NEIC

NORTHEAST HAZARDOUS WASTE PROJECT
A PROPOSAL FOR A
SHARED INFORMATION SYSTEM

National Enforcement Investigations Center, Denver

U.S. Environmental Protection Agency

Office of Enforcement

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February 1, 1989

NORTHEAST HAZARDOUS WASTE PROJECT
INFORMATION SHARING NETWORK

The Northeast Hazardous Waste Project has a responsibility to provide a mechanism for the acquisition, tracking and dissemination of information among its member agencies. In order to facilitate the fulfillment of this responsibility, it has been recommended that the automated support to this process be upgraded to meet the current and future needs of the Project.

In identifying the appropriate upgrade path the following current and future needs were considered:

the ability to send and receive electronic messages between and among the member agencies;

the ability to send and receive electronic documents between and among the member agencies;

the ability to perform multiple criteria inquiries of a shared base of information through a controlled and secure environment;

the ability to enter information into the shared information base through a controlled and secure environment;

the ability to manage the textual format of the shared information base in logical segments based upon member agency requirements;

and the ability to share information with other regional hazardous waste enforcement and regulatory groups.

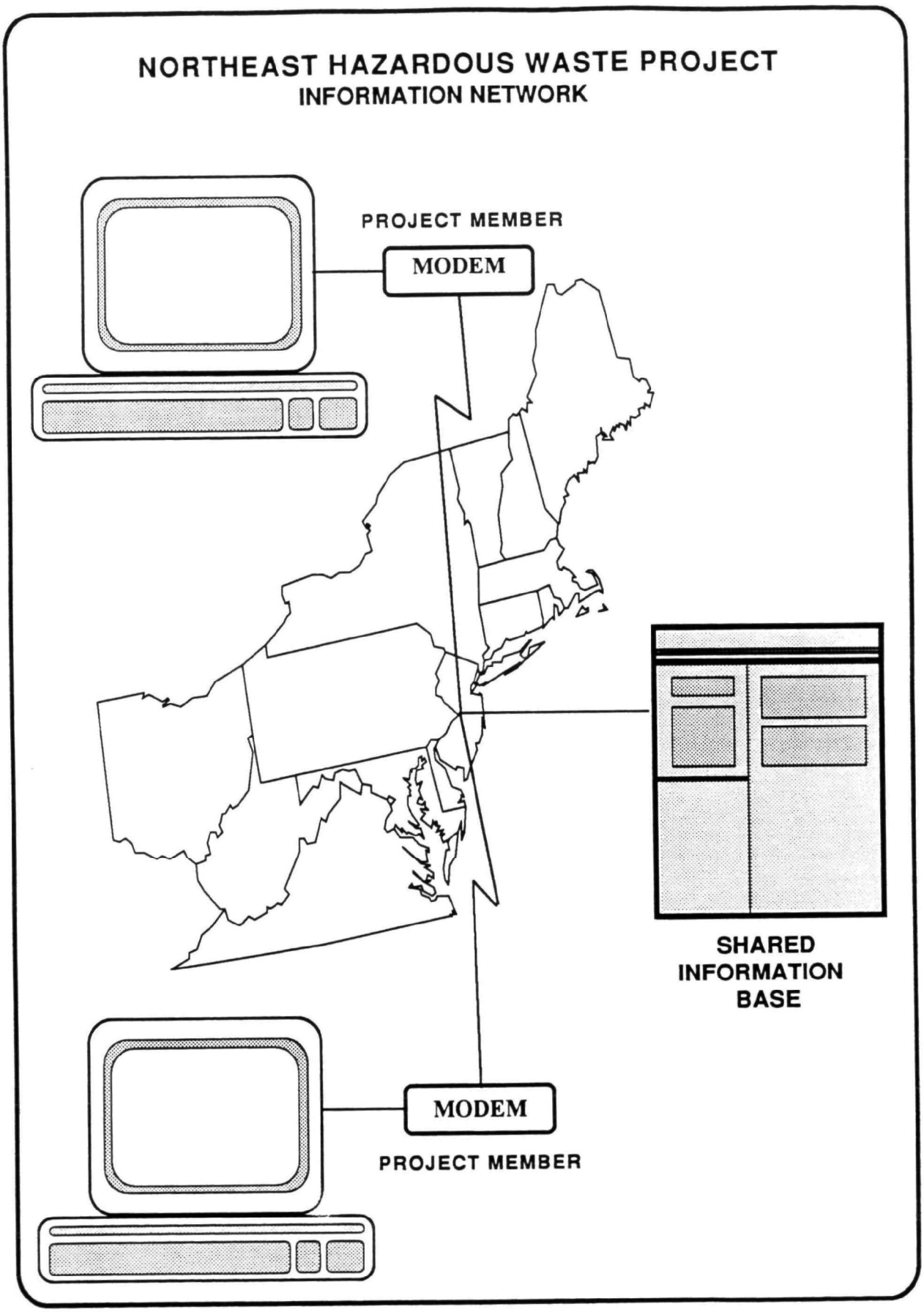
Based upon these requirements, the NEHW Project staff has had the following graphical representations prepared for review by the Project member agencies. In addition, a detailed hardware and software proposal has been prepared by a prospective vendor at the request of the Project staff for consideration by the Project members.

NORTHEAST HAZARDOUS WASTE PROJECT

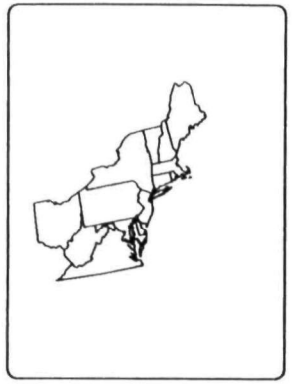
INFORMATION NETWORK LOCATIONS

NORTHEAST HAZARDOUS WASTE PROJECT

INFORMATION NETWORK


NORTHEAST HAZARDOUS WASTE PROJECT
INFORMATION NETWORK
PROJECT MEMBER
MODEM
SHARED
INFORMATION
BASE
MODEM
PROJECT MEMBER

SYSTEM ADMINISTRATOR'S MAIN MENU

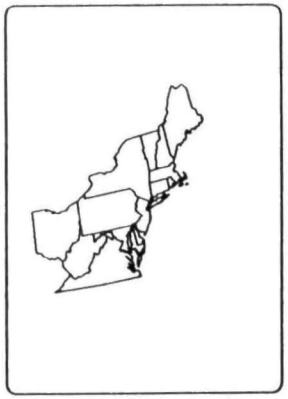


NORTHEAST HAZARDOUS WASTE PROJECT
INFORMATION SHARING SYSTEM

WP	**Word and Document Processing**
EM	**Electronic Messaging**
VTX	**Infobase**
INQ	**Inquiry Request Form**
TR	**Training**
M	**More Menu Options**
EX	**Exit Workstation**

Enter selection and press RETURN

PROJECT MEMBER'S MAIN MENU



NORTHEAST HAZARDOUS WASTE PROJECT
INFORMATION SHARING SYSTEM

WP	Word and Document Processing
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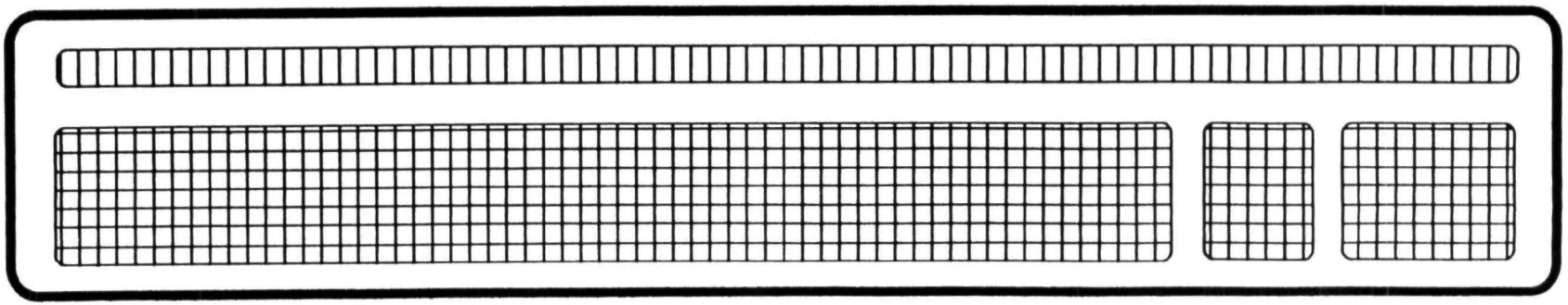


MicroVAX 2000

The Lowest-cost Multiuser VAX Computer Ever Offered

Powerful 32-bit VAX Computing at an Office System Price

VAX family compatibility, combined with networked communications, has changed organizational computing forever. Digital puts computer resources close to the people that need them. MicroVAX 2000 puts these resources right in your office. It provides an ideal small VAX for starting or optimizing an investment in distributed computing

If you already own MS-DOS™ desktop PCs, MicroVAX 2000 can integrate all of them into one networked environment Turn individual computer users into a closely linked, productive team. If you already own a VAX computer system, MicroVAX 2000 will run your existing applications without change Or if you're considering a first computer purchase, think about the kind of return you want on your investment MicroVAX 2000 delivers much more than high performance for an entry-level price. It also delivers Digital's commitment to VAX compatibility. And Digital's unsurpassed networking technology for communicating information from system to system around the company, around the world

As a stand-alone system MicroVAX 2000 can support a work group or small department But MicroVAX 2000 doesn't have to stay small. Expansion options and networking provide unrivaled growth potential. One MicroVAX 2000 in a Local Area VAXcluster or local area network can provide access to users anywhere on the cluster or network Other computers in this price range just can't compare

Highlights

- Our lowest-cost, expandable 32-bit VAX in a quiet, compact, tabletop package
- MicroVAX 2000 runs thousands of compatible VMS and ULTRIX-32 applications including Digital's renowned software tools and languages
- Provides numerous configuration and expansion options — up to 6 Mbytes of memory and up to 318 Mbytes of storage. Or configure it without a disk drive for use as an inexpensive Local Area VAXcluster satellite.
- Operates either as a stand-alone system, or as part of a local or wide area communications network — providing access to many more users.
- Can also manage a local PC network, linking microcomputers from a variety of vendors into one computing environment with a common file system and sharing of expensive peripherals.
- Includes a one-year, onsite, full-system warranty

A VAX at Your Fingertips

MicroVAX II took VAX power out of the computer room and put it in the office. Now using the same powerful CPU and floating-point chipset, MicroVAX 2000 delivers 32-bit performance at half the price of MicroVAX II The MicroVAX 2000 tightly integrated

system design closes the gap between quality and economy A busless I/O structure designed for maximum economy, helps MicroVAX 2000 achieve its remarkable price/performance advantage.

MicroVAX 2000 Uses Standard VAX Operating Systems and Applications

MicroVAX 2000 runs either the VMS or ULTRIX-32 operating systems VMS is Digital's acclaimed operating system for multiuser, timesharing applications ULTRIX makes the most of VAX features in a UNIX(R) environment. ULTRIX is based on the Berkeley Standard Distribution (4BSD) of UNIX. Version 4.2.

VAX family compatibility keeps your software costs down MicroVAX 2000 runs thousands of the VAX and MicroVAX II applications already developed by Digital and third parties for VMS or ULTRIX, including the A-to-Z and ALL-IN-1 applications environments. It's also easy to share applications and data among systems on the same or connected networks. As a result of Digital's commitment to compatibility, you can start running applications on your new MicroVAX 2000 right away

MicroVAX 2000 Grows along with Your Business

The basic MicroVAX 2000 system provides 4 or 6 Mbytes of memory, four serial ports and two half-height storage devices— one hard disk drive and one floppy drive— in a system box not much larger than a metropolitan phone directory But that's only the beginning For more demanding applications, add up to two expansion boxes. Each is the same size as the basic system. But each accommodates one full-height disk drive or a 95-Mbyte TK50Z cartridge tape.

Bring People and Ideas Together through Networking

MicroVAX 2000 is a complete computer system in its own right, providing reliable support for a work group or small department. But the resources of a MicroVAX 2000 can be distributed more widely when you link it to other computers in a communications network Networking enables all users on all computers in the network to share information, data, and resources.

Digital has more experience in designing, building, and using networked computer systems than any other computer company in the world. Our wide area networks (WANs), local area networks (LANs), and the new Local Area VAXclusters have kept Digital at the forefront of networking technology.

Local Area VAXclusters Let You Set the Pace for Growth

Although MicroVAX 2000 fits into any networking strategy, its diskless configuration makes it especially economical in a Local Area VAXcluster A Local Area VAXcluster optimizes your computing resources by uniting up to 28 individual or work group systems into a single local computing environment. Unlike an ordinary LAN, the Local Area VAXcluster enables data and applications to be stored centrally on a "boot node" and

shared by all satellite computers on the network. To the user, the entire Local Area VAXcluster functions as a single computer system Data integration and consistency issues are eliminated because only one copy of the data exists. Local Area VAXclusters are easy to use, too The system management tasks that stand-alone computers call for are performed only on the boot node for the entire cluster.

By adding diskless MicroVAX 2000 to a Local Area VAXcluster, you extend the computing capability of the cluster— you get an additional VAX computer at the lowest possible cost.

Make PC Users Full Partners in the Computer Network with a PC LAN

MicroVAX 2000 can manage a PC LAN and provide full integration of MS-DOS and VMS environments Each environment has access to the other's data You can also run VMS applications on the PCs. Connect the PC LAN to a local area network or Local Area VAXcluster, and you can transfer PC data to any system on the network, including computers from many other vendors MicroVAX 2000 helps you achieve information integration across all systems in your organization, desktop to mainframe— at a lower cost than any other VAX

Digital's MicroVAX Systems: A Reputation Built on Success

Today, MicroVAX 2000 is one member of a value-priced MicroVAX systems group that includes MicroVAX II— Digital's pioneering VAX-on-a-chip— and MicroVAX 3500 and 3600, the highest-performing MicroVAX sustems ever The table shows the MicroVAX systems at a glance. Digital stands behind every MicroVAX system with a one-year, onsite warranty.

