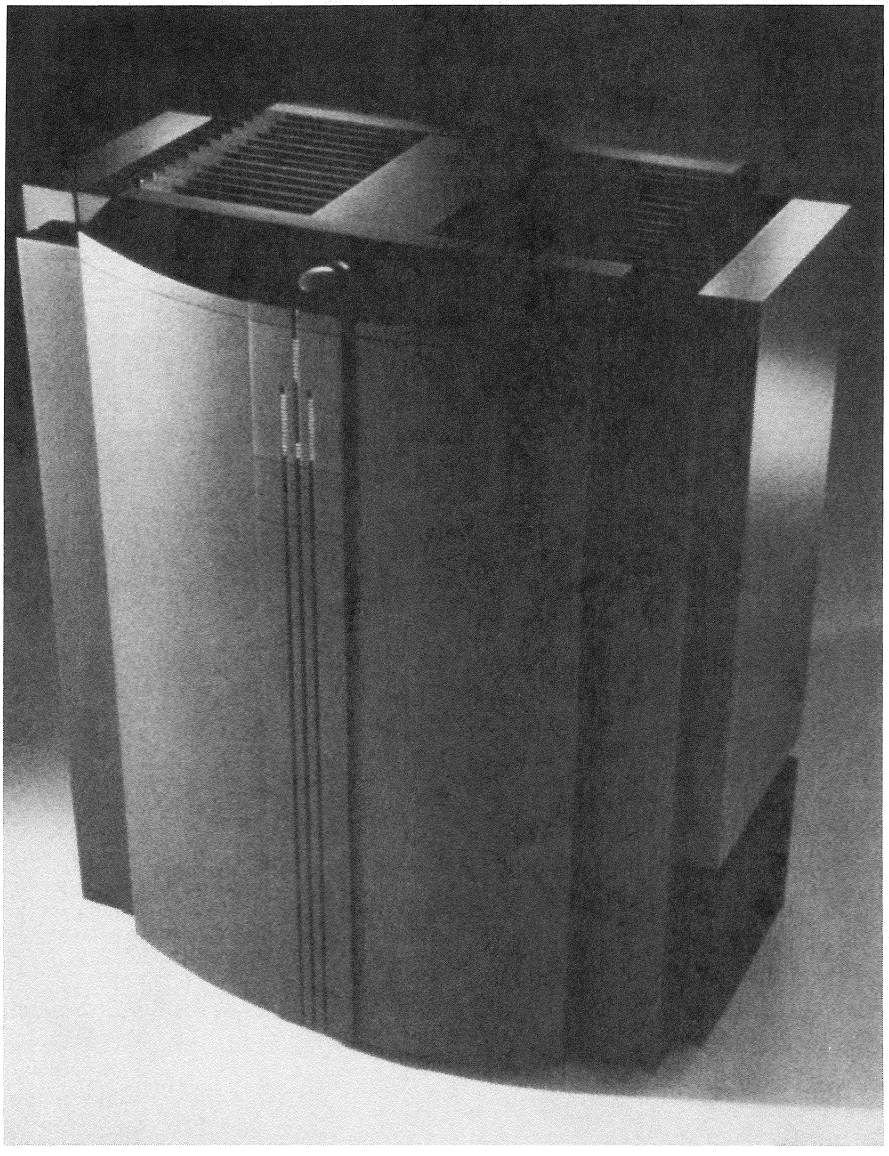
Power Requirements	Line voltage	110 V–120 V/220 V–240 V autosense
	Voltage tolerance-RMS	88 V–132 V/176 V–264 V
	Frequency/single phase	50/60 Hz
	Frequency tolerance	47 Hz – 63 Hz
	Maximum running current	12 A @ 100 Vac (with auxiliary output) 9 A @ 100 Vac (without auxiliary output)
	Maximum power consumption	830 W
Operating Environment	Temperature	10° C – 40° C (50° F – 104° F)
	Relative humidity	20–80% operating
	Maximum operating altitude	10,000 ft.
Physical Characteristics	Height	63.5 cm (25.0 in.)
	Width	22.9 cm (9.0 in.)
	Depth	61.0 cm (22.0 in.)
	Weight	26.6 kg (59 lbs) without options
Regulatory	FCC A	
	VDE B	
	PTT	
	UL/CSA	
	TUV/GS	
	CISPR A	

applicationDEC 400xP Diagram



A	SCSI bus cable
B	Power cables
C	Front drive bays
D	SCSI terminator
E	Rear drive bays
F	Diskette drive cable
G	System board
H	CPU model
I	On-board memory SIMMs
J	Memory expansion module
K	Power supply
L	I/O connectors
M	SCSI host adapter
N	EISA option module slots (8)

CRAY Y-MP EL System



Product Description

The Cray Research/Digital agreement significantly expands the ongoing strategic business and technology relationship between the two leaders in the high-performance technical computing market. Customers now have access to the leading supercomputer technology of Cray Research, Inc. coupled with Digital's proven strength in open distributed computing. Together they offer the broadest range of performance and functionality with the greatest value and openness in the industry today, from desktop PCs to datacenter supercomputers. Also, over 600 optimized vector applications are available on the CRAY Y-MP EL running under UNICOS, a UNIX-based operating system. UNICOS is the most powerful and feature-rich UNIX operating system available for technical computing.

This worldwide marketing agreement reinforces all three levels of Digital's Open Advantage strategy: integrates new technology into the open Digital environment, satisfies customer needs through open business practices, and assures system reliability through Digital's open services and support programs. Cray Research products embrace the same open system standards as Digital such as X-Windows, POSIX, OSI, TCP/IP, FDDI, HIPPI and Ethernet.

Product Description
(Continued)

The CRAY Y-MP EL system combines a proven architecture with innovations that provide the highest level of sustained performance in its price range. Using the integrated vector CRAY Y-MP architecture, each CPU provides balanced scalar, vector, memory, and I/O performance. To enhance performance while preserving binary compatibility, the CRAY Y-MP EL includes an innovative multifunctional unit extension to this architecture that provides up to four results per clock period (instead of two). To enhance performance even further, the CRAY Y-MP EL CPU is designed to maximize the overlapping of vector, scalar, memory, and I/O operations.

With up to four CPUs working in parallel and up to 1024 Mbytes of central memory, the CRAY Y-MP EL provides the highest possible performance on a wide variety of applications. Leading-edge applications are available for industries such as aerospace, automotive, chemistry, energy, petroleum, and defense. Cray Research also offers software packages to couple the power of visualization with its supercomputers.

The CRAY Y-MP EL system works with Cray Research software, applications, and customer networks. It offers performance-oriented software products that enhance its capabilities. From industry-leading compilers to powerful performance optimization tools, Cray Research software ensures that users will get the highest possible performance from their system.

The CRAY Y-MP EL supercomputer features a powerful, balanced architecture that provides the highest possible performance in its class on scientific and engineering applications. In addition to departmental supercomputing, it can be used in the following ways:

- As a departmental supercomputer—the CRAY Y-MP EL supercomputer features a powerful, balanced architecture that provides the highest possible performance in its class on scientific and engineering applications.
- As a complementary system for larger Cray Research systems—ideal for UNICOS application development. Because binaries from the CRAY Y-MP EL will run on other CRAY Y-MP systems, work is easily scaled to larger Cray Research systems.
- As a secure system—it is physically compact and offers removable storage media, and is ideal for secure processing environments. UNICOS also provides multilevel security.
- As a high-performance file server—combined with the powerful data management features of the UNICOS operating system, the CRAY Y-MP EL system is an excellent server platform. With support for standalone STK autoloading tape cartridge systems, the CRAY Y-MP EL file server can satisfy requests from multiple supercomputers over gigabit/second networks while providing service to smaller systems, workstations, and personal computers.

CRAY Y-MP EL System

Step 1—Systems

Select system. The following items may be required and must be purchased separately.

- Minimum configuration of disk drives
- Tape drives and other storage devices
- Network communication devices
- Additional I/O cabinets
- Processor and memory upgrades
- Layered software

Base Cray Y-MP EL system includes:

- Mainframe cabinet
- One to four processors
- Four memory boards containing memory selected
- 20-slot VME I/O card cage
- I/O subsystem with 6-slot backplane
- 1.35-Gbyte QIC cartridge tape drive (for operating system backup)
- 200-Mbyte Winchester disk drive (for error logging)
- Operating system software and license
- Set of user, operator, and system administrator manuals
- Operator's console
- Maintenance workstation

Digital Order Number	Cray Order Number	Number of CPUs	System Memory
MC121-AA	Y-MP EL/1-256	1	256 Mbytes
MC131-AA	Y-MP EL/1-512	1	512 Mbytes
MC141-AA	Y-MP EL/1-1024	1	1024 Mbytes
MC122-AA	Y-MP EL/2-256	2	256 Mbytes
MC132-AA	Y-MP EL/2-512	2	512 Mbytes
MC142-AA	Y-MP EL/2-1024	2	1024 Mbytes
MC123-AA	Y-MP EL/3-256	3	256 Mbytes
MC133-AA	Y-MP EL/3-512	3	512 Mbytes
MC143-AA	Y-MP EL/3-1024	3	1024 Mbytes
MC124-AA	Y-MP EL/4-256	4	256 Mbytes
MC134-AA	Y-MP EL/4-512	4	512 Mbytes
MC144-AA	Y-MP EL/4-1024	4	1024 Mbytes

Step 2—Additional CPUs

System accommodates four CPUs; all CPU boards reside in the mainframe cabinet. If additional CPUs are required, order the following.

MC10C-AA CRAY Y-MP EL CPU Upgrade

Step 3—Memory

The CRAY Y-MP EL is a real memory, timesharing machine rather than a virtual memory machine. Selection of proper memory size is most important. Without sufficient memory, process swapping increases and the machine becomes bogged down in I/O operations.

It is very important to understand the number of interactive users connected to the system, their interface environments, and the type of work being performed. X-window users may have two to three windows open at one time performing various tasks from each window. Each window is an individual process that requires system memory. In addition to interactive users, large batch jobs must be sized and taken into consideration. UNICOS itself requires 8.8 Mbytes of memory.

Step 3—Memory *(Continued)*

As an example, consider ten interactive X-terminal users who are using the system for code development. Each user is assumed to have two sessions, one for editing and one for compiling and testing. Assuming average program sizes, these 20 processes will need approximately 160 Mbytes of system memory. If the size and complexity of the programs increases, even more memory will be needed.

If additional system memory is needed, order the following options:

MC10M-AA	Cray 256- to 512-Mbyte memory upgrade
MC10M-AB	Cray 512- to 1024-Mbyte memory upgrade

Step 4—I/O Subsystems

The CRAY Y-MP EL uses a VME I/O subsystem that conforms to the IEEE-1014 industry interface standard. The standard offering is the 6U card cage which accepts VME boards that are 15.2 × 4.4 cm (6 × 1.75 inches) or 26.7 cm (10.5 inches) high. A 9U card cage that accommodates custom-built VME boards is available on special order.

The mainframe cabinet and each of the three expansion cabinets have a VME cage with 20 slots for VME boards. Into these slots go I/O systems (IOSs) which consist of an I/O processor board (IOP), an I/O buffer board (IOBB), a Y-1C channel cable that connects the VME to the I/O port of the CPU, and user VME boards. When configuring an IOS, two slots are taken for the IOP and the IOBB.

There are three types of IOSs available: the 10-, 6-, and 4-slot systems which result in 8-, 4-, and 2-user slots respectively. The VME card cage may be set up at the factory in a 6-4-6-4 (up to four I/O channels), 10-6-4 (up to three I/O channels), or 10-10 (up to two I/O channels) slot IOS configuration (see system diagrams). Unless otherwise specified on the order, the factory will build the 6-4-6-4 configuration and will make the one IOS included with the base system a 6-slot.

