



Vector Graphic

Vector 4, Vector 4-S & Vector 5

PROFILE

Operating Systems • CP/M, CP/M-86, and MS-DOS are supported on the Vector 4 Series, Vector's Extended CP/M is supported on the Vector 5

Data Management • Data Manager supports sequential and index sequential file; T.I.M. III

Communications/Networks • CONECT provides asynchronous communications (emulation for Lear-Siegler ADM3A or Hazeltine 1500; BIS-3780/3786 provides bisynchronous terminal emulation for IBM 2770, 2780, 3741, and 3780; LINC local area network support

Languages • Digital Research CBASIC-86, CB-86 Compiler, Pascal/MT86, Pascal-Z, Personal BASIC, and PL/I-86; Microsoft BASIC-80 Compiler and FORTRAN; and Microfocus CIS COBOL-86 and CIS COBOL-86 Level II

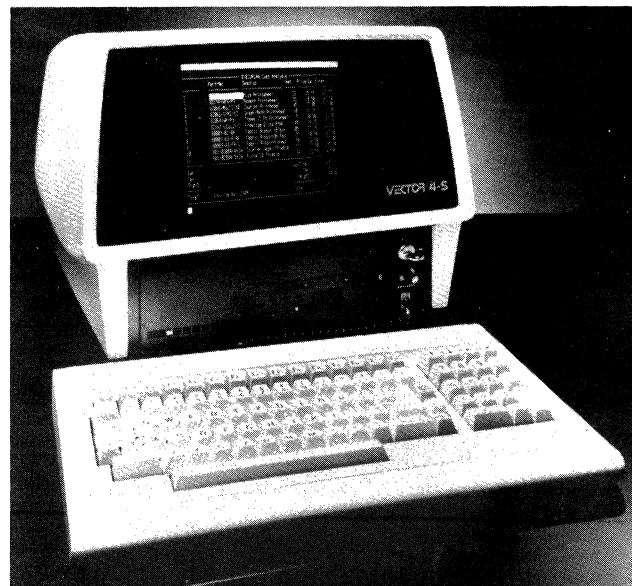
Models • Vector 4 models are 4/10, 4/20, 4/30, 4/40, and Vector 4-S models include 4S/10, 4S/20, 4S/30, 4S/40 and 4S/60; Vector 5 models are 5005E, 5010E, and 5032E

CPU • all models of the Vector 4 and Vector 4-S Series include both a Zilog Z80B microprocessor and an Intel 8088 microprocessor; all models of the Vector 5E Series include a Zilog Z80B microprocessor

Memory • all models of the Vector 4, 4-S, and 5E Series come with 128K bytes of RAM and can be expanded to 256K bytes

Chassis Slots • models of the Vector 4 and 4-S Series have 2 modified S-100 bus slots available; models of the 5-E Series have from 8-12 (depending on the number of terminals on the system) S-100 bus slots available

Ports • all models of the Vector 4 and 4-S series have: 1 parallel printer interface, 1 serial interface, and 1 RS-232 communications interface available; all models of the Vector 5E series have 2



parallel interfaces, 2 serial interfaces, and 2 RS-232 communications interfaces available, as well as

Mass Storage • all models of the Vector 4 Series include a 630K byte hard sectored floppy disk drive, while the Vector 4-S Series includes a 737K byte soft sectored floppy disk drive; additional storage capacity on the 4 and 4-S are the same: an additional 630K or 737K floppy drive on 4(S)/20, an additional 5M byte Winchester on 4(S)/30, an additional 10M byte Winchester on 4(S)/40, and an additional 36M byte Winchester on 4(S)/60 • all models of the Vector 5E Series include a 630K byte hard sectored floppy disk drive; additional storage capacities are: 5M byte Winchester on the 5005E, 10M byte Winchester on the 5010E and a 32M byte Winchester on the 5032E • 1/4 inch 6400 bpi cartridge tape available on all systems

Terminals/Workstations • all models of the Vector 4 and 4-S Series are single terminal systems; all models of the Vector 5E Series support up to 3 terminals

Printers • 340 cps matrix printer, and 2 letter quality thimble printers: 33 cps and 55 cps

First Delivery • 1982 for Vector 4/20 and 4/30; 1983 for Vector 4/10, 4/40, 4/60 and all of 4-S Series; 5/81 for Vector 5005E; 2/82 for Vector 5032E; and 1/83 for Vector 5010E

Systems Delivered • 4,400 for all models of Vector 4; 420 for all models of Vector 4-S; and 1,625 Vector 5E models

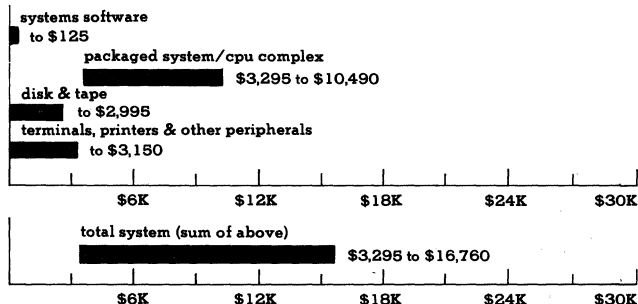
Comparable Systems • for Vector 4 and 4-S, any systems with dual processors, one of which is an 8-bit processor and one of which is a 16-bit processor in the \$3,300 to \$10,000 price range • for the Vector 5E, multi-user 8-bit Z80B systems in the \$6,300 to \$12,000 price range