TABLE-TITLE: MicroVAX Systems at a Glance

Feature	MicroVAX 2000	MicroVAX II	MicroVAX 3500/3600
Memory (max)	6 MB	16 MB	32 MB
Bus	N/A	Industry-std Q-bus	Industry-standard Q-bus
Disk Storage (max)	318 MB	2 GB	560 MB / 2.5 GB
Disks Supported	RD32 (42 MB) RD53 (71 MB) RD54 (159 MB)	RD53 (71 MB) RD54 (159 MB) RA60 (205 MB) RA81 (456 MB)	RA60 (205 MB) RA70 (280 MB) RA81 (456 MB) RA82 (622 MB)
Backup Data	RX33 (1.2 MB) TK50 (95 MB)	TK50 (95 MB) TK70 (296 MB)	TK70 (296 MB) TU81-Plus*

Exchange Devices		TU81-Plus* TSV05**	TSV05**
Operating Software	VMS ULTRIX-32	VMS ULTRIX-32 VAXELN	VMS ULTRIX-32 VAXELN
ALL-IN-1 subscribers (estimated range)	8 - 16	14 - 48	32 - >100
Commun Devices	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP

*40 MB @ 1600 BPI or 145 MB @ 6250 BPI

**40 MB @ 1600 BPI

Specifications

MicroVAX 2000 System	
Internal data path	32 bits
Instruction buffer	8-byte lookahead
VAX Instruction Set	
32-bit registers	16
Basic operations	304 (some are implemented in software)
Priority levels	32
Addressing modes	9
Data types	Integer F. D. G. and H floating-point. variable bit fields. and numeric strings
Main Memory	
Virtual address capacity	4 Gbytes
Physical memory	6 Mbytes
Error checking	4-byte parity

Operating Environment	
Temperature	10oC to 40oC (50oF to 104oF)
Humidity	10% to 90% noncondensingwithout diskette 20% to 80% noncondensing with diskette
Altitude	To 2400 m (8000 ft)
Maximum heat dissipation	155 watts
Processor Power Requirements	
Input voltage	88 to 132 VRMS or 176 to 267 VRMS
Frequency tolerance	47 to 63 Hz
Phases	1
Maximum ac power consumption	Under 160 watts maximum input
Surge current	32 A maximum for one half ac cycle
Characteristics	
Height	18 cm (7 in)
Width	33 cm (12 75 in)
Depth	29 cm (11 25 in)
Weight	13 6 kg (30 lb)

For More Information

Learn more about the MicroVAX 2000 and Digital's MicroVAX computers by contacting your Digital representative.

DECstation Series

The DECstation 200/300 family of industry compatible personal computers provides state-of-the-art levels of performance. The family is based on the Intel 80286 (DECstation 200 systems) and the Intel 80386 (DECstation 300) microprocessors at clock rates up to 20 MHz The systems support a comprehensive set of user-installable options which include VGA color graphics. SCSI hard disks and Ethernet Interface Module. These systems are fully supported within Digital's PC integration strategy as an MS-DOS compatible client and DECwindows-based PC workstation.

The DECstation family of personal computers consists of three major products and a family of supporting options that respond to specific customer requests:

- The DECstation 210 Series provides 16-bit personal computers based on an Intel 80286 chip running at 10 MHz.
- The DECstation 316 Series provides 32-bit personal computers based on an Intel 80386 chip running at 16 MHz.
- The DECstation 320 Series provides 32-bit personal computers based on an Intel 80386 chip running at 20MHz.

Like any other industry compatible products. the DECstation 210. 316 and 32 systems use MS-DOS© V3.3. which includes the BASIC Language Interpreter Digital has enhanced the stanard MS-DOS V3.3 kit with a set of applications and changes that are normally provided by the DEPCA PC Network Integration Package for IBM compatibles. As a result. the DECstation MS-DOS V3.3/BASIC Kit uniquely supports Digital's systems and networks.

All DECstations option slots support both 8-bit XT type (small connector) and 16-bit AT (larger twin connector) type industry compatible options.

The DECstation 210. 316 and 320 systems come with a serial and a parallel port for connecting printers. communications devices and/or a mouse.

	DECstation 210	DECstation 316	DECstation 320
Microprocessor	Intel 80286	Intel 80386	Intel 80386
Data path	16-bit	32-bit	32-bit
Clock speed	10 MHz	16 MHz	20 MHz
Memory standard	640 KB	1 MB	2 MB
Memory maximum	16 MB	16 MB	16 MB
Standard graphics	VGA Compatible 640 x 480 - 16 color/shade 320 x 200 - 256 color/shade	VGA Compatible 640 x 480 - 16 color/shade 320 x 200 - 256 color/shade	VGA Compatible 640 x 480 - 16 color/shade 320 x 200 - 256 color/shade
Floppy drive	3.5" 1.44 MB	3.5" 1.44 MB	3.5" 1.44 MB

(standard)	floppy drive	floppy drive	floppy drive
Hard disk	Optional	Optional	Optional
Option slots	6 (2XT/4AT)	6 (1XT/5AT)	6 (1XT/5AT)
VGA Monitor	14" monochrome	14" monochrome	14" monochrome
Optional	14" color .31mm	14" color .31mm	14" color .31mm

MicroVAX II

VAX Architecture in a Supermicro Package

VAX Power Anywhere You Want It

If you've been looking for more computer power in less space, try MicroVAX II for size. It's bringing VAX performance out of the computer room and into the office, the laboratory, the work group, the warehouse, the store. Just about anywhere you've wanted concentrated processing power, you can now place a full-fledged VAX minicomputer. You can put the standard-bearer for today's 32-bit machines within reach of your desk at a cost-per-user equivalent to that of a PC.

Digital's advanced VLSI engineering and manufacturing technologies have put a VAX CPU on a microchip and packaged it in three compact ways. The BA23 and BA123 MicroVAX systems fit easily into the office— in fact, the small BA23 fits under your desk. The BA123 is larger— to accommodate as much as 477 Mbytes of storage. For even greater requirements, you can choose a MicroVAX II cabinet system. It provides up to 2 Gbytes of storage and fits in computer rooms and most laboratories.

A new MicroVAX II goes to work the day it arrives. Installation is simple, and the office packaging eliminates the need for special site requirements. If you already own a VAX computer, you can run the same applications on a new MicroVAX II immediately. If MicroVAX II is your first VAX, take your pick from thousands of time-tested applications already developed for the VAX family.

Use MicroVAX II as a complete stand-alone system or let it optimize your distributed computer resources. Digital's commitment to compatibility and networking supports your style of computing, from the individual desktop to the companywide, worldwide computer network.

Highlights

- High-performance, 32-bit architecture to match your computing needs. You get 90 percent of the performance of a VAX 11/780 at a cost-per-user rivaling much smaller machines.
- Three operating software choices— Digital's proven multiuser VMS, our ULTRIX-32 for UNIX® environments, and VAXELN for realtime, dedicated applications.
- Thousands of compatible VAX applications and Q-bus options developed by Digital and third parties are ready to run on MicroVAX II without change.
- Pick the MicroVAX II configuration that makes sense today. VAX compatibility assures you that MicroVAX II will serve future needs as well.
- Use MicroVAX II as a complete stand-alone system or add Digital networking products to link MicroVAX II with other Digital and non-Digital systems. Build a communications network that helps you get critical information to key people on time.
- Each MicroVAX II comes with a one-year, onsite warranty.

First of All, It's a VAX Computer

Today. VAX 32-bit architecture is setting the pace for the entire computer industry And MicroVAX II can deliver to your office the kind of VAX power that was once locked away in computer rooms.

The MicroVAX II CPU chip and floating-point unit are integrated on a single board. leaving plenty of room in the backplane for storage. memory. and communications modules. Tightly integrated memory bypasses the Q-bus datalink. leaving the bus available for faster I/O. One MicroVAX II can provide up to 16 Mbytes of physical memory. and the virtual memory provided by VAX architecture enables a MicroVAX II to support large applications with ease

VAX Software Compatibility Protects Your Investment

When you buy a new computer you shouldn't have to wait around for software that runs on it. MicroVAX II starts work immediately Like any other VAX. it runs VMS ULTRIX-32. or VAXELN operating software And the applications you've been using on one VAX computer will work identically on any other.

Pick the Right Operating Software for Your Environment

VMS is Digital's general purpose operating system for multiuser. timesharing and real-time VAX users. VMS can handle processor-intensive. I/O-intensive. and realtime tasks speedily. It offers an incomparable range of utilities. system services. software development tools. and languages to enhance program development

In a UNIX environment. pair MicroVAX II with Digital's ULTRIX-32. An enhanced UNIX for the VAX. it is based on the 4th Berkeley Standard Distribution (4BSD). Version 4 2. ULTRIX provides features that go beyond the basic UNIX product offered by AT&T.

When it comes to realtime computing. VAXELN is the right choice. Use the VAXELN Toolkit on a host VAX or MicroVAX II to develop stand-alone. dedicated realtime applications. Then run those applications on a dedicated target MicroVAX II. and make the most of its 32-bit address space and processing power

Expand Your Options with MicroVAX II Configuration Choices

Digital protects your investment in computer hardware by providing a variety of MicroVAX II systems and expansion options.

The small BA23 floorstand system slides under a desk. but it can be configured with 71 or 159 Mbytes of storage. With eight Q-bus backplane slots. the BA23 also accommodates a variety of peripherals and options. Two disk compartments hold a Winchester and either a floppy or a cartridge-tape drive

The BA123 adds extra storage space, providing up to 477 Mbytes of storage It can handle larger applications without needing a computer-room environment Twelve Q-bus slots and four mass storage compartments— handling up to three Winchester disks— make the BA123 a real workhorse.

The H9642 cabinet enclosure provides high performance and extra capacity for compute-intensive applications. The cabinet is suited for use in computer rooms and most laboratories It accommodates the larger RA-series disks and offers up to 1 Gbyte of storage with an additional Gbyte available in an expander cabinet. The H9642 system provides 14 Q-bus slots and up to 49 direct-connect serial lines to support a wide range of options

The MicroVAX II industry-standard Q-bus accommodates a variety of options developed by Digital and other vendors. Options such as laser printers, communications devices digitizers. D/A and A/D converters, and bidirectional/parallel data transmission devices to name a few. Because the Q-bus uses an open, documented architecture, you have countless offerings to choose from

Digital's Communications Speak Your Language

Linking computers together in a communications network gives you the flexibility to distribute computing requirements across multiple resources. Put computers where you want them, incorporate existing computers from many other vendors into a single environment, and maximize your ability to communicate in an instant with key people anywhere on the network. No wonder Digital networking has become the undisputed communications benchmark in computing today

MicroVAX II has a contribution to make to all forms of networked computing In local area and wide area networks, it performs many functions that once required larger VAX computers, such as performing as an Ethernet communications controller or DECnet routing node. Because of its complete network support, MicroVAX II can communicate with any other Digital system, and it can provide connections to many other vendors' systems, including IBM® mainframes.

You can also use MicroVAX II to manage a local area network of MS-DOS™ PCs With PC networking, individual desktops are no longer isolated desktops. PC LANs offer complete integration of your MS-DOS and VMS environments Use PCs as terminal emulators for VMS applications— or for applications from any other vendor systems accessible to the PC LAN. Send PC data back and forth between systems on the LAN, share disks, peripherals, and even integrate PC data into VMS-based report programs.

Expand Computing Resources with a Cost-effective Local Area VAXcluster and Digital Networking

If your networking wish list includes work group support with centralized data storage and system management— and with shared access to computing resources— try MicroVAX II in a Local Area VAXcluster. Local Area VAXclusters are based on Digital's advanced VAXcluster technology, but they've been optimized to support work groups using up to 28 systems based on the MicroVAX and VAXstation With a Local Area VAXcluster you get

the advantages of shared resources along with the service of a boot node to provide dynamic load balancing of those resources across the cluster A Local Area VAXcluster turns multiple small systems into a a single computing environment that can provide access to hundreds of users. MicroVAX II is powerful enough to serve as the boot node. or manager. for an entire Local Area VAXcluster.

Digital's MicroVAX Systems: Quality That Comes Guaranteed

MicroVAX II is the pioneering member of a value-priced group of MicroVAX systems that today includes MicroVAX 2000— Digital's lowest-priced multiuser VAX— and the MicroVAX 3500 and 3600. the highest-performance MicroVAX systems ever. The table shows the MicroVAX systems at a glance Digital stands behind every MicroVAX computer with a one-year. onsite warranty.

TABLE-TITLE: MicroVAX Systems at a Glance

Feature	MicroVAX 2000	MicroVAX II	MicroVAX 3500 3600
Memory (max)	6 MB	16 MB	32 MB
Bus	N/A	Industry-std Q-bus	Industry-standard Q-bus
Disk Storage (max)	318 MB	2 GB	560 MB / 2 5 GB
Disks Supported	RD32 (42 MB) RD53 (71 MB) RD54 (159 MB)	RD53 (71 MB) RD54 (159 MB) RA60 (205 MB) RA81 (456 MB)	RA60 (205 MB) RA70 (280 MB) RA81 (456 MB) RA82 (622 MB)
Backup Data Exchange Devices	RX33 (1.2 MB) TK50 (95 MB)	TK50 (95 MB) TK70 (296 MB) TU81-Plus* TSV05**	TK70 (296 MB) TU81-Plus* TSV05**
Operating Software	VMS ULTRIX-32	VMS ULTRIX-32 VAXELN	VMS ULTRIX-32 VAXELN
ALL-IN-1 subscribers (estimated range)	8 - 16	14 - 48	32 - >100
Commun Devices	Ethernet synchronous asynchronous	Ethernet synchronous asynchronous	Ethernet synchronous asynchronous

Voltage	88 - 128 176 - 256	176 - 256 90 - 128	88 - 128 176 - 256
Tolerance (VRMS)			
Line Frequency	47 - 63 47 - 63	47 - 63 59 - 61	47 - 63 49 - 51
Tolerance (Hz)			
Max. Running	6.0 A 6.0 A	3 0 A 24 0 A	12 0 A 12 0 A
Current			
Power	345 W 690 W	345 W 1400 W	690 W 1400 W
Consumption			
Acoustics	120 V 240 V	240 V 120 V	120 V 240 V
Per ISO 7779			
LNPE	6 4 B 6 0 B	6 4 B 7 1 B‡	6 0 B 6 7 B‡
LPA	49 dB 45 dB	49 dB 57 dB‡	45 dB 55 dB‡

Dimensions

Height	62.2 cm (24 5 in)	62 2 cm (24 5 in)	106 0 cm (41 7 in)
Width	25.4 cm (10 0 in)	33 0 cm (13 0 in)	65 6 cm (25 7 in)
Depth	72.4 cm (28.5 in)	70 0 cm (27 5 in)	91.4 cm (36 0 in)

Operating Environment

Temperature (sea level)	15 - 32oC (50 - 90oF)
Relative humidity	20 - 80% noncondensing
Maximum operating altitude	2.4 km (8.000 ft)

‡With an RA81 disk.