Each VME I/O system (IOS) is connected to the I/O port of a CPU via the Y-1C channel which has a sustainable data transfer rate of over 20 Mbytes/second. When configuring the VME I/O system, devices should be placed on I/O channels so that the sum of the data transfer rates in actual practice for the devices do not exceed the sustained rate for the IOS channel.

The following shows approximate maximum sustained data transfer rates for various Cray devices:

Order Number	Description	Maximum Sustained Rate (Mbytes/second)
MC10N-FA	Cray FDDI interface card	—
MC10N-GA	Cray HYPERchannel card	—
MC10N-RA	Cray Ethernet card	1
MC10S-DA	Cray disk array storage system	12–14*
MC10S-EA	Cray 1.3-Gbyte ESDI disk drive	2
MC10S-IA	Cray 2.7-Gbyte IPI-2 disk drive	6–7
MC10S-TA	Cray 125 IPS 9-track tape drive	.75
MC10S-TB	Cray 3480 cartridge drive	3
MC10S-TE	Cray Exabyte tape drive	.5
MC10S-TC	Cray SCSI-1 interface card	5
MC10S-TD	Cray Pertec tape control unit	—

*This rate is for 64K blocks of data or larger. For smaller blocks, the rate is 0.01 Mbyte/second.

If additional I/O systems are required, order the following.

MC10X-HG	Cray additional IOS with eight slots
MC10X-HH	Cray additional IOS with four slots
MC10X-HJ	Cray additional IOS with two slots

Step 5—Disk Configurations

The following is the minimum disk storage capacity required according to the amount of system memory purchased. These minimum requirements are only capable of providing adequate space to permit bringing up the operating system. They do not include customer static storage requirements or disk space for a backup root file system.

System Memory	Minimum Disk Capacity (Bytes)
256 Mbytes	1,849,780,000
512 Mbytes	2,655,080,000
1024 Mbytes	4,265,480,000

The following Cray Research disk subsystems have been selected primarily for performance and reliability with optimized device drivers, diagnostics, and error logging features.

MC10S-EA	**Cray 1.3-Gbyte (formatted) 5.25-inch Winchester ESDI Disk Drive**—operates at a peak transfer rate of approximately 2 Mbytes/second; ESDI controller required.
MC10S-RA	**Cray 1.3-Gbyte Removable Disk Subsystem**—frame containing two ESDI drives in removable canisters used for secure operations where media must be removed between runs. ESDI controller supports two removable disk subsystems.
MC10S-RB	**Cray Spare Removable Canister**—ESDI drive in removable canister that fits the removable disk subsystem.
MC10S-RC	**Cray Maintenance Disk Drive**—frame containing one ESDI disk drive in removable canister. Replaces IOS maintenance/startup console drive and allows system to be configured entirely with removable media.
MC10S-RD	**Cray Spare Maintenance Canister**—spare ESDI drive in removable canister for maintenance disk drive.
MC10S-EB	**Cray ESDI Controller**—intelligent controller that supports four ESDI disk drives. Intelligent disk management techniques include overlapping seeks on multiple drives connected to the disk controller. Requires one VME slot.
MC10X-HA	**Cray ESDI Peripheral Expansion Tray**—specially designed tray that holds eight ESDI disk drives and contains power supplies for the drives. Trays are required for all ESDI drives with the exception of removable and maintenance drives which include their own trays. Due to power supply incompatibilities, different drive types cannot be mixed in this tray.
MC10S-IA	**Cray 2.7-Gbyte (formatted) two-headed parallel IPI-2 Disk Drive**—operates at a peak formatted transfer rate of 7.5 Mbytes/second and sustained transfer rates of approximately 6 to 7 Mbytes/second.
MC10S-IB	**Cray IPI-2 Drive Controller**—intelligent controller that can transfer data from two drives simultaneously supports four IPI-2 drives. Requires one VME slot.
MC10X-HB	**Cray IPI Peripheral Expansion Tray**—holds two IPI-2 drives and contains all necessary power supplies for the drives. All IPI-2 drives require trays. Due to power supply incompatibilities, different drive types cannot be mixed in this tray.
MC10S-DA	**Cray Disk Array Storage System (DAS)** —specialized storage subsystem that transfers large blocks of sequential data rapidly. Consists of an intelligent disk array controller supporting four banks (one included) of eight ESDI drives for data storage, plus one drive for parity and error recovery and one spare drive to serve as a hot standby. Provides a sustained data transfer rate in excess of 15 Mbytes/second on block sizes of 64K and larger. For smaller block transfers, the rate drops to 0.01 Mbyte/second. As an alternative to the DAS, consider striping two 2.7-Gbyte IPI-2 disk drives to obtain close to the 15 Mbytes/second of the DAS over all block sizes. Requires one VME slot.
MC10S-DB	**Cray DAS Expansion Bank**—extra banks of ten 1.3-Gbyte drives for the DAS array.
MC10S-DC	**Cray DAS Multiplexer**—allows disk array storage system to expand beyond one bank of drives.

Step 6—Network Communications

A number of network options including Ethernet, FDDI, HYPERchannel, and HIPPI are supported. All except HIPPI are supported off the VME I/O system. Each of the following interface cards fits into one slot of the VME IOS. They all use TCP/IP protocol and support FTS (file transfer), Telnet (interactive access), NFS (network file system), and X-Windows.

MC10N-FA	Cray FDDI interface card (requires one VME slot)
MC10N-GA	Cray HYPERchannel interface card (requires one VME slot)
MC10N-RA	Cray Ethernet interface card (requires one VME slot) **Note:** UNICOS does not support directly connected terminals. An Ethernet terminal server must be purchased to supply this functionality.

HIPPI is an actual high-performance channel directly into the CPU that requires a chip change on the CPU board. HIPPI channels do not use VME slots. Once HIPPI is configured, the CPU supporting HIPPI can only support up to two IOS channels for a maximum of ten VME slots. Cray HIPPI can use TCP/IP protocol and supports FTS (file transfer) and NFS (network file server). ULTRAnet support is under investigation.

MC10N-HA	Cray HIPPI input and output channels
MC10N-HB	Cray HIPPI input channel
NC10N-HC	Cray HIPPI output channel

Step 7—Tape Configurations

All tapes, including Exabyte units, are designed to fit inside the cabinets.

MC10S-TA	**Cray 125 IPS 9-Track Pertec Tape Drive**—high-performance, digital vacuum-buffered drive for 0.5-inch open-reel tape. Read/write tape speed is 125 inches per second for 800-, 1600-, or 6250-bit/inch tape densities. Requires connection to a Pertec tape control unit.
MC10S-TD	**Cray Pertec Tape Control Unit**—supports one internal or eight external 9-track tape drives. Unit is capable of reading and writing records of any length, and reading records of unknown length. Requires one VME slot.
MC10S-TB	**Cray 3480-Compatible Cartridge Tape Drive**—provides high-speed access to 3480-compatible cartridges. Data transfer rate is 3 Mbytes/second. Each drive includes its own tray, but requires Cray SCSI-1 interface card.
MC10S-TC	**Cray SCSI-1 Interface Card**—has a transfer rate of 5 Mbytes/second and provides connectivity to STK (or compatible) SCSI tape units such as the STK4781 which provides connectivity to the STK 4400 silo. Supports seven SCSI devices in a daisychained arrangement. Requires one VME slot.
MC10S-TE	**Cray Exabyte 8-mm Helical Scan Cartridge Tape Drive**—consists of drive and controller integrated into a 5.5-inch form factor. Provides 5-Gbyte capacity per 8-mm cartridge and is intended primarily as a user file backup device. Transfer rate is 500 Kbytes/second. Additional units can be placed in the main I/O cabinet using the Exabyte peripheral expansion tray and SCSI-1 interface card.
MC10X-HC	**Cray Exabyte Peripheral Expansion Tray**—allows two Exabyte units to be placed in main I/O cabinet space and be connected to the VME I/O system.

Step 8—I/O Expansion Cabinets

Select additional I/O expansion cabinets if required.

Diagram on page 32 shows a front view of a typical cabinet with its right and left chimneys or vertical shafts into which I/O devices and trays are installed. Each chimney has its own cooling system where the air is blown from the bottom and exhausted through the top of the cabinet. Vertical space is designated in "U" units where one U equals 4.45 cm (1.75 inches).

In the mainframe cabinet, the right chimney is filled with the CPUs and memory modules, and is not available for any peripheral devices or trays. In the I/O expansion cabinets, both chimneys may be populated with devices and trays, but restrictions apply as to what is permitted in each chimney.

Step 8—I/O Expansion Cabinets *(Continued)*

Permitted in Left Chimneys	Permitted in Right Chimneys
• 1.3-Gbyte ESDI disk drives and trays	• 1.3-Gbyte ESDI disk drives and trays
• 2.7-Gbyte IPI-2 disk drives and trays	• 2.7-Gbyte IPI-2 disk drives and trays
• Exabyte drives and trays	• Exabyte drives and trays
• Pertec 9-track tape drives	
• 3480-compatible cartridge tape drives	
• 2.6-Gbyte removable disk drive systems	
• Disk Array Storage (DAS) subsystems	
• Disk Array Storage (DAS) banks	

Use the following list to determine the vertical space required for each of the currently-offered peripheral devices and peripheral expansion trays.

Order Number	Description	Space (U = 4.4 cm; 1.75 in.)
MC10X-HA	ESDI peripheral expansion tray	5U
MC10X-HB	IPI-2 peripheral expansion tray	5U
MC10X-HC	Exabyte peripheral expansion tray	2U
MC10S-RA	2.6-Gbyte removable ESDI drive system	3U
MC10S-DA	10.4-Gbyte disk array storage subsystem	
	– DAS bank	5U
	– DAS controller	8U
MC10S-DB	10.4-Gbyte disk array storage bank	5U
MC10S-TA	125 IPS 9-track Pertec tape drive	5U
MC10S-TB	3480-compatible cartridge tape drive	4U

Additional Configuration Rules

1. All processor and memory boards are configured in the mainframe cabinets. Additional cabinets are strictly for I/O and storage devices.
2. Maximum of two 3480-compatible cartridge tape drives, or one 9-track tape drive and one 3480-compatible drive, or one 9-track tape drive plus disks can be supported in the left chimney. Only one 9-track tape drive is supported in the left chimney due to cooling requirements for tape devices.
3. Because power and monitoring system extends from the mainframe cabinet to each of the expansion cabinets, the cabinets must be physically connected together.
4. If an expansion cabinet is added, there must be at least one IOS in that cabinet.
5. DAS controller may only be installed in the uppermost slot in the left chimney. Only one DAS controller supported in a mainframe cabinet or an expansion cabinet due to cooling requirements.
6. With a DAS controller in the left chimney, no removable ESDI drive system, 9-track tape drives, or 3480-compatible cartridge tape drives are allowed in that chimney due to cooling reasons.
7. One Exabyte tape drive can be installed at the top of the mainframe cabinet next to the system disk and the QIC tape. This unit is then connected to the master IOP. Two Exabytes can be placed in expansion cabinets; expansion cabinet Exabytes must be connected to a VME IOP using a SCSI-1 interface card.
8. The removable maintenance disk drive, if ordered, is placed in the upper position of the mainframe cabinet in place of the system disk.

If additional I/O expansion cabinets with 20-slot VME card cages are required, order the following. Expansion cabinets include their own power systems and power cord.

