
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, 3100 and 5000 Model 200 Series workstations, PCs, and VT1200 X Windows terminals. DECsystems are oriented toward commercial, public sector, and scientific/engineering applications including office automation, PICK, computer-aided design (CAD), computer-aided software engineering (CASE), and simulation.

The DECsystem line comprises the 5000 Model 200, 5100, 5500, 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 \$13,424 to \$147,368.

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 5000 Model 200, 5100, and 5500 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

On all DECsystems the MIPS R3000 CPU is supported by the R3010 floating-point co-processor with speeds ranging from 20 to 30 megahertz.

Peripherals

Peripherals communicate with the DECsystems via a Small Computer System Interface (SCSI). DSSI

devices are currently supported on the DECsystem 5500; FDDI support is expected to be added in 1991. The DECsystem 5500 supports Q-bus options, and the DECsystem 5810 and 5820 support VAXBI options. When shipped, the new 5500 DECsystems will support VME; the DECsystem 5000 is expected to support VME in the near future.

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 209MB 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 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 are available for the DECsystems. The DECsystem 5100 supports the SCSI

Table 1. System Comparison

Model	5000 Model 200	5100	5500	5810	5820
System Characteristics					
Min./Max. Memory (bytes)	8-128M	8-128M	32-256M	32-128M	64-128M
Min./Max. Storage (bytes)	332M-28G	209M-4.4G	381M-28G	560M-115G	560M-115G
Number of Processors	1	1	1	1	2
Number of Terminals					
Recommended No. of Users	60	50	150	—	—
Date First Installed	4/90	10/90	12/90	10/89	
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	ECC	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	No	Yes
MIPS (Integer)	24	19.4	28.2	18.7	up to 36
Proc. Clock Speed	25MHz	20MHz	30MHz	25MHz	25MHz
I/O Transfer Rate (bytes/second)	93M	4M	24M	50M	50M

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

Table 2. Mass Storage Devices

Model	RZ24	RF31	RZ56	RZ57	RA70
Type	Winchester	Winchester	Winchester	Winchester	Winchester
Size (inches)	3½	5¼	5¼	5¼	5¼
Formatted capacity (bytes)	209M	381M	665M	1G	280M
Interface/controller	SCSI	SCSI	DSSI	SCSI	KDA50
Average access time (ms.)	24.3	23.6	24.3	22.8	27
Peak Data transfer rate (bytes/second)	1.5M	4M	1.5M	<2M	1.4M
Purchase Price (\$)	3,000	8,800	5,500	10,500	9,180

TK30 and TK50 tape devices, while the other DECsystems support the TLZ04, TK70 and TU81 tape drives as well.

The 3½-inch, TK30 streaming tape drive is an integrated storage option and the 5¼-inch, TK50 streaming tape drive is a cartridge unit available in an external expansion box. Both SCSI drives have a maximum storage capacity of 95M bytes and achieves a read/write speed of 75 ips in streaming mode. Peak data transfer rate on both products is 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.

SCSI and Q-bus options are supported by the TLZ04—a 4mm, digital audio tape used primarily for backup. This cartridge unit features a maximum capacity of 1.2G bytes and a maximum data transfer rate of 183K bytes per second.

For distribution and loading of software, the RRD40 compact disk provides 600M bytes of storage. Average access time is .5 seconds and average data transfer is 150K bytes per second.

Additionally, the DECsystem 5500, 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 and 420 terminals, and the monochrome VT1200 X Window terminal.

Workstations/PCs: The DECsystems support a variety of PCs or workstations, including the DECstation 2100 and 3100 workstations. The DECstation 500 Model 200 family is also supported. 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 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	208	8	1600
5820	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	60.5	30.5	30	700
5820	60.5	30.5	30	700

Software

Operating System

Ultrix, 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 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 super-set 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 platforms. All workstations now sold by Digital include an end-user license for OSF/Motif and Display PostScript capabilities.

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

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

DECsystems come bundled with the C compiler and Ultrix SQL. Other data base 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 (\$)
CPU	MIPS R3000 CPU	Bundled
Main Memory	8M-byte memory	Bundled
Console	VT420 mono-chrome	629*
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
Workstation Controller	—	—
Printer	Choice of DEC printer	Varies
Workstation Display	Choice of terminals	Varies
Total Hardware	DU-51MTI-A9 packaged system	10,995*

Entry-Level System: Model 5100

Description	Product ID	Price (\$)
CPU	MIPS R3000 CPU	Bundled
Monthly Maintenance	Basic System Support	50
Operating System	ULTRIX	Bundled
Languages	VAX C	Bundled
DBMS	SQL	Bundled
Total		13,424*

NA—Not applicable. *Standard Warranty Price. Includes Basic hardware and software support. List prices are slightly lower.

Intermediate-Level System: Model 5500

Description	Product ID	Price (\$)
CPU	MIPS R3000 CPU	Bundled
Main Memory	32M-byte memory	Bundled
Console	VT420 monochrome	629*
I/O Ports	ThinWire/Thick Wire Ethernet	Bundled
Disk Controller	SCSI & DSSI controller	Bundled
Disk Drive	RF31 381M-byte drive	8,800
Tape Controller	TQK70	1,520
Tape Drive	TK70 296M-byte cartridge tape	4,960
Workstation Controller	—	—
Printer	Choice of DEC printer	Varies
Workstation Display	Choice of terminals	Varies
Total Hardware	DU-55HT1-A9 packaged system	49,340*
Monthly Maintenance	Basic System Support	495
Operating System	ULTRIX	Bundled
Languages	VAX C	Bundled
DBMS	SQL	Bundled
Total		65,249*

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	VT320 monochrome	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	—	—
Printer	LA75 Choice of DEC printer	Bundled Varies
Workstation Display	Choice of terminals	Varies
Total Hardware	SU-5N38A-BK packaged system	147,368*
Monthly Maintenance	Basic System Support	2,082
Operating System	ULTRIX	Bundled
Languages	VAX C	Bundled
DBMS—		NA
Total		149,450*

NA—Not applicable. *Standard Warranty Price. Includes Basic hardware and software support. List prices are slightly lower. ■