
Digital Equipment DECstations 2100, 3100: Product Profile



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System Overview

The DECstation product line ranges from industry-standard PCs to high-level UNIX workstations based on reduced instruction set computing (RISC). The high-end DECstation 2100 and 3100 are used with DEC-system servers for applications in artificial intelligence, computer-aided design (CAD), computer-aided software engineering (CASE), and simulation.

The DECstation line comprises the 200 and 300 Series PCs and the DECstation 2100 and 3100 RISC workstations. This report discusses only the DECstation 2100 and 3100.

Vendor

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

Price

Basic configuration list prices range from \$5,950 to \$23,700.

GSA Schedule

Yes.

Competition

The DECstation 2100 and 3100 compete with a variety of technical workstations, including products from Sun Microsystems and Hewlett-Packard/Apollo.

Characteristics

See Table 1 for a comparison of system characteristics for the DECstation 2100 and 3100 models.

Specifications

Main Memory

The DECstation 2100 and 3100 provide main storage up to 24M bytes in 4M-byte increments. Both systems also support a 64K-byte instruction cache and 64K-byte data cache memory.

Processing Components

The MIPS R2000 CPU is supported by the R2010 floating-point co-processor and has a clock speed of 12.5MHz on the DECstation 2100 and 16.67MHz on the DECstation 3100.

Peripherals

All peripherals communicate with the DECstation 2100 and 3100 via a Small Computer System Interface (SCSI).

Mass Storage

The basic packaged DECstation is diskless, but a variety of disk drives can be added. The DECstations support up to two internal hard drives, one diskette drive, and four external drives—for a system maximum of six drives. See Table 2 for specifications on available mass storage devices.

Tape Drives

While tape drives are not bundled with the DECstation systems, the TK50Z drive can be used.

The TK50Z streaming tape drive is a 5¼-inch, half-height cartridge unit in an external expansion box. A single cartridge can back up any of Digital's mini-Winchester disks. 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.

Terminals/Workstations

Monitors available for the DECstation 2100 and 3100 include 15- and 19-inch color and monochrome monitors, as well as a 16-inch color monitor. All monitors offer resolution of 1,024 by 864 and feature tilt/swivel bases and nonglare screens. Eight-plane graphics with a color monitor provides up to 256 simultaneous colors.

Table 1. System Comparison

Model	2100	3100
System Characteristics		
Min./Max. Memory (bytes)	8-24M	8-24M
Min./Max. Storage (bytes)	104M-1.2G	104M-1.2G
Number of Processors	1	1
Number of Terminals		
Direct Connect/Shared Access	1	1
Max/Recommended No. of Users	2	2
Date First Installed	July 1989	April 1989
Central Processing Unit & Memory		
Computer Type	—	—
Processor Model	MIPS R2000	MIPS R2000
Memory Type	SIMM	SIMM
Floating-Point Co-Processor	MIPS R2010	MIPS R2010
Cache Memory (bytes)	64K instruction, 64K data	64K instruction, 64K data
Performance Characteristics		
Multiprocessing Capability (Yes/No)	No	No
MIPS	10.4	14
Proc. Clock Speed	12.5MHz	16.67MHz
I/O Transfer Rate	4M bps	4M bps

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

Table 2. Mass Storage Devices

Model	RZ23	RX23	RZ55	RZ56	RRD40
Type	Internal Winchester	Diskette	Winchester	Winchester	Compact Disk
Size (inches)	3½ half height	3½	5¼ full height	5¼ full height	4.7
Formatted capacity (bytes)	104M	1.4M	332M	665M	600M
Interface/controller	SCSI	SCSI	SCSI	SCSI	SCSI
Average access time (ms.)	33.4	—	24	24	0.5 seconds
Data transfer rate (bytes/second)	1.25M	500K	1.25M	4M	150K
Purchase Price (\$)	2,000	600	5,500	8,500	1,600

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

Communications

Protocols Supported: TCP/IP.

Network Applications Supported: DECnet, NFS.

LANs Supported: Ethernet.

Operating Environment

The DECstations can operate between 50 and 104 degrees Fahrenheit and within a humidity range of 10 to 80 percent (noncondensing). The DECstations require standard power of 120/240 V AC at 50 to 60 Hz. Physical specifications are highlighted in the following table.

Model	Height (in.)	Width (in.)	Depth (in.)	Weight (lb.)
2100	4.1	18.3	15.5	20.1
3100	4.1	18.3	15.5	20.1

Software

Operating System

ULTRIX-32, Digital's derivative of UNIX, 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 enhanced X Window

System Version 11 and provides network-transparent interactions 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 VAXstations to coexist in multivendor networked environments and to access files transparently over an Ethernet network.

Communications

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

SoftPC, a software package, allows a DECstation to run MS-DOS programs with no added hardware.

Other Software

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

Database management system packages for the DECstations 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.

Entry-Level System: Model 2100

Description	Product ID	Price (\$)
CPU	MIPS R2000 CPU	Bundled
Main Memory	8M-byte memory	Bundled
Console	—	NA
I/O Ports	ThinWire/ ThickWire Ethernet	Bundled
Disk Controller	SCSI Controller	Bundled
Disk Drive	<i>Diskless system</i>	NA
Tape Controller	SCSI Controller	Bundled
Tape Drive	<i>Tapeless system</i>	NA
Workstation Controller	SCSI Controller	Bundled
Printer	<i>Choice of DEC printer</i>	Varies
Workstation Display	VR150 15-inch monochrome	Bundled
Total Hardware	Packaged System	5,950*
Monthly Maintenance	Basic System Support	—
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	—	NA
Total		5,950*

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

Intermediate-Level System: Model 3100

Description	Product ID	Price (\$)
CPU	MIPS R2000 CPU	Bundled
Main Memory	8M-byte memory	Bundled
Console	—	NA
I/O Ports	ThinWire/ ThickWire Ethernet	Bundled
Disk Controller	SCSI Controller	Bundled
Disk Drive	<i>Diskless system</i>	NA
Tape Controller	SCSI Controller	Bundled
Tape Drive	<i>Tapeless system</i>	NA
Workstation Controller	SCSI Controller	Bundled
Printer	<i>Choice of DEC printer</i>	Varies
Workstation Display	VR150 19-inch monochrome	Bundled
Total Hardware	Packaged System	9,900*
Monthly Maintenance	Basic System Support	—
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	—	NA
Total		9,900*

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

Large System: Model 3100

Description	Product ID	Price (\$)
CPU	MIPS R2000 CPU	Bundled
Main Memory	16M-byte memory	Bundled
Console	—	NA
I/O Ports	ThinWire/ ThickWire Ethernet	Bundled
Disk Controller	SCSI Controller	Bundled
Disk Drive	RZ53 104M bytes RZ54 208M bytes	Bundled
Tape Controller	SCSI Controller	Bundled
Tape Drive	<i>Tapeless system</i>	NA
Workstation Controller	SCSI Controller	Bundled
Printer	<i>Choice of DEC printer</i>	Varies
Workstation Display	VR299 19-inch color	Bundled
Total Hardware	Packaged System	23,700*
Monthly Maintenance	Basic System Support	—
Operating System	ULTRIX-32	Bundled
Languages	VAX C	Bundled
DBMS	—	NA
Total		23,700*

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