For More Information

Learn more about MicroVAX II and Digital's MicroVAX computers by contacting your Digital representative.

networking DECnet HDLC TCP/IP	networking DECnet HDLC TCP/IP	networking DECnet HDLC TCP/IP

*40 MB @ 1600 BPI or 145 MB @ 6250 BPI

**40 MB @ 1600 BPI

Specifications

MicroVAX II System Configurations

Enclosures	BA23	BA123	H9642
Backplane Slots	8	12	14
Maximum Memory	16 MB	16 MB	16 MB
Power	230 W	460 W	460 W
Serial Lines			
with Modem Control	13	21	33
w/out Modem Control	25	33	49
Storage Cavities			
5.25 inch	2	4	4
14 inch	0	0	4
Maximum Storage Capacity	159 MB	477 MB	2 GB
Load Device	TK50/RX50	TK50/RX50	TK50
Backup Device	TK50/RX50/TK70	TK50/RX50/TK70	TK50/TU81-Plus/RA60/TK70

Processor Enclosure Power Requirements

	BA23	**BA123**	**H9642**
Power Requirements (ac Input)			
Line Voltage	**120 V** **240 V**	**240 V** **120 V**	**120 V** **240 V**
Power Source	**Single** **Single**	**Single** **Single**	**Single** **Single**
Phasing			
Frequency	**60 Hz** **50 Hz**	**50 Hz** **60 Hz**	**60 Hz** **50 Hz**

LA75 Companion Printer

The quiet, compact LA75 printer offers complete compatibility with both Digital systems and industry-standard personal computers, making it the perfect companion for today's desktop workstations. Compact and economically priced, the LA75 prints in four text modes (250 characters per second draft mode; 125 ch/s memo mode; 42 ch/s near-letter-quality mode; 32 ch/s letter-quality model), plus full graphics. Convenient, versatile paper handling capabilities include single-sheet paper and envelope feeding; a built-in tractor feed for form-fed paper and labels; and bottom-feeding of form-fed paper and multipart forms. Advanced human engineering makes installation and setup a snap

Features

- Built-in LA50, LA100 LA210 and IBM Proprinter emulation offers complete text/graphics compatibility with Digital systems and industry-standard personal computers
- DEC/industry-standard compatibility, print speeds, and other printer attributes selectable with front-panel switches or under software control
- Text printing at 250 ch/s, 125 ch/s, 42 ch/s, and 32 ch/s burst speeds plus full bit-mapped graphics printing at 180-by-144-dot-per-inch resolution
- Quiet operation (55 dBA) for busy office environments
- Versatile paper handling for printing on form-fed paper, labels, multipart forms, single-sheets, and envelopes
- Pivoting tractor allows choice of top or bottom paper feeding
- Optional single-bin cutsheet feeder holds 100 pages
- Available in serial, parallel, U.S and International models
- 9 built-in character sets: U S, ASCII, National Replacement (NRC), ISO 8-bit Supplemental, DEC Supplemental, VT100 Special Graphic ("Line Drawing"), plus IBM Proprinter Line Drawing, Chart Drawing, and Symbol Drawing sets
- Printer port uses snap-in modular connectors; adapters required for use with most Digital systems. (Parallel cable required with parallel model.)
- Economically priced, user-installable
- Compact desktop size (4.8-in high by 16 8-in wide by 13 6-in deep)
- Built-in self-testing, front-panel status indicators
- Full range of accessories/consumables available from Digital
- Requires no periodic maintenance other than normal cleaning
- 2,047-character input buffer

Scholar Modems

The DF224 Scholar modem is a low-profile desktop modem with external wall mount power supply. It operates at 2400, 1200, and 300 bps full duplex over dial-up (PSTN) lines The DF224 asynchronous and synchronous integral auto-dialer stores up to 15 telephone numbers which may also be identified by an ID name of 6 characters or less. Phone number linking capabilities are also provided The DF224 is designed for supporting Digital and non-Digital, asynchronous or synchronous terminals, personal computers, and workstation applications. The DF224-AA is compatible in operation to CCITT V.22bis, CCITT V.22 and Bell 103/212A modems

The DF242-CA, DF212-CA, and DF124-CA/CM Scholar Plus modems bring many new features to the Digital Family of Modems. The Scholar Plus modems offer a unique security feature to protect proprietary databases, MNP and X.PC error correction to assure accurate data transfers, the industry standard "AT" command language, and the simplified Digital Modem Command Language (DMCL) (VAX/VMS type commands)

One of four levels of security can be set:

1 Password Access — A predefined password must be keyed before the host system is accessed.

2 Password and Callback — The password is predefined along with a telephone number. The modem requests the password, and then disconnects The modem recalls the telephone number associated with the password, and initiates a call to the known number.

3 Password, Callback, Telephone Number Checked — The password and telephone numbers are preset. The modem requests that the dial-in caller key in a password and callback phone number prior to disconnect and call back to the known location

4 Password, Request for Phone Number — The password is requested. The user can then type an alternate phone number or the number assigned to that password as the callback number. An audit trail of dial attempts is maintained, and the parameter settings are secured by password to prevent unauthorized modifications.

Compatibility with the industry standard Hayes "AT" command language gets the experienced user up and running in a minimal amount of time; and DCHL makes it easy to set parameters.

The autodial feature includes mixed dialing of up to 30 different linked numbers, local or long distance. In the event of a busy or no answer signal, the linked number will be dialed. An embedded speaker allows audible monitoring of call progress. Modem parameters are stored in non-volatile memory and are not lost when powered off.

The DF124-CA (desktop enclosure) and the DF124-CM (rackmount) keeps the user in touch by providing communication regardless of line conditions, over private (leased) lines or the Public Switch Telephone Network (PSTN). The modem automatically switches from a leased line to a standard telephone line if the modem finds interference on the private line.

VT320 Video Terminal

Product Description

Digital's VT320 is the newest addition to the VT300 family of video terminals, which replace the popular VT200 family. The VT320 provides users of systems and networks with a high-quality, text-only video display terminal that offers very competitive pricing an advanced monochrome display screen and the Digital standard keyboard — plus traditional Digital quality and support

The single-session VT320 video terminal is based on a new, two-piece, ergonomic design that is smaller than its predecessor, the already-trim VT220. The VT320 incorporates an integral tilt base, and offers an optional height pedestal base with tilt/swivel capabilities

The VT320 video display is a 14-inch, anti-glare, flat-surfaced monochrome screen, available in a new "paper-white" phosphor, as well as in amber and green All three display screens feature high-quality fonts with crisp, fully-formed characters. Screen resolution is 1200 pixels by 300 scan lines in 80-column mode, and 1188 pixels by 300 scan lines in 132-column mode

The VT320 is fully compatible with the VT220, and offers similar functionality, as well as many enhancements These include a terminal/host-programmable 25th status line improved keyboard features, and a bidirectional printer port with modular DECconnect connector

The North American VT320 provides modem control through the DEC423 cable and 25-pin adapter for most standard U S modems. The International VT320 provides full modem control through the RS232 25-pin connector, as a European requirement The DEC423 cable and adapter are not included

The North American VT320 includes 120 V capabilities and an attached power cord, and supports FCC Class A. The International VT320 includes both 120 V and 240 V capabilities, a detachable power cord, multiple language set-up screens, National Replacement Character Set (NRCS), and FCC and VDE Class B certification

Features

- Total compatibility with Digital host systems, networks, terminals, and printers
- Advanced 14-inch flat monitor screen in "paper white", amber, and green phosphors
- Quality-resolution display, offering improved font design with high-quality characters
- DEC423 interface (RS232 with adapter cable included)
- Programmable host/terminal 25th status display line

- Integrated tilt base
- Enhanced keyboard features
- Easy-to-reach, side-mounted on/off, brightness and contrast controls
- Digital standard keyboard or WPS keyboard
- Optional pedestal base with tilt/swivel capabilities

Ordering Information

Please refer to the Video Terminal Selection Chart in this chapter for ordering information.

Accessories and Supplies

VT2XX-AA	VT200/VT300 Family system stand
VT3XX-CA	VT320 tilt/swivel base

Terminal Communication Processors and Servers

Digital offers a full line of communications hardware for connecting its terminals to its computer systems. The traditional approach is to hardwire terminals to systems using terminal interfaces.

Digital's Terminal Servers provide a more flexible and cost-effective approach for connecting terminals to systems. Terminal Servers are Ethernet-based communication servers designed to logically connect asynchronous devices such as terminals, printers, modems, and personal computers to one or more hosts on an Ethernet LAN. Among the features of Terminal Servers are: multiple session support, which allows users to establish multiple sessions to one or several hosts, resulting in greater user productivity; and printer support for VAX and MicroVAX systems, which provides the capability of sharing printers among multiple users.

For more information on Terminal Servers, please refer to the Communications section in this catalog.

VAX VTX

VAX VTX is a fully integrated videotex product that runs under the VMS operating system. VAX VTX is an interactive information update and retrieval product that allows users to retrieve information from a local or distributed information database. Any standard VMS product such as VAX DECgraph, VAX DECslide EDT, or ALL-IN-1 can be used to create information for the database. VAX VTX complies with the CCITT F.300 standards for videotex. No special terminals or printers are required. It supports any VT100 or VT200-compatible terminal. It can be called from an ALL-IN-1 office menu and information from the VAX VTX database can be incorporated in ALL-IN-1 documents and sent using electronic mail.

VAX VTX
Distributing Information Across the Enterprise

Meet the Challenge of Information Distribution

Getting the right information to the right people in the right place at the right time can be the difference between success and failure in today's competitive environment. To win, you need an information distribution method that allows you to effectively organize and disseminate valuable information throughout your business enterprise.

At Digital, these challenges are being met daily with our business communications tools — full-function electronic mail, videotex electronic information distribution, and computer conferencing. Combined with our industry-leading networked products, these tools provide electronic communications alternatives on a one-to-one, one-to-many, or many-to-many basis — for every department across any enterprise.

VAX VTX, Digital's industry-leading corporate videotex product for electronic information distribution, is one such tool. With it, you can cost-effectively disperse complete, up-to-date information in a variety of formats to large numbers of people throughout your enterprise Using terminals or personal computers, individuals can have easy, convenient access to information when they need it. The VAX VTX alternative to traditional hardcopy information distribution methods eliminates many warehousing, printing, and delivery costs And VAX VTX offers a truly distributed architecture that benefits people designated to provide information as well as those who use it.

Highlights

- Assists users in accessing information through menus, designated keywords, and personal menus.
- Can be integrated with Digital's industry-leading ALL-IN-1 office and information system.
- Provides a softcopy alternative to information distribution that eliminates printing and related costs and helps prevent the use of outdated materials.
- Includes VISTA, a new software tool for nontechnical individuals that simplifies the tasks of designing, populating, building, and maintaining an infobase.
- Uses Digital's networking capabilities to allow information input and distribution from any point on the network to any other point on the network.
- Includes support for IBM* 3270 data stream terminals, full-screen graphics for VMS-based workstations, and Digital's DECtalk voice synthesizer.
- With VAX VALU, Digital's VTX Application Link Utility, can link to applications such as electronic mail, transaction processing, and text-management and database management systems, as well as to most custom applications.
- Through VAX VALU, provides access to external applications over DECnet, DECnet/SNA LU6.2 or X.25 packet switch and data networks.

Take Advantage of the Efficient and Effective Distribution Alternative

Too much information can never be available. But often no good way exists to find organize and use information before it becomes obsolete.

With VAX VTX you not only can provide timely information distribution but also can offer a system that helps individuals easily retrieve the information they need.

Softcopy in Contrast with Hardcopy Distribution

Consistent. up-to-date. information helps individuals perform most effectively However. keeping hardcopy printed material current is extremely difficult. New information must be collected. compiled. typed or typeset. and printed. Updated documents must then be distributed and put into use by the people who receive them Often, problems arise because some information becomes outdated even as it's being printed.

VAX VTX offers a softcopy alternative to hardcopy distribution Using an electronic rather than paper form. and the flexibility of a distributed computer architecture. VAX VTX helps you eliminate time-consuming hardcopy printing and distribution processes as well as many costs associated with printing. storage. distribution. and disposal of hardcopy documents. VAX VTX also eliminates the need for reprinting large publications Information providers can update published material instantly in electronic form. and thus help prevent the use of outdated. obsolete. or inconsistent information.

The information itself can originate from many different locations on a computer network. Therefore. VAX VTX can give individuals access to information from every department as well as from external agencies and networks. This helps people spend less time looking for the information they need and more time using it.

Many large. dynamic organizations already use VAX VTX. With it. these enterprises maintain documents such as policy manuals. MIS reports. schedules. directories. product specifications. price and parts lists. job postings. reference materials and process descriptions. often involving thousands of pages of printed text and graphics. VAX VTX helps you maintain information in the most up-to-date form possible— and achieve effective. efficient distribution of documents to every person who needs them.

People Make More Use of Easily Accessible Information

Gathering information through VAX VTX is remarkably simple. Information located anywhere on the network can be included on an infobase. This means that individuals can access and use a wealth of information previously unavailable or unattainable.

Also. because VAX VTX presents information as "published" pages rather than as data records. end users can view information in an organized. categorized form. Users avoid a great deal of sorting and sifting through information. And people get valuable information faster and easier than they can when they use indexes and volumes of printed pages.

Greater accessibility does not mean. however. that the security of your information must be compromised. VAX VTX protects information through facilities that limit access to privileged information. Because of its distributed architecture. VAX VTX also brings information to users without revealing the source of that information.

Menus and Keyword Selection Help People Retrieve Information Easily

Because they require no prerequisite training, individuals can begin using VAX VTX as soon as they have system access.

Self-explanatory menus guide users through the system to the information they need. Keywords help users locate specific information even more quickly by allowing them to browse from page to page without passing through menus. If a keyword refers to more than one page on the infobase, VAX VTX creates a menu automatically to provide additional detail via menu options.

For example, a sales representative frequently needs information about competitors. The salesperson simply enters the keyword competition. The system can automatically refer to any page that has competition as the designated keyword. If two or more pages are found, the system can create a menu consisting of all matches for the keyword. The salesperson can then make a selection based on whatever information is needed.

VISTA and VALU Help You Package Information for Delivery

Thus far we've discussed how VAX VTX can help individual users get information when and where they need it. Now we'll look at how VAX VTX is designed to simplify the packaging of information as well— particularly when combined with Digital's VAX VALU (VTX Application Link Utility).

Information Providers Reside at the Source of Information

To simplify information provision, VAX VTX includes the VTX Infobase Structure Tool and Assister (VISTA) feature. With it, nontechnical individuals can design, build, populate, and maintain a VTX infobase. Because of this, VISTA helps you distribute the task of providing and updating information among responsible individuals throughout your enterprise. This helps to relieve pressure on central MIS resources.

VISTA employs a graphics-oriented, menu-driven user interface to simplify document insertion. Users make corrections through fill-in-the-blank forms rather than by adjusting lines of code. This eliminates the need for knowledge of file manipulation and command-level programming. And because VAX VTX is integrated with WPS-PLUS document processing, users can create and transfer documents destined for a VAX VTX infobase in WPS-PLUS format.

Also, because it simplifies the process of providing information, VISTA helps encourage people in many business areas to begin using VAX VTX as a valuable source of information distribution.

VAX VALU Saves Valuable Programming Time and Money

Digital's VTX Application Link Utilities (VALU) complements the information delivery capabilities of VAX VTX by enabling programmers to effect a two-way VTX service capable of collecting information from, and distributing information to individuals. VAX VALU also enables VTX to process information and return the results. And VALU provides more flexibility for connecting to other computer systems to make applications just a menu

choice away

An optional software package VAX VALU. contains three functional components — the external link. the VTX application service. and the remote update server link.

The external link component provides subroutines necessary for systems-level programmers to write applications that connect VAX VTX users to Digital or other vendors' applications and databases.

The VTX application service (VAS) component provides an easy-to-use set of tools for the applications programmer to connect VAX VTX to applications running on Digital or other vendors' systems. VAX VALU additionally supports DECnet/SNA VMS APPC/LU6.2 applications using Digital's DECnet SNA/Gateway and X.25 applications with VAX PSI software. VAS helps reduce the time it takes to write applications. and can help control development costs and increase programmer productivity.

The remote update server link component allows programmers to create tailored information provider applications Through this link MIS can offer increased flexibility and function to information providers.

VAX VALU opens VAX VTX to new and existing computer applications on both Digital and non-Digital systems Thus. with VAX VALU. end-user applications that may have been considered too costly or difficult are now possible And two-way communications for VTX applications such as order-processing systems and interactive electronic bulletin boards. are easy to implement

Only VAX VTX Has the Flexibility of a Distributed Architecture

VAX VTX is made up of three key components working together within a modular design that allows you to distribute VAX VTX over multiple computer systems. The three components that make up VAX VTX are the Terminal Control/Concentrator Program the Infobase Server. and VISTA.

