

**Economy Sized Computers
from Vector.**

VIPTM

VIP: The Vector Intelligent Partner



Don't Play Games With Your Company's Money

Our entry level computer system was designed as the first step in a full range of business computer products — not as the Last Step in a full range of computer games.

We call it VIP. The Vector Intelligent Partner. And with a suggested retail price of just \$3,695, you simply can't get more computer for your money.

VIP has all the assets and none of the liabilities of other entry level systems. For example, it starts off with a lot more disk capacity. And it has the same computational power and uses the same software as our larger systems, so it can be upgraded at any time. You avoid the expense of switching to new hardware and software when you outgrow your current system.

For example, you have the option of Vector's REAL word processing. Or our user-definable data management system. And VIP communicates to time-share services, large computers, or other Vector systems. You can even develop your own software with our standard editor and languages. All exactly the same as our bigger systems, all on the VIP.

And, like our larger systems, the VIP delivers what you really expect from economy-sized machines — efficiency. Because it is designed for quickness and ease of use.

Then, if you need more disk capacity you can add additional disk drives — either the same type or our larger sizes. Because the only difference between VIP and our more expensive systems is the disk drive. Now *that* is unique.

The VIP even handles Vector's standard business accounting packages by simply adding one more disk drive identical to the first.

Obviously, VIP is perfect for salesmen, real estate brokers, insurance agents, small business owners, and department heads in large corporations.

What are *you* waiting for?

The Economy Sized VIP Offers:

- Video console** with a keyboard featuring the feel of an electronic typewriter and a 10-key number pad. Uses Vector's "memory-mapped" video method, allowing the image to change many times faster than the fastest serial terminals. This enables extremely fast, easy-to-use operator-oriented software.
- One quad-density 5¼-inch diskette drive** with 315,000 characters of on-line storage.
- 56K of Random Access Memory.**
- Printer interface capability** (one of Vector's own, or one of the many on the market).
- 30 cps "dumb" terminal emulation** capability for communication to time-sharing systems over a direct line or using a modem over phone lines.
- CP/M® 2 operating system**, industry compatible, enabling use of most CP/M-compatible software on the system. It offers several features enabling customer-oriented software: printer drivers for many different printer-types, and the ability to jump directly to an application program with one key depression after turning the system on.
- Microsoft BASIC-80/release 5**, one of the fastest and most powerful general purpose languages available. Outstanding features include: 16 digit accuracy, output formatting, error trapping, assembly language calls, random and sequential file access, protected files, variable length records, program chaining, boot directly to applications program, and the ability to protect the source program from end-user viewing, printing, or changing. For speed of programming, it offers program tracing, automatic line numbering and renumbering, and long variable names. To provide increased speed, an optional BASIC compiler is available.
- SCOPE** — a revolution in program editors, using word-processing techniques to the benefit of programmers. Features high through-put (due to memory-mapped video and large text memory), ability to work with unified text-files as large as the disk space available, horizontal scrolling that simulates a 250-character wide screen, and ability to edit any ASCII data file. Used for all CP/M languages.
- RAID** — the full-screen simulating debugger. Comparable with the best development system debuggers, it also offers Vector's unique full-screen status display, showing the whole state of the computer on the screen without having to enter status requests.

- ZSM Z-80 assembler** —using the 8080-superset mnemonics for programmer convenience.
- Extended Systems Monitor** — supplying a number of useful debugging tools stored on PROM.
- Computer electronics** — consisting of high-speed 4 MHz Z-80® processor, on the Vector single board computer with 1K RAM, up to 12K PROM in three slots, programmable parallel ports, and one serial port. 64K Dynamic RAM board with bank select capability. Flashwriter II clean-screen video display board with reverse-video capability, floppy disk drive controller board, and power supply.
- Industry standard S-100 6-slot** motherboard, carefully terminated and grounded to reduce electronic noise.

®CP/M is the registered trademark of Digital Research Inc.

®Z-80 is a registered trademark of Zilog.

Optional Hardware & Software

- **Up to 3 additional disk drives** (5¼-inch floppies).
- **Vector's two system printers**, choice of one: the typewriter-quality Sprint 3 or the MP matrix printer, or one of the many printers on the market. Vector's own "system printers" are integrated into the computer, using "parallel" interfacing, for greater speed, lower cost and greater reliability.
- **Communications** to time-sharing services, other Vector systems, or other computers. More sophisticated communications, including IBM bisynch, and use of the VIP as a "very intelligent terminal" are available from Vector Graphic and third parties.

- **Memorite word processing** software — makes the VIP an advanced and uniquely efficient word processor. Memorite's speedy operation results from the use of memory mapped video and storage of working text in memory rather than on disk. This includes mailing-list management and merge with letters.
- **The CCA data management** software — enables you to set up, store, change, and draw reports from large bases of data, without knowledge of computer programming.
- **Peachtree business accounting** packages, including ready-to-use Accounts Receivable, Accounts Payable, General Ledger, Payroll, and Inventory Management packages. All written in Microsoft Basic for speed, compatibility, and flexibility. (Requires a second disk drive.)

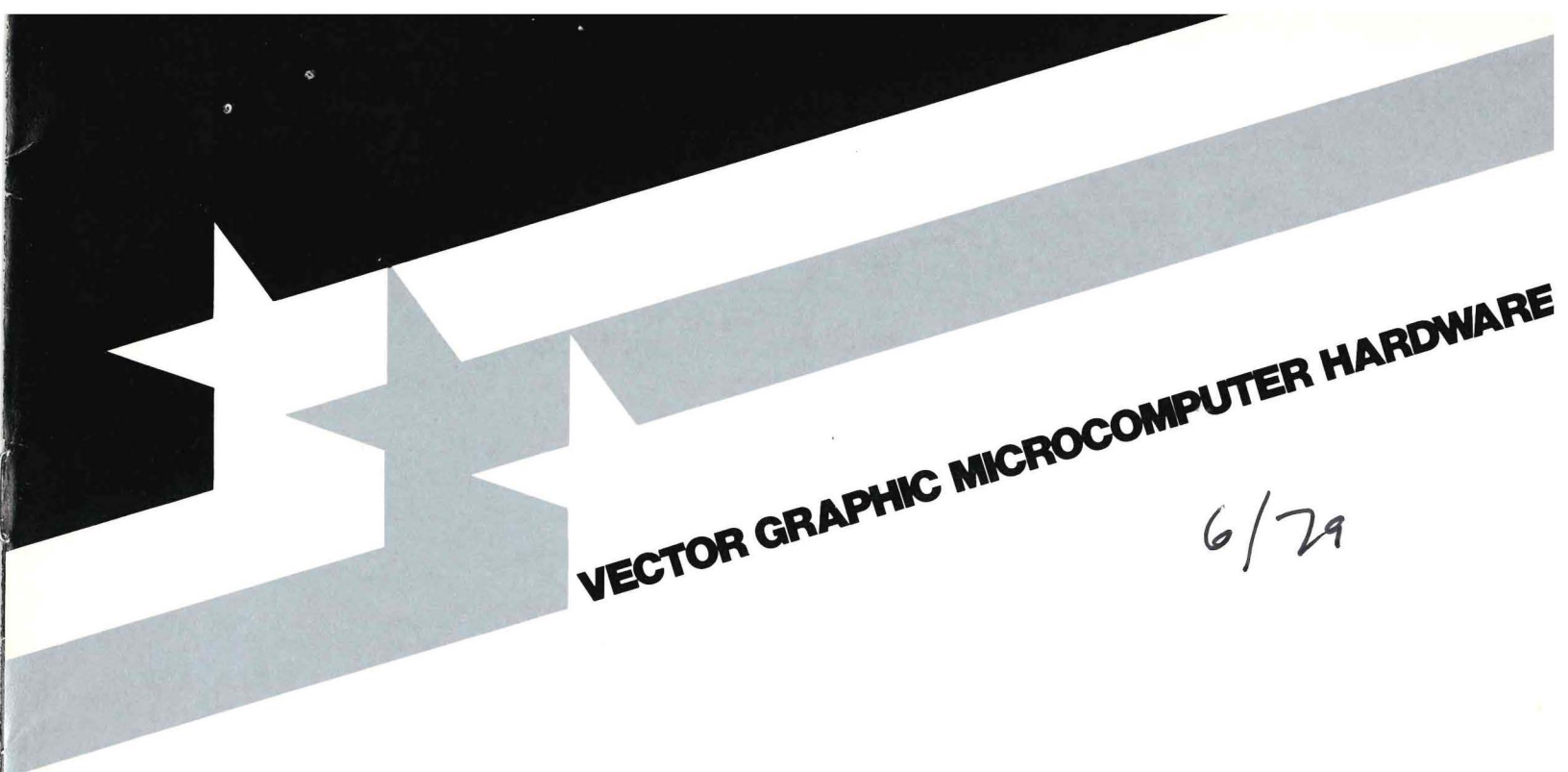
- **Standard languages**, including Microsoft FORTRAN, CIS COBOL, PASCAL, and APL.
- **Software products** from dozens of major software houses, because the VIP uses the industry-standard CP/M operating system.
- **Additional special purpose electronics** available from Vector Graphic and many compatible suppliers.

VIP uses the standard S-100 bus which, like CP/M, offers a large base of support from numerous compatible vendors.

Above specifications are subject to change without notice.