Vendor • Vector Graphic Inc; 500 North Ventu Park Road, Thousand Oaks, CA 91320 • 805-499-5831

Canada • BSA Computer Analyst, Inc; P.O. Box 713, Moncton, NB

PURCHASE PRICE RANGE

hardware & software



VECTOR GRAPHIC VECTOR 4, 4-S, 5 PURCHASE PRICING bar graphs illustrate price ranges for small to large systems, with solid bars reflecting software/hardware purchase pricing. • **SMALL SYSTEM** is based on Vector 4/10-s packaged system (includes 8-bit Z80B microprocessor, 16-bit 8088 microprocessor, with 128K bytes of memory, integrated 737K soft sectored diskette drive, detached keyboard, green phosphor display, CP/M and CP/M-86 operating systems, and GSX-86 Graphics software) • **LARGE SYSTEM** is based on Vector 4/60-S packaged system (includes 8-bit Z80B microprocessor, 16-bit 8088 microprocessor, with 256K bytes of memory, integrated 737K soft-sectored diskette drive, 36M byte hard disk drive, detached keyboard, green phosphor display, CP/M and CP/M-86 operating system and GSX-86 Graphics software) and the following options: Vector 4 MS-DOS, SofStor TD-15 Tape Cartridge, and Vector 7700 Letter Quality printer.



Vector Graphic Vector 4, Vector 4-S & Vector 5

ElC 8M9 • 506-854-1283

Distribution • worldwide distribution through approximately 450 independent dealers and OEMs

■ ANALYSIS

Vector Graphic, which was founded in 1976, designs, develops, manufactures and markets a family of word and data processing systems. Their latest computer offerings are the single user, dual processor Vector 4 and Vector 4-S Series, and the multi-user single processor Vector 5E Series. The Vector 4 and 4-S Series consist of both an 8-bit Intel Z80B microprocessor and a 16-bit Intel 8088 microprocessor. As a result they will execute either 8-bit or 16-bit software. The Vector 5E Series, which supports up to 3 users, is built around an 8-bit Z80B microprocessor. All of Vector's series run under CP/M-based operating systems, with the Vector 4 and 4-S also supporting MS-DOS.

The Vector 4 Series and the recently announced Vector 4-S Series are mirror images of each other except in the integrated diskette drive. The Vector 4 Series comes with a 630K byte hard sector diskette, where as the Vector 4-S is sold with a 737K byte soft sectored diskette. Both Vector 4 families consist of 5 models the 4/10(S), 4/20(S), 4/30(S), 4/40(S) and 4/60(S). The only distinguishing feature of the models is the amount of mass storage provided with each system. Besides the integrated diskette previously mentioned the 4/20(S) include an additional diskette drive, while the 4/30(S), 4/40(S), and 4/60(S) include 5M-byte, 10M-byte and 36M-byte integrated Winchester disk drives, respectively. All models come with 128K bytes of main memory which is expandable to 256K bytes. Main memory is timeshared between the CPU and the video display controller, allowing fast access to screen memory which supports high resolution graphics.

The Vector 5E family consists of 3 models the 5005E, 5010E, and 5032E. All models can support up to 3 users. Again, as in the Vector 4, the only distinguishing feature of each of the models is the amount of mass storage that comes with each model. Each model includes a 630K byte integrated diskette drive. The 5005E provides 5M, the 5010E provides 10M, and the 5032E provides 32M byte Winchester Disk Drives. All models come with 128K bytes of main memory expandable to 256K bytes.

□ Strengths

An obvious feature of the Vector 4 and 4-S families are their ability to process both 8-bit and 16-bit software. This is accomplished using a swapping feature, which allows the system to select the appropriate processor for each job. Since word processing applications are handled more easily in 8-bit mode, and number/data processing is handled more efficiently by 16-bit processors, the Vector 4 provides the best of both worlds.

Another area reflecting a positive note has nothing to do with the system at all, but concerns the manufacturer, Vector Graphic. Since Vector Graphic's products are aimed at first time, small business users or department managers, dealer support and software availability are two major concerns. Vector is very conscious of this fact and has initiated a major dealer support and recruiting program with emphasis on value-added dealers and vertical market-

oriented system houses. In addition, a plan has been started to identify, evaluate, and market third-party software compatible with all Vector microcomputers. This information is available through Vector Quest which provides data on hundreds of software packages that Vector has reviewed and evaluated.

Also since both the Vector 4 and 5E families operate under a CP/M-based operating system, both will readily run many of the already available CP/M programs.