MC10X-HD	Cray 1st expansion cabinet with VME cage
MC10X-HE	Cray 2nd expansion cabinet with VME cage
MC10X-HF	Cray 3rd expansion cabinet with VME cage

Step 8—I/O Expansion Cabinets *(Continued)*

The following describes the type of connection and the physical plate space requirements for connecting devices external to the cabinets:

External Connections

The diagram on page 32 illustrates the number of access plates available for the various external interface bulkhead connectors. There are seven dedicated plates and 16 openings for external user interfaces.

The following describes the dedicated plate layout and the requirements for the 16 user-defined access plates:

Slot 1:	Operator's console	(EIA-232)
Slot 2:	Maintenance workstation	(9-pin DSUB)
Slot 3:	Ethernet connection	(DR-15)
Slot 4:	Remote alarm 1	(9-pin DSUB)
Slot 5:	Remote alarm 2	(9-pin DSUB)
Slot 6:	Remote control panel status	(15-pin DSUB)
Slot 7:	Centronics printer parallel connector	

Ethernet	One connector per plate
FDDI	One connector per plate
HYPERchannel pair	Two plates
HIPPI channel (input or output)	One plate
HIPPI channel (input and output)	Two plates
SCSI	One connector per plate
Pertec	One connector per plate

Step 9—Software

The following Cray Research binary system software and features are included with the CRAY Y-MP EL system. Customers are required to purchase a USL System V, Version 4 license prior to taking delivery of the system.

- USL UNIX System V with Berkeley 4.3 extensions
- Multiprocessing
- Parallel processing
- Enhanced performance file systems
- Enhanced tape support
- Production batch capabilities
- Cray CF77 Fortran compiling system
- Cray Standard C compiler
- Cray Pascal compiler (not included but available at no charge)
- Full C and Fortran compiler optimization enabled as default
- Binary compatibility with all Cray Y-MP series systems
- Cray assembly language (CAL)
- Utilities
- Cray Research libraries
- Advanced accounting and resource control
- Multilevel security
- Data migration facility
- Advanced system administration
- Standards-based implementation

Cray Software

The following describes briefly the software packages and licenses that are available for the CRAY Y-MP EL system. Note that this is Cray Research software and not Digital software. It is designed for Cray Research platforms such as the CRAY Y-MP EL only. Since the software is licensed by Cray Research directly to the end user, customers must sign Cray Terms and Conditions prior to ordering and receiving software.

- **CRAY UNICOS Environment**—License, software, media and documentation kit included with the system.
- **CRAY USL System V.4 license**—must be purchased for each system.

Step 9—Software *(Continued)*

- **CRAY TCP/IP**—software based on the Fourth Berkeley Distribution implementation of TCP/IP and is appropriate for CRAY Y-MP EL systems connected to other computer systems that are running an implementation of the DoD standard TCP/IP specifications.
- **CRAY mainframe RQS/VMS**—software used for remote job submission and control to Cray systems running UNICOS from a VMS-based system. RQS/VMS will support all VAX systems except for VAXstation 3100. Supports a maximum of 32 simultaneous connections.
- **CRAY RQS/VMS 1.0 for WSS**—software used for remote job submission and control to Cray systems running UNICOS from a VMS-based system. RQS/VMS will support the VAXstation 3100. Supports a maximum of 32 simultaneous connections.
- **CRAY RQS/VM 1.0**—software used for remote job submission and control to Cray systems running UNICOS from a VM-based system. RQS/VM will support the following IBM mainframes: IBM 370, IBM 390, IBM 9370.
- **CRAY Mainframe RQS/UNIX 2.1**—software used for remote job submission and control to Cray systems running UNICOS from a UNIX-based mainframe. RQS/UNIX supports IBM 3090 systems running AIX/370.
- **CRAY RQS/UNIX 2.1 for WSS**—software used for remote job submission and control to Cray systems running UNICOS from a UNIX-based system. RQS/UNIX supports the following UNIX-based systems: SUN-4 systems (SunOS 4.0.3), Sun SPARCstation (SunOS 4.0.3 and 4.1), IBM RISC System/6000 (AIX Version 3, Release 1.0 and 2.0), DECstation 3100 (ULTRIX 4.2), DECstation 5100 (ULTRIX 4.2), Silicon Graphics 4D (IRIX 3.3 and 4.0), HP 9000/400 and /700 (HP-UX 7.0 and 8.0 respectively), CDC 4000 (EP/IX 3.1)
- **CRAY ADA 2.0 for 1–4 CPUs**—software required for Ada compilation on the CRAY Y-MP EL system. Requires 8 MW (64 Mbytes), but performance is improved with 16 MW (128 Mbytes). Licensed only in binary form.
- **CRAY CVT 1.0**—software is a collection of tools which allow users to create visual interfaces from Cray-based applications. Most of the tools are the result of porting other vendor products to the Cray platform. Licensed only in binary form.
- **CRAY MPGS 4.0**—multipurpose graphics system visualization tool for understanding the results of engineering analysis software running on the CRAY Y-MP EL system. Available in binary code only and resides on an IBM RS/6000 3xx, 5xx or 7xx, or SGI IRIS-4D workstation attached to the EL.
- **CRAY EXPLORER 1.0**—very high level object oriented programming system with visual interfaces at almost every level; used in the building of applications programs. New functional modules may be added to the system using existing code or by writing new code. Visually based tools for the integration into the system and similar tools for integration of new data types and formats are provided. Available in binary code only.
- **CRAY UniChem 1**—applications software environment for computational chemistry. Consists of two major components: "UniChem User Interface," the interactive graphics (workstation-based) modeling system; and "ChemSuite" a third-party and Cray-developed computational chemistry codes (MND090, CADPAC, DGAUSS) integrated through the UniChem User Interface. Available in binary code only and requires a Silicon Graphics IRIS workstation.
- **CRAY CVT 1.0 (University)**—lower-cost license for university use, license only uses regular media and documentation
- **CRAY MPGS 4.0 (University)**—lower-cost license for university use, license only, uses regular media and documentation
- **CRAY UniChem 1 (University)**—lower-cost license for university use, license only, uses regular media and documentation

Step 10—Installation

The CRAY Y-MP EL has minimal installation and operational requirements and may be installed in most office environments

CRAY Y-MP EL System Specifications

Physical Characteristics

Characteristics	Mainframe Cabinet	Expansion Cabinets
Height	144 cm (56.75 in.)	144 cm (56.75 in.)
Width	127 cm (50.00 in.)	127 cm (50.00 in.)
Depth	83 cm (32.75 in.)	57 cm (22.56 in.)
Weight	635 kg (1400 lb) maximum 411 kg (906 lb) minimum	635 kg (1400 lb) maximum 411 kg (906 lb) minimum
Access requirements	30 cm (12 in.)—rear 76 cm (30 in.)—each side 91 cm (36 in.)—front*	**—rear 76 cm (30 in.)—each side 91 cm (36 in.)—front*

* When expansion cabinets are installed, the front panel of the mainframe cabinet is removed and the expansion cabinets are attached to the front of the mainframe cabinet. Then the radiused front panel is installed on the front of the expansion cabinet. With expansion cabinets, the front clearance requirement for the mainframe cabinet is no longer valid.

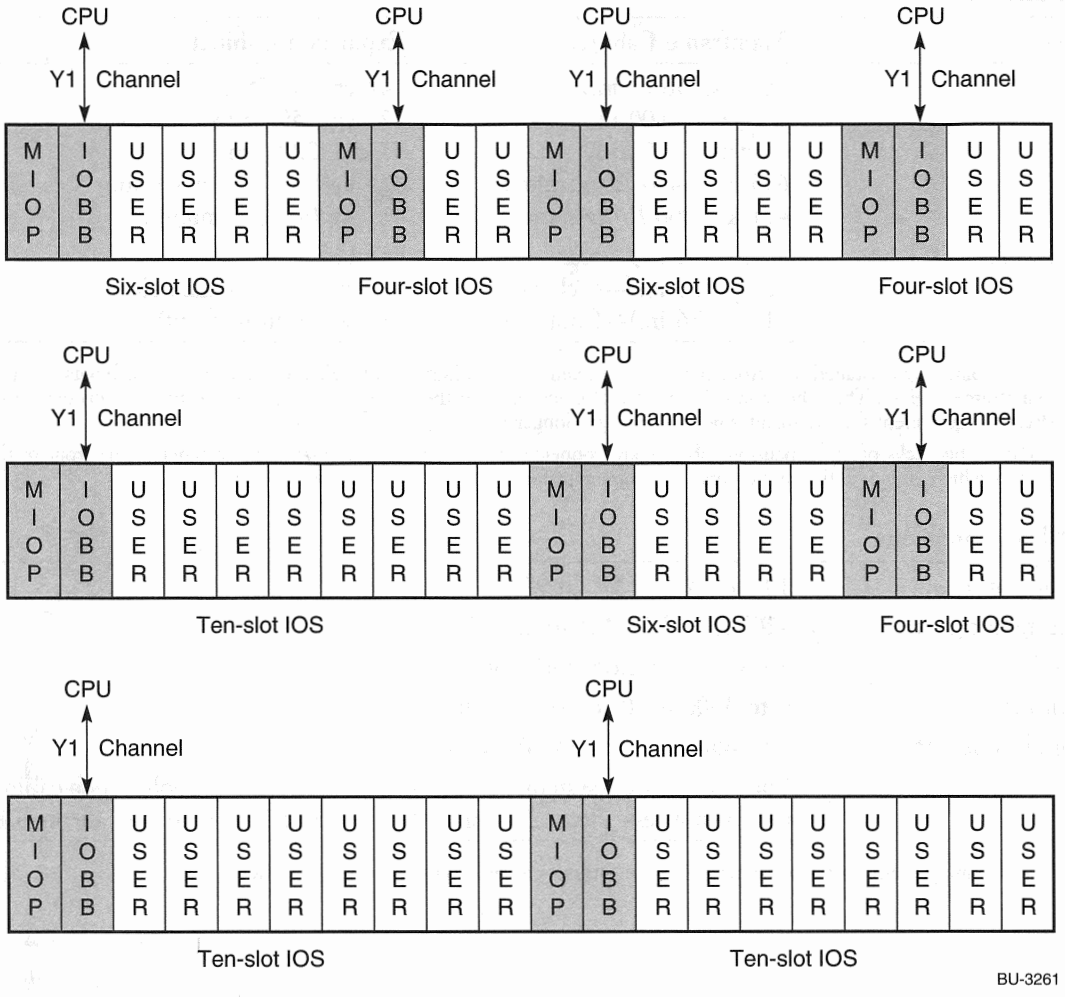
** As described above, the backs of the expansion cabinets are connected to the front of the mainframe cabinet or the front of the previous expansion cabinets which eliminate the rear clearance requirement for the expansion cabinets.

Environmental Requirements

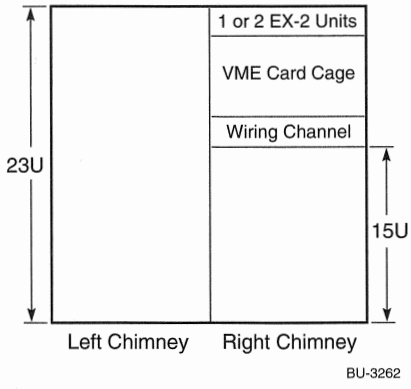
Operating temperature	10° to 35° C (50° to 95° F)
Non-operating temperature	–10° to 50° C (14° to 122° F)
Relative humidity	20% to 80% noncondensing
Operating altitude	0 to 3000 m (0 to 10,000 feet)
Nonoperating altitude ***	0 to 4500 m (0 to 15,000 feet)
Cooling	Fully configured system requires less than 2 tons of cooling per cabinet. A flow rate of not less than 1274 lpm (45 cfm) must be maintained through the area.