VISTA simplifies the task of providing information for many individuals in many different departments The Infobase Server in a VAX VTX system manages and controls all information requests placed on an infobase It provides security features that allow only authorized individuals to access sensitive information. And it contains all account control information and tracking facilities.

The Terminal Control/Concentrator Program allows VAX VTX to accommodate a wide range of terminals as delivery mechanisms. This means individuals can use in-place personal computers and computer terminals to access information from or supply information to a VAX VTX infobase.

This unique modular approach allows VAX VTX to accommodate multiple infobases in different locations and any number of information sources. all of which appear as one source to the end user. The distributed architecture of VAX VTX also provides the flexibility to accommodate a wide variety of input and output devices when used with appropriate software. Besides increasing the variety of information that can be made available to users, this helps reduce the burden on individual systems.

Any component of the VAX VTX software can be situated on as few or as many processors as desired Thus the system can grow and change in response to user and business needs Also unlike conventional data-processing software that may not even provide the capability of remote infobase access. VAX VTX requires no user knowledge of special commands and syntax to gather information— regardless of where that information resides.

Add VTX as a Part of Your Plan

Implementing a VAX VTX system effectively does take planning However, because VAX VTX requires no dedicated computer or specialized terminals. you'll probably find you already have many of the pieces you need in place.

VAX VTX can be accessed through almost any terminal or personal computer. including IBM* personal computers and 3270 data stream terminals Also, VAX VTX can be integrated with Digital's ALL-IN-1 premier office and information system. ALL-IN-1 simplifies office tasks by providing individuals with consistent menus for office tools such as word processing. electronic mail. and VAX VTX. Through ALL-IN-1. people can work with VAX VTX as part of their daily routine to gather competitive information. product documentation. or market intelligence from both inside and outside sources. ALL-IN-1 also allows individuals to transfer information directly from a VAX VTX infobase to ALL-IN-1 files for inclusion in reports. memos. presentations. or electronic mail.

In addition. VAX VTX fits well with planned or in-place networks— including equipment from both Digital and other vendors This helps you protect your investments in computers you already own by eliminating the need to replace them Also. because one VAX VTX infobase can service people in many geographic locations. you don't need to relocate computer hardware to accommodate a VAX VTX installation.

Once it is running. VAX VTX requires little or no system maintenance by an MIS staff And VAX VTX places minimal demand on computer and network resources. As a result. VAX VTX offers noticeable improvements in information distribution without upsetting business operations. Installation can be accomplished quickly. and the system can be in use within a few weeks. You can put access terminals anywhere you need them— on desktops or in lobbies. And you can assign responsibility for updates and inputs to whomever is responsible for information— rather than to remote MIS resources

More Information

If you'd like more specific information about how VAX VTX and VAX VALU can help you improve information delivery for your enterprise. or if you'd like to know more about ALL-IN-1. or Digital's wide range of networking products. please contact your local Digital sales representative.

Specifications

Complies with the CCITT F.300 standard for videotex.

Prerequisite Hardware

VAX VTX and VAX VALU run on any of the entire range of VAX systems with at least 2 Mbytes of dedicated main memory capacity.

VAX VTX and VAX VALU run on MicroVAX systems with 1 Mbyte of dedicated main memory and require DECnet-VAX software.

VAX VTX and VAX VALU support all VT300-, VT200-, and VT100-compatible terminals, personal computers, and workstations. These include Digital's VT300-, VT200-, and VT100-series terminals and VAXmate, DECmate II, DECmate III, DECmate III PLUS, Rainbow, Professional workstations, and the VTX20 and French Minitel.

Prerequisite Software

For VAX VTX, prerequisite software is the appropriate version of the VMS or MicroVMS operating system. For MicroVMS, prerequisite software is DECnet End Node.

For VAX VALU, prerequisite software is VAX VTX (V2.1 or later) and the appropriate version of the VMS or MicroVMS operating system. For MicroVMS, prerequisite software is DECnet End Node.

Optional Software/Hardware

Standard DECnet-VAX is required for a distributed VAX VTX environment.

The DECtalk ASCII-to-speech synthesizer.

Standard Prestel display-protocol terminals and standard CEPT display-protocol terminals.

IBM PCs running the CROSSTALK XVI* VT100-emulation package from Microstuf, Inc

WPS-PLUS/VMS.

ALL-IN-1 V2.2 or later.

The Sony VDX-1000* videotex unit.

DECnet-VAX is required for multinode or distributed environments.

For use of the TSM functions, the BLISS-32 compiler may be required.

For use of the X.29 function in the TCP and the X.25 functions in the VTX application service (VAS), VAX PSI V3.2 running on VMS V4.0 (or later) is required or VAX PSI V4.0 (or later) running on VMS V4.4 (or later) is required.

For use of the 3270 Data Stream functions in the TCP. 3270 class terminals V1.1 (or later) of the DECnet/SNA VMS 3270 Data Stream Programming Interface and V1.2 (or later) of the DECnet SNA/Gateway on the same DECnet.

For use of the DECnet SNA/Gateway LU6.2 functions in the VTX Applications Service (VAS). V1.1 (or later) of DECnet/SNA VMS APPC/LU6.2 and an associated DECnet SNA/Gateway on the same DECnet, and an IBM environment that supports LU Type 6.2 (CICS).

ALL-IN-1 Starter

ALL-IN-1 Starter is a subset of the ALL-IN-1 family of products It is a VMS layered product that runs on the same range of VAX systems as does ALL-IN-1. currently the MicroVAX 2000 to the VAX 8978. As a subset of ALL-IN-1 V2.3. users have access to Electronic Mail. Word Processing and the ALL-IN-1 File Cabinet. It does not contain the Time Management subsystem or the customization capabilities of ALL-IN-1 V2.3.

ALL-IN-1 Starter consists of Electronic Mail and Word Processing applications. VAX FMS (Forms Management System) and MAILbus™. It is identical to the ALL-IN-1 environment. where users access of of its functions in a consistent manner. A user can create a document. store it in a file cabinet. then use the edit. send or receive functions.

Q U O T A T I O N

89012H0436

16-Jan-89

QUOTATION EXPIRES: 28-Feb-89

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

TO:
STATE OF NJ
LAW & PUBLIC SAFETY
OAG
HUGHES COMPLEX
TRENTON NJ 08625
DEAN DEAKINS

FROM:
BRIAN SCIARROTTA
Digital Equipment Corporation
20 CORPORATE PLACE SOUTH
PISCATAWAY NJ 08854

Thank you for your inquiry. We are pleased to quote as follows:

ITEM	QTY	MODEL NUMBER AND DESCRIPTION	TERMS	DSCNT PRCNT	UNIT PRICE	NET AMOUNT WITH DSCNT
1	1	DH-630Q4-JA	*05	16.00	$53,243.00	$44,724.12
		630QB-A2 CPU FPU 1MB BA123				
		DHQ11-M 8 LINE MULTIPLXER				
		MS630-CA 8MB MEMORY				
		CK-DHQ11-AA CAB KIT-BA123				
		RD54A-BA 159MB FXD DISK(2)				
		DELQA-M ETHERNET QBUS ADP				
		TK70/TQK70 296MB CARTRIDGE				
		CK-DELQA-YA CAB KIT-BA123				
		RQDX3 DISK CONTROLLER				
		ZNAAB-C5 DOC/DIAG KIT				
		TK52K-05 5 PACK CARTRIDGES				
		SW LIC NOT INCL				
		Includes 1-Year DECsystem Support; 7D by 24H				
		FM-WRNTY-24 Extended Warranty Option			$6,216.00	
2	1	MS630-CA	*05	31.00	$6,000.00	$4,140.00
		8MB PARITY MEMORY				
		Lead Time - 1 Day Shipment				
		Includes Product Foundation Warranty				
3	1	RD54A-BA	*05	16.00	$5,346.00	$4,490.64

QUOTATION EXPIRES: 28-Feb-89

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

ITEM	QTY	MODEL NUMBER AND DESCRIPTION	DSCNT TERMS	PRCNT	UNIT PRICE	NET AMOUNT WITH DSCNT
		RD54 WITH CABLES FOR BA123				
		Lead Time - 1 Day Shipment Includes 1-Year System Level Support FM-WRNTY-24 Extended Warranty Option			$756.00	
4	1	LQP45-AA LQP45-A + LQP4X-KA COUNTRY	*05	26.00	$3,335.00	$2,467.90
		Lead Time - 1 Day Shipment Includes 1-Year System Level Support FM-WRNTY-24 Extended Warranty Option			$336.00	
5	1	VT320-AA VIDEO TEXT TERMINAL 14"SCREEN MONO WHITE USA 120 VOLT LK201/RE	*05	26.00	$581.00	$429.94
		Lead Time - 1 Day Shipment Includes 1-Year Basic Hardware Support / No Installation FM-WRNTY-24 Extended Warranty Option			$36.00	
6	1	LA75-CA LA75 SER PTR USA+CANADA	*05	26.00	$948.00	$701.52
		Lead Time - 1 Day Shipment Includes 1-Year Basic Hardware Support / No Installation FM-WRNTY-24 Extended Warranty Option			$96.00	
7	4	DF224-AA SCHOLAR 2400 BPS MODEM - COMPATIBLE WITH: CCITT V.22 BIS (2400 BPS) CCITT V.22 (1200 BPS) BELL 212A (1200 BPS) BELL 103J (300 BPS) - INTERFACE COMPATIBILITY:	*05	16.00	$817.00	$2,745.12

QUOTATION EXPIRES: 28-Feb-89

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

ITEM	QTY	MODEL NUMBER AND DESCRIPTION	DSCNT TERMS	DSCNT PRCNT	UNIT PRICE	NET AMOUNT WITH DSCNT
		RS232-C - POWER REQUIREMENTS: 120 VAC, 60 HZ				
		Lead Time - 1 Day Shipment Includes 1-Year System Level Support FM-WRNTY-24 Extended Warranty Option			$108.00	
8	1	QL-001AN-BE VMS 1-8 USER LIC. W/W	*05	16.00	$6,426.00	$5,397.84
		Lead Time - 30 Day Shipment				
9	1	QA-001AA-H5 VAX/VMS UPD TK50	*05	0.00	$0.00	$0.00
		Lead Time - 30 Day Shipment				
10	1	QL-D04AN-AA DECNET-VAX ENON LIC W/WARR	*05	16.00	$1,681.00	$1,412.04
		Lead Time - 30 Day Shipment				
11	1	QL-031AN-AA VAX VTX/MICROVMS LIC W/W	*05	16.00	$11,246.00	$9,446.64
		Lead Time - 30 Day Shipment				
12	1	QA-031AA-H5 VAX VTX BIN & DOC TK50	*05	0.00	$0.00	$0.00
		Lead Time - 30 Day Shipment				
13	1	QL-VNNAN-AA A1 STARTER LIC W/WARR	*05	16.00	$10,121.00	$8,501.64
		Lead Time - 30 Day Shipment				

QUOTATION EXPIRES: 28-Feb-89

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

ITEM	QTY	MODEL NUMBER AND DESCRIPTION	TERMS	DSCNT PRCNT	UNIT PRICE	NET AMOUNT WITH DSCNT
14	1	QA-VNNAA-H5 ALLIN1 STARTER TK50 Lead Time - 30 Day Shipment	*05	0.00	$0.00	$0.00
15	1	QT-AAAAE-B5 QSC45-SZ VMS DECSTART INITIAL INSTALLATION FOR QSC32-SZ ALL-IN-1 DECSTART VMS, ALL-IN-1 AND PLUS ALL QUALIFIED EY-DECPL-AN ACCOUNT $15610 PRODUCTS INITIAL DOC & MEDIA FOR VMS ALL-IN-1 AND ALL SERVICE FOR VMS QUALIFIED PRODUCT ALL-IN-1 AND ALL QUALIFIED PRODUCT INSTALLATION SVC SERVICE Lead Time - 30 Day Shipment	*05	16.00	$51,330.00	$43,117.20
16	200	QS840-SZ SYSTEM ENGINEER CONS HOURLY Lead Time - 30 Day Shipment	*05	0.00	$125.00	$25,000.00

QUOTATION EXPIRES: 28-Feb-89

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

SUBTOTAL	$178,525.00	$152,574.60
NET TOTAL AMOUNT		$152,574.60
Extended Hardware/Integrated Warranty		
FM-WRNTY-24 Months 13 through 24	$7,872.00	
Less 16% Discount Amount	($1,259.52)	$6,612.48
FM-WRNTY-36 Months 13 through 36	$15,744.00	
Less 16% Discount Amount	($2,519.04)	$13,224.96

ALL SOFTWARE UPDATES AND SUPPORT FOR FIRST YEAR ARE INCLUDED IN SYSTEM START UP PACKAGE.

This quotation is an invitation to offer only. It shall remain firm for 43 days from the date hereof, unless modified in writing by Digital Equipment Corporation prior to our acceptance of your contract offer. This quotation is subject to credit approval and is governed by the terms and conditions of the Discount Agreement referenced above or in the absence of a Discount Agreement by Digital's U.S. Standard Terms and Conditions (EN-30489-16). These Terms and Conditions are attached to this quotation or if not attached are available upon request.

*05 Discount Agreement between purchaser and Digital as filled in above.

QUOTATION EXPIRES: 28-Feb-89

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

Any contract resulting from the quotation must be accepted at Digital's Corporate offices by a duly authorized representative of Digital Equipment Corporation.

Quotation Prepared by _____
BRIAN SCIARROTTA

Q U O T A T I O N

89012H0437-01

16-Jan-89

QUOTATION EXPIRES: 28-Feb-89
REFERENCE:
MV2000 OPTION

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

TO:
STATE OF NJ
LAW & PUBLIC SAFETY
OAG
HUGHES COMPLEX
TRENTON NJ
DEAN DEAKINS

FROM:
BRIAN SCIARROTTA
Digital Equipment Corporation
20 CORPORATE PLACE SOUTH
PISCATAWAY NJ 08854

Thank you for your inquiry. We are pleased to quote as follows:

ITEM	QTY	MODEL NUMBER AND DESCRIPTION	TERMS	DSCNT PRCNT	UNIT PRICE	NET AMOUNT WITH DSCNT
1	1	DH-625N6-AA	*05	16.00	$13,452.00	$11,299.68
		SINGLE BOARD MICROVAX				
		US POWER CORD INCLUDED				
		120V 6MB MEMORY,FPU				
		NO S/W LICENSE INCLUDED				
		RD54 159MB FIXED DISK				
		EK-ZNAAG GZ & EK-ZN8AG-GZ				
		BA40A EXPANSION ADAPTER				
		GUIDE & OWNER'S MANUAL INCL				
		Includes 1-Year Basic System Support / No Installation				
		FM-WRNTY-24 Extended Warranty Option			$2,292.00	
2	1	TK50Z-FA	*05	16.00	$5,415.00	$4,548.60
		TK50,CTRL,EXP BOX,120V				
		Lead Time - 30 Day Shipment				
		Includes 1-Year System Level Support				
		FM-WRNTY-24 Extended Warranty Option			$360.00	
3	1	RD54-FA	*05	16.00	$5,610.00	$4,712.40
		VS2000 159MB DISK,BOX,120V				
		Lead Time - 30 Day Shipment				
		Includes Product Foundation Warranty				

Q U O T A T I O N

89012H0437-01

16-Jan-89

QUOTATION EXPIRES: 28-Feb-89
REFERENCE:
MV2000 OPTION

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

ITEM	QTY	MODEL NUMBER AND DESCRIPTION	TERMS	DSCNT PRCNT	UNIT PRICE	NET AMOUNT WITH DSCNT
4	1	DHT32-AA	*05	16.00	$1,834.00	$1,540.56
		DHT32-AA 8-LINE ASYNC MUX FOR MICROVAX 2000				
		Lead Time - 30 Day Shipment				
		Includes 1-Year System Level Support				
		FM-WRNTY-24 Extended Warranty Option			$120.00	
5	1	MS400-CA	*05	16.00	$9,000.00	$7,560.00
		12MB MEMORY ARRAY				
		Lead Time - 1 Day Shipment				
		Includes Product Foundation Warranty				
		SUBTOTAL			$35,311.00	$29,661.24
		NET TOTAL AMOUNT				$29,661.24
		Extended Hardware/Integrated Warranty				
		FM-WRNTY-24 Months 13 through 24			$2,772.00	
		Less 16% Discount Amount			($443.52)	$2,328.48
		FM-WRNTY-36 Months 13 through 36			$5,544.00	
		Less 16% Discount Amount			($887.04)	$4,656.96

THIS QUOTE OFFERS THE OPTION TO REPLACE LINE ITEMS' #1,2 & 3 ON QUOTE #89012H0436 AND SUBSTITUTE THE TOTAL OF THIS QUOTE.