Vector has added a nice touch with its recently announced Vector 4-S Series. The soft-sectored diskette drive that is integrated on the 4-S line is IBM PC compatible. But in addition to that, according to the vendor, it will automatically identify the type of diskette being used and whether it was created in the MS-DOS or CP/M-86 operating system environment. This will make it very easy to exchange data and programs with computer systems from other manufacturers.

□ Limitations

Users of the Vector 4, 4-S and 5E systems are probably first time/small users, and will probably take some time to outgrow the maximums (disk storage) available on each of the systems. But once that happens there seems to be no ability to grow beyond the maximum capacities for each of the models. Granted 36M (Vector 4 and 4-S) or 32M (Vector 5E) bytes are not small capacities for micro systems but once a system is up and running users put more and more applications on the system, which obviously uses more storage. Since the disk drives are Winchester and not removable, a few good size applications could use up most of the storage very quickly. The diskettes could be used to load and unload data back and forth but this could get quite cumbersome.

With the release of the soft sectored IBM compatible diskette, any compatibility limitation is eliminated on the Vector 4-S. It would probably be a good idea if this diskette could be an optional peripheral on the 5E. Maybe the vendor will come out with a mirror image to the 5E series with the new diskette as they have done with the 4.

■ SOFTWARE

□ Terms, Support & Documentation

Terms • standard Vector 4 and 4-S Systems include CP/M-86 operating system, GSX-86 Graphics, SCOPE 8-bit Text Editor, MBASIC 8-bit Interpreter, RAID Debugger, ZSM-80 Assembler, and ASM 8086/8088 Assembler; Vector 4 Systems include the CP/M operating system while the Vector 4-S includes a CP/M Simulator • standard Vector 5E Systems include an Extended CP/M operating system • optional software products are available on a one-time license fee basis.

Support • corrective updates are available for one year at no additional charge.

Documentation • easy-to-use documentation is provided including training manuals.

□ Software Overview

All Vector Graphic's systems have bundled into the standard system price a CP/M-based operating system. In addition, the Vector 4 and 4-S include a BASIC Interpreter, as well as other software development tools including GSX-86 Graphics, SCOPE 8-bit Text Editor, RAID Debugger, ZSM-80 Assembler, and ASM 8086/8088 Assembler.



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Various languages and programming software are available for program/systems development including: Microsoft BASIC-80 Compiler and FORTRAN, Microfocus COBOL, and Digital Research Pascal-Z (all systems); also included are Digital Research; CBASIC-86, CB-86 Compiler, Pascal/MT+86, Personal BASIC, and PL/I-86, a C compiler is available for use with CP/M-86 only.

Datamanager and T.I.M. (Total Information Management) III provide file and record management, MEMORITE III provides Word Processing, ACCUCHAR supports printed graphics, ExecuPlan II and Forecasting Execu Modeler support electronics spreadsheets, and Milestone provide project management capabilities.

Asynchronous communications is handled through the CONECT package. The Vector 4 and 4-S also support 2780/3270/3780 emulation, and the Vector 4 accommodates (Local Interactive Network Communications) a local area network that operates without a dedicated master station or file servers. Mail Inc, an electronic mail system, is available to operate under LINC.

Vector Graphic has initiated Vector Quest Business Software Information Service, which provides data on hundreds of software packages, that Vector has identified, reviewed and evaluated. These are third party packages that are compatible with Vector Graphic's microcomputers. In addition, there are a vast number of CP/M-based programs available which can run on Vector Graphic equipment with little or no modification.

Operating Systems

Each of the Vector systems comes bundled with a CP/M-based operating system. The Vector 4 includes both CP/M and CP/M-86, Vector 4-S systems include CP/M-86 and an 8-bit CP/M Simulator, and the Vector 5E models include an Extended CP/M operating system. MS-DOS is an extra cost optional operating system for both the Vector 4 and 4-S.

CP/M (2.2) • single-user, single-tasking general purpose operating system designed to support the Intel and Zilog families of 8-bit processors; features and facilities of this basic system are all upward compatible and are present in all other versions of CP/M; consist of 4 elemental structures: Basic I/O System (BIOS), Basic Disk Operating System (BDOS) Console Command Processor (CCP), and a Transient Program Area (TPA) • BIOS is the modifiable portion of the operating system enabling users to tailor CPM systems to meet specified configurations; allows users to define all hardware-independent elements of the system by defining low-level interface and the peripheral I/O for the system • BDOS provides all the disk management control; supports up to 16 logical devices containing up to 65,536 records, with up to an 8M byte capacity • CCP provides the interface between the user's console and the rest of the CP/M system; it reads, interprets, and executes commands entered from the console; commands are both built-in commands and transient commands, transient commands are loaded into TPA and executed • TPA is the area designated to hold programs that are loaded from disk and then executed • standard utilities provided include: DDT interactive debugger, PIP file transfer utility; DUMP utility; SUBMIT/XSUB batch control utilities; ED command-oriented text editor; ASM assembler, and STAT system status utility • memory requirements depend on number and types of options implemented; basic system requires 20K bytes of memory and an ASCII terminal.