VECTOR
VECTOR GRAPHIC INC.

31364 Via Colinas, Westlake Village, CA 91362, 213/991-2302
Weingarten Str. 9, 8803 Rueschlikon, Switzerland, (01) 724-2153, Telex: 566005
20 rue de Montchoisy, Geneva, Switzerland, (022) 35-7272, Telex: 28667



VECTOR GRAPHIC MICROCOMPUTER HARDWARE

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VECTOR 1 MICROCOMPUTER

The Vector 1 digital computer is based on the 8080A or Z-80 microprocessor and the common S-100 bus structure. Vector 1 has 78 basic machine instructions and a minimum instruction cycle of two microseconds. There is room for up to 64K of directly addressable memory using a parallel 8 bit word/16 bit address. Up to 256 separate input and output devices can be addressed. An 18-slot motherboard comes standard. Factory assembled and tested.

1



MINDLESS TERMINAL*

The first "mindless" terminal for small business computer systems. Accepts separate TTL video and sync — interfaces with most alphanumeric video display boards. 12" screen has crisp 900-line resolution at center and 750-line resolution at borders. Custom 60-key typewriter format with 12-key numeric pad. Special function, directional and control keys as well. Incorporates capacitance key switches and LSI N-channel MOS encoding electronics.

2



VECTOR MZ MICROCOMPUTER*

Z-80 based, dual-floppy, S-100 bus compatible digital microcomputer. Completely assembled and tested, basic system includes: 18-slot motherboard; Z-80 CPU with 4 MHz clock; two quad-density Micropolis 5 1/4" floppy disk drives, 630K bytes of storage capacity; disk controller board; Bitstreamer I/O board with 1 serial/2 parallel ports; 48K RAM easily expandable to 56K; 12K 2708 PROM/RAM board with extended monitor.

Up to 256 separate input and output devices can be addressed. System software includes Micropolis MDOS with 20K extended BASIC, debugger, editor, Z-80 assembler, MZOS disk operating system and CP/M.

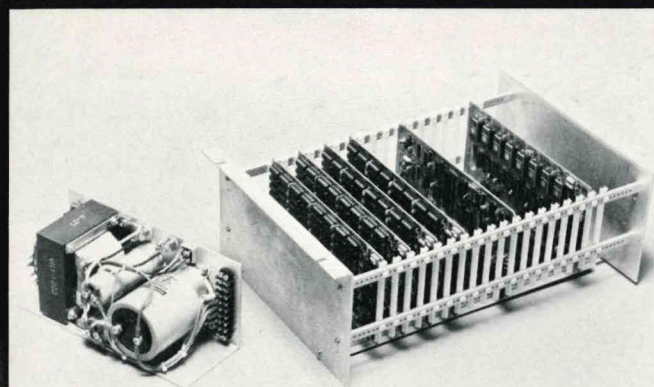
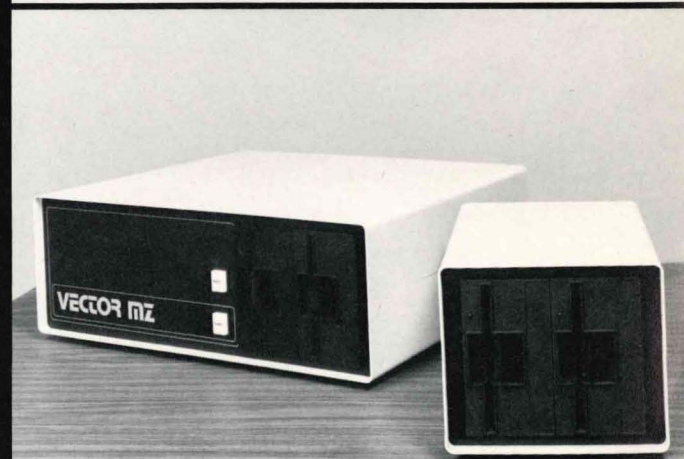
3



MICRO-STOR DISK SYSTEM

Designed specifically to interface with the Vector Graphic disk controller board. Comes with two Micropolis MOD II disk drives. Each floppy disk has storage capacity of 315K bytes formatted with 16 hard sectors and 77 tracks. Operates with both static and dynamic memories at data rate of 250K bits/second. Requires 115 Vac power. Also includes controller board, disk operating system, compiler, Z-80 assembler, editor and debugger.

4



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RACK MOUNT MICROCOMPUTER

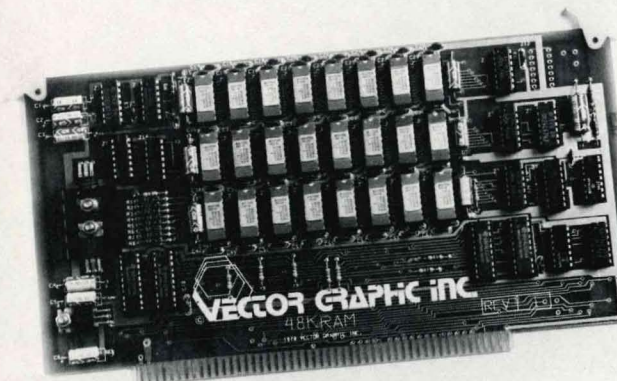
Rack mount includes a card cage, assembled and tested 18-slot motherboard with connectors, card guides and locking buttons. The motherboard is fully shielded and terminated to reduce noise on the bus.

A companion power supply is available completely assembled and designed for rack mounting. The 18 A + 8 V, 2.5 A ± 16 V custom supply provides power for a full 18 boards. Transformer has primary taps for 110 V, 120 V and 130 V. Features all Class B insulation.

48K RAM BOARD

The advanced 48K Dynamic Memory Board provides 49,152 8-bit bytes of random access memory utilizing 24 - 16K chips. Compatible with Z-80 based S-100 bus computers and features problem-free transparent refresh consuming less than 4 watts total power. Thermally cycled, aged and continuously read-write tested for over 400 million error-free cycles. Offers buffered data input and output. Incorporates gridded ground plane designed to reduce noise. Shipped fully assembled, tested and burned-in with one year guarantee.

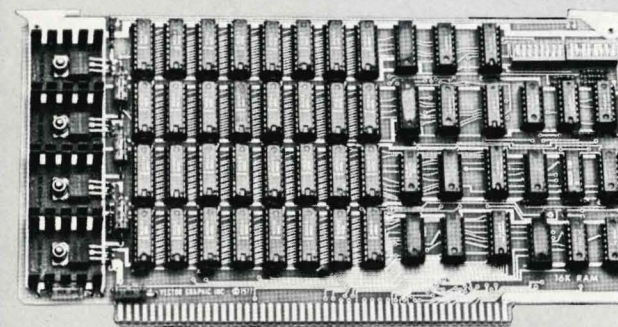
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16K STATIC MEMORY BOARD

This 16K board is addressable as two 8K blocks on 8K boundaries, as if two 8K memories were available. Bank selectable to allow up to one-half megabyte to be addressed by the CPU. Address lines buffered with Schmitt triggers, data in and data out also fully buffered. Hardware write protection offered for each 8K block. Phantom disable feature permits use with reset-and-go PROM/RAM boards.

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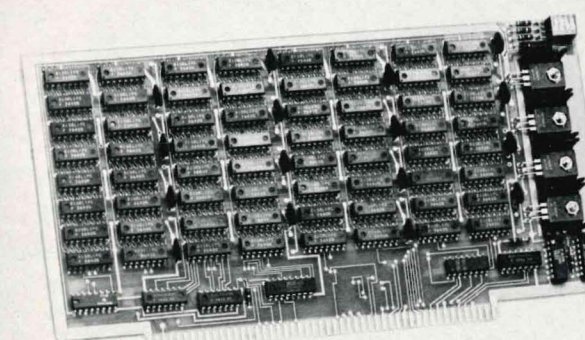


8K STATIC MEMORY BOARD

The 8K Static Memory board is offered fully tested and assembled. The board features rapid access time with no wait state. Conservative power regulators provide excellent reliability with typical power consumption of 1.5 A at + 5 V.

Address lines buffered with Schmitt triggers; hardware 8K memory protect. Address select through top-mounted dip switch; no need to remove board.

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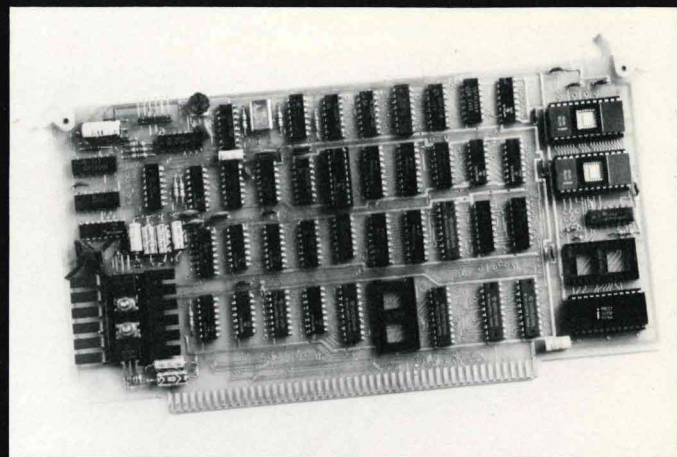


*A small business system called System B includes: (2) Mindless Terminal, (3) Vector MZ, (9) Flashwriter II.