THEREFORE TOTAL OF MVII OPTION	152,574.60
DELETE ITEMS 1,2 & 3	(53,354.76)
ADD TOTAL OF THIS QUOTE (MV2000)	29,661.24
TOTAL COST OF MV2000 OPTION ********	128,881.08

Q U O T A T I O N

89012H0437-01

16-Jan-89

QUOTATION EXPIRES: 28-Feb-89
REFERENCE:
MV2000 OPTION

DISCOUNT AGREEMENT NO.: 3083600
WHICH EXPIRES: 28-Feb-89

This quotation is an invitation to offer only. It shall remain firm for 43 days from the date hereof, unless modified in writing by Digital Equipment Corporation prior to our acceptance of your contract offer. This quotation is subject to credit approval and is governed by the terms and conditions of the Discount Agreement referenced above or in the absence of a Discount Agreement by Digital's U.S. Standard Terms and Conditions (EN-30489-16). These Terms and Conditions are attached to this quotation or if not attached are available upon request.

*05 Discount Agreement between purchaser and Digital as filled in above.

Any contract resulting from the quotation must be accepted at Digital's Corporate offices by a duly authorized representative of Digital Equipment Corporation.

Quotation Prepared by _____
BRIAN SCIARROTTA

VAX VALU

VAX VALU (VTX Application Link Utilities) is an extension product for VAX VTX (Version 2 1 or later), which provides the means of attaching one or more applications to a VAX VTX distributed videotex system. VALU also allows for customer changes to the Terminal Specific Modules, which can be linked into the VAX VTX Terminal Control Program. VAX VALU contains four functional components, which are used to solve application problems for the customer:

- External Link Interface (ELK)
- VTX Application Service (VAS)
- Remote Update Server Link (RUSL)
- Terminal Specific Modules (TSM)

The External Link Interface (ELK) is an object library of callable routines that provide for customer-written applications the full set of VAX VTX protocol capabilities needed to interact with a VAX VTX Server and TCP. Applications interfacing with ELK may be written in any VMS-supported language that complies with the VMS calling standards Interfacing with ELK offers the full advantage of a wide range of VAX VTX functions ELK requires a thorough understanding of software development techniques used by the applications programmer. The ELK application code must be responsible for maintaining session context control

SPD 26.94
Q*035

VAX Public Access Communications (VAXPAC)

VAX Public Access Communications (VAXPAC) is a layered VAX/VMS software communications product that allows users on a suitably configured VAX/VMS system access to public and private database services using asynchronous lines The remote system may be any system that accepts and displays data using an asynchronous interface compatible with RS-232C. RS-422. or RS-423. VAXPAC's use of menus and forms with extensive online help makes it suitable for even the most inexperienced computer user. VAXPAC provides automatic modem selection. autodialing. file transfer and optional session logging to capture information such as investment reports. credit verification. or international news for later use. Other features include·

Access to all facilities through menu selections and extensive online help

Supports KERMIT . the popular file transfer protocol. and allows other file transfer protocols to be invoked

Offers predefined connections that can be specified for either general or personal use

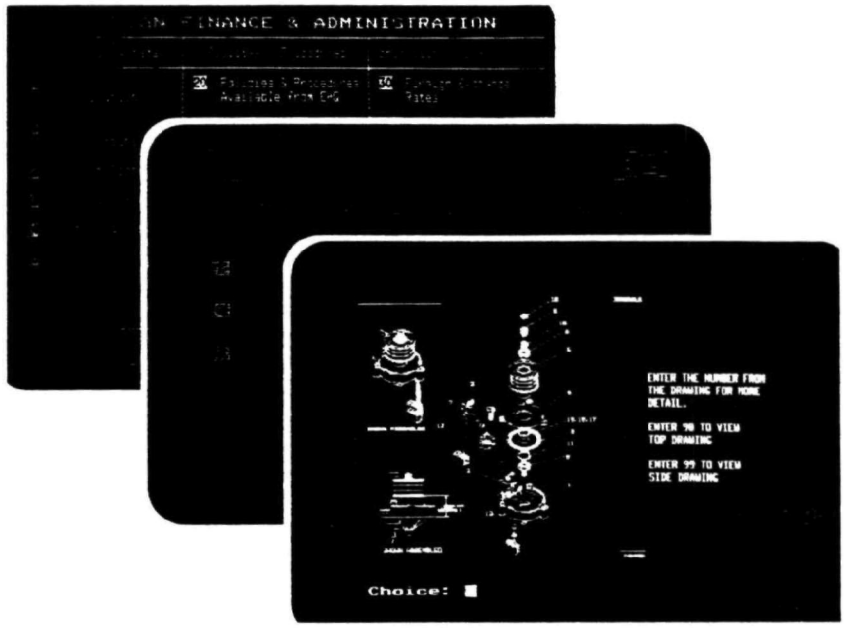
Supports direct or telephone connections with autodial dial from keyboard. or dial from handset for applicable modems

Includes maintenance facilities that let users customize VAXPAC operation

VAX VTX

Distributing Information Across the Enterprise

digital



Meet the Challenge of Information Distribution

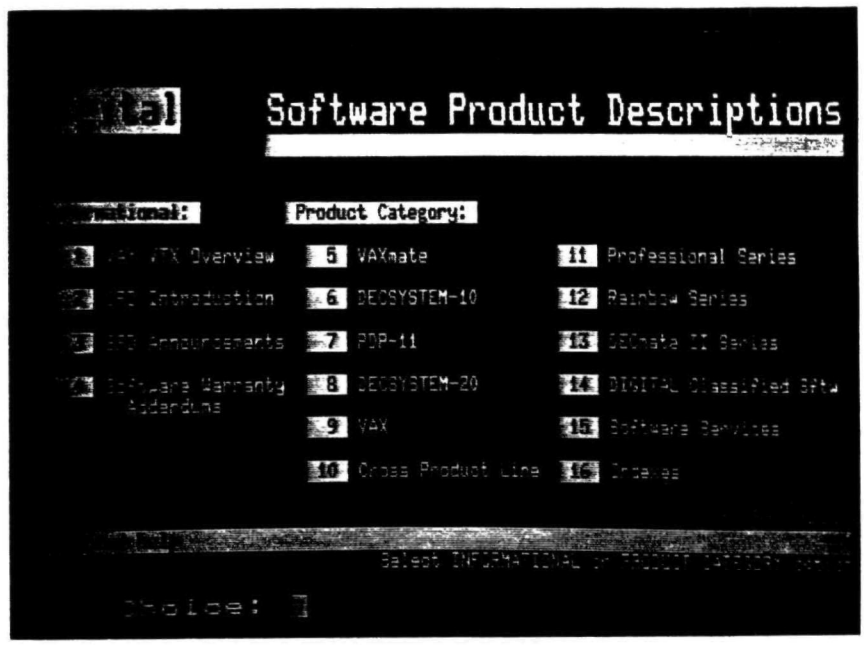
Getting the right information to the right people in the right place at the right time can be the difference between success and failure in today's competitive environment. To win, you need an information distribution method that allows you to effectively organize and disseminate valuable information throughout your business enterprise.

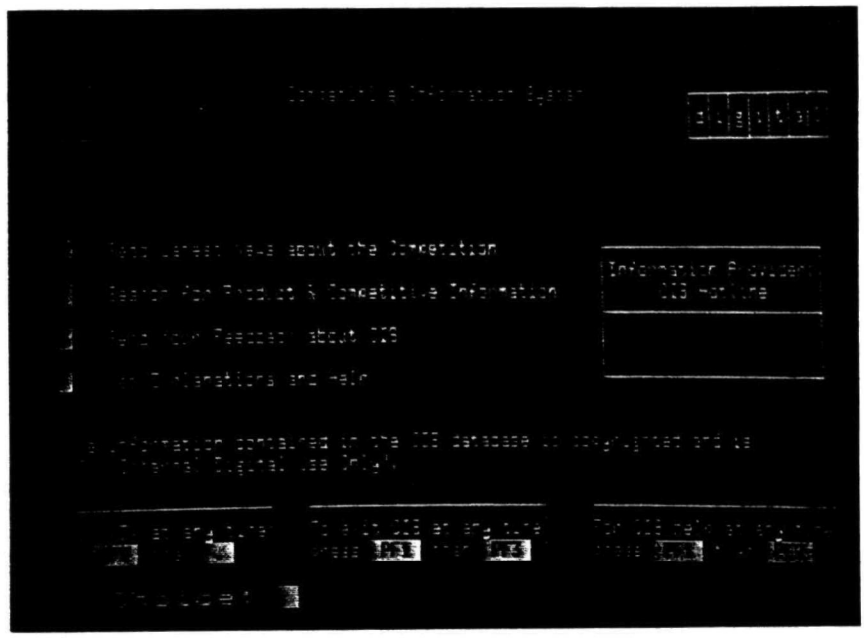
At Digital, these challenges are being met daily with our business communications tools – full-function electronic mail, videotex electronic information distribution, and computer conferencing. Combined with our industry-leading networked products, these tools provide electronic communications alternatives on a one-to-one, one-to-many, or many-to-many basis – for every department across any enterprise.

VAX VTX, Digital's industry-leading corporate videotex product for electronic information distribution, is one such tool. With it, you can cost-effectively disperse complete, up-to-date information in a variety of formats to large numbers of people throughout your enterprise. Using terminals or personal computers, individuals can have easy, convenient access to information when they need it. The VAX VTX alternative to traditional hardcopy information distribution methods eliminates many warehousing, printing, and delivery costs. And VAX VTX offers a truly distributed architecture that benefits people designated to provide information as well as those who use it.

Highlights

- Assists users in accessing information through menus, designated keywords, and personal menus.
- Can be integrated with Digital's industry-leading ALL-IN-1 office and information system.
- Provides a softcopy alternative to information distribution that eliminates printing and related costs and helps prevent the use of outdated materials.
- Includes VISTA, a new software tool for nontechnical individuals that simplifies the tasks of designing, populating, building, and maintaining an infobase.
- Uses Digital's networking capabilities to allow information input and distribution from any point on the network to any other point on the network.
- Includes support for IBM® 3270 data stream terminals, full-screen graphics for VMS-based workstations, and Digital's DECtalk voice synthesizer.
- With VAX VALU, Digital's VTX Application Link Utility, can link to applications such as electronic mail, transaction processing, and text-management and database management systems, as well as to most custom applications.
- Through VAX VALU, provides access to external applications over DECnet, DECnet/SNA LU6.2 or X.25 packet switch and data networks.





Take Advantage of the Efficient and Effective Distribution Alternative
Too much information can never be available. But often no good way exists to find, organize and use information before it becomes obsolete.

With VAX VTX you not only can provide timely information distribution but also can offer a system that helps individuals easily retrieve the information they need.

Softcopy in Contrast with Hardcopy Distribution
Consistent, up-to-date, information helps individuals perform most effectively. However, keeping hardcopy printed material current is extremely difficult. New information must be collected, compiled, typed or typeset, and printed. Updated documents must then be distributed and put into use by the people who receive them. Often, problems arise because some information becomes outdated even as it's being printed.

VAX VTX offers a softcopy alternative to hardcopy distribution. Using an electronic rather than paper form, and the flexibility of a distributed computer architecture, VAX VTX helps you eliminate time consuming hardcopy printing and distribution processes as well as many costs associated with printing, storage, distribution, and disposal of hardcopy documents. VAX VTX also eliminates the need for reprinting large publications. Information providers can update published material instantly in electronic form, and thus help prevent the use of outdated, obsolete, or inconsistent information.

The information itself can originate from many different locations on a computer network. Therefore, VAX VTX can give individuals access to information from every department as well as from external agencies and networks. This helps people spend less time looking for the information they need and more time using it.

Many large, dynamic organizations already use VAX VTX. With it, these enterprises maintain documents such as policy manuals, MIS reports, schedules, directories, product specifications, price and parts lists, job postings, reference materials, and process descriptions, often involving thousands of pages of printed text and graphics. VAX VTX helps you maintain information in the most up-to-date form possible – and achieve effective, efficient distribution of documents to every person who needs them.

People Make More Use of Easily Accessible Information
Gathering information through VAX VTX is remarkably simple. Information located anywhere on the network can be included in an infobase. This means that individuals can access and use a wealth of information previously unavailable or unattainable.

Also, because VAX VTX presents information as "published" pages rather than as data records, end users can view information in an organized, categorized form. Users avoid a great deal of sorting and sifting through information. And people get valuable information faster and easier than they can when they use indexes and volumes of printed pages.

Greater accessibility does not mean however that the security of your information must be compromised. VAX VTX protects information through facilities that limit access to privileged information. Because of its distributed architecture, VAX VTX also brings information to users without revealing the source of that information.

Menus and Keyword Selection Help People Retrieve Information Easily
Because they require no prerequisite training, individuals can begin using VAX VTX as soon as they have system access.

Self-explanatory menus guide users through the system to the information they need. Keywords help users locate specific information even more quickly by allowing them to browse from page to page without passing through menus. If a keyword refers to more than one page in the infobase, VAX VTX creates a menu automatically to provide additional detail via menu options.

For example, a sales representative frequently needs information about competitors. The salesperson simply enters the keyword *competition*. The system can automatically refer to any page that has *competition* as the designated keyword. If two or more pages are found, the system can create a menu consisting of all matches for the keyword. The salesperson can then make a selection based on whatever information is needed.