*** The system must be shipped in a pressurized cargo bay for altitudes greater than 4500 m (15,000 feet).

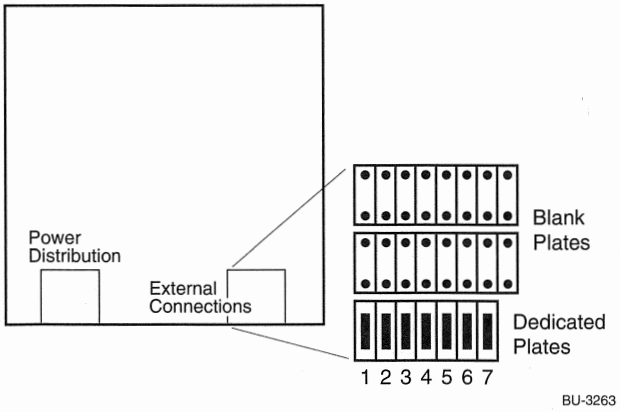
CRAY Y-MP EL System Diagrams



Three VME Card-cage Configurations



Cabinet Configuration



External Connections

DECserver 90TL Telnet/LAT Terminal Server

Product Description

Designed for high-speed asynchronous connections to UNIX, ULTRIX, VMS, DOS, and multivendor network services, the DECserver 90TL delivers the performance of a mid-range terminal server in a compact, low-cost module. This eight-port Telnet/LAT terminal server offers industry-standard connections at speeds of up to 57.6 Kb/s. It supports TCP/IP, Telnet, LAT, and SLIP protocols and several remote management systems. Like other members of the WorkGroup family of networking products, it can be used interchangeably as a standalone unit and in the DEChub 90.

The server's support for TCP/IP-Telnet and Domain Name Service (DNS) protocols provides for multivendor connectivity and wide area terminal service. LAT protocol, a highly efficient local area terminal service, accommodates a variety of host systems from Digital and other vendors.

With TCP/IP-SLIP, the DECserver 90TL becomes a static IP end-node router for PCs connected to the serial ports. The server provides TCP/IP communications to connect these PCs to each other and to any service on the network. These low-cost connections, via a telephone line and modem, are excellent for connecting branch and other remote operations.

The DECserver 90TL can be managed in a variety of network environments using SNMP or MOP, which are integral to the server. Terminal Server Manager (TSM) V1.5, Telnet Remote Console, and MOP Remote Console are useful for checking status or reconfiguring the server remotely.

Several productivity-enhancing features are included. With one server, users can simultaneously access 64 different sessions operating under a mix of protocols. This minimizes the need to log in and out of sessions. The server supports Terminal Device/Session Management Protocol (TD/SMP). Its preferred service feature expedites connections to specific services. On-demand font loading, especially useful for Asian terminals that require dynamic font capabilities, is also included.

Industry-standard MJ8 (RJ45-style) connectors provide data, DSR, and DTR signals to most modems and printers. As an added security feature, system managers can dedicate a port to just one service, or assign group codes to restrict access to network services.

New DECserver software, also used with the DECserver 700 series, can be downline-loaded from ULTRIX, UNIX, VMS, or MS-DOS (via PATHWORKS for DOS) operating systems using BOOTP/TFTP or MOP. The server software license is included with the DECserver 90TL.

Features

- Multiprotocol capabilities—Supports Telnet, LAT, TCP/IP and SLIP protocols
- Configuration flexibility—Operates standalone or in the DEChub 90
- Investment protection—Features upgradeable software and memory
- Network management—Manageable remotely using SNMP, Terminal Server Manager (TSM) V1.5, MOP Remote Console, and Telnet Remote Console
- High speed—Supports high bandwidth asynchronous devices at speeds of up to 57.6 Kb/s
- Modem/printer/device control—Uses industry-standard MJ8 (RJ45-style) connections that provide data, DSR, and DTR signal capabilities
- Ease of use—Features front panel LEDs to provide port, module, and network status and activity at a glance

Ordering Information

DECserver 90TL for standalone use; includes power supply.
Note: Server software included

DSRVE-AA	U.S., Canada, Japan
DSRVE-AD	Denmark
DSRVE-AE	U.K.
DSRVE-AI	Italy
DSRVE-AK	Switzerland
DSRVE-AT	Israel
DSRVE-AX	Austria, Belgium, France, W. Germany, Finland, Holland, Norway, Sweden, Portugal, Spain
DSRVE-AZ	Australia
DSRVE-BJ	India
DSRVE-MA	DECserver 90TL for use with DEChub 90 (power supply not included)
H7082-AA	120-V power supply with internal power connection
H7082-AB	240-V power supply with IEC connection
H0342-AA	Snap-on cover for hub-based model of the DECserver 90TL

Note: Prefix the DECserver 90TL order code with DL- to order 24 units.

QA-MJPAA-Hx	DECserver media and documentation kit (VMS)
QA-MJPAB-Hx	DECserver media and documentation kit (ULTRIX)
QA-MJPAC-HB	DECserver media and documentation kit (DOS—RX24 media)

Note: x = media; 5 = TK50; M = 1600-bit/in. magtape

Configuring Information

The DECserver 90TL features eight MJ8 (RJ45-style) connectors that support asynchronous device connections. It has an integral BNC for connection to ThinWire Ethernet, a connector for insertion into the DEChub 90, and a connector for the standalone power supply. Eight DECserver 90TL modules in the hub provide 64 connections; two daisychained DEChub 90 units can support 128 connections. The DECserver 90TL can also be combined with WorkGroup Family repeaters, bridges, and LAT-only terminal servers in the DEChub 90.

Specifications

Dimensions:	3.2 cm (1.25 in.) × 27.9 cm (11 in.) × 14.0 cm (5.5 in.)
Weight (without power supply):	0.77 kg (1.7 lb)
Connectors:	• ThinWire BNC for Ethernet • 8 MJ8 connectors (RJ45-style) for asynchronous lines • standalone power supply
Software:	DECserver downline-loadable software
Load hosts:	ULTRIX/RISC, ULTRIX/VMS, UNIX, VMS, and PATHWORKS for DOS
Protocols:	Telnet, TCP, UDP, IP, ARP, SLIP, LAT, BOOTP/TFTP, SNMP, DNS, TD/SMP (initial software release)
Port speeds:	Autobaud or user selectable from 75 b/s to 57.6 Kb/s
Characters:	7 or 8 bit characters, 1 or 2 stop bits
Parity:	None, even, odd, space, mark
Flow control:	XON-XOFF or DSR/DTR (2-wire)
Maximum throughput:	30K cps
Operating temperature:	5° C–50°C (41°F–122°F); convection cooled

Proteon 4100+ Multiprotocol 802.5/Token Ring Bridging Router

Product Description

The Proteon 4100+ Bridging Router systems support 4-Mb/s or 16-Mb/s Token Ring and multiprotocol routing and bridging between local and remote networks. These bridging router systems are designed to provide an effective method for integrating 802.5/Token Ring and other LAN technologies in a mixed environment and for supporting the industry protocols listed in the table below.

Features

- 4-Mb/s or 16-Mb/s Token Ring backbone connectivity (UTP and Fiber)
- SNMP network management (manageable via DECmcc SNMP AM V1.1)
- WAN connectivity: 64 Kb/s, T1 (2.048 Mb/s), PDN X.25, DDN X.25 (not PTT approved in Europe)
- 20-MHz 386 CPU, 2-Mbyte RAM, Watchdog timer
- Event logging system and customized event/error reporting
- Wide selection of packaged bridging routers available

4100+ Bridging Router Systems Supported Protocols:

LAN/Backbone	WAN	Network O/S	Bridging	Network Management
802.3/Ethernet	T1/E1	NetWare IPX	Source Routing Bridging (SRB)	SNMP MIB II
802.5 4 Mb/s or 16 Mb/s Token Ring	64 Kb/s X.25	TCP/IP OSI (ES-IS)	Spanning Tree Bridging (ST)	
Apollo Token Ring	Frame Relay SDLC	DECnet Phase IV XNS (3Com, Xerox, UB) AppleTalk Apollo Domain		

Ordering Information

The 4100+ base systems include TCP/IP and source routing and spanning tree bridging as part of the systems software. The 4100+ X.25 base systems add X.25 hardware and software.

The preconfigured 4100+ packaged systems include the base system hardware and software plus DECnet, IPX, and an optional protocol forwarder (XNS, SDLC, Frame Relay, AppleTalk, Apollo Domain, or ES-IS). Optional protocols are included at no extra cost. Preconfigured 4100+ X.25 packaged systems add X.25 software and the X.25 interface hardware (DETAB-AH). Serial line cables must be ordered separately.

The network interface options—Ethernet, Token Ring, T1 or serial lines—are not bundled into the systems and must be ordered separately (with the exception of the 4100+ X.25 systems which include X.25 hardware and software).

Proteon 4100+ Multiprotocol 802.5/Token Ring Bridging Router

Ordering Information
(Continued)

4100+ preconfigured packaged systems with SDLC require the T1 serial interface (DETAB-AD) and a serial line cable. These must be ordered separately.

4100+ Systems

DETAC-Ax	4100+ base system hardware with system software TCP/IP, source routing and spanning tree bridging

Preconfigured 4100+ packaged systems with base system hardware/software (DETAC-A*) plus additional protocol forwarders:

DETAC-Cx	4100+ packaged system with DECnet IV, IPX, XNS
DETAC-Dx	4100+ packaged system with DECnet IV, IPX, frame relay
DETAC-Ex	4100+ packaged system with DECnet IV, IPX, SDLC
DETAC-Fx	4100+ packaged system with DECnet IV, IPX, OSI (ES-IS)
DETAC-Gx	4100+ packaged system with DECnet IV, IPX, AppleTalk
DETAC-Hx	4100+ packaged system with DECnet IV, IPX, Apollo Domain
DETAC-Jx	4100+ packaged system with DECnet IV and IPX only
DETAC-Kx	4100+ packaged system with DECnet IV only

4100+ X.25 Systems

DETAD-Ax	4100+ base system hardware with system software, X.25, TCP/IP, source routing and spanning tree bridging

Preconfigured 4100+ X.25 packaged systems with base system hardware/software (DETAD-Ax) plus additional protocol forwarders:

DETAD-Cx	4100+ X.25 packaged system with DECnet IV, IPX, XNS
DETAD-Dx	4100+ X.25 packaged system with DECnet IV, IPX, frame relay
DETAD-Ex	4100+ X.25 packaged system with DECnet IV, IPX, SDLC
DETAD-Fx	4100+ X.25 packaged system with DECnet IV, IPX, OSI (ES-IS)
DETAD-Gx	4100+ X.25 packaged system with DECnet IV, IPX, AppleTalk
DETAD-Hx	4100+ X.25 packaged system with DECnet IV, IPX, Apollo Domain
DETAD-Jx	4100+ X.25 packaged system with DECnet IV and IPX Only

Replace x with one of the following codes:
A = United States, **B** = International

4100+ Optional Interface Line Cards and Cables

DETAB-AA	Proteon Apollo Token Ring interface
DETAB-AB	Proteon Ethernet interface
DETAB-AC	Proteon Token Ring adapter
DETAB-AD	Proteon T1 serial interface
DETAB-AH	Proteon X.25 interface
DETAB-AE	Proteon EIA-232 interface and cable
BC07V-1F	HD-26 to EIA-232 interface cable, 45.7 cm (18 in.)
BC07V-1J	HD-26 to EIA-232 interface cable
DETAB-AF	Proteon EIA-449 interface and cable
BC07Y-1F	HD-26 to EIA-449 interface cable, 45.7 cm (18 in.)
BC07Y-1J	HD-26 to EIA-449 interface cable
DETAB-AG	Proteon V.35 Interface and cable
BC07Z-1F	HD-26 to V.35 Interface cable, 45.7 cm (18 in.)
BC07Z-1J	HD-26 to V.35 Interface cable—spare, 50.8 cm (20 in.)
DETAB-AI	Proteon p4100 and rackmount kit

Proteon 4100+ Multiprotocol 802.5/Token Ring Bridging Router

Specifications

Physical Characteristics	
Height	17.7 cm (7.0 in.)
Width	41.3 cm (16.25 in.)
Depth	43.8 cm (17.25 in.)
Weight	21.3 kg (47 lb)
Power Requirements	
Input voltage	90 Vac to 260 Vac
Input frequency	50 Hz to 60 Hz
Power consumption	27 Watts
Operating Environment	
Operating temperature	0° to 50°C (32° to 122° F)
Operating humidity	10% to 95% noncondensing
Connectors	One EIA-232, DB 25 for local console and IEC-320 line cord connector
Power cord	U.S. line cord/Universal Adapter

Proteon CNX 500 Multiprotocol 802.5/Token Ring Bridging Router

Product Description

The Proteon CNX 500 bridging router is a high-performance, RISC-based bridging router that supports 4-Mb/s or 16-Mb/s Token Ring and FDDI backbone connectivity. The CNX 500 increases network efficiency, manages the overall network performance, and provides network integration for mixed LAN/WAN environments.

