Control Data Corporation CDC 4000: Product Profile

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System Overview

The CDC 4000 computers are 32-bit RISC-based UNIX systems. Introduced in February 1990, this line is based on open systems technology and standards. The CDC 4000 uses RISC processor chips from MIPS Computer Systems.

The CDC 4000 product line comprises Models 4340, 4360, 4380, and 4680.

Vendor

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Price

Basic configuration prices range from $30,000 to $152,000.

Competition

CDC competes against a host of computer companies, including IBM, Digital Equipment, Hewlett-Packard, Unisys, and Bull. CDC specifically targets Digital's VAX 9000 with its new CDC 4000 systems.

Control Data may be at a disadvantage in a tough market; it has a relatively small market share now, and will have to work harder to prove itself a healthy, strong competitor before it can cut into IBM and Digital Equipment business.

Characteristics

See Table 1 for a comparison of the system characteristics of the CDC 4000 Models.

Specifications

Main Memory

The CDC 4000 systems provide main memory from 8M to 256M bytes, in 8M-, 16M-, and 32M-byte increments.

Processing Components

The 4300 Series is based on the 25MHz MIPS R3000 processor and R3010 floating-point co-processor. These systems have 64K bytes each of data and instruction cache. The Model 4680 is based on the 66.7MHz MIPS R6000 processor and R6010 floating-point co-processor. This model provides a 592K-byte multilevel cache, 64K-byte instruction cache, 16K-byte primary data cache, and 512K-byte secondary data/instruction cache.

Peripherals

Mass Storage

See Table 2 for specifications of mass storage devices.

Maximum storage capacities of the CDC 4000 Models are attained using expansion cabinets. Disk drive configuration rules for the CDC 4000 models are shown in the table below.

	Disk Drive Configurations		
Model	**Disk Size (bytes)**	**No. in Base Cabinet**	**No. in Exp. Cabinet**
4340	328M	1	5
4360	328M	4	7
4380	655M	4	10
4680	655M	4	28

Tape Drives

Control Data offers cartridge and reel-to-reel tape drive options for the CDC 4000 line.

A 5¼-inch half-height streaming cartridge drive is available with a capacity of 120M bytes. The ¼-inch tape runs at 90 ips.

A 5¼-inch half-height backup cartridge tape is also available with a capacity of 2G bytes. This 8-mm. tape provides a transfer rate of 246K bytes per second.

Table 1. System Comparison

Model	4340	4360	4380	4680
System Characteristics				
Min/Max Memory (bytes)	8M-48M	16M-128M	32M-128M	32M-256M
Min/Max Storage (bytes)	328M-4G	328M-7.3G	655M-15.7G	655M-18G
Number of Processors	1	1	1	1
Number of Terminals	—	—	—	—
Max/Recommended # of Users	—	—	—	—
Date First Installed	2/90	2/90	2/90	2/90
Central Processing Unit & Memory				
Computer Type	32-bit	32-bit	32-bit	32-bit
Processor Model	MIPS R3000	MIPS R3000	MIPS R3000	MIPS R6000
Memory Type	MOS	MOS	MOS	MOS
Floating Point Coprocessor	R3010	R3010	R3010	R6010
Cache Memory (bytes)	128K	128K	128K	592K
Performance Characteristics				
Multiprocessing Capability (Yes/No)	N	N	N	N
MIPS	18	20	20	55
Proc. Clock Speed	25MHz	25MHz	25MHz	66.7MHz
I/O Transfer Rate (bytes/sec)	10M	20M	20M	—
Purchase Price (basic configuration)	$30,000	$55,000	$101,000	$152,000
Memory/Storage Included (bytes)	8M/328M	32M/328M	32M/655M	32M/655M

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

Table 2. Mass Storage Devices

Model	—	—
Size (inches)	5¼	8mm
Formatted capacity (bytes)	328M	655M
Interface/controller	SCSI	SMD
Average access time (ms)	24.8	24.8
Data transfer rate (bytes/second)	—	3M

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

For the larger systems, a ½-inch reel-to-reel magnetic tape drive is available. With a capacity of 180M bytes, this drive runs at speeds of 50/100 ips at densities of 1600/6250 bps.