CP/M-86 • a 16-bit enhanced version of the 8-bit CP/M operating system designed to support Vector Graphics dual 8-bit Z80B and 8088 microprocessors; incorporates all the basic elements of the CP/M system but adapts these functions to the larger and faster operating environment • consists of 4 elemental structures: Basic Input/Output System (BIOS), Basic Disk Operating System (BDOS), Command Console Processor (CCP), and a Transient Program Area (TPA) BIOS is the modifiable portion of the operating system enabling users to tailor CPM systems to meet specific configurations; allows users to define all hardware-independent elements of the system by defining low-level interface and the peripheral I/O for the system • BDOS provides all the disk management control; supports up to 16 logical drives, containing up to 8M bytes each, for a maximum of 128M bytes of on-line storage; any one file can reach the full drive size • CCP provides the interface between the user's console and the rest of

the CP/M system it reads, interprets, and executes commands entered from the console; commands are both built-in commands and transient commands; transient commands are loaded into the TPA and executed • TPA is the area designated to hold programs that are loaded from disk and then executed • standard utilities provided include: DDT-86 interactive debugger; PIP file transfer utility; SUBMIT batch control utility; ED command-oriented text editor; ASM-86 assembler; STAT system static utility, and GENCMD processes Intel "H86" format files • memory requirements depend on number and types of options implemented • supports up to 1M bytes of memory; requires 56K bytes of memory and an ASCII terminal.

Vector 4 MS-DOS 2.0 • a Vector modified version of MS-DOS designed to support the Vector 4 and 4-S systems' 8088 micro-processor • as of this writing no specifications were available entailing any of the changes that were necessary to allow MS-DOS to operate on the dual processor Vector 4 or 4-S systems:

\$125 lcns

Data Management

Data Manager • a menu driven generalized data management system that provides capabilities for data entry, data manipulation, computations, and reporting • supports record sizes up to 1,020 characters, with up to 99 fields per record, and up to 70 characters per field; allows up to 9 data entry screens to be used to generate a record • includes sorting and merging capabilities • uses simple fill in the blanks type of screens for file definition, data entry formatting and report formatting • data entry features are as follows: they allow specific default values for data fields; they pick up values from previous records; they provide 4 options to update and edit a file or specific fields; they allow adding, deleting, or displaying specific records, they select records based on AND/OR conditions; and they allow search or scan of a file in sorted order with select conditions • reporting features include: capability to prevent multiple lines from a single record; provisions for sub-totaling of numeric columns; and capability to print one record per page in entry screen format • computation capabilities include: add, subtract, multiply, divide, minimum and maximum; ability to create new numeric fields from old fields and constants; and the capability to update existing fields • can be purchased as part of the Vector Professional Series (VPS) to create, maintain and sort files for use by MEMORITE III, ExecuPlan II, ACCUCHAR, and CONECT software • available on all Vector 4, 4-S and 5 systems:

\$495 lcns

T.I.M. Total Information Management III • data management system for Innovative Software:

495

Communications/Networks

Both the Vector 4 and 4-S Systems support bisynchronous communications emulation. The Vector 4, 4-S and 5E Systems all support asynchronous communications via the CONECT software. The Vector 4 Systems support LINC (Local Interactive Network Communications) a token-passing bus/ring local area network for up to 32 Vector 4's.

BIS-3780 • provides bisynchronous data communications emulation • supports emulation for IBM 2770, 2780, 3741, and 3780 protocols • requires a Vector 4 running under 8-bit CP/M based operating system:

\$695 lcns

BIS-3786 • provides bisynchronous data communications emulation • supports emulation for IBM 2770, 2780, 3741, and 3780 protocols • requires a Vector 4 running under 16-bit CP/M based operating system:

695

CONECT • asynchronous communications package that provides 4 modes of transmission • send/receive mode supports

LCNS: one-time license fee. Corrective updates are available for no additional charge for one year. NA: not available. Prices effective as of October 1983.



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transmission of data files between any 2 Vector systems both with CONECT software • interactive mode supports interaction with a user on another computer; all information appearing on the screen can be captured and saved; emulates an ADM3A or Hazeltine 1500 series terminal • link mode allows user's CP/M disk to be accessed remotely and allows user to access a remote CP/M disk from the users terminal • terminal mode emulates either a Lear Siegler ADM3A or Hazeltine 1500 terminal, converting it into an interactive communications terminal that can send or receive data at up to 1200 baud • other features include: support for automatic phone dialing and answering; selectable originate/answer mode; full or half duplex operation; auto-repeat dialing and answering; and voice communications interrupt • includes a HELP facility • available on all Vector systems:

150

LINC (Local Interactive Network Communications) • supports a local area network without the need of a dedicated master station or file servers • supports up to 32 Vector 4 systems with each supporting a printer • a SABER-Net token-passing system that utilizes a modified Synchronous Data Link Control (SDLC) protocol; stations can be up to 2,000 feet apart with a 10,000 feet maximum cable length • supports a data transfer rate of 750K bits per second; supports a variable-length block transmission with 16-bit CRC protection and immediate acknowledgement; provides automatic retransmission on error detection • requires Vector 4:

695

□ Program Development/Languages

The Vector Graphic's 4, 4-S and 5-E support various program development languages produced by 3rd party vendors. Following is the current list.