Features

- Supports distributed routing over 4-Mb/s, 16-Mb/s or FDDI backbones
- Supports industry-leading protocols
- SNMP network management (manageable via DECmcc SNMP AM V1.1)
- Full range of LAN/WAN support for enterprise-wide connectivity (not PTT approved in Europe)
- Watchdog timer increases network availability
- Event logging system customized event/error reporting

CNX 500 Bridging Router Supported Protocols

LAN/Backbone	WAN	Network O/S	Bridging	Network Management
802.3/Ethernet	T1/E1	NetWare IPX	Source Routing Bridging (SRB)	SNMP MIB II
802.5 4 Mb/s or 16 Mb/s Token Ring	64 Kb/s Frame Relay	TCP/IP OSI (ES-IS)	Spanning Tree Bridging (ST)	
FDDI	SDLC	DECnet Phase IV		
		XNS (3Com, Xerox, UB)		
		AppleTalk		
		Apollo Domain		

Ordering Information

The CNX 500 base systems include TCP/IP and source routing and spanning tree bridging as part of the systems software. CNX 500 X.25 base systems add X.25 software; hardware interface and level converter must be ordered separately.

Preconfigured CNX 500 packaged systems include the base system hardware and software plus DECnet, IPX, and an optional Protocol Forwarder (XNS, SDLC, frame relay, AppleTalk, Apollo Domain, or ES-IS). Optional protocols are included at no extra cost. Preconfigured CNX 500 X.25 packaged systems add X.25 software; hardware interface and level converter must be ordered separately.

The Network Interface options—Ethernet, Token Ring, T1/E1 or serial lines—are not bundled into the systems and must be ordered separately.

CNX 500 systems with SDLC require require the T1/E1 high-speed interface (DETCB-AC) and a choice of level converter.

Ordering Information
(Continued)

CNX 500 Systems

DETCE-AA	CNX 500 base system hardware with system software, TCP/IP, source routing and spanning tree bridging
	Preconfigured CNX 500 packaged systems with base system hardware/software (DETCE-AA) plus additional protocol forwarders:
DETCE-CA	CNX 500 packaged system with DECnet IV, IPX, XNS
DETCE-DA	CNX 500 packaged system with DECnet IV, IPX, frame relay
DETCE-EA	CNX 500 packaged system with DECnet IV, IPX, SDLC
DETCE-FA	CNX 500 packaged system with DECnet IV, IPX, OSI (ES-IS)
DETCE-GA	CNX 500 packaged system with DECnet IV, IPX, AppleTalk
DETCE-HA	CNX 500 packaged system with DECnet IV, IPX, Apollo Domain
DETCE-JA	CNX 500 packaged system with DECnet IV and IPX only
DETCE-KA	CNX 500 packaged system with DECnet IV only

CNX 500 X.25 Systems

DETCF-AA	CNX 500 X.25 base system hardware with system software, X.25, TCP/IP, source routing and spanning tree bridging Preconfigured CNX 500 X.25 packaged systems with base system hardware/software (DETCF-AA) plus additional protocol forwarders
DETCF-CA	CNX 500 X.25 packaged system with DECnet IV, IPX, XNS
DETCF-DA	CNX 500 X.25 packaged system with DECnet IV, IPX, frame relay
DETCF-EA	CNX 500 X.25 packaged system with DECnet IV, IPX, SDLC
DETCF-FA	CNX 500 X.25 packaged system with DECnet IV, IPX, OSI (ES-IS)
DETCF-GA	CNX 500 X.25 packaged system with DECnet IV, IPX, AppleTalk
DETCF-HA	CNX 500 X.25 packaged system with DECnet IV, IPX, Apollo Domain
DETCF-JA	CNX 500 X.25 packaged system with DECnet IV and IPX only

Note: All CNX 500 systems require TCP/IP TFTP (Trivial File Transfer Protocol) software on a host for downline loading. CNX 500 systems are universal, no country kits or specific geography codes required.

CNX 500 Optional Interface Line Cards and Level Converters

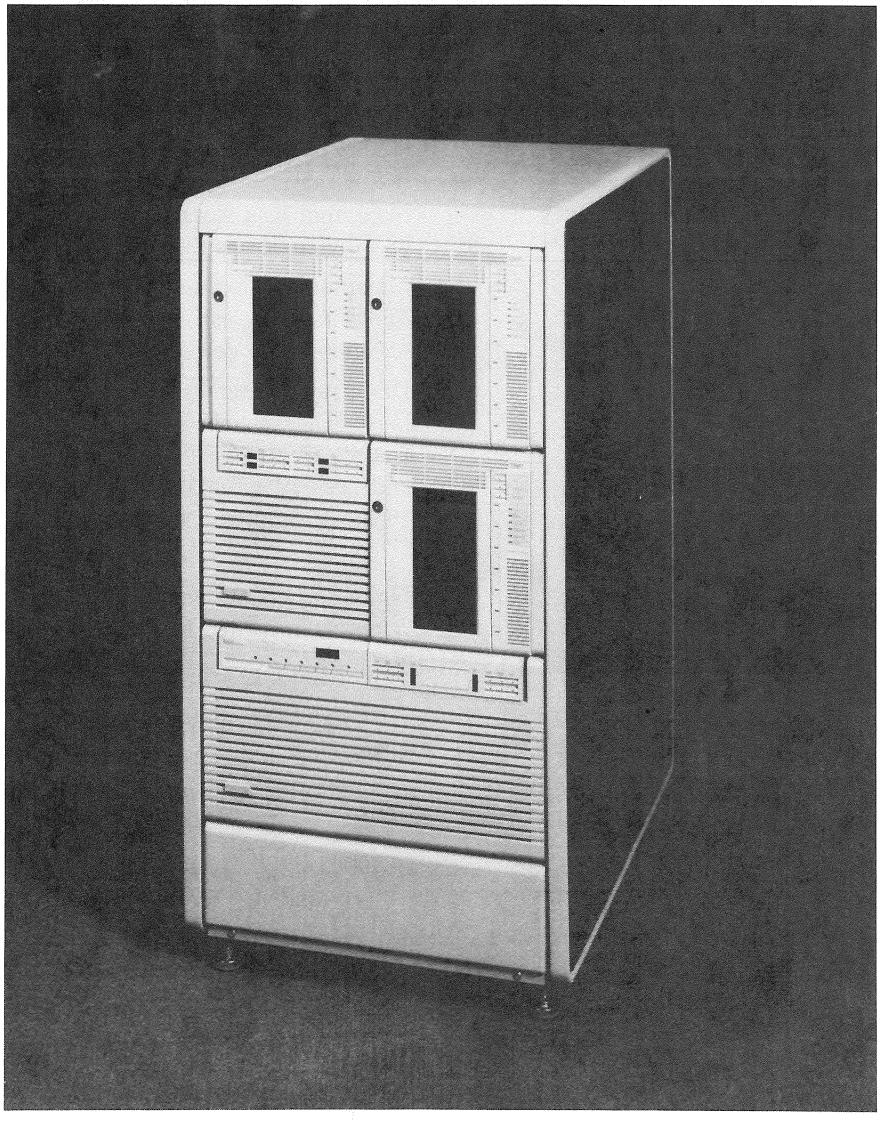
DETCB-AA	CNX 500 Ethernet interface
DETCB-AB	CNX 500 Token Ring adapter
DETCB-AC	CNX 500 dual-port serial T1/E1 interface
DETCB-AE	EIA-232-C level converter
DETCB-AF	EIA-449 level converter
DETCB-AG	V.35 level converter
DETCB-AH	X.21 level converter
DETCB-AL	Dual Ethernet interface
DETCB-AJ	FDDI interface 50 micron
DETCB-AD	FDDI interface 62.5 micron

Proteon CNX 500 Multiprotocol 802.5/Token Ring Bridging Router

Specifications

Physical Characteristics	
Height	16.5 cm (6.5 in.)
Width	41.9 cm (16.5 in.)
Depth	41.4 cm (16.3 in.)
Weight	18.1 kg (40 lb)
Power Requirements	
Input voltage	85 Vac to 270 Vac
Input frequency	50 Hz to 60 Hz
Power consumption	240 Watts maximum
Operating Environment	
Operating temperature	15° to 40° C (59° to 104° F)
Operating humidity	5% to 95% noncondensing
Power cord	Universal Adapter

DECarray 300 Family (SDI/DSSI)



Product Description

The DECarray 300 storage subsystem supports multiple bus configurations in one 1.1-meter (42-inch) high, single-phase cabinet. This space and power-efficient package is the first DECarray to combine SDI and DSSI disks as well as backup tape drives, making a wide variety of initial storage configurations available for high-end, mid-range, and low-end systems.

Investment is protected because SA71, SA72, RA92, SF72, SF73, TF857 and older SA70, RA90 devices can be added to these initial configurations at any time. The DECarray 300 family offers the flexibility needed to meet the variety of storage demands generated by new applications, additional users, and network expansion.

The DECarray 300 is an excellent choice for mixed bus configurations and for mixed environments with constrained floor space.

Features

- Occupies only 5.5 ft^2 (0.5^2 m) of floorspace
- Variable drive capacity, so systems can be configured for maximum capacity or maximum I/O throughput
- Accepts installation of up to six separately powered and cooled Storage Array Building Blocks (SABBs) or RA90/92 disk drives and up to six TF857 tape subsystems

Features *(Continued)*

- Each SABB can be either SDI or DSSI
- Each SDI SABB can hold up to four RA71 700-Mbyte (formatted) or four RA72 1.0-Gbyte (formatted) dual portable disk drives
- DSSI SABBs can hold up to four 1.0-Gbyte (formatted) RF72 ISEs, or up to four 2.0-Gbyte (formatted) RF73 ISEs
- Maximum disk storage capacity is 24 Gbytes (formatted) (24 RA72 drives) or 48 Gbytes (formatted) (24 RF73 ISEs)
- Maximum unattended tape storage backup capacity is 109.2 Gbytes (six TF857 tape drives). The TF857 tape subsystem consists of a DSSI-based streaming tape device and an automatic cartridge loader
- DECarray 300 family is compatible with any VAX or VAXcluster systems and most PDP systems as well as the full line of Digital's CI servers (HSC family, HSC40/50/60/70/90), SDI controllers (UDA50, KDA50, KDB50, and KDM70), and DSSI Integrated Storage Elements (ISEs) which have their own integrated controller and embedded MSCP server

Ordering Information

Note: DECarray storage enclosures are 1.1-meter (42-inch) cabinets. GBf refers to formatted Gbytes.