Terminals/Workstations

The CDC 4000 is designed to accommodate a variety of PCs, terminals, and technical workstations as well as industry-standard peripherals.

Communications

Protocols Supported: TCP/IP, FTP, NFS.

Network Applications Supported: CDCNet.

LANs Supported: ExpressLink, 802.3 Ethernet.

Operating Environment

CDC 4000 systems can operate between 40 and 91 degrees Fahrenheit and within a humidity range of 10 to 80 percent (noncondensing). The physical specifications of the CDC 4000 models are highlighted in the following table.

	Physical Specifications			
Model	**Height (in.)**	**Width (in.)**	**Depth (in.)**	**Weight (lb.)**
4340	23.0	7	18.0	55
4360	27.0	18	34.5	315
4380	62.5	24	36.5	800
4680	62.5	24	36.5	800

Software

Operating System

EP/IX (formerly CLASSIX) is CDC's implementation of UNIX for the CDC 4000. EP/IX incorporates system and user interface utilities of the converged System V and BSD versions of UNIX to support a large set of UNIX application programs.

Control Data has announced plans for future enhancements to EP/IX, including fault tolerance capabilities, high-performance processing, and open systems interfaces/protocols.

Communications

EP/IX includes communications protocols for Ethernet networking, the Berkeley Fast File System, and NFS for transparent file sharing between systems.

By the end of 1990, Control Data expects to announce a link that will enable CYBER customers to tightly couple CDC 4000 systems to NOS/VE-based CYBER mainframes.

Other Software

CDC 4000 programming languages include C, Fortran, Pascal, Ada, and PL/1. Other software for the CDC 4000 includes LISP, Prolog, BBX Business Base, DBL, RPG/II, Pick, Oracle, Informix, Progress, and Accell.

A wide variety of applications software is available for such applications as computer-based engineering, database management, office automation, and software development.

Sample Configuration Pricing

Sample CDC 4000 configurations and prices are outlined in the following tables.

Entry-Level System: Model 4340

Description	Product ID	Price ($)
CPU	MIPS R3000 chip	Included
Main Memory	8M bytes	Included
Console	—	—
I/O Ports	—	—
Disk Controller	SCSI controller	Included
Disk Drive	328M-byte drive	Included
Tape Controller	SCSI controller	Included
Tape Drive	¼-inch cartridge tape	Included
Workstation Controller	Ethernet controller	Included
Printer	—	—
Workstation Display	—	—
Total Hardware	—	30,000
Monthly Maintenance	—	—
Operating System	EP/IX	—
Languages	—	Varies
DBMS	—	—
Total		30,000

Intermediate-Level System: Model 4380

Description	Product ID	Price ($)
CPU	MIPS R3000 chip	Included
Main Memory	32M bytes	Included
Console	—	—
I/O Ports	—	—
Disk Controller	SCSI controller	Included
Disk Drive	655M-byte drive	Included
Tape Controller	SCSI controller	Included
Tape Drive	¼-inch cartridge tape	Included
Workstation Controller	—	—
Printer	—	—
Workstation Display	—	—
Total Hardware	—	101,000
Monthly Maintenance	—	—
Operating System	EP/IX	—
Languages	—	Varies
DBMS	—	—
Total		101,000

Large System: Model 4680

Description	Product ID	Price ($)
CPU	MIPS R6000 chip	Included
Main Memory	32M bytes	Included
Console	—	—
I/O Ports	—	—
Disk Controller	SCSI controller	Included
Disk Drive	655M-byte drive	Included
Tape Controller	SCSI controller	Included
Tape Drive	¼-inch cartridge tape	Included
Workstation Controller	Ethernet controller	Included
Printer	—	—
Workstation Display	—	—
Total Hardware	—	152,000
Monthly Maintenance	—	—
Operating System	EP/IX	—
Languages	—	Varies
DBMS	—	—
Total		152,000

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