BASIC-80 Compiler • developed by Microsoft • runs on Vector 4, 4-S and 5E:

\$350 lcms

FORTRAN • developed by Microsoft • runs on Vector 4, 4-S, and 5E:

400

CBASIC-86 • developed by Digital Research • runs on Vector 4, and 4-S:

325

CB-86 Compiler • developed by Digital Research • runs on Vector 4, and 4-S:

600

Pascal/MT+86 • developed by Digital Research • runs on Vector 4, and 4-S:

600

Pascal-Z • developed by Digital Research • runs on Vector 4, 4-S and 5:

395

Personal BASIC • developed by Digital Research: runs on Vector 4, and 4-S:

150

PL/I-86 • developed by Digital Research • runs on Vector 4, and 4-S:

750

CIS COBOL-86 • developed by Microfocus • runs on Vector 4, and 4-S:

850

CIS COBOL-86 Level II • developed by Microfocus • runs on Vector 4 and 4-S:

1,600

"C" Language • runs on Vector 4 and 4-S:

600

SPP-86 Speed Programming Package • runs on Vector 4 and 4-S:

250

Programmer's Utilities • runs on Vector 4 and 4-S:

250

□ Application Packages

MEMORITE III • menu driven word processing system that also provides mailing list management, a spelling dictionary, and a phrase library • word processing features include: proportional spacing and right justification with spacing adjusted between letters; boldface typing; variable pitch; superscript; subscript; centering, underlining; abbreviated commands for text editing; copy, move or delete individual words, sentences, or entire sections; a variety of cut and paste functions; and search and replace • mailing list management supports: up to 3500 members per list; 15 data items per member; and provides labels, lists, or specific item printing • dictionary starts with 30,000 words and allows business specific words to be added • includes a HELP facility • can be acquired as part of Vector Professional Series (VPS) software cluster • runs on any Vector 4, 4-S, or 5E system:

\$450 lcms

Execu Plan II • planning and forecasting tool used to create electronic spreadsheets • provides commands in the areas of mathematics, conditions/comparisons, formatting, printing, and disk manipulation • supports sorting of files by: ascending, descending, row, column, range, and elements; provides various HELP screens • mathematical commands include: standard arithmetic functions as well as absolute value, average, count, maximum, mean, minimum, square root, and standard deviation; trigonometric functions include arctangent, cosine, sine and tangent; and provides decimal logarithm, natural logarithm (base "e") and exponent (base "e" antilog) commands • some of the conditional/comparison capabilities are: AND, OR, IF/THEN, ELSE, EQUAL, NOT EQUAL, LESS THAN, and GREATER THAN • formatting provides capabilities to specify: array size, column width, open column, open row, move column/row, exchange column/row, \$ sign, % sign, and floating point • printing commands provide the ability: to assign 4 Main Titles, Row and Column Titles, Column Print Boundaries; to select paper width and length, and to exclude selected rows and titles • disk commands provide capabilities to: load, save, delete, update, and create word processing files • can be acquired as part of Vector Professional Series (VPS) software cluster • runs on any Vector 4, 4-S, or 5E system:

195

Forecasting Execu Modeler • a menu driven, front end process to Execu Plan II electronic spreadsheet program • using menu-prompted commands users can create more than 40 sophisticated templates; basic information is entered and the program then generates models inserting all titles, format commands, and formulas; makes use of all the functions and features of Execu Plan II • requires Execu Plan II; runs on any Vector 4, 4-S, or 5E system:

295

Milestone • project management tool • provides facilities for planning, scheduling, and maintaining control over projects; uses critical path analysis techniques • projects are broken down into a series of distinct activities; data stored for each activity includes name, duration, capital cost, mix of manpower requirements, and a prerequisite list; detailed cost estimates based on the sums of each activity's individual equipment and manpower requirements are produced; aids in investigating tradeoffs between manpower, dollars and time are available; any changes or additions of activities will cause the schedule to be recomputed with a new critical path reflected; displays manpower and cost summaries at the bottom of the screen which constantly shows how schedule changes affect budget and resources; handles projects with over 100 activities • runs on any Vector 4, 4-S, or 5E system:

295

Accuchart • menu drive graphics package • supports 6 types of charts: pie charts, comparative bar charts, X-Y charts, stacked bar charts, joined bar charts, and separate bar charts • features provided include: automatic centering of titles and labels; main titles up to 80 characters; vertical/horizontal titles up to 40 characters; pie chart sector titles up to 20 characters; and stacked and comparative chart variable names up to 20 characters • X-Y charts support up to 60 data points and first quadrant plotting; pie