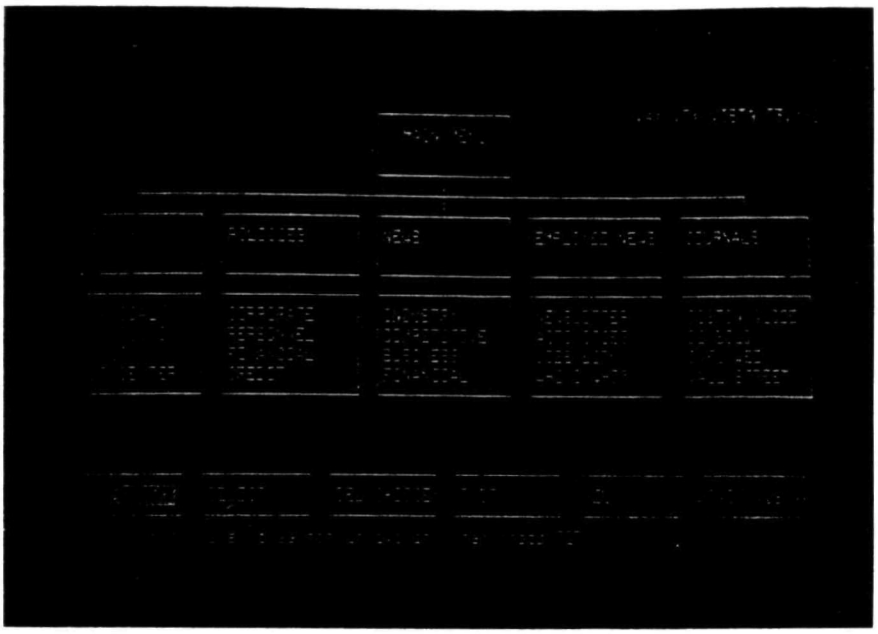
Thus far we've discussed how VAX VTX can help individual users get information when and where they need it. Now we'll look at how VAX VTX is designed to simplify the packaging of information as well – particularly when combined with Digital's VAX VALU (VTX Application Link Utility).

Information Providers Reside at the Source of Information

To simplify information provision, VAX VTX includes the VTX Infobase Structure Tool and Assister (VISTA) feature. With it, nontechnical individuals can design, build, populate, and maintain a VTX infobase. Because of this, VISTA helps you distribute the task of providing and updating information among responsible individuals throughout your enterprise. This helps to relieve pressure on central MIS resources.

VISTA employs a graphics-oriented, menu-driven user interface to simplify document insertion. Users make corrections through fill-in-the-blank forms rather than by adjusting lines of code. This eliminates the need for knowledge of file manipulation and command-level programming. And because VAX VTX is integrated with WPS-PLUS document processing, users can create and transfer documents destined for a VAX VTX infobase in WPS-PLUS format.

Also, because it simplifies the process of providing information, VISTA helps encourage people in many business areas to begin using VAX VTX as a valuable source of information distribution.



VISTA VTX Infobase Structure Tool and Assister

VAX VALU Saves Valuable Programming Time and Money

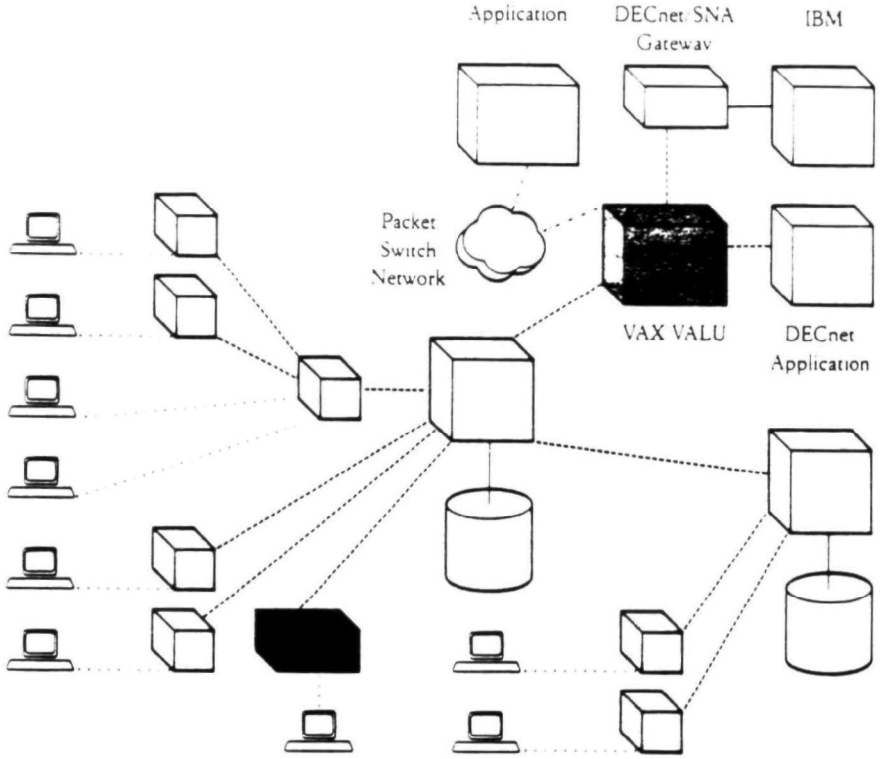
Digital's VTX Application Link Utilities (VALU) complements the information delivery capabilities of VAX VTX by enabling programmers to effect a two-way VTX service capable of collecting information from, and distributing information to individuals. VAX VALU also enables VTX to process information and return the results. And VALU provides more flexibility for connecting to other computer systems to make applications just a menu choice away.

An optional software package, VAX VALU, contains three functional components – the external link, the VTX application service, and the remote update server link.

The external link component provides subroutines necessary for systems-level programmers to write applications that connect VAX VTX users to Digital or other vendors' applications and databases.

The VTX application service (VAS) component provides an easy-to-use set of tools for the applications programmer to connect VAX VTX to applications running on Digital or other vendors' systems. VAX VALU additionally supports DECnet SNA VMS APPC LU6.2 applications using Digital's DECnet SNA Gateway and X.25 applications with VAX PSI software. VAS helps reduce the time it takes to write applications, and can help control development costs and increase programmer productivity.

The remote update server link component allows programmers to create tailored information provider applications. Through this link MIS can offer increased flexibility and function to information providers.



VAX VALU opens VAX VTX to new and existing computer applications on both Digital and non-Digital systems. Thus, with VAX VALU, end-user applications that may have been considered too costly or difficult are now possible. And two-way communications for VTX applications, such as order-processing systems and interactive electronic bulletin boards, are easy to implement.

Only VAX VTX Has the Flexibility of a Distributed Architecture

VAX VTX is made up of three key components working together within a modular design that allows you to distribute VAX VTX over multiple computer systems. The three components that make up VAX VTX are the Terminal Control Concentrator Program, the Infobase Server, and VISTA.

VISTA simplifies the task of providing information for many individuals in many different departments. The Infobase Server in a VAX VTX system manages and controls all information requests placed on an infobase. It provides security features that allow only authorized individuals to access sensitive information. And it contains all account control information and tracking facilities.

The Terminal Control Concentrator Program allows VAX VTX to accommodate a wide range of terminals as delivery mechanisms. This means individuals can use in-place personal computers and computer terminals to access information from or supply information to a VAX VTX infobase.

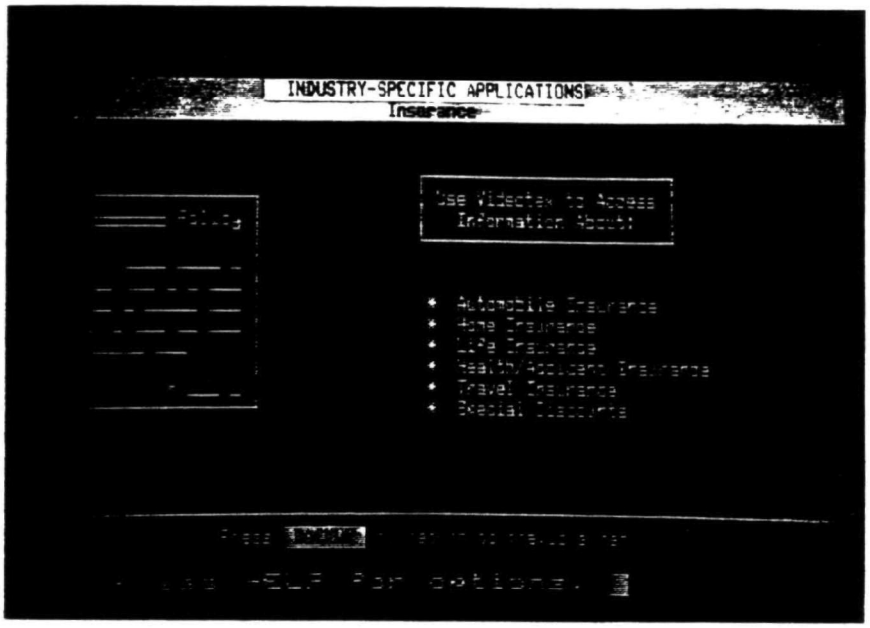
This unique modular approach allows VAX VTX to accommodate multiple infobases in different locations and any number of information sources, all of which appear as one source to the end user. The distributed architecture of VAX VTX also provides the flexibility to accommodate a wide variety of input and output devices when used with appropriate software. Besides increasing the variety of information that can be made available to users, this helps reduce the burden on individual systems.

Any component of the VAX VTX software can be situated on as few or as many processors as desired. Thus the system can grow and change in response to user and business needs. Also, unlike conventional data-processing software that may not even provide the capability of remote infobase access, VAX VTX requires no user knowledge of special commands and syntax to gather information – regardless of where that information resides.

Add VTX as a Part of Your Plan

Implementing a VAX VTX system effectively *does* take planning. However, because VAX VTX requires no dedicated computer or specialized terminals, you'll probably find you already have many of the pieces you need in place.

VAX VTX can be accessed through almost any terminal or personal computer, including IBM® personal computers and 3270 data stream terminals. Also, VAX VTX can be integrated with Digital's ALL-IN-1 premier office and information system. ALL-IN-1 simplifies office tasks by providing individuals with consistent menus for office tools such as word processing, electronic mail, and VAX VTX. Through ALL-IN-1, people can



work with VAX VTX as part of their daily routine to gather competitive information, product documentation, or market intelligence from both inside and outside sources. ALL-IN-1 also allows individuals to transfer information directly from a VAX VTX infobase to ALL-IN-1 files for inclusion in reports, memos, presentations, or electronic mail.

In addition, VAX VTX fits well with planned or in-place networks – including equipment from both Digital and other vendors. This helps you protect your investments in computers you already own by eliminating the need to replace them. Also, because one VAX VTX infobase can service people in many geographic locations, you don't need to relocate computer hardware to accommodate a VAX VTX installation.

Once it is running, VAX VTX requires little or no system maintenance by an MIS staff. And VAX VTX places minimal demand on computer and network resources. As a result, VAX VTX offers noticeable improvements in information distribution without upsetting business operations. Installation can be accomplished quickly, and the system can be in use within a few weeks. You can put access terminals anywhere you need them – on desktops or in lobbies. And you can assign responsibility for updates and inputs to whomever is responsible for information – rather than to remote MIS resources.

More Information

If you'd like more specific information about how VAX VTX and VAX VALU can help you improve information delivery for your enterprise, or if you'd like to know more about ALL-IN-1 or Digital's wide range of networking products, please contact your local Digital sales representative.

Specifications

Complies with the CCITT F.300 standard for videotex.

Prerequisite Hardware

VAX VTX and VAX VALU run on any of the entire range of VAX systems with at least 2 Mbytes of dedicated main memory capacity.

VAX VTX and VAX VALU run on MicroVAX systems with 1 Mbyte of dedicated main memory and require DECnet-VAX software.

VAX VTX and VAX VALU support all VT300-, VT200- and VT100-compatible terminals, personal computers, and workstations. These include Digital's VT300-, VT200- and VT100-series terminals and VAXmate, DECmate II, DECmate III, DECmate III PLUS, Rainbow, Professional workstations, and the VTX20 and French Minitel.

Prerequisite Software

For VAX VTX prerequisite software is the appropriate version of the VMS or MicroVMS operating system. For MicroVMS prerequisite software is DECnet End Node.

For VAX VALU prerequisite software is VAX VTX V2.1 or later, and the appropriate version of the VMS or MicroVMS operating system. For MicroVMS prerequisite software is DECnet End Node.

Optional Software/Hardware

Standard DECnet-VAX is required for a distributed VAX VTX environment.

The DECtalk ASCII-to-speech synthesizer.

Standard Prestel display-protocol terminals and standard CEPT display-protocol terminals.

IBM PCs running the CROSSTALK XVI VT100-emulation package from Microstuf, Inc.

WPS-PLUS/VMS.

ALL-IN-1 V2.2 or later.

The Sony VDX-1000 videotex unit.

DECnet-VAX is required for multinode or distributed environments.

For use of the TSM functions, the BLISS-32 compiler may be required.

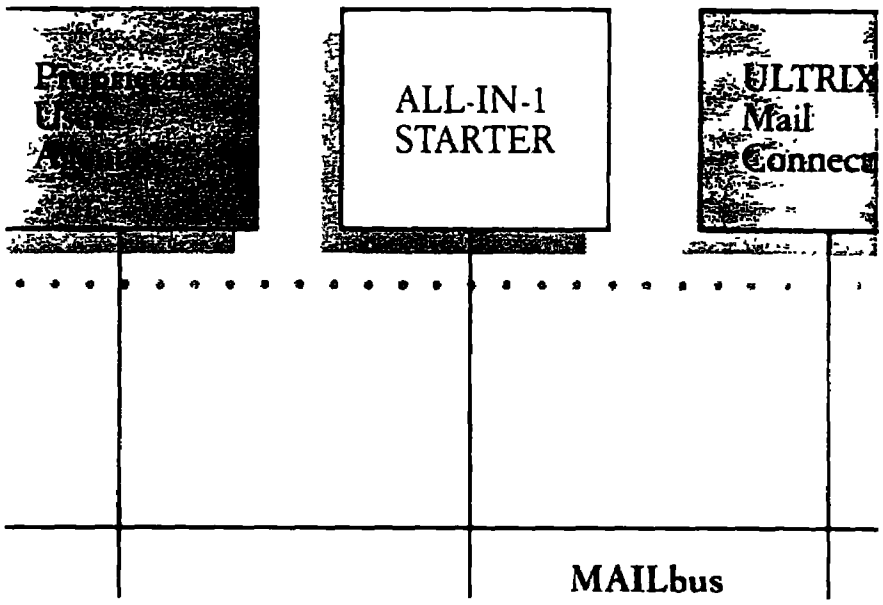
For use of the X.29 function [illegible] TCP and the X.25 [illegible] VTX application [illegible] PSI V3.2 running on [illegible] later is required or [illegible] later running on [illegible] is required.

For use of the 3270 Data Stream [illegible] tions in the TCP/3270 class [illegible] V1.1 (or later) of the DECnet-SNA VMS 3270 Data Stream Programming Interface and V1.2 (or later) of the DECnet SNA Gateway on the same DECnet.

For use of the DECnet-SNA Gateway LU6.2 functions in the VTX Applications Service (VAS) V1.1 (or later) with DECnet/SNA VMS APPC LU6.2 and an associated DECnet-SNA Gateway on the same DECnet and an IBM environment that supports LU Type 6.2 (CICS).

