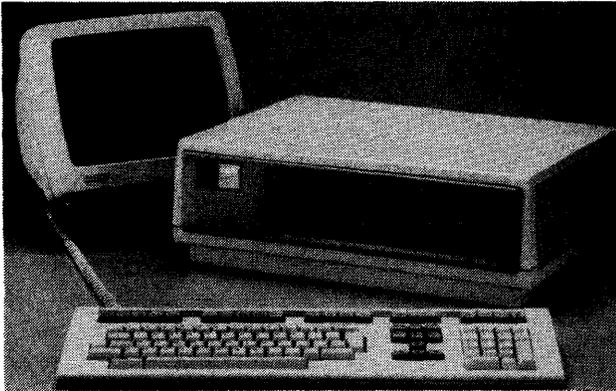# DEC Rainbow 100

The Rainbow 100 is a dual microprocessor-based personal computer that runs both 8-bit and 16-bit applications software under CP/M-80 and CP/M-86 as well as MS-DOS.

> **Current models:** Rainbow 100.
> **Memory:** 64KB-256KB RAM.
> **Storage capacity:** 800KB-1.6MB diskette; 5MB hard disk.
> **Workstations:** 1.
> **Base list price:** $3,495, including 64KB RAM, CRT, keyboard, 800KB dual diskettes, CP/M 86/80.
> **Typical list prices:** $4,445, same as base configuration plus dot matrix printer.
> **Popular options:** from DEC—printers, additional disks, color monitor, additional memory.
> **Principal programming languages:** Basic, C.
> **Principal applications software:** accounting, payroll, electronic spreadsheet, word processing.
> **First shipment:** May 1982.
> **Number installed to date:** information not available.
> **Available through:** Computerland retail chain stores; Hamilton Avnet, a wholesale distributor; Digital's existing network of individual sale organizations and DEC stores.

BACKGROUND INFORMATION

Digital Equipment Corporation, 146 Main Street, Maynard, MA 01754. Telephone (617) 897-5111.

The Rainbow 100 was introduced in May, 1982 along with three other Digital personal computers, the DECmate II and the Professional 325 and Professional 350. The four systems are designed to compete directly with machines marketed by Apple, IBM, Radio Shack, Xerox and several others in the business professional office automation market. Digital has made an intensive effort to "human engineer" its personal computers to make them attractive and easy to operate.

All of the machines are modular and feature system boxes designed with snap-in, snap-out, and slide-out components for easy installation and maintenance. The four systems use the same interchangeable monitor, keyboard, and dual diskette drives. The disk storage is contained within the system box which also houses the central processor, main memory and power supply. Every component, except the Winchester disk, is manufactured by Digital.

SYSTEM CHARACTERISTICS

The Rainbow 100 is a dual processor system that incorporates both a Z80 microprocessor and an 8088 microprocessor. It utilizes a dual data bus structure with one bus linked to each processor and both buses connected through an interrupt scheme to the shared random access memory. Each processor acts as a controller when the other is operating as the central processing unit to link the CPU to devices on the other bus.

The Rainbow 100 keyboard contains its own 8-bit microprocessor and has 103 keys including 16 programmable function keys, an 18-key numeric pad, four cursor keys, and a full set of character keys. It is wider than most other keyboards on the market and attaches to the monitor by a coiled telephone-like wire. The 14 pound monitor has a retractable handle for easy portability and tilts and swivels.

Video display features of the system include a 132-column format for a much broader page presentation than standard 80-column monitors, horizontal scrolling, and split-screen capabilities. The system's graphics capabilities are provided through a bit-mapped/color graphics option board which gives the Rainbow 100 capabilities found in Digital's VT125 graphics terminal. The graphics option has two resolution modes-800 pixels by 240 pixels and 320 pixels by 240 pixels. Using VT125 emulation software, the Rainbow will execute Digital's REGIS (Remote Graphics Instruction Set) which is designed to send and store graphics data and text in standard ASCII files.

Two Digital software packages are available to allow the Rainbow 100 to transfer text and documents to and from host computers. The CX facility transmits text from a CP/M disk file to a host computer or from the host to a printer or disk file in CP/M format. The facility will work with any host computer and can access many public databases. The DX document-transfer facility uses an asynchronous, block-oriented protocol to transfer documents between the Rainbow 100 and other systems including DECmate, PDP-11 systems running under RSTS/E, and VAX computers.

In addition, Digital distributes and supports the following CP/M software packages for the Rainbow 100: Select Information's Word Processor; Microsoft's MBasic compiler and Multiplan Spreadsheet Calculator; the C compiler from Mark Williams Co.; and the BPI accounting packages.