FLASHWRITER II VIDEO BOARD*

Higher density version of alphanumeric video display board. Features 80 characters X 24 lines and character matrix of 8 X 10 dots. Reverse video optionally controlled by high-order bit of the character code. Up to 256 characters can be generated by 2708/2716 EPROMS which can be user-programmed for special symbols or graphic characters. Memory-mapped I/O permits rapid updating of screen. 1920 displayed characters serially mapped into 2048-byte memory block. Keyboard port (8 bits and strobe) with latched data allows easy interface to parallel keyboard. "Power on" jump circuit offers power-up operation without interfering with system RAM at low addresses.

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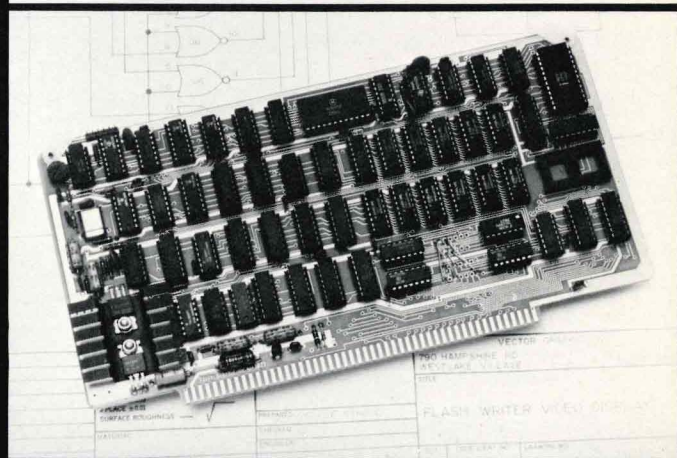


FLASHWRITER I VIDEO BOARD

Video board will generate and display 64 characters by 16 lines. Additional features include character-by-character reverse video, block graphic and line graphic elements (may be super-imposed over characters) and reduced intensity field.

The board uses a 7 X 9 matrix character generator and independently addressable keyboard input port.

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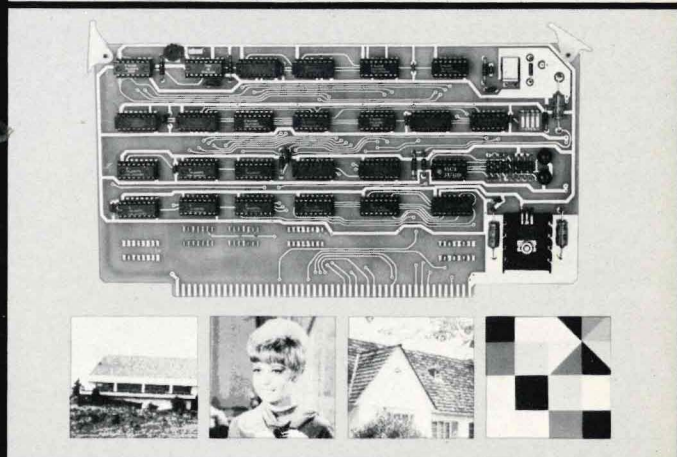


HIGH RESOLUTION GRAPHIC DISPLAY BOARD

The High Resolution Graphic Display board offers several switch-selectable video outputs. In the high resolution mode, 256H X 240V screen elements are displayed, while the gray scale mode provides 128H X 120V screen elements with 16 levels of programmable gray scale.

The board is designed to utilize a standard Vector Graphic 8K static RAM board as the refresh memory, and will interface with most raster scan monitors.

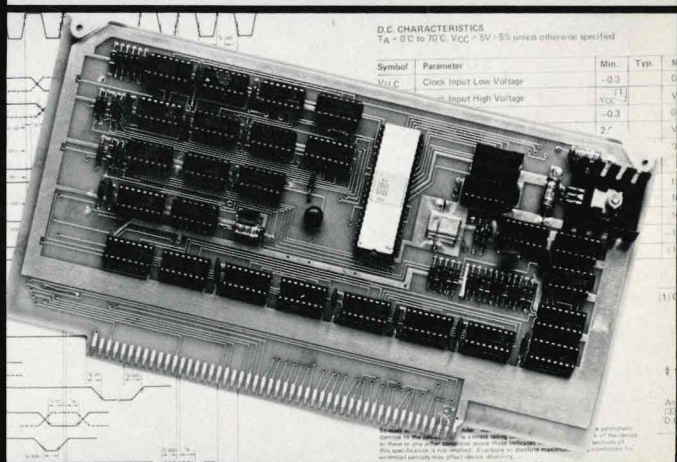
11



Z-80 CPU BOARD

Z-80 CPU board, offered fully assembled and tested with on-board wait state select, is jumper selectable for operation at 2MHz or 4 MHz. Operates standard 8080 software without modification. All Z-80 lines are fully buffered. Supports all three modes of Z-80 interrupts. Has jumper selectable MWRITE generation. Quality features include solder mask on both sides of the PC board, gold plated edge contacts, card extractors for easy installation or removal and 256 I/O devices.

12



LITERATURE REQUEST FORM

Please circle the Reader Service number(s) corresponding to the items you are interested in receiving literature on:

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	

List any special applications and/or system software packages you are interested in.

Please Print Clearly

Name _____ Title _____

Company Name _____

Division _____ Department _____

Company Address (Street or P.O. Box) _____

City _____ State _____ Zip Code _____

If you wish to receive mail at a different address, fill out below:

Street or P.O. Box _____

City _____ State _____ Zip Code _____

Do you wish a Vector Graphic authorized dealer to contact you: Visit Phone

Phone No. _____ Area Code _____

What is your installation date requirement:

Immediate 30 days 60 days

90 days or more

What trade magazines do you read regularly?

CPU BOARD

Uses 8080A microprocessor with on-board real time clock. It has 8 vectored interrupts, fully buffered data and address lines. Includes 78 instructions and 2 microsecond instruction cycle time. Addresses up to 256 separate input and output devices. Features solder mask on both sides, plated through-holes and card extractors. All IC's are socketed for easy maintenance. Available fully assembled and tested.

PROM/RAM BOARD

PROM/RAM board, fully assembled, features 1K RAM 2102LIPC, low power, 450 nS access time. It has a ROM capacity for up to 2K bytes of type 1702A. Stores bootstraps, loaders, and video drivers.

Has stack storage; no need to relocate stack when changing memory. Jump-on reset, MWRITE logic also included.

The PROM/RAM board can be used with all S-100 computers with or without front panel.

12K PROM/RAM BOARD

The 12K PROM/RAM board combines memory technologies of erasable programmable read-only memories (EPROM's) with high speed random access memory (RAM). 12K bytes of 2708-type EPROM's may be installed. RAM is 1K bytes of high speed static devices. Includes PROM programming capability.

Full buffering on all inputs and outputs is provided. Jump-on jump to any PROM location, selectable wait state included.

Available fully assembled and tested.

BIT STREAMER I/O BOARD

Bit Streamer I/O board, available fully assembled, combines two parallel input and output ports, and a serial I/O port using an 8251 programmable universal asynchronous receiver-transmitter. The parallel ports also can be used as keyboard input ports.

Will operate as an RS-232 or 20 mA current loop serial port using the initialization and I/O software on the Vector Graphic option C PROM.

Interfaces with most terminals, printers, readers and modems.

Fold Here

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Place Stamp Here

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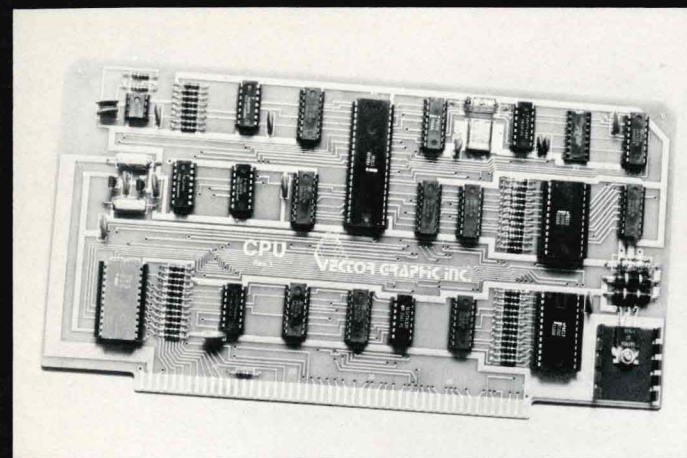
VECTOR GRAPHIC INC

31364 Via Colinas
Westlake Village, CA 91361

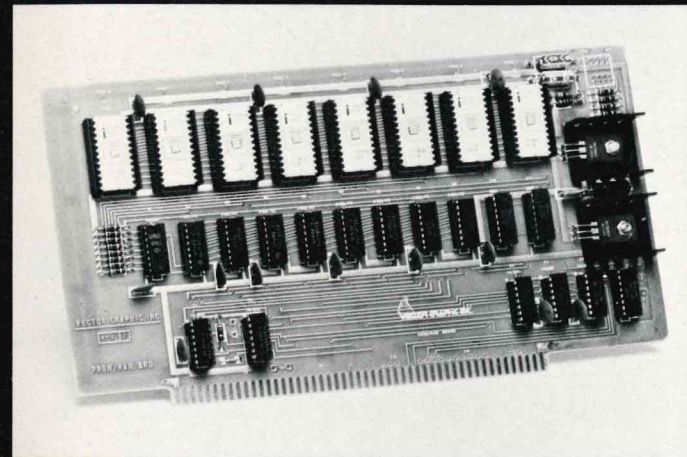
For Fast-Action

... on delivery of literature for items described in this publication — fill out this coupon, fold as indicated and drop in the mail.