A Base for an Enterprisewide Mail Service

digital



Electronic mail services are the backbone of an enterprisewide communications network. Digital Equipment Corporation is a world leader when it comes to internationally compliant, high-performance electronic messaging. Electronic mail services can exist at several levels of sophistication within your organization. Enterprises often need a low-cost base of fundamental messaging services – electronic mail and document processing – that's powerful enough to meet current needs, convenient to use, and flexible enough for easy integration into other functions in the future. For instance, a company or department is in an office automation start-up mode, and requires low cost and low system management. Digital's ALL-IN-1 STARTER can fill both these requirements.

ALL-IN-1 STARTER uses the same electronic mail, document processing, and file management services as the full-function ALL-IN-1 integrated office and information environment. It's the ideal solution for organizations, or departments within organizations, that require basic electronic mail capabilities, yet are not ready to implement the broad range of features of the full-function ALL-IN-1 environment.

Highlights

- International mail capability for the worldwide enterprise
- MAILbus multivendor message-transfer services based on international standards for the enterprise-wide communication of documents, files, and graphics
- Distributed Directory Services for electronic communication with simple, name-only addresses
- Easy upgrade to the full-function ALL-IN-1 environment when business requirements dictate
- File management that works the way you do – electronic documents within folders, by date and time of creation, with the most recent document first
- Economical entry into the ALL-IN-1 enterprise services environment
- Full-function, flexible document processing with enhanced functions, including insert and overstrike mode and advanced multilingual spelling
- The Digital Difference – Digital's industry-leading training, service, and support

The ALL-IN-1 STARTER Supplies All You Need To Implement Enterprisewide Mail Services

Business runs on communication. The ability to send and receive information – desk to desk, building to building, and country to country is perhaps the most important tool your organization can possess. It's essential for your enterprise to have the exact communications capability it needs, at the lowest possible cost. ALL-IN-1 STARTER helps solve the information-delivery problem. It provides your departments with a foundation of convenient office services – electronic mail and document processing – for low-cost, large-scale implementation of the enterprisewide communication your organization needs.

ALL-IN-1 STARTER is a complementary member of Digital's leading ALL-IN-1 integrated office and information environment. It runs on the same wide range of VAX computing systems – from MicroVAX II through the large-scale VAX 8987 and VAXclusters – and provides users with the same consistent, easy access through the ALL-IN-1 menu.

Advanced Electronic Mail Services

ALL-IN-1 STARTER supplies internationally compliant, high-performance electronic messaging. Working through the MAILbus X.400-based multivendor information-delivery service, ALL-IN-1 STARTER can let everyone in the organization participate in the community of information users.

MAILbus supports the international CCITT X.400 standard for message-handling systems. Those mail systems from other vendors and public mail services that meet this international standard can connect directly to the MAILbus. Also, thanks to the MAILbus gateways, proprietary mail systems from different vendors can be integrated into a single, unified mail system for the extended enterprise.

With the ALL-IN-1 STARTER mail capability you can specify different levels of electronic information delivery – and "read" and delivery receipts. In this way, you can be sure that your message is read. If you're away from your desk, you can have messages forwarded automatically or specify an automatic reply notice.

Distributed Directory Service

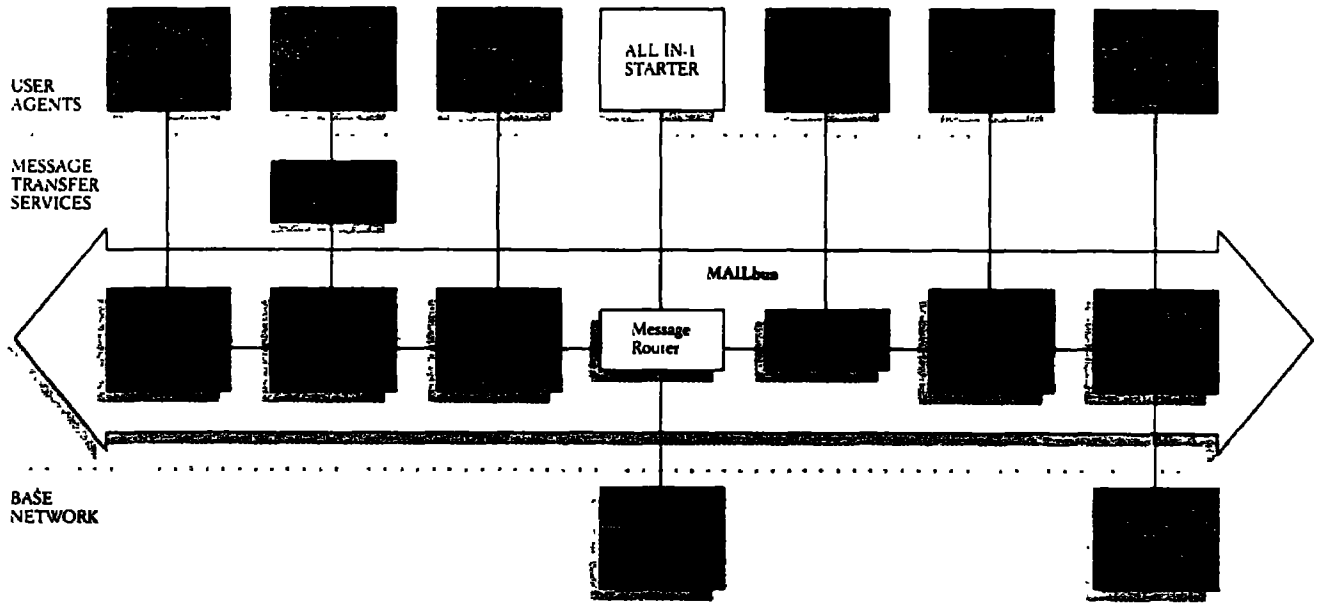
Through the Distributed Directory Service resident in the Message Router, ALL-IN-1 STARTER lets you send information to users of other systems, even non-Digital systems. All you need is the name. It's a powerful tool that makes electronic mail easier to use and easier to manage. The Distributed Directory Service provides a single logical database of all subscribers in a multivendor mail network.

Document Processing Power

ALL-IN-1 STARTER offers a choice for document processing:

- WPS-PLUS
- WPS
- EDT

ALL-IN-1 STARTER offers WPS-PLUS full-feature document processing. WPS-PLUS is the same sophisticated document processing facility that's available on the large-scale ALL-IN-1. It lets you electronically create, edit, and transmit documents that have bolding, underlining, headers, footers, footnotes, automatic page numbering, and technical characters. The standard WPS-PLUS spelling-error detection and correction capability (in selected languages) permits instant error correction.



WPS-PLUS with the ALL IN-1 STARTER also offers

- Insert and overstrike mode
- User control of margins and tabs, including left-and/or right-justification, and decimal-aligned tabs
- Automatic centering, double underscoring, change bars, and redlining
- Widow/orphan control and no-break blocks
- Column cut and paste
- List processing and sort
- Abbreviation and library documents
- Two-dimensional editor for diagrams and equations
- Support for 256-character wide documents

Optional EDT and WPS let you create and edit ASCII text documents EDT and WPS provide full-screen text editing and Digital's Gold Key user interface

File Cabinet Management

ALL-IN-1 STARTER set up like a standard office filing cabinet system – documents within folders – grouped in cabinets that you define Information such as title, creation date, document number, author, keyword, and document type is all maintained and crossfiled automatically

ALL-IN-1 STARTER saves the system manager time Day-to-day "housekeeping" doesn't require a computer expert, and document archiving facilities help reduce the cost of maintaining large databases

Increased Productivity

ALL-IN-1 STARTER contains several personal productivity tools that can make you productive almost immediately!

- Menu navigation features that let you either go through the menu hierarchy step by step or bypass any menu
- An interrupt capability that allows you to instantly stop whatever you're doing to access another function
- Online Help for basic system tutoring without interrupting the task at hand
- Online training to help new users to learn the system through interactive tutorials
- User-defined procedures that automate frequently used key sequences so you don't waste time and make mistakes
- A printing facility that lets you specify where, how, and when many documents are to be printed Also, you control background formatting and printing
- International capabilities that support multilingual operations
- An index-select capability that lets you work on a group of documents simultaneously
- Advanced scrolling capability

The World Leader in Integrated Office and Information Environments

The ALL-IN-1 STARTER is another member of Digital's industry-leading set of integrated office and information systems. ALL-IN-1 STARTER is part of a total service environment for developing complete business communications solutions.

For more information about ALL-IN-1 STARTER or any of Digital's enterprise service products, please contact your local Digital representative.

Specifications

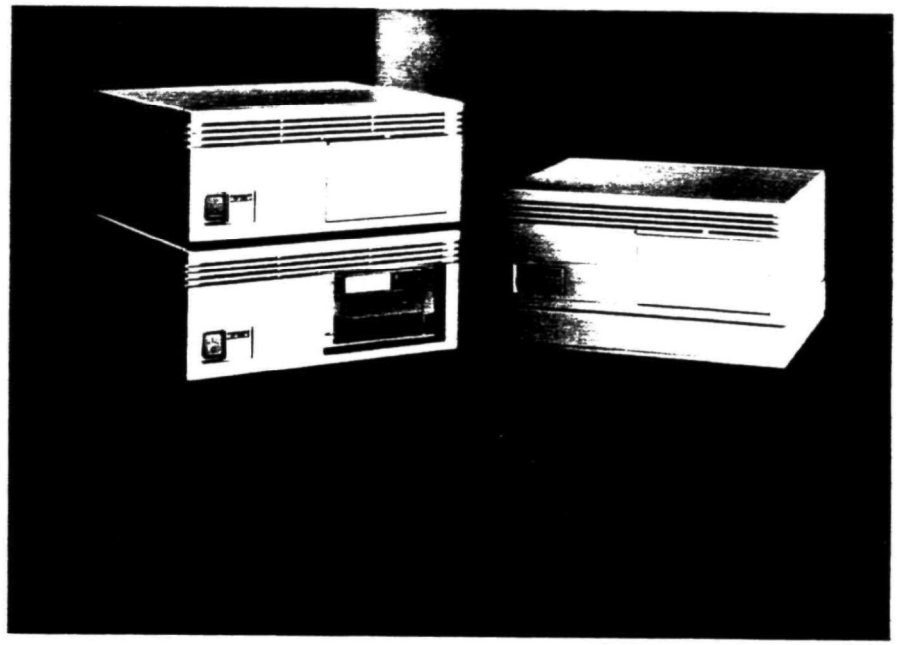
ALL-IN-1 STARTER runs on Digital's wide range of VAX computer systems. With the correct combinations of hardware, software, networks, and support, ALL-IN-1 STARTER provides the foundation for multivendor electronic messaging for your entire enterprise.

Hardware and Software Requirements

See your *Systems and Options* Catalog.

The Lowest-cost Multiuser VAX Computer Ever Offered

digital



Powerful 32-bit VAX Computing at an Office System Price

VAX family compatibility, combined with networked communications, has changed organizational computing forever. Digital puts computer resources closer to the people that need them. MicroVAX 2000 puts these resources right in your office. It provides an ideal small VAX for starting or optimizing an investment in distributed computing.

If you already own MS-DOS™ desktop PCs, MicroVAX 2000 can integrate all of them into one networked environment. Turn individual computer users into a closely linked, productive team. If you already own a VAX computer system, MicroVAX 2000 will run your existing applications without change. Or if you're considering a first computer purchase, think about the kind of return you want on your investment. MicroVAX 2000 delivers much more than high performance for an entry-level price. It also delivers Digital's commitment to VAX compatibility. And Digital's unsurpassed networking technology for communicating information from system to system around the company, around the world.

As a stand-alone system MicroVAX 2000 can support a work group or small department. But MicroVAX 2000 doesn't have to stay small. Expansion options and networking provide unrivaled growth potential. One MicroVAX 2000 in a Local Area VAXcluster or local area network can provide access to users anywhere on the cluster or network. Other computers in this price range just can't compare.

Highlights

- Our lowest-cost, expandable 32-bit VAX in a quiet, compact, tabletop package
- MicroVAX 2000 runs thousands of compatible VMS and ULTRIX 32 applications including Digital's renowned software tools and languages
- Provides numerous configuration and expansion options – up to 6 Mbytes of memory and up to 318 Mbytes of storage. Or configure it without a disk drive for use as an inexpensive Local Area VAXcluster satellite
- Operates either as a stand-alone system, or as part of a local or wide area communications network – providing access to many more users
- Can also manage a local PC network, linking microcomputers from a variety of vendors into one computing environment with a common file system and sharing of expensive peripherals
- Includes a one year, onsite, full-system warranty

VAX at Your Fingertips

MicroVAX II took VAX power out of the computer room and put it in the office. Now, using the same powerful CPU and floating-point chipset, MicroVAX 2000 delivers 32-bit performance at half the price of MicroVAX II. The MicroVAX 2000 tightly integrated system design closes the gap between quality and economy. A busless I/O structure, designed for maximum economy, helps MicroVAX 2000 achieve its remarkable price/performance advantage.

[illegible] Standard VAX Operating Systems and Applications

MicroVAX 2000 runs either the VMS or ULTRIX 32 operating systems. VMS is Digital's acclaimed operating system for multiuser, timesharing applications. ULTRIX makes the most of VAX features in a UNIX* environment. ULTRIX is based on the Berkeley Standard Distribution (4BSD) of UNIX, Version 4.2.

VAX family compatibility keeps your software costs down. MicroVAX 2000 runs thousands of the VAX and MicroVAX II applications already developed by Digital and third parties for VMS or ULTRIX, including the A-to-Z and ALL-IN-1 applications environments. It's also easy to share applications and data among systems on the same or connected networks. As a result of Digital's commitment to compatibility, you can start running applications on your new MicroVAX 2000 right away.

MicroVAX 2000 Grows along with Your Business

The basic MicroVAX 2000 system provides 4 or 6 Mbytes of memory, four serial ports, and two half-height storage devices – one hard disk drive and one floppy drive – in a system box not much larger than a metropolitan phone directory. But that's only the beginning. For more demanding applications, add up to two expansion boxes. Each is the same size as the basic system. But each accommodates one full-height disk drive or a 95 Mbyte TK50Z cartridge tape.

Bring People and Ideas Together through Networking

MicroVAX 2000 is a complete computer system in its own right, providing reliable support for a work group or small department. But the resources of a MicroVAX 2000 can be distributed more widely when you link it to other computers in a communications network. Networking enables all users on all computers in the network to share information, data, and resources.

Digital has more experience in designing, building, and using networked computer systems than any other computer company in the world. Our wide area networks (WANs), local area networks (LANs) and the new Local Area VAXclusters have kept Digital at the forefront of networking technology.

Local Area VAXclusters Let You Set the Pace for Growth

Although MicroVAX 2000 fits into any networking strategy, its diskless configuration makes it especially economical in a Local Area VAXcluster. A Local Area VAXcluster optimizes your computing resources by uniting up to 28 individual or work group systems into a single local computing environment. Unlike an ordinary LAN, the Local Area VAXcluster enables data and applications to be stored centrally on a "boot node" and shared by all satellite computers on the network. To the user, the entire Local Area VAXcluster functions as a single computer system. Data integration and consistency issues are eliminated because only one copy of the data exists. Local Area VAXclusters are easy to use, too. The system management tasks that stand-alone computers call for are performed only on the boot node for the entire cluster.