The SF300 DECarrays are configured for single systems, and require appropriate CK-SF200-Lx cable kits listed below:

SF300-CA/CD	DECarray with one SF72 SABB (4 GBf), 60/50 Hz; requires one CK-SF200-Lx kit. To upgrade installed SF300 to multi-host system, order one additional CK-SF200-Lx kit.
SF300-HA/HD	DECarray with three SF72 SABBs (12 GBf), 60/50 Hz; requires two CK-SF200-Lx kits. To upgrade installed SF300 to multi-host system, order four additional CK-SF200-Lx kits.
SF300-TE/TD	DECarray with one TF857 tape drive, 60/50 Hz; requires one CK-SF200-Lx kit. To upgrade installed SF300 to multi-host system, order one additional CK-SF200-Lx kit.
CK-SF200-LM	DSSI cable kit for VAX 6000 and VAX 9000
CK-SF200-LP	DSSI cable kit for VAX 4000 and MicroVAX
CK-SF200-L3	7.6-m (25-ft) version of -LM

Note: The following DECarrays require external BC26V-12/25/50/80 cables—one per drive; duplicate set required for dual porting.

SA300-CA/CD	DECarray with one SA72 SABB (4 GBf), 60/50 Hz
SA300-HA/HD	DECarray with three SA72 SABBs (12 GBf), 60/50 Hz
SA301-CA/CD	DECarray with one SA71 SABB (2.8 GBf), 60/50 Hz
SA301-HA/HD	DECarray three SA71 SABBs (8.4 GBf), 60/50 Hz
SA300-XA/XD	Empty DECarray cabinet, 60/50 Hz

Note: The following cables are required if adding SA70 and RA9x drives from existing cabinets into the DECarray 3xx cabinet.

CK-SA300-L1	Mounting kit for SA7X SABB in 3HI DECarray Sx300 cabinet
CK-SA300-L2	Mounting kit for RA9X disk in 3HI DECarray Sx300 cabinet

Specifications

Physical Characteristics

Size	Height	106.9 cm (42 in.)
	Width	54.7 cm (21.5 in.)
	Depth	91.5 cm (36 in.)
Weight	Empty cabinet	148 kg (327 lb)
	RA9x	34 kg (74 lb)
	Sx7X	40 kg (89 lb)
	TF857	25 kg (56 lb)

Note: Calculate weight of the DECarray 300 family by adding weight of empty cabinet to weight of installed components. Sx7X with two drives is 34 kg (75 lb).

Power Requirements	**120 V**	**240 V**
Number of phases	Single	Single
AC-plug type	NEMA L5-30P	P/N 12-14379-03
Rated current	24 amps	12 amps
RA9x	3.6	1.8
Sx7x	2.22	1.5
Tx857	1.73	0.9
Operating Environment	Class A Operating Environment	
Agency compliance	FCC, UL, IEC, CSA, TUEV, and FTZ	
Maximum altitude	2438 m (8000 ft)	
Relative humidity	40% to 60% noncondensing	
Temperature	18° to 24° C (64.4° to 75.2° F)	
Disks Supported	**RA70, RA71, RA72, RA90, RA92, RF72, RF73**	
Tape Supported	**TF857**	

SF220 DECarray (DSSI)

Product Description

The SF220 cabinet packages the performance SF35 Storage Array Building Blocks (SABB), the SF72/SF73 capacity SABBs, and TF857 tape subsystems. The configurations thus brought to VAX systems balance performance/capacity and backup in single-system, two-system, and three-system environments. The SF220 fully populated with SF35s provides a maximum capacity of 61.2 Gbytes and a peak throughput capability of 5,256 I/O requests per second.

Features

- Maximum capacity of 61.3 Gbytes (formatted) in a single 1.5-meter-high (60-in.-high) cabinet (5 ft^2 of floor space)
- Maximum 5,256 requests per second (with RF35s) at 100-ms response time
- SABB add-on starter configurations in 1.7-Gbyte increments, with 852-Mbyte easy upgrades
- Supports warm-swap of disk ISEs/TF857s
- Fully DSA compliant
- Upgrade with SF72 or SF73

Ordering Information

Note: All SF220 Storage Array Subsystems use DSSI for MicroVAX 3xxx, VAX 4000 and VAX 6000 series VMS systems. Documentation is included with all models.

SF220-BA/BD	5.1 Gbytes—six RF35 disks in half-rack, single-host model, 208-V 60-Hz/416-V 50-Hz three-phase
SF220-CA/CD	10.2 Gbytes—12 RF35 disks in half-rack, end-node model, 208-V 60-Hz/416-V 50-Hz three-phase
SF220-FA/FD	20.4 Gbytes—24 RF35 disks in half-rack, end-node model, 208-V 60-Hz/416-V 50-Hz three-phase
SF220-HA/HD	30.7 Gbytes—36 RF35 disks in half-rack, end-node model, 208-V 60-Hz/416-V 50-Hz three-phase
SF220-JA/JD	61.3 Gbytes—72 RF35 disks in half-rack, end-node model, 208-V 60-Hz/416-V 50-Hz three-phase

Configuration Notes

1. Maximum two TF857 magazine tape subsystems can be configured into SF220 storage array. Both can be on the same DSSI bus.
2. Single-system versions are easily re-cabled to support DSSI VAXcluster configurations. This version can be used in the end position in a DSSI VAXcluster configuration if it is connected to a KFMSA-BA (with a CK-KFMSA-LN) or VAX 4000 Model 300 or 500 (DSSI bus 1).
3. Increase SF220 in one RF35 increment by using SF35-UK expansion kits for SF35BK/HF half-rack storage arrays. The SF35BK/HK and SF35BK/JK and TF857-Ax half-racks come with SF220 internal cabling for connecting with other half-racks.
4. For the number of options required for striping SF220 configuration for VAX 9000 see the table under configuration notes for the SF200/SF210 DECarray storage subsystems. The table is also true for SF220 subsystems.
5. The SF200 supports up to 72 RF35 disks. Refer to the following tables for guidelines on configuring single, dual-host, and tri-host systems with SF35 storage array.

To determine the number of adapters and cable kits required for VAX 6000/VAX 4000 configurations in a SF220 DECarray, see the following tables.

SF220 with SF35s—Single-System Configurations

Number of RF35s	VAX 6000 Number of KFMSAs	VAX 4000 Number of DSSI Adapters[1]	DECarray Cable Kits
6	1	1	1
12	1	2	2
18	2	3	3
24	2	4	4
30	3	1[2]	5
36	3	2[2]	6
42	4	3[2]	7
48	4	4[2]	8
54	5	1[2]	9
60	5	2[2]	10
66	6	3[2]	11
72	6	4[2]	12

[1] The VAX 4000-300/500 CPU includes two embedded DSSI adapters and the VAX 4000-200 CPU includes one embedded DSSI adapter. All VAX 4000 systems can be expanded to include two KFQSAs.

[2] An additional VAX 4000 is required.

Notes: 12 RF35s can be configured into each SF35.

One or two TF857 magazine tape drives may be added to any of the single-system configurations. For performance reasons, it is recommended that an SF35 not be placed on the same bus as a TF857.

For each KFMSA, order one system cable kit (CK-KFMSA-Lx for the VAX 6000/VAX 9000).

DECarray cable kit order numbers are CK-SF200-Lx.

SF220 with SF35s—Two-System Configurations

Number of RF35s	VAX 6000 Number of KFMSAs	+	VAX 6000 Number of KFMSAs	VAX 6000 Number of KFMSAs	+	VAX 4000 Number of DSSI Adapters[1]	DECarray[3] Cable Kits	VAX 4000 Number of DSSI Adapters[1]	+	VAX 4000 Number of DSSI Adapters[1]	DECarray Cable Kits
6	1		1	1		1	1	1		1	2
12	1		1	1		2	2	2		2	4
18	2		2	2		3	3	3		3	6
24	2		2	2		4	4	4		4	8
30	3		3	3		1[2]	5	1[2]		1[2]	10
36	3		3	3		2[2]	6	2[2]		2[2]	12
42	4		4	4		3[2]	7	3[2]		3[2]	14
48	4		4	4		4[2]	8	4[2]		4[2]	16
54	5		5	5		1[2]	9				
60	6		6	6		2[2]	10				
66	6		6	6		3[2]	11				
72	6		6	6		4[2]	12				

[1] The VAX 4000-300/500 CPU includes two embedded DSSI adapters and the VAX 4000-200 CPU includes one embedded DSSI adapter. All VAX 4000 systems can be expanded to include two KFQSAs.

[2] An additional VAX 4000 is required.

[3] These cable kits are required between DECarray and VAX 6000 systems, not between systems.

Notes: DECarray cable kit order numbers are CK-SF200-Lx

For each KFMSA, order one system cable kit (CK-KFMSA-Lx for the VAX 6000/VAX 9000).

One or two TF857 magazine tape drives may be added to any of the two-system configurations. For performance reasons it is recommended that an SF35 not be placed on the same bus as a TF857.

The SF220 DECarray must occupy an "end-node" position if configured with six SF35s (72 RF35s). If the SF220 sits in a "middle-node" position, the maximum number of SF35s is only four (48 RF35s).

SF220 with SF35s—Three-System Configurations

Number of RF35s	VAX 6000 to VAX 6000 to VAX 6000			VAX 6000 to VAX 6000 to VAX 4000			DECarray Cable Kits[3]	VAX 6000 to VAX 4000 to VAX 4000[4]			VAX 4000 to VAX 4000 to VAX 4000[4]			DECarray Cable Kits
	Number of KFMSAs	+ Number of KFMSAs	+ Number of KFMSAs	Number of KFMSAs	+ Number of KFMSAs	+ Number of DSSI Adapters[1]		Number of KFMSAs	+ Number of DSSI Adapters[1]	+ Number of DSSI Adapters[1]	Number of DSSI Adapters[1]	+ Number of DSSI Adapters[1]	+ Number of DSSI Adapters[1]	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	2
10	1	1	1	1	1	2	2	1	2	2	2	2	2	4
15	2	2	2	2	2	3	3	2	3	3	3	3	3	6
20	2	2	2	2	2	4	4	2	4	4	4	4	4	8
25	3	3	3	3	3	1[2]	5	3	1[2]	1[2]				10
30	3	3	3	3	3	2[2]	6	3	2[2]	2[2]				12
35	4	4	4	4	4	3[2]	7	4	3[2]	3[2]				14
40	4	4	4	4	4	4[2]	8	4	4[2]	4[2]				16
45	5	5	5	5	5	1[2]	9							
50	5	5	5	5	5	2[2]	10							
55	6	6	6	6	6	3[2]	11							
60	6	6	6	6	6	4[2]	12							

[1] The VAX 4000-300/500 CPU includes two embedded DSSI adapters and the VAX 4000-200 CPU includes one embedded DSSI adapter. All VAX 4000 systems can be expanded to include two KFQSAs.

[2] An additional VAX 4000 is required.

[3] These cable kits are required between DECarray and VAX 6000 systems, not between systems.

[4] This configuration assumes the SF220 will be connected between two VAX 4000 systems.

Notes: 12 RF35s can be configured into each SF35.