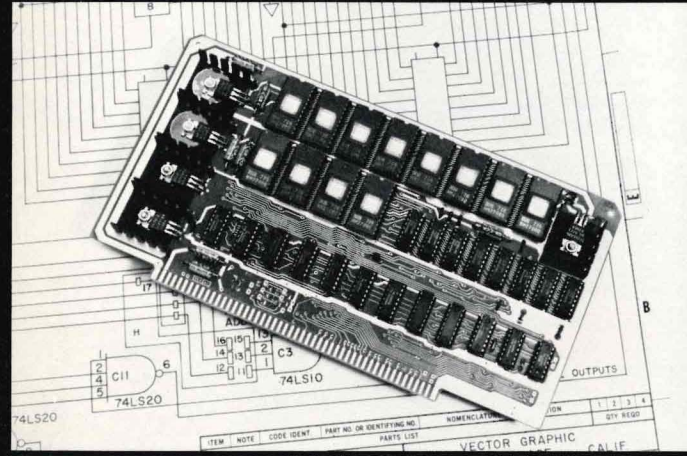
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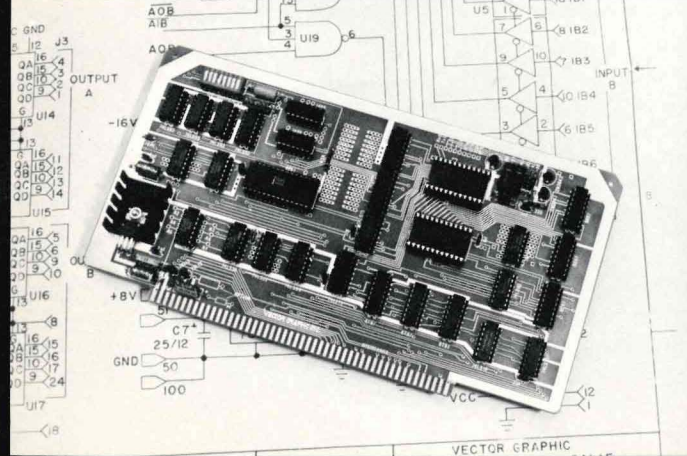
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16

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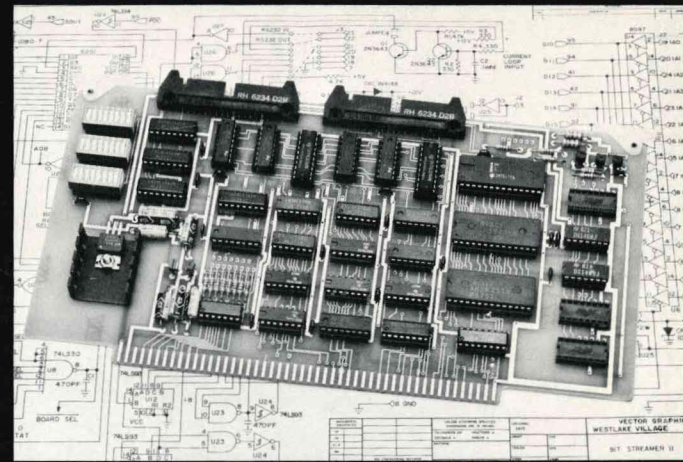
Will operate as an RS-232 or 20 mA current loop serial port using the initialization and I/O software on the Vector Graphic option C PROM.

Interfaces with most terminals, printers, readers and punches.

BIT STREAMER II I/O BOARD

Fully S-100 bus compatible, the BITSTREAMER II allows interfacing with most terminals, printers, readers and punches. Uses 8251A programmable USARTs which can be software-configured for 5 to 8 data bits and 1, 1½ or 2 stop bits. Available factory assembled and tested. Provides three serial input/output ports interfaced at RS-232 levels and 20 mA current loop; two parallel input/output ports. By jumper option Bit Streamer II can generate interrupt requests.

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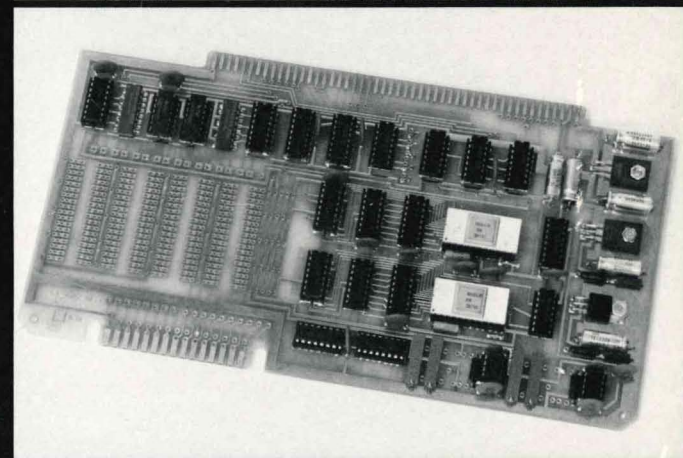


PRECISION ANALOG INTERFACE BOARD

The Precision Analog Interface board, available fully assembled and tested, contains 2 analog outputs, 8 analog inputs and a versatile control port. It provides high accuracy 12-bit digital-to-analog and analog-to-digital conversion for measurement and control of up to 8 analog input channels.

Design uses the latest in hermetically sealed, laser-trimmed DAC's for true 12-bit (0.012%) accuracy. A variety of output voltage ranges are available and the board can operate in either monopolar or bipolar modes. A convenient patch area allows user-designed circuitry to be added.

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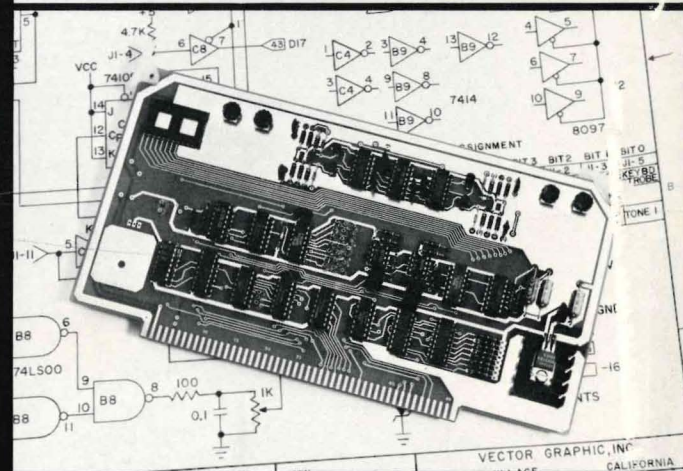


ANALOG INTERFACE BOARD

Multi-function Analog Interface board, offered fully assembled, permits interfacing with potentiometers, joysticks or voltage sources. An 8-bit digital port with latched strobe can be used as a keyboard input port. Tone pulse generators also can be used to produce sounds for games or keyboard audio feedback.

Features include four A to D inputs and software-controlled resolution, ranging from 16 or 64 counts for cursor motion to 1024 or more for graph plotting or feedback controls.

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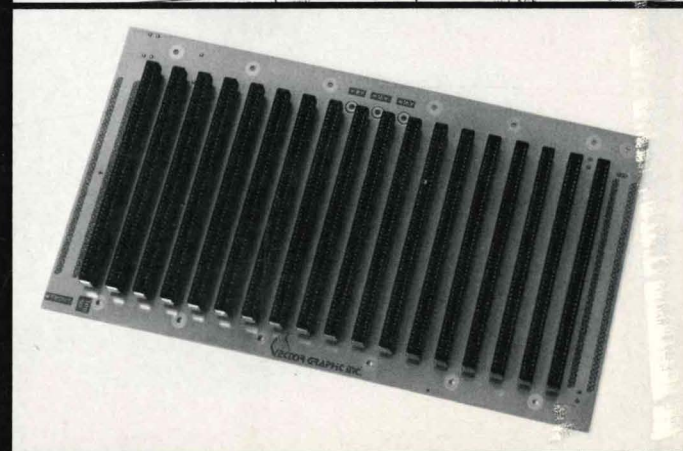


MOTHERBOARD

Heart of the Vector Graphic computers is the 18-slot, fully shielded motherboard offered separately to the computer hobbyist and experimenter. Constructed of heavy .093" fiberglass, the board resists twisting and warping which can cause problems in board alignment.

Terminating resistors for the bus lines provide testbook clean signals. By using stripline techniques, proper characteristic impedance is ensured and coupling between adjacent lines is minimized.

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An automated typing and editing system that eliminates preliminary document preparation and distribution with significant time savings and cost-effectiveness.

Vector Graphic's Word Management System:
• **CREATES** • **EDITS** • **REPRODUCES**
office information before generating a single piece of paper.

The Word Management System is capable of storing 315 pages of text or 630,000 alpha-numeric characters at any one time. Word processing now becomes faster and easier to integrate with existing operations than ever before, and neither technical knowledge nor long hours of training is required. It is the most sophisticated word processor for microcomputers yet devised.