By adding diskless MicroVAX 2000 to a Local Area VAXcluster you extend the computing capability of the cluster – you get an additional VAX computer at the lowest possible cost

MicroVAX 2000 can manage a PC LAN and provide full integration of MS-DOS and VMS environments Each environment has access to the other's data You can also run VMS applications on the PCs Connect the PC LAN to a local area network or Local Area VAXcluster, and you can transfer PC data to any system on the network, including computers from many other vendors MicroVAX 2000 helps you achieve information integration across all systems in your organization, desktop to mainframe – at a lower cost than any other VAX

Today, MicroVAX 2000 is one member of a value-priced MicroVAX systems group that includes MicroVAX II – Digital's pioneering VAX-on-a-chip – and MicroVAX 3500 and 3600, the highest-performing MicroVAX systems ever The table shows the MicroVAX systems at a glance Digital stands behind every MicroVAX system with a one-year, onsite warranty

Learn more about the MicroVAX 2000 and Digital's MicroVAX computers by contacting your Digital representative

Feature	MicroVAX 2000	MicroVAX II	MicroVAX 3500/3600
Memory (maximum)	6 MB	16 MB	32 MB
Bus	N A	Industry-standard Q-bus	Industry standard Q-bus
Disk storage (maximum)	318 MB	2 GB	560 MB/2 5 GB
Disks supported	RD32 (42MB) RD53 (71 MB) RD54 (159 MB)	RD53 (71 MB) RD54 (159 MB) RA60 (205 MB) RA81 (456 MB)	RA60 (205 MB) RA70 (280 MB) RA81 (456 MB) RA82 (622 MB)
Backup/data exchange devices	RX33 (1 2 MB) TK50 (95 MB)	TK50 (95 MB) TK70 (296 MB) TU81-Plus† TSV05‡	TK70 (296 MB) TU81-Plus† TSV05‡
Operating software	VMS ULTRIX-32	VMS ULTRIX-32 VAXELN	VMS ULTRIX-32 VAXELN
ALL IN-1 subscribers (estimated range)	8-16	14-48	32->100
Communications Devices	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP

†40 MB @ 1600 BPI or 145 MB @ 6250 BPI
‡40 MB @ 1600 BPI

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IBM is a registered trademark of International Business Machines Corporation. MS-DOS is a trademark of Microsoft. UNIX is a registered trademark of American Telephone & Telegraph Company.

Specifications

MicroVAX 2000 System	
Internal data path	32 bits
Instruction buffer	8-byte lookahead
VAX Instruction Set	
32-bit registers	16
Basic operations	304 (some are implemented in software)
Priority levels	32
Addressing modes	9
Data types	Integer F, D, G, and H floating-point, variable bit fields, and numeric strings
Main Memory	
Virtual address capacity	4 Gbytes
Physical memory	6 Mbytes
Error checking	4-byte parity
Operating Environment	
Temperature	10°C to 40°C (50°F to 104°F)
Humidity	10% to 90% noncondensing without diskette 20% to 80% noncondensing with diskette
Altitude	To 2400 m (8000 ft)
Maximum heat dissipation	155 watts
Processor Power Requirements	
Input voltage	88 to 132 VRMS or 176 to 267 VRMS
Frequency tolerance	47 to 63 Hz
Phases	1
Maximum ac power consumption	Under 160 watts maximum input
Surge current	32 A maximum for one half ac cycle
Physical Characteristics	
Height	18 cm (7 in)
Width	33 cm (12.75 in)
Depth	29 cm (11.25 in)
Weight	13.6 kg (30 lb)

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VAX Architecture in a Supermicro Package

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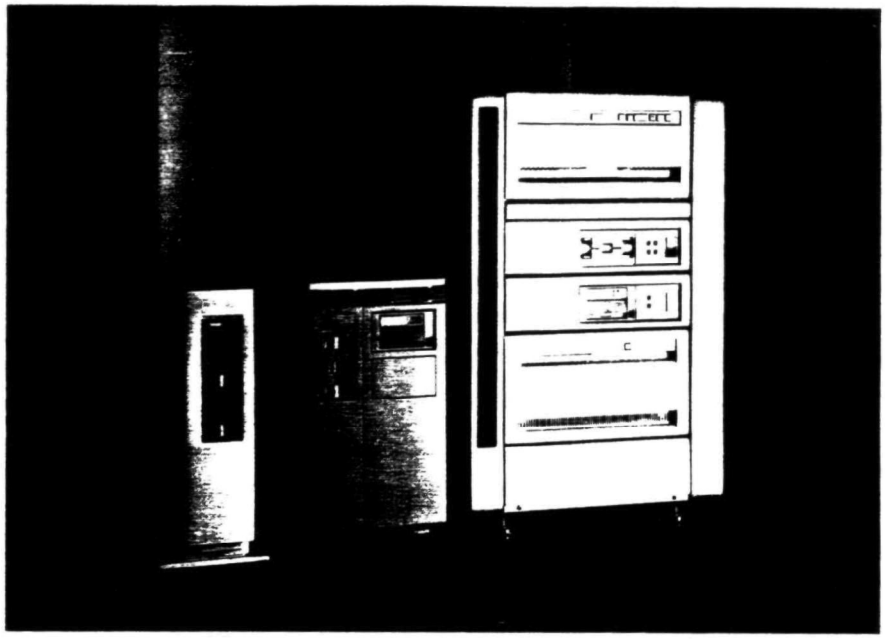

VAX Power Anywhere You Want It

If you've been looking for more computer power in less space, try MicroVAX II for size. It's bringing VAX performance out of the computer room and into the office, the laboratory, the work group, the warehouse, the store. Just about anywhere you've wanted concentrated processing power, you can now place a full-fledged VAX minicomputer. You can put the standard-bearer for today's 32-bit machines within reach of your desk at a cost-per-user equivalent to that of a PC.

Digital's advanced VLSI engineering and manufacturing technologies have put a VAX CPU on a microchip and packaged it in three compact ways. The BA23 and BA123 MicroVAX systems fit easily into the office – in fact, the small BA23 fits under your desk. The BA123 is larger – to accommodate as much as 477 Mbytes of storage. For even greater requirements, you can choose a MicroVAX II cabinet system. It provides up to 2 Gbytes of storage and fits in computer rooms and most laboratories.

A new MicroVAX II goes to work the day it arrives. Installation is simple, and the office packaging eliminates the need for special site requirements. If you already own a VAX computer, you can run the same applications on a new MicroVAX II immediately. If MicroVAX II is your first VAX, take your pick from thousands of time-tested applications already developed for the VAX family.

Use MicroVAX II as a complete stand-alone system or let it optimize your distributed computer resources. Digital's commitment to compatibility and networking supports your style of computing, from the individual desktop to the company-wide, worldwide computer network.

Highlights

- High-performance, 32 bit architecture to match your computing needs You get 90 percent of the performance of a VAX-11/780 at a cost-per-user rivaling much smaller machines
- Three operating software choices – Digital's proven multiuser VMS our ULTRIX-32 for UNIX" environments, and VAXELN for dedicated realtime
- Thousands of compatible VAX applications and Q-bus options developed by Digital and third parties are ready to run on MicroVAX II without change
- Pick the MicroVAX II configuration that makes sense today VAX compatibility assures you that MicroVAX II will serve future needs as well
- Use MicroVAX II as a complete standalone system or add Digital networking products to link MicroVAX II with other Digital and non-Digital systems Build a communications network that helps you get critical information to key people on time
- Each MicroVAX II comes with a one-year, onsite warranty

First of All, It's a VAX Computer Today, VAX 32-bit architecture is setting the pace for the entire computer industry And MicroVAX II can deliver to your office the kind of VAX power that was once locked away in computer rooms

The MicroVAX II CPU chip and floating-point unit are integrated on a single board, leaving plenty of room in the backplane for storage, memory, and communications modules

Tightly integrated memory bypasses the Q-bus datalink, leaving the bus available for faster I O One MicroVAX II can provide up to 16 Mbytes of physical memory and the virtual memory provided by VAX architecture enables a MicroVAX II to support large applications with ease

VAX Software Compatibility Protects Your Investment
When you buy a new computer you shouldn't have to wait around for software that runs on it MicroVAX II starts work immediately Like any other VAX, it runs VMS ULTRIX-32, or VAXELN operating software And the applications you've been using on one VAX computer will work identically on any other

Pick the Right Operating Software for Your Environment
VMS is Digital's general purpose operating system It handles processor-intensive, I/O-intensive, and realtime tasks speedily VMS offers an incomparable range of utilities, system services, software development tools, and languages

In a UNIX environment, pair MicroVAX II with Digital's ULTRIX-32 An enhanced UNIX for the VAX, it is based on the 4th Berkeley Standard Distribution (4BSD), Version 4 2

For realtime computing, VAXELN is the right choice Use the VAXELN Toolkit on a host VAX or MicroVAX II to develop realtime applications Then run those applications on a dedicated target MicroVAX II and make the most of its 32-bit address space and processing power

Expand Your Options with MicroVAX II Configurations
The small BA23 floorstand system slides under a desk but it can be configured with 71 or 159 Mbytes of storage With eight Q-bus backplane slots, the BA23 also accommodates a variety of peripherals and options Two disk compartments hold a Winchester and either a floppy or a cartridge-tape drive

The BA123 adds extra storage space providing up to 477 Mbytes of storage It can handle larger applications without needing a computer-room environment Twelve Q-bus slots and four mass storage compartments – handling up to three Winchester disks – make the BA123 a real workhorse

The H9642 cabinet enclosure provides high performance and capacity for compute-intensive applications The cabinet is suited for use in computer rooms and most laboratories It accommodates the larger RA-series disks and offers up to 1 Gbyte of storage with an additional Gbyte available in an expander cabinet The H9642 system provides 14 Q-bus slots and up to 49 direct-connect serial lines to support many options

The MicroVAX II industry-standard Q-bus accommodates a variety of options developed by Digital and other vendors Options such as laser printers, communications devices, digitizers, D/A and A/D converters, and bidirectional/parallel data transmission devices, to name a few Because the Q-bus uses an open, documented architecture, you have countless offerings to choose from

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MicroVAX II is the pioneering member of a value-priced group of MicroVAX systems that today includes MicroVAX 2000 – Digital's lowest-priced multiuser VAX – and the MicroVAX 3500 and 3600, the highest-performance MicroVAX systems ever. The table shows the MicroVAX systems at a glance. Digital stands behind every MicroVAX computer with a one-year, onsite warranty.

Digital's Communications Speak Your Language

Linking computers together in a communications network gives you the flexibility to distribute computing requirements across multiple resources. Put computers where you want them, incorporate existing computers from many other vendors into a single environment, and maximize your ability to communicate in an instant with key people anywhere on the network. No wonder Digital networking has become the undisputed communications benchmark in computing today.

MicroVAX II offers complete network support. It can communicate with any other Digital system, and it can provide connections to many other vendors' systems, including IBM® mainframes.

You can use MicroVAX II to manage a local area network of MS-DOS® PCs. With PC networking, individual desktops are no longer isolated desktops. PC LANs offer complete integration of your MS-DOS and VMS environments. Use PCs as terminal emulators for VMS applications – or for applications from any other vendor systems accessible to the PC LAN.

MicroVAX Systems [illegible]

Feature	MicroVAX 2000	MicroVAX II	MicroVAX 3500/3600
Memory (maximum)	6 MB	16 MB	32 MB
Bus	VAX	Industry standard Q-bus	Industry standard Q-bus
Disk storage (maximum)	318 MB	2 GB	560 MB, 2.5 GB
Disks supported	RD32 (42MB) RD53 (71 MB) RD54 (159 MB)	RD53 (71 MB) RD54 (159 MB) RA60 (205 MB) RA81 (456 MB)	RA60 (205 MB) RA70 (280 MB) RA81 (456 MB) RA82 (622 MB)
Backup/data exchange devices	RX33 (1.2 MB) TK50 (95 MB)	TK50 (95 MB) TK70 (296 MB) TU81-Plus† TSV05‡	TK70 (296 MB) TU81-Plus† TSV05‡
Operating software	VMS ULTRIX-32	VMS ULTRIX-32 VAXELN	VMS ULTRIX-32 VAXELN
ALL-IN-1 subscribers (estimated range)	8-16	14-48	32->100
Communications Devices	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP	Ethernet synchronous asynchronous networking DECnet HDLC TCP/IP

†40 MB @ 1600 BPI or 145 MB @ 6250 BPI
‡40 MB @ 1600 BPI

Specifications

MicroVAX II System Configurations			
Enclosures	BA23	BA123	H9642
Backplane Slots	8	12	14
Maximum Memory	16 MB	16 MB	16 MB
Power	230 W	460 W	460 W
Serial Lines			
with Modem Control	13	21	33
without Modem Control	25	33	49

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Send PC data back and forth between systems on the LAN, share disks, peripherals, and even integrate PC data into VMS-based report programs

If your networking wish list includes work group support with centralized data storage and system management – and shared access to computing resources – try MicroVAX II in a Local Area VAXcluster. Local Area VAXclusters are based on Digital's advanced VAXcluster technology, but they've been optimized to support work groups, using up to 28 systems based on the MicroVAX and VAXstation. With a Local Area VAXcluster you get the advantages of shared resources along with the service of a boot node to provide dynamic load balancing of resources across the cluster. A Local Area VAXcluster turns multiple small systems into a single computing environment that can provide access to hundreds of users. MicroVAX II is powerful enough to serve as the boot node, or manager, for an entire cluster.

For More Information

Learn more about MicroVAX II and Digital's MicroVAX computers by contacting your Digital representative.

MicroVAX II System Configurations (Continued)

Storage Cavities			
5.25-inch	2	4	4
14-inch	0	0	4
Maximum Storage Capacity	159 MB	477 MB	2 GB
Load Device	TK50/RX50	TK50/RX50	TK50
Backup Device	TK50/RX50/ TK70	TK50/RX50/ TK70	TK50/TU81-Plus, RA60/RA81/TK70

Processor Enclosure Power Requirements

	BA23		BA123		H9642	
Power Requirements (ac Input)						
Line Voltage	120 V	240 V	120 V	240 V	120 V	240 V
Power Source Phasing	Single	Single	Single	Single	Single	Single
Frequency	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz
Voltage Tolerance (VRMS)	88-128	176-256	88-128	176-256	88-128	176-256
Line Frequency Tolerance (Hz)	47-63	47-63	47-63	47-63	59-61	49-51
Max Running Current	6.0 A	3.0 A	12.0 A	6.0 A	24.0 A	12.0 A
Power Consumption	345 W	345 W	690 W	690 W	1400 W	1400 W
Acoustics						
Acoustics Per ISO 7779	120 V	240 V	120 V	240 V	120 V	240 V
LNPE	6.4 B	6.4 B	6.0 B	6.0 B	7.1 B*	6.7 B
LPA	49 dB	49 dB	45 dB	45 dB	57 dB*	55 dB
Dimensions						
Height	62.2 cm (24.5 in)		62.2 cm (24.5 in)		106.0 cm (41.7 in)	
Width	25.4 cm (10.0 in)		33.0 cm (13.0 in)		65.6 cm (25.7 in)	
Depth	72.4 cm (28.5 in)		70.0 cm (27.5 in)		91.4 cm (36.0 in)	
Operating Environment						
Temperature	15-32°C (50-90°F)					
Relative humidity	20-80% noncondensing					
Maximum operating altitude	2.4 km (8,000 ft)					

*With an RA81 disk