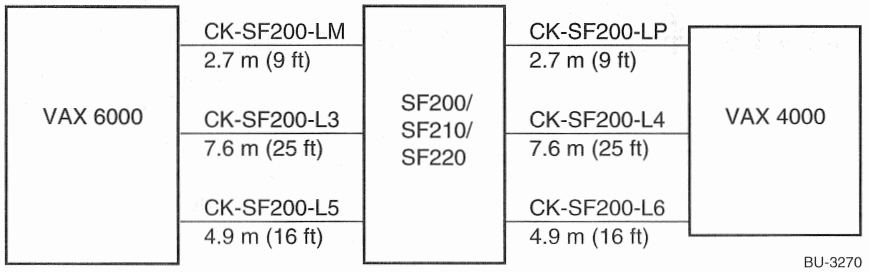
DECarray cable kit order numbers are CK-SF200-Lx

For each KFMSA, order one system cable kit (CK-KFMSA-Lx for the VAX 6000/VAX 9000).

One or two TF857 magazine tape drives may be added to any of the three-system configurations. For performance reasons it is recommended that an SF35 not be placed on the same bus as a TF857.

The SF220 DECarray must occupy an "end-node" position if configured with six SF35s (72 RF35s). If the SF220 sits in a "middle-node" position, the maximum number of SF35s is only four (40 RF35s).

Cable Kits



All CK-SF200-Lx cable kits include 1.7-meter (70-inch) SF200/SF210/SF220 internal DSSI cable for connecting SF200/SF210/SF220 I/O bulkhead to SF72/SF73 or TF857 building blocks.

CK-SF200-LM/L3/L5 can also be used to connect the SF200/SF210/SF220 to the VAX 9000.

Note: Use CK-SF100-LM/L3/L5 to connect the VAX 6000 to the VAX 6000.

CK-SF200-LP/L4/L6 can also be used to connect the SF200/SF210/SF220 to the MicroVAX II and MicroVAX 3xxx (except MicroVAX 3100).

Note: Use CK-SF100-LP to connect the VAX 6000 to the VAX 4000 or to the R400X expander box.

Specifications

Physical Characteristics		
Height	153.7 cm (60.5 in.)	153.7 cm (60.5 in.)
Width	61.0 cm (24.0 in.)	61.0 cm (24.0 in.)
Depth	76.2 cm (30.0 in.)	76.2 cm (30.0 in.)
Weight	Minimum configuration	226 kg (500 lbs)
	Maximum configuration	454 kg (1000 lbs)
Software Support		
Full support of SF35/SF220 requires VMS V5.5.		
Power Requirements		
NEMA receptacle type	L21-30R	
	IEC receptacle type	309516
	PCS+/PDS+ cable type	BC24W (120/208)
	Number of phases	3

Model	Voltage Nominal V1	Frequency Nominal Hz	Current in Amps Steady State					Thermal Dissipation	
			Start3	L1	L2	L3	N4	Watts	Btu/kJ/h
SF200-JA	110/120	60	15.5	6.25	3.28	5.27	8.75	1133	3875 Btu/h
SF200-JD	240/416	50	9.3	4.3	2.3	3.65	6.0	1106	3783 kJ/h
SF200-TE	110/120	60	1.6	1.3	N/A	N/A	1.3	92	315 Btu/h
SF200-TF	240/416	50	1.6	1.0	N/A	N/A	1.0	127	434 kJ/h
SF210-JA	110/120	60	15.5	6.25	3.28	5.27	8.75	1133	3875 Btu/h
SF210-JD	240/416	50	9.3	4.3	2.3	3.65	6.0	1106	3783 kJ/h
SF210-TE	110/120	60	1.6	1.3	N/A	N/A	1.3	92	315 Btu/h
SF210-TF	240/416	50	1.6	1.0	N/A	N/A	1.0	127	434 kJ/h

Notes:
Only minimum and maximum values are presented in above table. This data is typical and calculated for the product at the time of release; it is subject to change without notice.

- Currents are for nominal voltages of 120 Vac phase-to-neutral corresponding to 208 Vac phase-to-phase, or for 240 Vac phase-to-neutral corresponding to 416 Vac phase-to-phase.
- Startup currents are calculated for worst-case power phase.
- Line and neutral currents are broken down by number, i.e., L1, L2, L3, and N. Neutral currents in these products are typically higher than phase currents. It is recommended that neutral site wiring be oversized by 1.7 times that of any one phase.

SF35 Storage Building Block (DSSI)

Product Description

The SF35 storage array is a half-rack building block (SABB) that can house from 2 to 12 of Digital's highest performing DSSI Integrated Storage Element (ISE), the 3.5-inch 852-Mbyte RF35. Each RF35 ISE includes an intelligent controller and Mass Storage Control Protocol (MSCP) server, enabling the SF35 to achieve industry-leading performance that scales linearly as devices are added. Compatible with previous generations of SABBs, the SF35 contains independent power and cooling elements.

Custom configurations of SF35s can be ordered directly for the new SF220 DECarray. Added performance is gained by installing SF35s into the SF200 and SF210 arrays. Individual RF35s are upgradeable into the SF35 as well. An SF220 cabinet, fully populated with SF35s, provides a maximum capacity of 61.2 Gbytes and a peak throughput capability of 5,256 I/O requests per second. The VAX 6000 CPU cabinet can accommodate up to two SF35s; the MicroVAX 3xxx (except 3100), MicroVAX II, and VAX 4000 systems also support the SF35/SF220 DECarray subsystems.

The RF35 is the first 3.5-inch, 5400-rev/min drive available for DSSI, and its unparalleled throughput brings high performance to the mid-range and low-end space.

Features

- Available in multiple DECarray cabinets: SF200, SF210, or SF220 performance storage subsystems
- Single drive upgrades available
- Highest I/O throughput (73 I/O requests per second)
- Warm swap
- Compact packaging with 3.5-inch form factor

Ordering Information

Note: The SF35 is available as an add-on for the SF200, SF210, and SF220.

SF35-BA	1.7 Gbytes—SABB for embedding in VAX 6000 systems, includes half-rack enclosure, integrated disk controllers, two RF35 852-Mbyte disks, internal cabinet cable, mounting hardware, and user documentation
SF35-BK	1.7 Gbytes—Same as above except for SF220, SF210, SF200
SF35-HA	5.1 Gbytes—SABB for embedding in VAX 6000 systems, includes half-rack enclosure, integrated disk controllers, six RF35 852-Mbyte disks, internal cabinet cable, mounting hardware and user documentation
SF35-HK	Same as above except for SF220, SF210, SF200
SF35-JA	10.2 Gbytes—SABB for embedding in VAX 6000 systems, includes half-rack enclosure, integrated disk controllers, 12 RF35 852-Mbyte disks, internal cabinet cable, mounting hardware and user documentation
SF35-JK	Same as above except for SF220, SF210, SF200
SF35-UK	852 Mbytes—Upgrade capacity expansion kit for SF35-Bx/Hx SABB, includes one RF35 852-Mbyte disk disk, mounting hardware, and user documentation

SF35 Storage Building Block (DSSI)

Specifications

	2 Drives	12 Drives
Unformatted	2.2 Gbytes	13.2 Gbytes
Formatted	1.7 Gbytes	10.2 Gbytes
Interface	DSSI	DSSI
Disk transfer rate (peak)	6.6 Mbytes second	39.6 Mbytes second
Throughput (I/O per second)	146 I/O per second	876 I/O per second
Physical Characteristics		
Height	26.7 cm (10.5 in.)	
Width	22.2 cm (8.75 in.)	
Depth	71.1 cm (28 in.)	
Weight (Cabinet only)	SF35-BK: 26 kg (58 lbs) SF35-HK: 33 kg (73 lbs) SF35-JK: 40 kg (88 lbs)	
Software Support		
Requires VMS V5.5.		

Note: Although there is complete compatibility among the cabinets for the RF drives, RF35 drives cannot be added into an SF73; RF7x drives cannot be added into an SF35. Partially filled SF35 (BK/HK) options may be upgraded with individual RF35 disks with the SF35-UK option. The configuration and cabling considerations that impact the SF35 in the SF2xx cabinets, and in two-system/three-system DSSI VAXclusters are illustrated in the configuration section of the SF220 section.

Rewritable and WORM Optical Storage Subsystems

Product Description

Rewritable and WORM optical storage subsystems are based on a finite set of third-party optical hardware components (drives and jukeboxes) that are integrated into Digital's systems by third-party integration (software) kits. A total subsystem consists of the hardware component plus the integration kit (software) component.

REWRITABLE MO (Magneto Optical—the most common rewritable or erasable optical technology) optical recording is the optical technology that is functionally equivalent to magnetic disk recording in that randomly accessible sectors can be written, read, and overwritten. Erasable optical media is useful in applications where eventual media reuse is required. The shelf life of rewritable optical media is a minimum of 10 years.

WORM (Write Once Read Many) optical technology enables the user to encode any data permanently onto the surface of the WORM optical disk (media). With WORM technology, the data is safe from being overwritten. WORM data can be written only once, overwrites of the data are not possible. Additional data writes are automatically encoded onto the remaining space on the disk. WORM optical subsystems are of particular interest in security, legal, financial and medical applications where the integrity of the data important. The shelf life of WORM optical disks is a minimum of 25 years.

The REWRITABLE offerings are available in 5.25-inch form factor and the WORM offerings are available in both 5.25-inch and 12-inch form factors. REWRITABLE storage capacity ranging from 594 Mbytes (desktop) to 33.2 Gbytes (5.25-inch jukebox), and WORM storage capacity ranging from 654 Mbytes (desktop) to 328 Gbytes (12-inch jukebox)

Features

- Near-line data access
- Total storage solution
- End-user integration
- Data security
- Cost effective data storage
- VMS and RISC/ULTRIX integration
- High capacity data storage
- Removability

Note: For more information on Rewritable and WORM optical storage subsystems, contact the EIC Sales Support Center at 800-832-6277 or 603-884-8990.

VT420 with PCTerm

Product Description

VT420 with PCTerm is a multi-personality video text terminal adapted to the needs of users in the UNIX and multi-user DOS markets. It is particularly suited to timesharing on INTEL 386/486-based computers using operating systems supplied by the Santa Cruz Operation (SCO) or multi-user DOS companies. This model will be of interest to other UNIX users or to users who prefer a PC-style keyboard.

VT420 with PCTerm includes the industry-standard enhanced 101/102 key PC-style keyboard and PCTerm capabilities. These include: the standard PC character set, 25-line presentation, and XPC XON/XOFF communications protocol. These additional capabilities adapt to operating systems such as SCO/UNIX, UNIX and multi-user DOS.

VT420 with PCTerm provides the user with dual sessions in PC (50 lines) and VT (48 lines) modes, copy and paste, rectangular area operations, and downline loadable macros. SSU (Session Support Utility) is supported in VT mode.

As a multi-personality terminal, the user can operate the terminal with two sessions in either mode:

- PCTerm Mode: This mode is adapted to the standards and expectations of UNIX and multiuser DOS operating system users. With the enhanced PC-style keyboard and screen presentation, the VT420 with PCTerm terminal is the appropriate interface device.
- VT/PC mode: In this mode, VT420 with PCTerm can function as a standard VT420 terminal with a PC keyboard.

VT420 with PCTerm

Features

- Displays 800- × 414-pixel resolution at a flicker-free 70-Hz refresh rate with full overscan
- Provides superior presentation clarity
- 3-year return-to-factory warranty
- Provides advanced functionality of the standard VT420 in both the 80- and 132-column settings
- Multi-personality terminal emulation: PCTerm mode and VT/PC mode
- Includes PC character set and PC keyboard scan codes
- Term Cap/Term information files are available for most popular UNIX operating systems
- Complies with Swedish MPR II low emissions (LE) requirements

Ordering Information

VT420 PCTerm terminal includes paper white screen and international power supply. MPR II low emissions compliance is standard in all models.