6169

Word Management System for the Vector MZ Microcomputer



Pre-configured routines available for Qume, Diablo and similar printers.

Impressive features of the Word Management System

Creating Text

AUTOMATIC CARRIAGE RETURN

Carriage returns automatically at the end of each line on the screen, allowing rapid typing of first drafts. There is no need to watch the screen or worry about margins — typing can be continuous, a capability unmatched on comparable systems.

VARIABLE TABS

Tabs can be placed at any point on a line. The current settings are seen on the screen in the form of a marked-off ruler so multiple columns of figures can be easily created and moved, in contrast with many systems.

AUTOMATIC DOCUMENT REFERENCE

When storing, recalling or manipulating a document on disk, there is no need to type the document name. Rather, the cursor (a movable marker on the screen) is moved next to the desired name in a displayed directory of the disk and then a one-key command activates the reference.

INSTANT DOCUMENT UPDATE

By entering one command, the disk copy of a document can be updated after revisions have been made to it on the screen. The document's name is not typed nor is the directory even seen.

DIRECT TYPING TO PRINTER

Typing can be done directly from the keyboard to the printer when normal typing is needed, such as filling in the blanks on non-standard forms.

Editing

CHARACTER-ORIENTED EDITING

Add, change, or delete material anywhere on the screen. There is no need to inform the system which line or which material needs to be edited. Simply type over the visual image.

AUTOMATIC ALIGNMENT

No matter how much material is added or deleted in the middle of a text, the entire text automatically opens or closes accordingly. The system automatically realigns the paragraph and the document to accommodate changes.

FULL DOCUMENT IN MEMORY

Up to 24 typewritten pages of text can be stored in working memory at one time, in contrast with many systems that keep only one page in memory at a time.

VARIABLE SPEED IN SCROLLING

The video screen serves as a window for viewing the text. The system incorporates every desirable way to move or "scroll" the text past this "window". It can be flipped page by page or line by line, both under operator control. Alternately, there is automatic scrolling, with variable speeds.

GLOBAL SEARCH AND REPLACE

The system can be commanded to automatically search a document for specific characters or words. If desired, some or all occurrences of specified material can be automatically or manually replaced with specified new material.

AUTOMATIC CUTTING AND PASTING

Any size portion of text can be quickly deleted and reinserted elsewhere. This allows documents to be taken apart and reassembled in seconds.

INDIVIDUALIZATION OF STANDARD DOCUMENTS

When revising a previously written document which has been called up from disk, the original on the disk remains unchanged (unless deliberately updated).

Printing

COMPLETE FORMAT FLEXIBILITY

Margins, type-density, vertical spacing, page-length, indentation and right-justification (aligning the right edge of the text, as in published material) can be changed as often as desired within a document. Any chosen section of text can be automatically printed in boldface, underscored or centered.

STORED FORMAT DIRECTIVES

The commands used to produce format features are embedded within the text, so there is no need to re-enter format features each time a document is printed.

VARIABLE PAGE LENGTH

Printing may be done on any size paper; page lengths may be changed within a document. Letter size, legal size or specially cut paper may be used and even mixed with envelopes during printing.

AUTOMATIC HEADERS, FOOTERS AND PAGE NUMBERING

Headers, footers and page numbers can be automatically printed on each page. These items can be printed on the left or right edge and/or top or bottom of the page. The page number can also be centered. For documents that are to be reproduced on both sides of paper, the page numbers, headers and footers can be alternated from the left to the right on the front and back of pages respectively, as in published books.

SUPER AND SUB-SCRIPTS

Printing can be above or below the normal line. When printing above the line, the distance above the line is variable so that several levels of super-scripts can be printed. This feature is essential for scientific writing. It is also used for footnote numbers in the text.

VARIABLE TYPE FACES AND COLOR

Printing may be stopped, then restarted, at pre-selected locations within the text.

This allows a change in typeface or ribbon color within a document until the desired appearance is obtained.

CONTINUOUS OR PAGE-BY-PAGE PRINTING

One command specifies whether printing is continuous or whether it stops at the bottom of each page until restarted. Continuous-form or single sheet paper can be used as required for businesses.

STOP-AND-RESTART PRINTING

Printing can be stopped in the middle of a document, even in the middle of a line, to correct errors in the text. Printing can then be restarted exactly where it left off or at any earlier point, such as at the beginning of the page.

LIST/LETTER MERGE

A repetitive list of information, such as a mailing list of names and addresses, can be merged into a document like a letter. Each letter is printed repeatedly and automatically with a different individual's information inserted, and the text is re-aligned so that it looks individually-typed. The list information does not have to appear on the letter in the same order it appears on the list. The system also includes a question-and-answer procedure for adding, deleting or changing information in the list. This easily permits true mass mailing, without an impersonal effect.

SORT AND SELECT LIST

New lists can be created from existing lists by using up to 26 qualifiers at the same time, i.e., sorting by name, zip code or date, and selecting ranges of zip codes or dates. This allows ultimate control over mailing lists.

VECTOR GRAPHIC INC.

31364 Via Colinas, Westlake Village, CA 91361, (213) 991-2302

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VECTOR GRAPHIC MICROCOMPUTER SOFTWARE

MDOS/MBASIC

MDOS, the Micropolis Disk Operating System, comes standard with the Vector MZ. This package provides the user with a complete program development system consisting of an extended line editor, a full Z-80 linking assembler, a powerful debugger and a symbol-saving program. Utilities provided include disk and file copying programs. Interfacing routines for several types of printers are also offered. MBASIC, the Micropolis Extended BASIC, is one of the most powerful in existence. Fully record-oriented disk I/O, precision up to 60 digits, true CHAINing and many other features make MBASIC a versatile application and system language to program and operate.

MZOS

MZOS is our Micropolis/Z-80 Operating System. Although not nearly as powerful as MDOS, MZOS is fully North Star DOS compatible with many other features. In addition, MZOS has an expanded capability, since a Micropolis disk has 3.5 times the capacity of a Shugart disk. A program to make an exact copy from a North Star diskette to a Micropolis diskette is provided based on a North Star controller and drive.

CP/M

CP/M is an advanced disk operating system featuring a powerful executive structure and unmatched disk handling capability. Additionally, CP/M has more software available from other sources than any other microcomputer operating system, including CBASIC, Fortran and many others. CP/M incorporates a powerful text editor, assembler, debugger, peripheral interchange program, formatter and many other utility programs. For business applications, CP/M, along with the collection of software available for it, is an exceptional operating system.

CIS COBOL

With CIS COBOL, the powerful business language of large computers is available to microcomputer users. This is a compact, interactive and standard COBOL. It is compact because it can compile a sizable program easily in 32K; almost anything can be done on the Vector MZ microcomputer with 48K. It's interactive because the batch COBOL language has been extended to allow screen-oriented interaction between the program and the user. This is a major enhancement to the normal language; COBOL has many advantages including the fact that it is self-documenting and easy to read. CIS COBOL comes with both a language reference manual and operating instructions, and runs under CP/M.

The UnAssembler

For assembly language programmers, the UnAssembler is a necessity. Superseding the Sourcerer in our product line, the UnAssembler features full Z-80 disassembly and enhanced error-catching features. Mnemonic and data word formats, production of a complete cross reference table and an output that is ZSM-compatible make the UnAssembler an invaluable tool. The UnAssembler runs under MDOS.

SOFTWARE FOR MICROCOMPUTER SYSTEMS



CCA Data Management System

The CCA system represents a breakthrough in data management software. Useful for anything from mailing lists to inventory to accounting, this system has many features not found on any other. For each file in the system, the user can define all relevant information, including what each field is to be called, its length and other information. Maintenance features include the ability to add, delete, update, inspect or search records. Sorting can be done on any field, and can be nested up to ten levels deep.

Additionally, the sort package uses a special algorithm for the fastest possible sorting and can sort files that are over a thousand records long. When printing reports, the user specifies exactly what files are to be printed, and where; both report and label formats are possible. Subtotals and totals can be generated at certain points, and numeric fields may be printed in any format. A portion of the full file may be printed by specifying a range applicable to any field. Another unique feature: one or more fields can be computed on the basis of information in other fields. This opens even more possibilities for the system. Since file structuring is straightforward, other programs can easily be written to further enhance the system. The CCA Data Management System runs under MDOS and MBASIC.

EVIOS

Vector Graphic's Extended Video Input/Output System — EVIOS — is designed for our Flashwriter I board. Since it is memory mapped, Flashwriter has infinite capability as a terminal. EVIOS makes available many of the features found only in intelligent terminals: full cursor positioning, either relative or absolute; full control over reverse video; reduced intensity and graphics; protected fields; creation of bar grids; screen transmission as input; extensive selective screen erasure; and several other modes.

UniVid

UniVid is Vector Graphic's Universal Video Driver. While EVIOS is designed to take full advantage of the Flashwriter I board, UniVid is designed for the 24x80 Flashwriter II board. This system is called universal because it is actually three drivers in one. First, it is a simple driver that also allows plotting. Second, it is an emulator for the Lear Siegler ADM-3A terminal. Finally, it is an emulator for the Hazeltine 1500 terminal. Each of the emulation modes allows software using the special functions of one of the terminals to also work on Vector Graphic's Mindless Terminal.