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charts can have up to 25 sectors; stacked bar charts and comparative bar charts can have up to 20 bars with 5 variables per bar; joined bar charts can have up to 40 bars; and separate bar charts support up to 20 bars • charts can be produced on standard 11 inch by 15 inch continuous form paper either an 11 inch by 14 inch or an 8.5 inch x 11 inch format • can be acquired as part of Vector Professional Series (VPS) software cluster • runs on any Vector 4, 4-S, or 5E system:

295

GSX-86 • a library of graphics routines • provides the ability to do complex graphic functions in only a few commands • provides a device-independent interface for application software • requires a Vector 4 running under CP/M-86; 256K bytes of memory are recommended:

90

MAILINC • electronic mail system designed to work in conjunction with the LINC local area network • provides capabilities for composing, sending, and retrieving messages and files to and from individual or group mailboxes • requires Vector 4 system and LINC software:

995

Peachtree IV • a general accounting package designed for non-technical first-time users • consists of 5 separately available modules: general ledger, accounts payable, accounts receivable, inventory management, and payroll • General Ledger supports up to 600 accounts, and a user defined chart of accounts; provides complete audit trails, and departmental accounting; reports include a Transaction Register and Trial Balance • Accounts Receivable supports a 600 customer masterfile; handles open item or balance forward accounting; reports include: Invoices and Statements, Aging Report, and Credit & Adjustment Register • Accounts Payable supports up to 600 vendors; payables can be selected by due date, discount date, and cash requirements; reports include: checks, check register, Open Voucher Report, Aging Report, and Cash Requirements Report • Payroll supports up to 200 employees; FICA and federal withholding deductions are table driven; supports multiple states and municipalities; and prints checks and payroll register • Inventory Management supports up to 1600 items; maintains period and year-to-date information; reports include: Detail Inventory Report, Price List, Status Report, Reorder Report, Physical Inventory Worksheet, and Departmental Summary • runs on any Vector 4, 4-S or 5E system.

Each Individual Package:

650

All 5 Packages:

3,000

■ HARDWARE

□ Terms & Support

Terms • available on purchase basis from 450 independent dealers and OEMS.

Support • mail/carry-in corrective maintenance provided at no additional charge during initial 90-day warranty period • national service is available from TRW/Customer Service Division throughout the U.S. in selected major metropolitan areas • TRW works on a time-and-material basis or will write service contracts covering on-site maintenance and repair or walk-in service.

□ Physical Specifications (H x W x D); Weight

Series 4

CPU • 14 x 19 x 25.5 inches; weight not available.

Display • integral to CPU unit.

Keyboard • information not available.

Series 5

CPU • 12.8 x 18 x 20.7 inches; 22.7 pounds.

Display • integral to CPU unit.

Keyboard • integral to CPU unit.

□ Systems Overview & Configurability

The Vector 4 and 4-S Series of systems 4(S)/10, 4(S)/20, 4(S)/30, 4(S)/40, and 4(S)/60 are single user, dual processor systems, while the Vector 5E Multishare Series 5005E, 5010E, and 5032E are multiuser, single processor systems. The only difference between the Vector 4 and 4-S, is that Vector 4 models include an integrated 630K byte hard-sectored floppy disk drive, while the 4-S models include an integrated 737K byte soft-sectored floppy disk drive. All of the models within each of the individual lines (4, 4-S and 5E) contain the same processor and provide the same features and capabilities except in the amount of integrated mass storage that each model supports.

The Vector 4 and 4-S Series models include both an 8-bit Zilog Z80B microprocessor, and a 16-bit Intel 8088 microprocessor. They support up to 256K bytes of memory, provide single parallel, serial, and RS-232 interfaces, and provide 2 modified S-100 slots. All Vector 4 models include a 630K byte integrated diskette drive, while the Vector 4-S models include a 737K byte integrated diskette drive. The 4(S)/20 include an additional diskette drive, and the 4(S)/30, 4(S)/40, and 4(S)/60 include single 5.25 inch Winchester disk drives with 5M byte, 10M byte and 36M byte capacities respectively.

All models of the Vector 5E Multishare Series include an 8-bit Z80B microprocessor. They all support 256K bytes of memory, and up to 3 users per system. An 18-slot S-100 bus is incorporated into each model providing 12 expansion slots. In addition, 2 serial and 2 parallel interface ports are standard on all models. All models support a 630K byte diskette drive, and a single 5.25 inch Winchester disk drive with 5M byte, 10M byte, and 32M byte capacities on the 5005E, 5010E, and 5032E respectively.

On the Vector 4, 4-S, and 5 two systems printers, and a cartridge tape drive are available for each of the models. Expansion beyond the aforementioned peripherals and the standard packaged system is not currently possible.

Maximum configurability is stated below; minimum configurations are discussed under Packaged Systems.

Vector 4 Maximums • all models • 256K bytes of memory; single terminal; single serial interface; single parallel interface; single RS-232C interface; and 2 modified S-100 slots.

Vector 4/10 Maximums • 630K byte hard sectored diskette.

Vector 4/20 Maximums • 2 630K byte hard sectored diskettes.

Vector 4/30 Maximums • 2630K byte hard sectored diskette and a 5M byte Winchester disk drive.

