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Datapro Reports on
Minicomputers

M09-325-**501**

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Digital Equipment Corp. DECsystems: Product Profile

In this report:

System Overview
The DECsystems are reduced instruction set computing (RISC) multiuser computer systems and network servers which support DECstation workstations, PCs, and VT1200 X Windows terminals. DECsystems are used for commercial, public sector, and scientific/engineering applications including office automation, computer-aided design (CAD), computer-aided software engineering (CASE), and simulation.

The DECsystem line comprises the 5000 Model 200, 5100, 5500, and 5800 Series (5810, 5820, 5830, 5840).

Competition
DECsystem competitors include the high-end Hewlett-Packard HP 9000 Models, IBM RISC/6000, MIPS RISCstation and M-Series, and Sun Microsystems SPARCstations/servers.

Vendor
Digital Equipment Corp.
146 Main Street
Maynard, MA 01754-2571
(508) 493-5111

Price
Basic configuration list prices range from $10,995 to $190,000.

GSA Schedule
Yes.

—By Alyn J. Gorman
Managing Editor

Characteristics

Specifications

See Table 1 for a comparison of system characteristics for the DECsystem models.

Peripherals

Peripherals communicate with the DECsystems via a Small Computer System Interface (SCSI). The 5000 Model 200 and the 5500 also support the Fiber Distributed Data Interface (FDDI) and the Digital Storage Systems Interconnect (DSSI). The DECsystem 5500 supports Q-bus options, and the DECsystem 5800 models support VAXBI options. The 5000 Model 200 and 5500 support VME (the 5000 Model 200 via the Turbochannel interconnect).

Mass Storage

The DECsystem 5000 Model 200 does not support internal disk drives. Up to 28 external drives can be attached, however. The DECsystem 5100 supports up to five integrated storage devices. One 209M-byte drive is included in the base 5100 DECsystem enclosure. The DECsystem 5500 pedestal enclosure holds three disk drives and one tape drive. A fourth disk can be added if a tape drive has not been installed. The DECsystem 5800 Series support up to eight drives in the CPU cabinet; expansion cabinets accommodate up to eight drives each.

See Table 2 for specifications on available mass storage devices.

Tape Drives

See Table 3 for tape drive specifications.

For distribution and loading of software, the RRD40 compact disk provides 600M bytes of storage. Average access time is 0.5 seconds, and average data transfer is 150K bytes per second.

Table 1. System Comparison

Model	5000 Model 200	5100	5500	5810/5820	5830/5840
System Characteristics					
Min./Max. Memory (bytes)	8-120M	8-128M	32-256M	32-256M	64-256M
Expansion Increments (bytes)	8M, 32M	8M, 32M	8M, 32M	8M, 32M	8M, 32M
Min./Max. Storage (bytes)	332M-28G	209M-4.4G	381M-28G	560M-115G	560M-115G
Number of Processors	1	1	1	1/2	3/4
Recommended No. of Users	60	50	150	—	—
Date First Installed	4/90	10/90	12/90	10/89	6/91
Central Processing Unit & Memory					
Computer Type	32-bit	32-bit	32-bit	32-bit	32-bit
Processor Model	MIPS R3000	MIPS R3000	MIPS R3000	MIPS R3000	MIPS R3000
Memory Type	ECC	Parity	ECC	ECC	ECC
Floating-Point Co-Processor	MIPS R3010	MIPS R3010	MIPS R3010	MIPS R3010	MIPS R3010
Cache Memory (bytes)	128K	128K	128K	128K 1st-level, 256K 2nd-level	128K 1st-level, 256K 2nd-level
Performance Characteristics					
Multiprocessing Capability (Yes/No)	No	No	No	Yes	Yes
MIPS (Integer)	24	19.4	28.2	18.7/35	49/62
Proc. Clock Speed	25MHz	20MHz	30MHz	25MHz	25MHz
I/O Transfer Rate (bytes/second)	5M	4M	24M	50M	50M
Basic Configuration					
Memory/Storage Included (bytes)	16M/332M	8M/209M	32M/381M	32M/560M	64M/560M
Purchase Price ($)	19,795 (pkg. system, can be tailored)	10,995	41,900	75,000	140,000

Note: A dash (—) in a column indicates that the information is unavailable from the vendor.