VT42A-SA	U.S./English
VT42A-SB	Belgium/Flemish
VT42A-SD	Denmark/Danish
VT42A-SE	U.K., Ireland/English
VT42A-SF	Finland, Sweden/Finnish, Swedish
VT42A-SG	Germany, Austria/German
VT42A-SH	Holland/Dutch
VT42A-SI	Italy/Italian
VT42A-SK	Switzerland/French, German
VT42A-SN	Norway/Norwegian
VT42A-SP	France/French
VT42A-SS	Spain/Spanish
VT42A-SV	Portugal/Portuguese
VT42A-AZ	Australia, New Zealand/English

VT420 with PCTerm Specifications

Physical Characteristics		Weight	Height	Width	Depth
	Monitor Box	8.5 kg (18.7 lb)	31.2 cm (12.3 in.)	31.5 cm (12.4 in.)	33.0 cm (13 in.)
	Keyboard	1.4 kg (3 lb)	4.5 cm (1.75 in.)	4.78 (18.8 in.)	19.1 cm (7 in.)

Environment		Operating	Storage
	Temperature	10° to 40° C (50° to 104° F)	–40° to 66° C (–40° to 151° F)
	Relative humidity	10% to 90%	50% to 95%
	Maximum wet bulb	28° C (82° F)	46° C (115° F)
	Minimum dew point	2° C (36° F)	N/A
	Maximum altitude	24,000 meters (8000 ft)	49,000 meters (16,000 ft)

Electrical		
	Voltage	88 to 264 V – single phase, three wire
	Frequency range	47 to 63 Hz
	Power cord	Detached 3-conductor grounded, 5-15 plug

Specifications by Mode of Operation

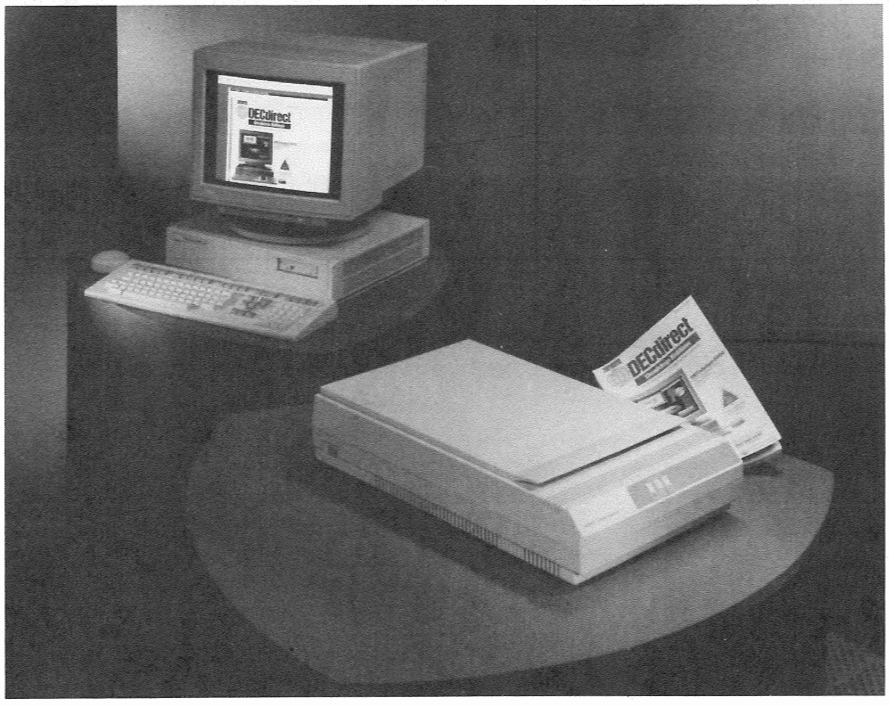
	Single Session		Dual Session		Combined Dual Session
Screen Characteristics	**VT/PC**	**PCTerm**	**VT/PC**	**PCTerm**	**VT/PC: PCTerm**
Display:					
Data lines per session	24/25/36/48/50	25	24/25/36/48/50	25	24/25/36/48/50:25
Session status line	Yes	No	Yes	No	Yes:No
Terminal indicator line	Yes	Yes	Yes	Yes	Yes:Yes
Page(s):					
Number of columns	80/132	80	80/132	80	80/132:80
Rows					
Pages per session	6	1	3	1	3:1
Advanced programming functions:					
Text windows (rectangular area op.)	Yes	Yes	Yes	Yes	Yes:Yes
Horizontal/vertical scrolling	Yes	Yes	Yes	Yes	Yes:Yes
Local macros	Yes	Yes	Yes	Yes	Yes:Yes
Redefinable characters sets (RDCS)	2	2	2:2	2:2	2:2
Programmable function keys:					
Number keys per session (UDKs)	48	N/A	48	N/A	48:N/A
Memory per session	1.5K	N/A	768 bytes	N/A	768:N/A
Dual sessions:					
Single wire	N/A	N/A	Yes	No	No:No
Dual wire	N/A	N/A	Yes	Yes	Yes:Yes
Split screen viewing:					
Lines per session	N/A	N/A	24–50	25:25	25:25
Dynamic viewing adjustment	N/A	N/A	Yes	No	Yes:No
Local copy/paste:					
Within session	Yes	No	Yes	No	Yes:No
Between sessions	N/A	N/A	Yes	No	No:No

VT420 with PCTerm Specifications

Screen Characteristics

Screen attributes:	
Cursor selection	On/off, block/underline, blink/steady
Attributes	Normal, reverse, underline, bold, blink, double width, double height, double height/width
Scrolling	
Types	Vertical and horizontal on full display or within defined rectangular region
Rates	Jump, scroll 2 (9 lines per second), scroll 4 (18 lines per second)
Keyboards LK443/LK444 (U.S./International)	101- or 102-key, tactile quality, full matte finish, sculptured key caps, volume selection for keyclick, margin bell, and warning bell
Local memory:	Single Session Mode:
Page configuration	6 pages of 24 lines; 5 pages of 25 lines; 4 pages of 36 lines; 3 pages of 48 lines; 2 pages of 72 lines; 1 page of 144 lines
Macro buffer	6,000 bytes
	Dual Session Mode (per session):
Page configuration	3 pages of 24 lines; 2 pages of 25 lines; 2 pages of 36 lines; 1 page of 48 lines; 1 page of 72 lines
Macro buffer	6,000 bytes
Addressable by	Page(s), rectangle(s), line(s), character(s)
Rectangular operations	Copy, fill, erase, change attributes, insert/delete columns
Character sets	ASCII, DEC supplemental, DEC Special Graphics, ISO Latin-1, DEC technical, 7-bit NRCS, PC International
Communications	Full-duplex asynchronous with selectable local echo and full modem control. 7-bit or 8-bit character
Speeds	300 to 38.4K Baud
Interface	One DEC-423 (MMJ), one EIA-232 25-pin, and one printer port (MMJ).
Printer port	Full bidirectional communications; assignable to either session or shared between sessions; supports Digital desktop printers. May alternately be configured in set up as second DEC-423 port for 2-wire dual session.
Power cord/power supply	Detached, auto range 120–240 V.
Standards	FCC class B, GS certification, UL, CSA, IEC, VDE-B. Low Emissions (LE)—Swedish Radioprotection Institute (SRI) conformance on low frequency magnetic fields and low electrostatic fields.

MD30C Color Scanner



Product Description

The MD30C is an affordable, desktop 300-dpi scanner that works with workstations and personal computers running software that transfers scanned data into computer files. The MD30C color scanner and associated software allow scanned-in data to be displayed on the computer screen, then modified, stored, or printed.

In color mode, the MD30C scanner scans full-color images to enhance office documents or create effective illustrations. It also provides accurate representations of black-and-white (bitonal or grayscale) hardcopy information, including photographs. The scanner offers 16.4 million shades of each color or up to 256 shades of gray.

The MD30C scanner works with DECimage Scan Software on workstations in VMS and RISC ULTRIX environments and with Image-In Color scanning software on PCs to easily transfer scanned data into usable computer files. The scanning software then allows scanned images to be previewed, cropped, rotated, washed, inverted, or magnified.

On VAX VMS and RISC ULTRIX platforms, DECimage character recognition software allows scanned-in hardcopy text to be converted to ASCII, PostScript, or Digital Document Interchange Format (DDIF) files. Scanned-in data can also be integrated into new or existing documents, or mailed electronically over the network. The MD30C scanner can also be used with CDA-compliant publishing software, such as DECpresent and DECwrite.

Features

- Captures text, line art, and photographs in original hardcopy form and transfers them into the computer system
- Offers color, grayscale and bitonal scanning to give accurate representation of all hardcopy images
- Provides affordable alternative to rekeying text or recreating artwork on the system
- Scans at 300 dpi in 10 seconds in bitonal mode, 37 seconds in grayscale mode, and 130 seconds in color mode
- Requires no special operator training

Prerequisite Hardware and Software

Workstations

Hardware

- VAXstation 3100
- VAXstation 4000
- DECstation 3100
- DECstation 5000
- 6 Mbytes of memory
- RZ24 209-Mbyte disk drive
- VT Series color monitor

Software

- VMS Version 5.4-2 or later
- DECwindows Motif Version 1.0
- DECnet VAX V5.3-V5.5 Open (Phase IV End Node) for remote
- Scanning and mail
- DECimage Scan Software for
- VMS V3.0

Personal Computers

Hardware

- DECstation 320, 325, 333, 425
- DECpc 433
- IBM PC compatibles
- 2 Mbytes of memory (four recommended for editing color images)
- 70 Mbytes of disk storage
- VGA, 8514, XGA or any Windows-compatible display with resolution of at least 640 × 480; 256-color or true-color; 24-bit display recommended

Software

- MS-DOS V3.3 or later; Microsoft Windows V3.0

MD30C Color Scanner

Ordering Information

The MD30C color scanner is offered in four configurations: hardware-only, with VMS license, with RISC ULTRIX license, and with Image-In Color license.

Note: -Ax = hardware only; -Bx = with VMS license; -Cx = with Image-In Color license; -Dx = with RISC ULTRIX license.

MD30C-AA	MD30C scanner for U.S./Canada; hardware only
MD30C-BA	MD30C scanner for U.S./Canada; with VMS license
MD30C-CA	MD30C scanner for U.S./Canada; with Image-In Color license
MD30C-DA	MD30C scanner for U.S./Canada; with RISC ULTRIX license

Note: For international models, replace A with: D = Denmark; E = U.K./Ireland; I = Italy; J = Japan; K = Switzerland; T = Israel; Z = Australia/New Zealand; X = Austria, Belgium, Finland, France, Germany, Holland, Norway, Portugal, Spain, Sweden

Accessories

MD3XC-HA	Fluorescent bulb, 8 watts
BC56H-06	SCSI cable for workstations
BC19J-06	SCSI cable for PCs
PC4XR-CC	16-bit SCSI adapter for PCs
12-30552-01	SCSI terminator

Specifications

Physical Characteristics

Height	120 mm (4.7 in.)
Width	353 mm (13.9 in.
Depth	545 mm (21.5 in.)
Weight	11 kg (24 lbs.)

Performance Characteristics

Resolution	Up to 300 dpi
Scanning Speed	Bitonal (10 seconds) Grayscale (37 seconds) Color (130 seconds)
Document Size	Up to 8.5 × 14 in. (216 mm × 356 mm)
Operation Mode	Bitonal 8-bit grayscale 24-bit color
Interface	SCSI-2

Operating Environment

Noise Level	< 55 dBA
Operating Temperature	10° to 40° C (50° to 104° F)
Relative Humidity	35% to 80%
Power Consumption (Watts)	40
Regulatory Compliance	UL, CSA, FCC, VDE, VCCI, ZZF

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Systems and Options Catalog
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1992 April–June

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