DEC Rainbow 100

HARDWARE

PROCESSOR/MEMORY
Model: Zilog Z80 (8-bits); Intel 8088 (16-bits)
RAM: 64KB-256KB RAM
ROM: 24KB
Processor options: additional memory—64KB RAM, $495; 192KB RAM, $1,095

DISPLAY
Model: monochrome monitor; color monitor
Screen size: 12-inch diagonal
Chars./screen: 1920, 80 characters x 24 lines; 3168, 132 characters x 24 lines
Char. type: upper/lower case; 7 x 9 dot matrix
Attributes: reverse video, blinking, underlining, bold
Features: split screen, memory mapping
Graphics: optional high and low resolution graphics with 4 or 16 colors
Interface: integral
Price: monochrome, included w/system; color, $1,325

KEYBOARD
Type: detached, low-profile, typewriter-style
No. of keys: 103 total, includes 36 special function keys (16 programmable), 18-key numeric pad
Interface: 6' coiled cord

DIRECT ACCESS STORAGE

Model:	RX50	RCD50
Type:	single-sided, double density dual diskette	5¼" Winchester disk
Capacity/drive:	409KB formatted	5MB
Drives/system:	4	1 (external)
Avg. access time:	290 milliseconds	170 milliseconds
Transfer rate:	250KBS	5 megabits/sec.
Interface:	integral	RS-422 port
Price:	2-drives, included w/sytems; additional unit, $995	$3,500

PRINTER

Model:	LA50 Personal Printer	Letterprinter 100	LQP02 Letter Quality Printer
Type:	dot matrix/ impact	dot matrix/ impact	daisy wheel
Paper:	single sheets, fanfold	single sheets, fanfold, or roll	single sheets, fanfold, rolled
Char. set:	international	international— optional	international— optional
Chars./line:	80, 96, 132	66-217	132, 158
Speed:	50 cps, 100 cps	30cps, 80 cps, 240 cps	32 cps
Interface:	RS-232-C	RS-232-C (20 mA current loop or parallel opt.)	RS-232-C
Price:	$950	$2,860	$2,800

DATA COMMUNICATIONS

Model:	Modem communications port	Extended communications option
Trans. mode:	full- or half- duplex	full- or half- duplex
Protocol:	async, sync	async, sync
Lines:	1	1
Speed:	up to 19,200 baud	up to 19,200 baud
Interface:	RS-232-C	RS-232-C, RS-423
Price:	included w/system	$500

OTHER I/O: none

I/O ELECTRONICS
Structure: dual data bus with 1 bus linked to each processor and both buses connected to share RAM

SOFTWARE

LANGUAGES
Basic: MBasic, $250
Others: Mark Williams "C" compiler, $500

OPERATING SYSTEM
Name: CP/M 86/80 included in system price; MS-DOS, $250
Other functions: CP/M 86/80 is a hybrid version of CP/M-80 and CP/M-86; it automatically determines whether an application program is 16-bit or 8-bit word length and invokes the correct processor to run it; contains boot and loader routines; supports both Rainbow 100 and VT18X diskettes

UTILITIES
Sort: none specified
Screen-oriented editor: included w/operating system
Others: disk formatting; track-to-track copy utility

DATA/DATABASE MANAGEMENT SYSTEMS: none available from the vendor

COMMUNICATIONS SUPPORT
Name: Terminal Emulator included w/system
Functions: emulates a VT18X video terminal or a VT125 graphics terminal
Name: CX facility, $200
Functions: transmits text from CP/M disk file to a host computer or from the host to a printer or disk file in CP/M format
Name: DX facility, $200
Functions: transfers documents between Rainbow 100 and other systems

APPLICATIONS PROGRAMS
Accounting: BPI accounts receivable, $395; BPI accounts payable, $395; BPI general accounting, $395; BPI job costing, $650; BPI personal accounting, $195
Payroll: BPI payroll, $395
Electronic Spreadsheet: Multiplan, $275
Word Processing: Select, $595

SUPPORT SERVICES

DOCUMENTATION
Range: hardware and software manuals available; contact DEC for details

SUPPORT
Training & education: management consulting service and seminars available
Maintenance: malfunctioning components can be removed and exchanged for new ones where the machine was bought, or at any of 160 carry-in service centers established by DEC branch offices throughout the country
Other: a self-test feature is standard; the system box is designed to snap apart for user servicing and upgrade installations

TERMS AND CONDITIONS
Lease terms: check w/DEC for details
Discounts: volume discounts available
Warranties: 90 days parts and labor ■