Extended Monitor

Standard with Vector Graphic systems, the Extended Monitor is a multi-faceted software package. As a system monitor, it provides 23 commands for such functions as memory dumping, entering data into memory, testing memory, polling I/O ports, booting the disk, moving blocks of memory and many others. In this way, it is invaluable as a debugging tool. Additionally, it provides all of the console input and output for the system. Because the Monitor is set up for the particular configuration of the system, all other software will automatically run on it without system-dependent modifications.

ZSM

ZSM is Vector Graphic's powerful assembler. Structured similarly to the Micropolis assembler, ZSM also assembles all Z-80 code using the 8080 superset (TDL) mnemonics for easy upgrading of 8080 programs. ZSM can request information from the user during assembly and print information during assembly and conditional assembly. It can also link several files together for assembly. This allows otherwise huge or unmanageable files to be broken down into as many source modules as desired. ZSM runs under MDOS and is included as part of MDOS with MZ systems or MDOS updates.

Word Management System

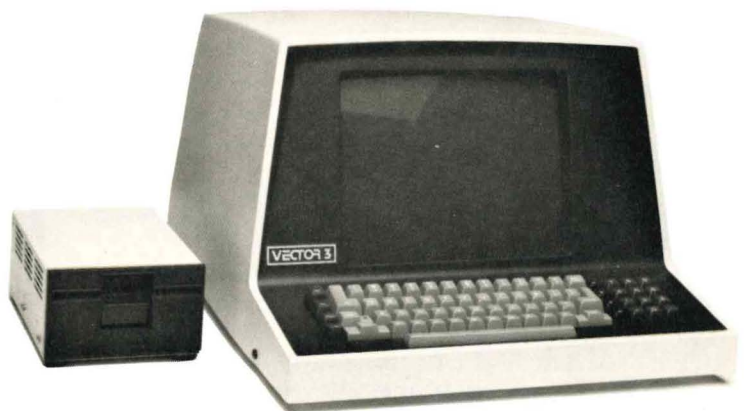
The Word Management System is a complete word processor matching the most advanced stand-alone systems. Major features include: a) continuous typing without regard for lines; b) freely changeable tabs; c) no typing of names of documents, especially good for assembly of large documents from several small ones; d) one-step updating of the disk; e) direct typing to printer; f) character-oriented editing for typing anywhere on the screen; g) delete or move by character, word, line or any other portion of text, i.e., automatic realignment of text on the screen; h) full document in working memory; i) scrolling by lines or full screens; j) global search and replace; k) original document on disk is not changed unless told to; l) complete formatting flexibility including right justification; m) mid-text (dynamic) format changes; n) variable page length; o) automatic heading, footing and page numbering, with optional reversal of layout for two-sided printing; p) print-stop for changing type-face or ribbon color; q) continuous or page-by-page printing; r) stop printing in mid-document, even in mid-line; and s) many safety features to avoid erasing memory or disk.

The list processing feature of the system is, in fact, a small data management system designed solely for mailing lists or similar lists of up to 1500 members. Each member of the list is assigned "qualifiers" which can be used to identify characteristics of that member. Using this, a subset of the entire list can be sorted, stored on disk for later use and printed in 1 or 2 columns on mailing labels or continuous form paper. Moreover, by using the merge feature, mailing lists can be combined with text such as form letters, providing a sophisticated mass mailing capability.

The Word Management System contains its own disk operating system. With WMS, the Vector MZ computer becomes a completely integrated information processing system.

You'll Remember MEMORITE III!

Word Processing Economy
from Vector.



Because MEMORITE III has . . .

On-screen Reference Manual

Memorite III is the first word-processor that does not need a printed quick-reference manual. It's all built in. If you forget an aspect of the system while using it, ask for help and get the answer immediately. An entire instruction book can be requested. Or you can ask for help on specific topics. And it doesn't matter if you forget the topics because the on-screen manual lists them too!

Result: Satisfaction instead of frustration, fewer calls for help, and a lot of time saved even for the expert user.

Automatic spelling verification

No need to keep a dictionary next to the system. Memorite III knows the spelling of 30,000 words and indicates on the screen any that are misspelled. You can correct the mistake, and even use a global search-and-replace command to correct all occurrences of the same error.

Result: No embarrassing spelling errors or wasted time looking up words.

Phrase library

Do you have a lot of stock terms, phrases or paragraphs that are used repeatedly in your typed material? Or want to use the same term or block of text repeatedly in the same document? Simply type an abbreviation that was specified earlier and Memorite III will substitute the desired material. Do a substitution immediately or do them all at once.

Result: Reduced typing volume that saves time.

Mass mailing and list-processing

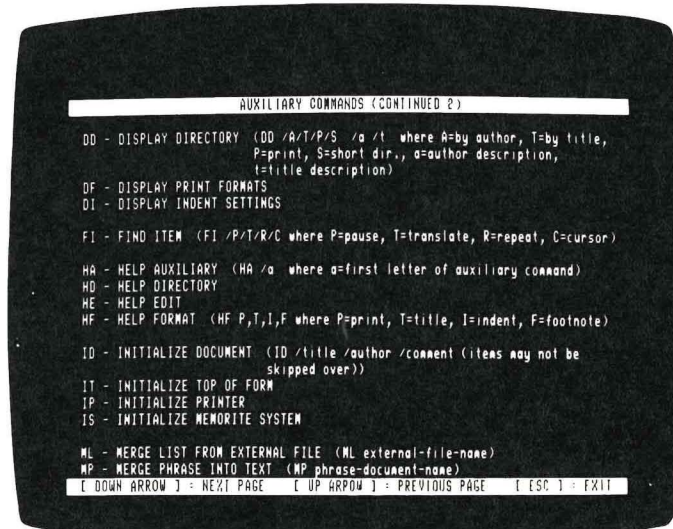
Memorite III includes (at no additional price) an advanced list-processing capability that manages lists of several thousand members, with plenty of extra space for specialized information besides name, address, and phone number. You can sort a list very quickly on the basis of any data item, and you can create a new list by specifying categories of list-members. Use list-processing for mass mailing, since Memorite III will merge list information into a standard letter, one member at a time, and will print the mailing labels. Vector's automatic sheet-feeder can be used to print multiple letters on letter-head conveniently.

Result: A remarkable sales aid and vast time-savings over managing lists with manual methods.

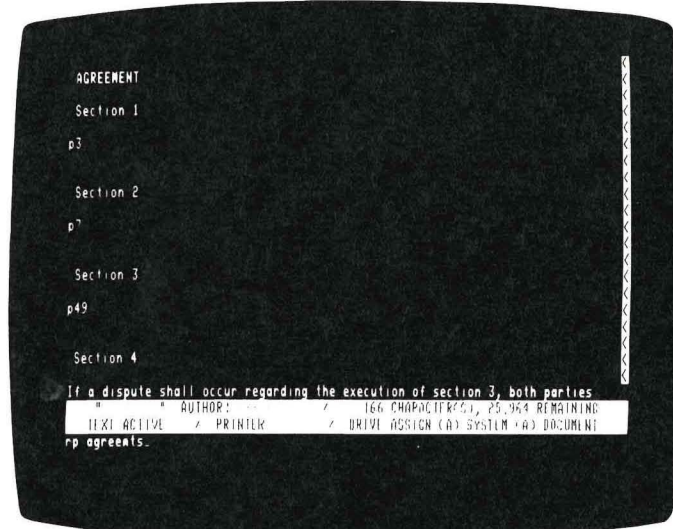
Communications

Do you mail typed material to the same location repeatedly? Do you want to transfer typing to or from another word processing system? Memorite documents can be sent to, or received from, any other Vector system, or for that matter almost any other communicating word processor using industry-standard protocols such as bisynch and asynchronous communication.

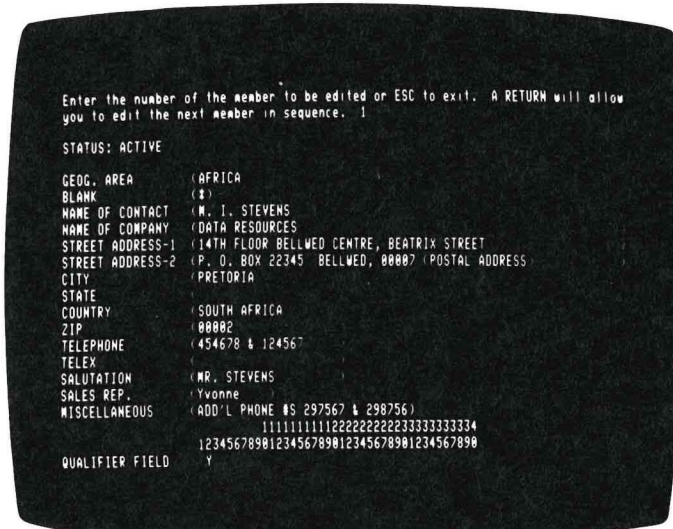
Result: Increased pace of business and no wasteful retyping.



ON-SCREEN REFERENCE MANUAL



PHRASE LIBRARY



MASS MAILING & LIST-PROCESSING

Fastest editing

Memorite III claims the fastest editing. Memorite III holds in memory about 17 pages, unlike word-processing-only systems which usually hold just one or two. So Memorite III can move sections of text from one page to another without tedious disk access, and can automatically search-and-replace throughout a long document in less than a second. Also, unlike most primarily data-processing systems, Vector systems have "memory-mapped video" which allows revision of the screen image instantaneously instead of a frustrating second or two. The time-savings really adds up.

