
Digital Equipment DECsystems: Product Profile

In this report:

Characteristics..... -502

Sample Configuration

Pricing..... -504

System Overview

The DECsystems are reduced instruction set computing (RISC) multi-user computer systems and network servers which support DECstation 2100 and 3100 workstations or PCs. DECsystems are oriented toward commercial, graphics, and scientific/engineering applications including artificial intelligence, computer-aided design (CAD), computer-aided software engineering (CASE), and simulation. The DECsystem 3100 is a stackable desktop system; the other DECsystems feature cabinet/pedestal enclosures.

The DECsystem line comprises Models 3100, 5400, 5810, and 5820.

Vendor

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

Price

Basic configuration list prices range from \$11,900 to \$196,500.

GSA Schedule

Yes.

Competition

The DECsystems compete with a variety of products, including the Sun Microsystems SPARCserver and high-end Hewlett-Packard HP 9000 Models.

Characteristics

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

Specifications

Main Memory

The DECsystems provide main storage up to 128M bytes in 4M- and 32M-byte increments. The DECsystem 3100 and 5400 support 128K bytes of cache memory. The DECsystem 5810 and 5820 support a first-level cache of 128K bytes and a second-level cache of 256K bytes.

Processing Components

The MIPS R2000 CPU is supported by the R2010 floating-point co-processor with a clock speed of 16.67MHz on the DECsystem 3100. On the DECsystem 5400, 5810, and 5820, the MIPS R3000 CPU is supported by the R3010 floating-point co-processor with speeds of 20MHz, 25MHz, and 25MHz, respectively.

Peripherals

Peripherals communicate with the DECsystem 3100 via a Small Computer System Interface (SCSI). The DECsystem 5400 supports Q-bus options, and the DECsystem 5810 and 5820 support VAXBI options.

Mass Storage

The DECsystem 3100 supports up to six SCSI storage devices, including four in an expansion cabinet. The DECsystem 5400 pedestal enclosure has space for three integrated storage elements (ISEs) and one tape drive, and the Q-bus and storage expansion pedestal accommodates three additional ISEs. ISEs come with integral, dedicated controllers packaged with the drives. The DECsystem 5400 cabinet enclosure holds four disk drives and one tape drive; various expansion cabinet options are available. The DECsystems 5810 and 5820 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

A variety of tape drives is available for the DECsystems. The DECsystem 3100 supports the SCSI TK50Z tape drive, while the other DECsystems support both the TK70 and TU81 tape drives.

Table 1. System Comparison

Model	3100	5400	5810	5820
System Characteristics				
Min./Max. Memory (bytes)	8-24M	16-64M	32-128M	64-128M
Min./Max. Storage (bytes)	332M-2G	400M-9.7G	560M-115G	560M-115G
Number of Processors	1	1	1	2
Number of Terminals				
Direct Connect/Shared Access	—	—	—	—
Max/Recommended No. of Users	up to 64	—	—	—
Date First Installed	6/89	9/89	10/89	10/89
Central Processing Unit & Memory				
Computer Type	32-bit	32-bit	32-bit	32-bit
Processor Model	MIPS R2000	MIPS R3000	MIPS R3000	MIPS R3000
Memory Type	ECC	ECC	ECC	ECC
Floating-Point Co-Processor	MIPS R2010	MIPS R3010	MIPS R3010	MIPS R3010
Cache Memory (bytes)	128K	128K	128K 1st-level, 256K 2nd-level	128K 1st-level, 256K 2nd-level
Performance Characteristics				
Multiprocessing Capability (Yes/No)	No	No	No	Yes
MIPS (Integer)	14	16.6	18.7	up to 36
Proc. Clock Speed	16.67MHz	20MHz	25MHz	25MHz
I/O Transfer Rate (bytes/second)	4M	8M	50M	50M

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

Table 2. Mass Storage Devices

Model	RZ55	RF30	RF71	RA70	RA90
Type	Winchester	Removable Winchester	Winchester	Winchester	Winchester
Size (inches)	5¼	5¼	5¼	5¼	9
Formatted capacity (bytes)	332M	150M	400M	280M	1.2G
Interface/controller	SCSI	Integrated	Integrated	KDB50	KDA50
Average access time (ms.)	24	29.3	29.3	27	—
Data transfer rate (bytes/second)	1.25M	1.5M	1.5M	1.4M	2.8M
Purchase Price (\$)	5,500	4,500	11,000	9,180	25,000

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

The TK50Z streaming tape drive is a 5¼-inch, half-height cartridge unit in an external expansion box. This SCSI drive has a maximum storage capacity of 95M bytes and achieves a read/write speed of 75 ips in streaming mode. The TK50Z has a peak data transfer rate of 62.5K bytes per second.

The TK70 streaming cartridge tape is a 48-track, 5¼-inch form factor drive that features a streaming speed of 100 ips and density of 10,000 bpi. The TK70 uses 296M-byte, ½-inch CompacTape-II tape cartridges (developed by Digital in conjunction with 3M Company) which can hold the entire contents of the 280M-byte RA70 disk drive. The TK70 transfers data at 90K bytes per second and features ECC, CRC, and a read-after-write procedure to verify data.