Vector 4/40 Maximums • 630K byte hard sectored diskette and a 10M byte Winchester disk drive.

Vector 4/60 Maximums • 630K byte hard sectored diskette and a 36M byte Winchester disk drive.

Vector 4-S Maximums • all models • 256K bytes of memory; single terminal; single serial interface; single parallel interface; single RS-232C interface; and 2 modified S-100 slots.

Vector 4/10-S Maximums • 737K byte soft sectored diskette.

Vector 4/20-S Maximums • 2 737 byte soft sectored diskettes.

Vector 4/30-S Maximums • 737K byte soft sectored diskette and a 5M byte Winchester disk drive.

Vector 4/40-S Maximums • 737 byte soft sectored diskette and a 10M byte Winchester disk drive.

Vector 4/60-S Maximums • 737 byte soft sectored diskette and a 36M byte Winchester disk drive.

Vector 5E Maximums • all models • 256K bytes of memory; 3 terminals; 2 serial interfaces; 2 parallel interfaces; and 12 S-100 expansion slots.

Vector 5005E Maximums • 630K byte hard sectored diskette, and 5M byte Winchester disk drive.

Vector 5010E Maximums • 630K byte hard sectored diskette, and 10M byte Winchester disk drive.

Vector 5032E Maximums • 630K byte hard sectored diskette,



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and 32M byte Winchester disk drive.

Packaged Systems

Vector 4 Basic System • 8-bit Zilog Z80B processor and 16-bit Intel 8088 processor; 128K bytes of RAM; CRT with graphics capabilities and controller; integrated 630K byte diskette drive and dual mode disk controller; serial interface; parallel interface; RS-232C interface; 2 modified S-100 expansion slots; and a switching power supply.

Vector 4/10 • includes all components of the basic system:
\$3,295 prch

Vector 4/20 • includes all components of the basic system plus a second integrated 630K byte diskette drive:
3,995

Vector 4/30 • includes all components of the basic system plus a 5M byte integrated Winchester disk drive:
4,995

Vector 4/40 • includes all components of the basic system plus a 10M byte integrated Winchester disk drive:
5,995

Vector 4/60 • includes all components of the basic system plus a 32M byte integrated Winchester disk drive:
9,995

Additional 128K bytes of RAM • available for any model:
495

Vector 4-S Basic System • 8-bit Zilog Z80B microprocessor and 16-bit Intel 8088 microprocessor; 128K bytes of RAM; CRT and controller; integrated 737K byte diskette drive and dual mode disk controller; serial interface; parallel interface; RS-232C interface; 2 modified S-100 expansion slots; and a switching power supply

Vector 4/10-S • includes all components of the basic system:
3,295

Vector 4/20-S • includes all components of the basic system plus a second integrated 737K byte diskette drive:
3,995

Vector 4/30-S • includes all components of the basic system plus a 5M byte integrated Winchester disk drive:
4,995

Vector 4/40-S • includes all components of the basic system plus a 10M byte integrated Winchester disk drive:
5,995

Vector 4/60-S • includes all components of the basic system plus a 36M byte integrated Winchester disk drive:
9,995

Additional 128K bytes of RAM • available for any model:
495

Vector 5 Basic System • 8-bit Zilog Z80 processor; 128K bytes of RAM; CRT and controller; integrated 630K byte diskette drive and dual mode disk controller; 2 serial interfaces; 2 parallel interfaces; 18 slot S-100 bus with 12 slots available; and a switching power supply.

Vector 5005E • includes all components of the basic system plus a 5M byte integrated Winchester disk drive:
6,250

Vector 5010E • includes all components of the basic system plus a 10M byte integrated Winchester disk drive:
6,750

Vector 5032E • includes all components of the basic system plus a 32M byte integrated Winchester disk drive:
11,995

Additional Multishare Terminal • with 64K bytes of RAM • available for any Vector 5E model up to a total of 3:
1,685

CPU

Z80B Microprocessor • 8-bit processor • supports 158 instruction set, and 16 address lines • operates at 5.1MHz clock speed.

8088 Microprocessor • 16-bit processor • supports 235 instruction set, and 20 address lines • operates at 6 MHz clock speed.

Memory

8K Static RAM • 250-nanosecond or 450-nanosecond versions available • S100 bus compatible:
\$282 prch

16K Static RAM • 300 nanoseconds • S100 bus compatible:
558

48K Dynamic RAM • compatible with Z80 at 4MHz without wait states:
799

64K Dynamic RAM • compatible with Z80 at 4MHz without wait states:
975

I/O & Communications

The Vector 4 Series provides 2 modified S100 bus slots for expansion as well as a serial interface, a parallel interface, and an RS-232C communication port. The Vector 4 Series supports 3270, 2780/3780 emulation and asynchronous, bisynchronous and HASP communications at a maximum transfer rate of 9600 bps. Local Area Network communications is supported through Vector's proprietary LAN (Vector Linc) at transmission speeds of 750K bps. The Vector 5E Multishare series provides 12 S100 expansion slots, 2 serial interfaces, and 2 parallel interfaces. The 5E Series supports all of the same communications as the 4 Series with the exception of the LAN support.