Result: Visibly more work done in less time.

Security

Will more than one individual use the same floppy or hard disk to store typing? Ever worry about someone walking off with the wrong diskette and reading the confidential material on it? Memorite III allows each user an individual password which causes typed material to be "scrambled" so that no one else can view or change it no matter how much they know about the system.

Result: Confidentiality and security as you require.

Summary descriptions of documents

Memorite automatically alphabetizes the document directory by title before displaying it. But what if you forget what document each title refers to? There is also a short description of each document included in the directory to remind you of their content. You can also ask Memorite to remind you of all documents written by any particular author or on any particular date.

Result: Real time saving and convenience, particularly when using large disk storage.

Small, medium or large disk capacity

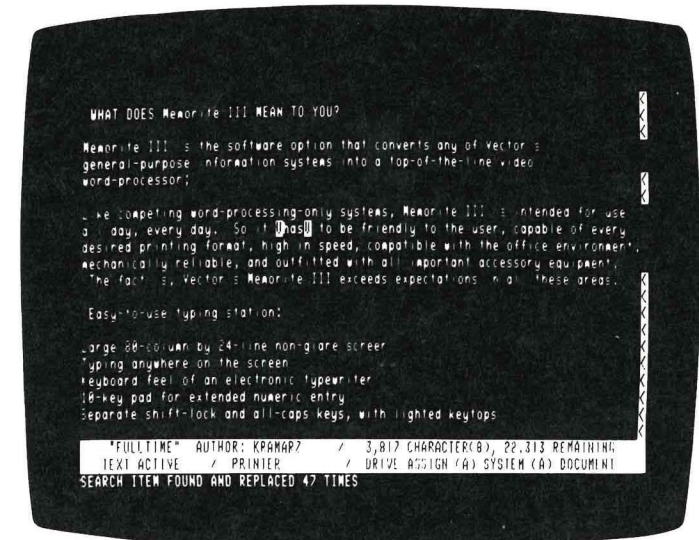
Memorite III can be used with the complete spectrum of Vector's disk drive types, depending on your needs. These range from the lowest cost 5¼-inch floppy drives, to higher-speed higher-capacity 8-inch drives, and up to the hard disks that offer almost instantaneous access to all typed material without inserting diskettes. Operation of Memorite III is the same regardless of disk type, and systems can be upgraded one to the next. Ask about the various disk types available.

Result: Choice of storage that is right for you, and growth as you need it.

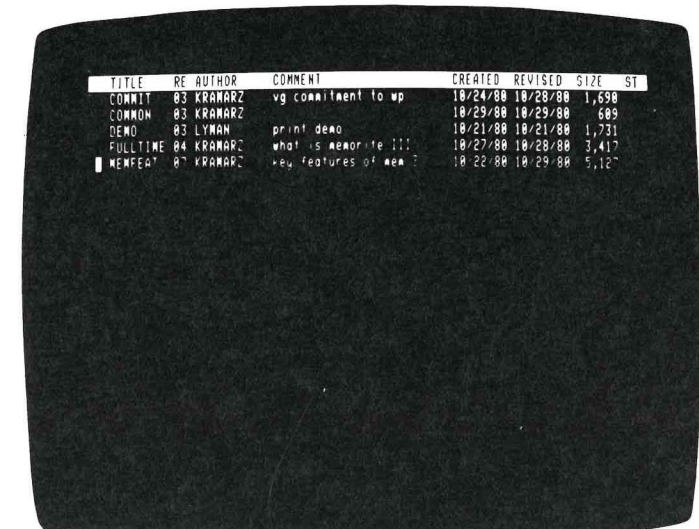
Data-processing on the same system

Though designed with the extra features needed for word-processing, all Vector systems are multi-functional, capable of full business accounting, video spread-sheets, data-management, and custom data-processing applications written in almost any common computer language.

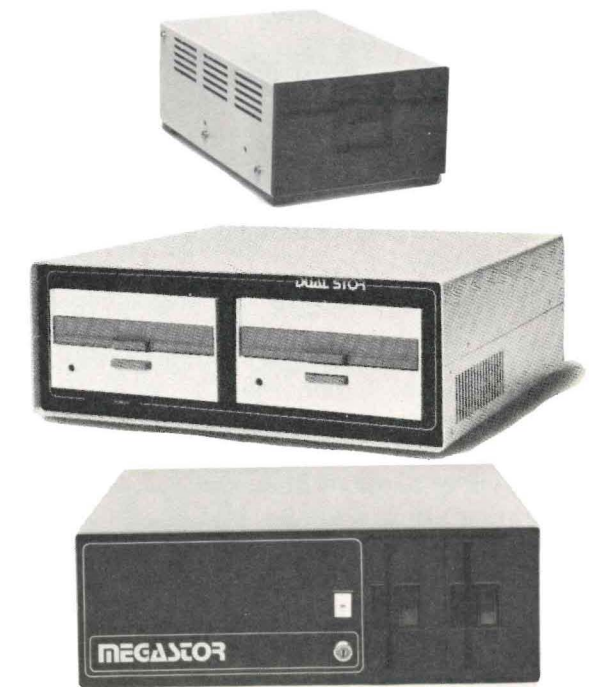
Result: Lower equipment budget; less training and support; hardware redundancy for reduced down-time.



FASTEST EDITING



SUMMARY DESCRIPTIONS



What does MEMORITE III mean to you?

Memorite III is the software option that converts any of Vector's general-purpose information systems into a top-of-the-line video word-processor.

Like competing word-processing-only systems, Memorite III is intended for use all day, every day. So it *has* to be friendly to the user, capable of every desired printing format, high in speed, compatible with the office environment, mechanically reliable, and outfitted with all-important accessory equipment. The fact is, Vector's Memorite III exceeds expectations in all these areas.

Easy-to-use typing station

- Large 80-column by 24-line non-glare screen
- Typing anywhere on the screen
- Keyboard feel of an electronic typewriter
- 10-key pad for extended numeric entry
- Separate shift-lock and all-caps keys, with lighted keytops

Compatible with office environment

- Conservative attractive appearance
- Low noise
- Small size
- Portable
- No special environment needed

Reliable

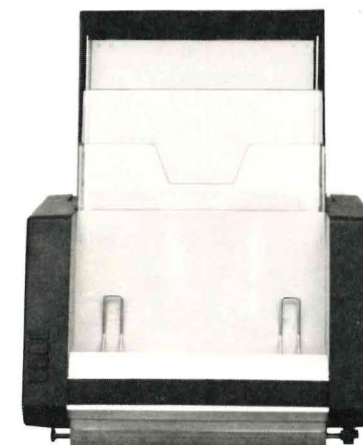
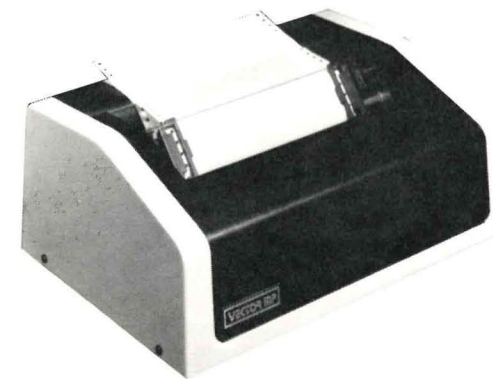
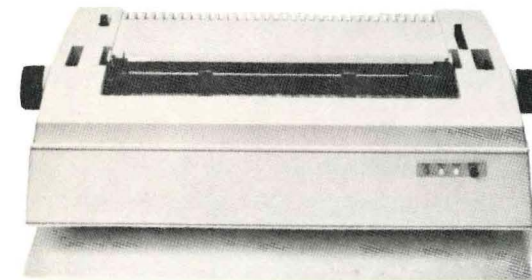
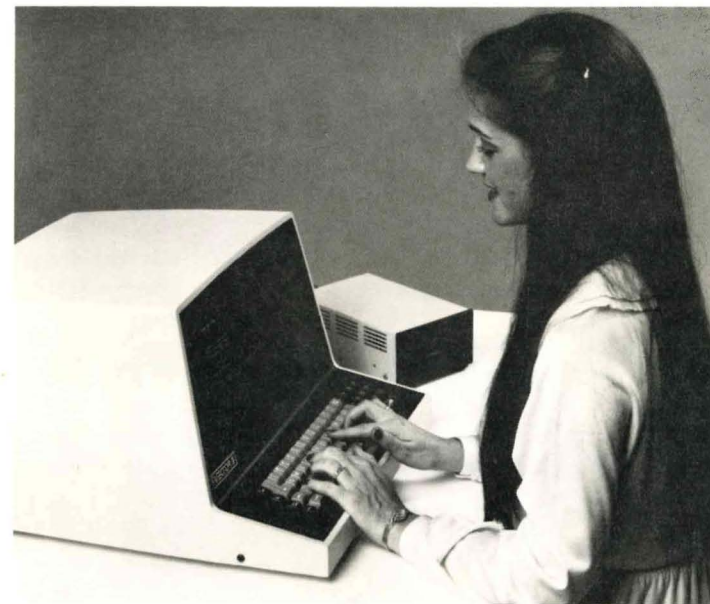
- Vector's well-known reputation for reliability
- Easy to take care of
- Modular components that make service easy