Additionally, the DECsystem 5400, 5810, and 5820 support the TU81-Plus tape subsystem. The TU81-Plus is for applications requiring sustained input/output, such as disk backup, data archiving, data interchange, and recording of data from high-speed test equipment. This PE/GCR unit features a 256K-byte cache buffer, 1600/6250 bpi recording densities, and a streaming speed of 75 ips. A nine-track unit that employs ½-inch tape, the TU81-Plus also features a 25-ips start/stop speed and storage capacities of 145M bytes in GCR mode and 40M bytes in PE mode. Data transfer speed is 468K bytes per second.

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 terminal, and the monochrome VT1000 X Window terminal.

Workstations/PCs: The DECsystems support a variety of PCs or workstations, including the DEC-

station 2100 and 3100 workstations. Digital's support of networking standards allows the DECsystems to support multivendor environments. The DECsystems can support over 64 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 5400 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 DECstations are highlighted in the following tables.

Electrical Specifications			
Model	Voltage	Amperage	Power Consumption (kVA)
3100	120/240	2.8/1.5	122
5400 Pedestal	120/240	12/6	670
5400 Cabinet	120/240	24/12	1200
5810	208	8	1600
5820	208	8	1600

Physical Specifications				
Model	Height (in.)	Width (in.)	Depth (in.)	Weight (lb.)
3100	5.9	18.3	15.3	45
5400 Pedestal	27	21	17.8	129
5400 Cabinet	41.6	21.3	32.5	450
5810	60.5	30.5	30	700
5820	60.5	30.5	30	700

Software

Operating System

ULTRIX-32, Digital's UNIX derivative, is based on Berkeley 4.2 BSD UNIX. It includes extensions from 4.3 BSD and AT&T UNIX System V. It does not comply fully with AT&T's System V Interface Definition (SVID). ULTRIX-32 does, however, comply with the IEEE's 1003.1 standard for a portable environment (POSIX) and with the National Institute of Standards and Technology's interim Federal Information Processing Standard (FIPS).

Windowing facilities are provided by DEC-windows, which features an enhanced X Window System Version 11 and provides network-transparent interaction with applications across ULTRIX, VMS, MS-DOS, and other platforms.

ULTRIX-32 *Worksystem Software* (UWS) provides windowing and graphics capabilities under ULTRIX-32. Both ULTRIX-32 and UWS are fully compatible with Sun Microsystems' Network File System (NFS), allowing DECsystems to coexist in multivendor networked environments and to access files transparently over an Ethernet network.

Communications

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

Other Software

DECsystems come bundled with the VAX C compiler. A Fortran compiler is optional.

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

Sample Configuration Pricing

The DECstations 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 DECstation 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 3100

Description	Product ID	Price (\$)
CPU	MIPS R2000 CPU	Bundled
Main Memory	8M-byte memory	Bundled
Console	VT320 monochrome	611*
I/O Ports	ThinWire/Thick Wire Ethernet	Bundled
Disk Controller	SCSI controller	Bundled
Disk Drive	Diskless system	NA
Tape Controller	SCSI controller	Bundled
Tape Drive	Tapeless system	NA
Workstation Controller	SCSI controller	Bundled
Printer	Choice of DEC printer	Varies
Workstation Display	Choice of terminals	Varies
Total Hardware	PM220-AR packaged system	13,662*
Monthly Maintenance	Basic System Support	119
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	—	NA
Total		14,273*

NA—Not applicable.

*Standard Warranty Price. Includes Basic hardware and software support. List prices are slightly lower.

Intermediate-Level System: Model 5400 (Cabinet)

Description	Product ID	Price (\$)
CPU	MIPS R3000 CPU	Bundled
Main Memory	16M-byte memory	Bundled
Console	VT320 mono-chrome	611*
I/O Ports	ThinWire/Thick Wire Ethernet	Bundled
Disk Controller	KDA50 controller	Bundled
Disk Drive	RA90 1.2G-byte drive	Bundled
Tape Controller	—	Bundled
Tape Drive	TK70 296M-byte cartridge tape	Bundled
Workstation Controller	—	Bundled
Printer	Choice of DEC printer	Varies
Workstation Display	Choice of terminals	Varies
Total Hardware	DU-54FT1-AA packaged system	83,028*
Monthly Maintenance	Basic System Support	560
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	—	NA
Total		83,639*

NA—Not applicable.

*Standard Warranty Price. Includes Basic hardware and software support. List prices are slightly lower.

Large System: Model 5820

Description	Product ID	Price (\$)
CPU	MIPS R3000 CPU VAXBI dual processor	Bundled
Main Memory	64M-byte memory	Bundled
Console	Console terminal	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
Workstation Controller	—	Bundled
Printer	Console printer Choice of DEC printer	Bundled Varies
Workstation Display	Choice of terminals	Varies
Total Hardware	SU-5N38A-BK packaged system	228,868*
Monthly Maintenance	Basic System Support	2,082
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	—	NA
Total		228,868*

NA—Not applicable.

*Standard Warranty Price. Includes Basic hardware and software support. List prices are slightly lower. ■