Mass Storage

The Vector 4 and 5 both include an integrated 5.25-inch hard-sectored floppy disk drive with a 630K byte capacity. The Vector 4-S includes an integrated 5.25-inch soft-sectored floppy disk drive with a 737K byte capacity. In addition, certain models of each of the series include either an integrated 5 1/4 inch Winchester disk drive with 5M, 10M, or 36M byte capacities or an 8-inch Winchester disk drive with 32M byte capacity.

5M Winchester • 5M byte capacity • 5.25 inch, 2 surface hard disk, using 9074 BPI recording density • 85 millisecond average access time; 5M bit/sec transfer rate • bundled into system prices on Vector 4/30, Vector 4/30-S, and Vector 5005E systems.

10M Winchester • 10M byte capacity • 5.25 inch, 4 surface hard disk, using 7690 BPI recording density • 85 millisecond average access time; 5M bit/sec transfer rate • bundled into system prices on Vector 4/40, Vector 4/40-S, and Vector 5010E systems.

36M Winchester • 36M byte capacity • 5.25 inch, 8 surface hard disk • 33 millisecond average access time; 5M bits/sec transfer rate • bundled into system prices on Vector 4/60 and 4/60-S systems.

32M Winchester • 32M byte capacity • 8-inch, 8 surface hard disk, using 6600 BPI recording density • 85 millisecond average access time; 5M bit/sec transfer rate • bundled into system price on Vector 5032E.

Diskette Unit • 630K byte capacity; hard-sectored; 5.25 inch, 2 sided diskette • 16 sectors per cylinder; 77 cylinders per diskette • 118 millisecond average access time; 250K bit/sec transfer rate • bundled into each of the system's prices on Vector 4 or Vector 5E systems.

Diskette Unit • 737K byte capacity; soft sectored; 5.25 inch, 2

PRCH: purchase price. Service contracts are available from TRW's Customer Service Division throughout the U.S. in selected major metropolitan areas. NA: not available. Prices effective as of October 1983.



Vector Graphic

Vector 4, Vector 4-S & Vector 5

sided diskette • 250K bit/sec transfer rate • bundled into each of the systems prices on Vector 4-S systems.

TD-15 Sof Stor Cartridge Tape Drive • 6400 bpi • 30 ips forward and reverse; 90 ips search and rewind; 24K-byte-per-second transfer rate • ANSI X3.55 (1977) specification compatible • supports 300 to 450 foot cartridge tapes: tapes hold up to 13M bytes: can be used on all Vector hard disk systems:

\$2,995 prch

Terminal/Workstation

Vector 4 and 4-S systems include an integral CRT display, and detached keyboard with an 8035 auxiliary microprocessor. The CRT supports graphics functions. The Vector 5E supports up to 3 CRT displays which use 2 slots each of the available S-100 bus slots. The CRT has a detached keyboard and an auxiliary microprocessor, but does not support graphics.

Vector 4 Display • 12-inch diagonal, P-31 green on black phosphor display; 1920-characters (24 lines x 80 characters) • 96 ASCII characters; 16 x 13 high resolution matrix; 640 horizontal x 312 vertical pixels in high resolution graphics mode; 160/320 horizontal x 312 vertical pixels in 4 level/16 level gray scale graphics; supports reverse video • bundled with packaged system.

Vector 4 Keyboard • detachable keyboard • capacitance key-switch with 91 sculptured/contoured keys, including 15 programmable function keys, cursor control keys, and 10-key numeric pad • includes auxiliary microprocessor with 64K buffer • bundled with packaged systems.

Vector 5 Display • 12-inch diagonal, P31 green on black phosphor display; 1920-characters (24 lines x 80 characters) • 96

ASCII characters; 8 x 13 dot matrix • supports reverse video.

Vector 5 Keyboard • same as Vector 4 keyboard.

Vector 5 additional terminals (Display & Keyboard):

\$1,685 prch

Printers

M-200 Matrix Printer • 340 cps bidirectional, logic seeking; 200 lpm average throughput • 7 x 7 half dot matrix font; 10 cpi and 16.7 cpi standard; 6 or 8 lpi; 132 columns; handles 6 part forms, 3- to 16-inch wide paper; 128 character set made up of 96 ASCII character and 32 commonly used international characters; 11 position forms length select switch • uses RS-23C serial printer interface:

NA prch

3500 Letter Quality Thimble Printer • 33 cps bidirectional • fully formed characters; 10-, 12-, 15-pitch and proportional spacing; superscripting and subscripting capabilities; 163 columns; handles 3- to 16-inch wide paper; 128 character set • uses parallel interface:

2,300

7700 Letter Quality Thimble Printer • 55 cps bidirectional • fully framed characters; 10- and 12-pitch and proportional spacing; superscripting and subscripting capabilities; 163 columns; handles 3- to 17.5-inch wide paper; 128 character set • uses parallel interface:

3,150

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