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Table 2. Mass Storage Devices

Model	RZ24	RF31	RZ55/6/7	RA70	RA90/RA92
Type	Winchester	Winchester	Winchester	Winchester	Winchester
Size (inches)	3½	5¼	5¼	5¼	9
Formatted capacity (bytes)	209M	381M	332M/665M/ 1G	280M	1.2G/1.5G
Interface/controller	SCSI	DSSI	SCSI	KDA50	KDB50
Average access time (ms.)	24.3	23.6	24.3/24.3/ 22.8	27	18.5
Peak Data transfer rate (bytes/second)	1.5M	4M	1.0M/1.85M/ >2M	1.4M	2.8M
Purchase Price ($)	3,000	7,600	5,500/6,000/ 8,100	9,180	27,500/ 26,584

Terminals/Workstations

Console: A console terminal is necessary to run the system. Several video terminals are available, including the monochrome VT320 and VT330 models, the color VT340 and 420 terminals, and VT X Window terminals.

Workstations/PCs: The DECsystems support a variety of PCs or workstations, including the DECstation workstations. Digital's support of networking standards allows the DECsystems to support multivendor environments. The DECsystems can support hundreds of users; configurations vary according to the specific application.

Printers
A variety of line and serial printers is available for the DECsystems. Line printers attach to the DECsystem 5810 and 5820 via asynchronous line. The DECsystem 5500 allows serial printers to connect via asynchronous line, and one parallel printer via a Q-bus slot.

Communications

Protocols Supported: TCP/IP.

Network Applications Supported: DECnet, NFS.

LANs Supported: Ethernet.

Operating Environment
The DECsystems can operate between 50 and 104 degrees Fahrenheit and within a humidity range of 10 to 80 percent (noncondensing). The physical and electrical specifications of the DECsystems are highlighted in the following tables.

Electrical Specifications

Model	Voltage	Amperage	Power Consumption (kVA)
5000	120/240	3.3/1.7	400
5100	120/240	4.2/2.1	500
5500	120/240	12/6	670
5810/20	208	8	1600
5830/40	208	8	1600

Physical Specifications

Model	Height (in.)	Width (in.)	Depth (in.)	Weight (lb.)
5000	3.6	20.1	17.1	30
5100	6	18	6	45
5500	27	21	17.8	145
5810/20	60.5	30.5	30	700
5830/40	60.5	30.5	30	700

Software

Operating System
Digital's UNIX derivative—ULTRIX-32—is based on Berkeley 4.2 BSD UNIX and includes extensions from 4.3 BSD and AT&T UNIX System V. ULTRIX complies fully with AT&T's System V Interface Definition (SVID) Issue 2, Volume 1. It also complies with the IEEE's 1003.1 standard for a portable operating environment (POSIX) and with the National Institute of Standards and Technology's interim Federal Information Processing Standard (FIPS 151-1).

ULTRIX Worksystem Software (UWS), a superset of ULTRIX, adds windowing and graphics capabilities. Windowing facilities are provided by DECwindows, which features an enhanced X Window System Version 11 and provides network-transparent interaction with applications across ULTRIX, VMS, MS-DOS, Macintosh, and other

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Table 3. Tape Drives

Model	TK30	TK50	TK70	TLZ40	TU81
Type	Streaming	Streaming	Streaming	Digital audio	Tape subsystem
Tape Width	—	—	½″	4 mm.	½″
Capacity (bytes)	95M	95M	296M	1.2G (max.)	145M (GCR)/40M (PE)
Interface/controller	SCSI	SCSI	—	SCSI	—
Read/Write Speed	75 ips	75 ips	100 ips	—	75
Peak Data transfer rate (bytes/second)	62.5K	62.5K	90K	183K (max.)	468K
Supported by	5100	5100	All	All	5500, 5800 Series
Purchase Price ($)	1,800	3,738	4,600	5,500	35,543
Comments	Integrated storage option	Cartidge unit available in expansion box	49-track; 10,000 bpi; features ECC, CRC, & a read-after-write procedure	Primary use is backup	256KB cache buffer

platforms. Digital's current workstations include an end-user license for OSF/Motif and Display PostScript capabilities.

Communications

DECsystems bundle TCP/IP and NFS networking software. Digital also provides a range of DECnet products that provides application access, business communications, and information/resource sharing services across VMS and ULTRIX.

Other Software

Prestoserve NFS, a file system accelerator, is standard on the 5500 and optional on the 5100. It improves file system performance by roughly 50 percent in applications using synchronous writes through a disk write buffering scheme.

DECsystems come bundled with the C compiler and ULTRIX SQL. Other database management systems are among the more than 1500 applications currently being shipped from third-party sources.

Database management systems for the DECsystems are under development by Digital.

Sample Configuration Pricing

The DECsystems come in various packaged system configurations. Customers may also configure their own systems; however, packaged systems are generally priced less than the individual components. Sample DECsystem packaged systems and prices are outlined below. These configurations do not include workstations; depending on the size of the system and type of terminals used, this item could add substantially to the total system cost.

Entry-Level System: Model 5100

Description	Product ID	Price ($)
Packaged System	DU-51MTI-A9	10,995 (1)
CPU	MIPS R3000	Bundled
Main Memory	8M bytes	Bundled
Console	VT420 monochrome	629 (1)
I/O Ports	ThinWire/Thick Wire Ethernet	Bundled
Disk Controller	SCSI controller	Bundled
Disk Drive	209MB RZ24 disk	Bundled
Tape Controller	SCSI controller	Bundled
Tape Drive	95MB TZ30	1,800
Monthly Maintenance	Basic System Support	50 (1)
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	SQL	Bundled
Total		13,424 (1)

(1) Standard Warranty Price—includes Basic hardware and software support. List prices are slightly lower.

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Intermediate-Level System: Model 5500

Description	Product ID	Price ($)
Packaged Systems	DU-55HT1-A9	41,900 *(1)*
CPU	MIPS R3000	Bundled
Main Memory	32M bytes	Bundled
Console	VT420 mono-chrome	629 *(1)*
I/O Ports	ThinWire/Thick Wire Ethernet	Bundled
Disk Controller	SCSI & DSSI controller	Bundled
Disk Drive	RF31 381M-byte drive	6,500
Tape Controller	TQK70	1,400
Tape Drive	TK70 296M-byte cartridge tape	4,600
Monthly Maintenance	Basic System Support	283 *(1)*
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	SQL	Bundled
Total		55,029 *(1)*

(1) Standard Warranty Price—includes Basic hardware and software support. List prices are slightly lower.

Large System: Model 5820

Description	Product ID	Price ($)
Packaged System	SU-5N38A-BK	115,000 *(1)*
CPU	MIPS R3000 VAXBI dual processor	Bundled
Main Memory	64M bytes	Bundled
Console	VT320 mono-chrome	Bundled
I/O Ports	DEBNI Ethernet	Bundled
Disk Controller	KDB50 controller	Bundled
Disk Drive	SA70 array with 2 RA70 drives	Bundled
Tape Controller	—	Bundled
Tape Drive	TK70 tape console	Bundled
Printer	LA75	Bundled
Monthly Maintenance	Basic System Support	1,739 *(1)*
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	SQL	Bundled
Total		115,000 *(1)*

(1) Standard Warranty Price—includes Basic hardware and software support. List prices are slightly lower. ■