Documents that enhance your business image

- True proportional spacing giving a typeset appearance
- Automatic footnote placement
- Automatic discretionary hyphenation, to smooth out the ragged right edge
- Right edge justification, with spacing adjusted between letters not words
- Automatic extra-strike printing for extra clarity, similar to metal print-wheel
- And many more

High in speed

- All the editing commands needed for fast work are available
- Large text memory reduces time-consuming disk access
- Screen image changes instantaneously
- Abbreviated commands — most commonly used having the fewest keystrokes, many having only One
- Recall, append or insert document from disk without typing name of document
- Phrase library allows high-speed assembly of short sections
- Preview page-breaks on the screen before printing to avoid reprinting
- Print draft on high-speed printer



Easy-to-use commands

- Simple error messages handle every possible typist error
- Easy-to-remember commands correspond to their functions
- Printing directions embedded in the text are easy-to-see black-on-white
- No menus and long typed-out commands burden experienced users, but . . .
- "Prompts" tell you of any option forgotten when entering a command, and . . .
- Help commands answer any other questions

Important accessory equipment from Vector

Vector Sprint 3

- Vector's standard letter-quality daisywheel printer
- 660 words/minute printing
- 123 characters/line at 10 pitch or 158 characters/line at 12 pitch
- 15-inch width
- Removable tractor-feed mechanism
- Extra speed and reliability due to "parallel" interface with main system

Vector MP-132 matrix printer

- For high-speed draft printing
- 80 characters/line normal print or 132-characters/line compressed print
- Maximum 9-inch width
- Tractor-feed mechanism

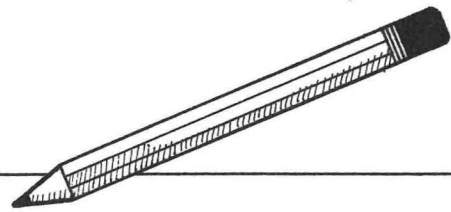
Vector Sheet Feeder

- For use with either the Vector Sprint 3 or Qume Sprint 5
- Automatically inserts one sheet of paper after another
- Easily snaps on and off
- The most reliable sheet feeder in use today
- Single-sheets only (no second-sheets)
- 8½ by 11-inch paper tray standard
- 8½ by 14-inch tray optional

(Note: You may attach any Diablo-compatible serial printer for letter-quality printing, and any teletype compatible serial printer for draft printing)

MEMORITE III — A Full-Time Word-Processor

Shopping for Specific Features? . . .



Entering text

- Type anywhere on screen
- Automatic carriage return
- Single-key cursor-up, down, left, or right
- Cursor to beginning of screen, beginning of text, end of screen, end of text, beginning of line, end of line, next page, previous page, given item
- Tabs — default stop locations; change defaults temporarily or permanently; evenly spaced or arbitrary; stored in document; ruler displayed on screen
- Vertical scrolling — variable speeds

Editing

- Automatic reformatting and repagination after any editing
- Delete character, word, sentence, to end of line, line, paragraph, to end of document, to beginning of document, to any given character, any given section
- Character insert mode — remains on until turned off
- Line insert
- Backspace with or without deleting character
- Move section (cut-and-paste)
- Copy section, once or multiple
- Find item (search and search-and-replace) —discretionary, specific number of times, or globally; beginning at cursor or whole document; forwards or backwards; with or without consideration of case; with wild-card characters; with full editing allowed during discretionary search
- Merge from phrase library — globally or immediate; multiple phrase libraries; display list of available phrase identifiers
- Check spelling throughout a document

Printing

- Printing directions stored with document —changeable anywhere in document
- Status display of current format and printer settings
- Preview page-break locations
- Printing continuously or page-by-page
- Stop and restart printing anytime — from keyboard or at preset location
- Link documents together for printing
- Automatic multiple copy printing
- Non-printing comment lines
- Type directly to printer — includes vertical and horizontal movement using cursor movement keys, if appropriate printer
- Top-of-form command from keyboard
- Reset printer from keyboard
- Select printer type from keyboard
- Select/deselect automatic sheet-feeder from keyboard

Page format

- Default page formats — changed individually, temporarily or permanently
- Embed format changes in document, or make changes from keyboard
- Right edge justification — spacing adjusted between characters
- Proportional spacing or regular type
- Margins (top, bottom, left, right) specified in inches
- Variable character and line spacing — does not effect margins
- Variable paper length and width — can change automatically
- Automatic multiple-line headers and trailers — right, left, or centered; variable distances from top or bottom of pages; 10 different headers and trailers allowed at one time
- Automatic page numbering — top, bottom, right, left, or centered; can be embedded in header or trailer

- Non-printing or left-to-right alternation of headers, trailers, and page numbers on every other page
- Preview page-break locations
- Automatic printer roll to any vertical location on page (for columnar work)
- Automatic indenting for outlines and paragraph indentation — 9 different indentation distances; use default distances or change them temporarily or permanently; multiple indents on same line
- Automatic footnote placement at bottom of page — with automatic superscripted footnote number; special variable line spacing and margins for footnotes; automatic printing of horizontal dividing line between text and footnotes

Automatic Special Printing

- Centering
- Underlining and double underlining (with proper printwheel)
- Boldface
- Next character overstrike (for accents and special characters)
- Extra-strike (for darker type) — can be turned on for whole document
- Superscripts and subscripts
- Hyphenation at specified locations in long words
- Non-break space between specified words
- Ribbon color switch (with appropriate printwheel)
- Printing of every character on any printwheel

Using the disk drives

- Optional password security
- Cursor movement within document directory on screen — no need to type name of desired document
- Automatic alphabetization of document directory by title
- Display directory for one author or group of related titles
- Display short directory (titles only)
- Print directory
- Recall document
- Append document to end of current document
- Insert document within current document
- Erase document from disk
- Protect document from change
- Directory gives document title, number of revisions, author, description, date created, date last revised, number of characters, whether protected, and whether password secured
- Single command for saving or updating document on disk
- Option to save part of document only
- Automatic preservation and recovery of previous version of document (for backup)
- Set any drive as document drive — any other drive as Memorite program drive
- Transfer document from Memorite II to Memorite III

List Processing

- Up to 3500 members in each list, depending on disk capacity
- 15 data items per member
- 511 characters per member
- Fast sorting — based on any data item
- Create new list by sorting or by selecting members with desired qualifiers
- 40 qualifier dimensions allowed, 27 different qualifiers per dimension
- Use default screen prompts or change as desired for each list
- Cursor movement from field to field during data entry
- Merge with document — merge any field anywhere in document, use any field more than once or not at all
- Print mailing labels or lists; print any data items; up to 5 items per line

MEMORITE III — Showing Vector's Commitment to Word Processing

Word processing electronics

Vector's electronics are specifically designed for user-friendly word processing. Like word processing-only systems, each new screen image appears instantaneously when requested.

Compatible with data-processing

Since Memorite III is built upon our industry-standard CP/M operating system, it is readily integrated with the data processing software that runs on the same equipment. For this reason, Memorite III can become the cornerstone of an integrated information work station.

For all Vector systems

Memorite III can be used with all Vector hardware, making use of the various disk speeds and capacities available.

Easily upgradable in the field

Since Memorite III is a "software" product provided on a diskette, new releases of Memorite III will be available to current users. And, Vector has shown its intention to keep previously typed text usable regardless of changes in the software.

The first "publicly expandable" word-processor

Memorite III is the only word processing system designed specifically to allow systems houses and large-company programming staff to add features easily. Such features act like Vector's own and use the resources of the Memorite III base. In this way Vector's own substantial development effort will be enhanced by the efforts of professionals world-wide.

Memorite III has taken the largest step yet in Vector's long-term commitment to word-processing. And since it represents ongoing research, you can be certain that your investment in word-processing from Vector will continue to grow as you do.

You'll Remember MEMORITE III

VECTOR
VECTOR GRAPHIC INC.

31364 Via Colinas, Westlake Village, CA 91362, 213/991-2302
Weingarten Str. 9, 8803 Rueschlikon, Switzerland, (01) 724-2153, Telex: 566005
20 rue de Montchoisy, Geneva, Switzerland, (022) 35-7272, Telex: 28667

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U.S. RETAIL PRICE LIST

<u>MODEL</u>	<u>SYSTEMS</u>	<u>RETAIL</u>
SB	System B	\$4750.00
VMZ	Vector MZ	3750.00

<u>MODEL</u>	<u>STARTER SYSTEMS</u>	<u>RETAIL</u>
V1-18A	Vector Mainframe	\$ 575.00
RM	Rackmount	225.00
MPS	Modular Power Supply	125.00

<u>MODEL</u>	<u>INTERFACE BOARDS</u>	<u>RETAIL</u>
Z80	Z-80	\$ 215.00
I/O	Bitstreamer I/O	195.00
I/O II	Bitstreamer I/O II	235.00
MB	Motherboard with 18 connectors	175.00
AI	Analog Interface	115.00
PA	Precision Analog	390.00
GR	High Resolution Graphics	235.00
VD	Video Digitizer	175.00
FW 64	Flashwriter Video 64 X 16	235.00
FW80 UC	Flashwriter Video 80 X 24 upper case only	295.00
FW80 U/LC	Flashwriter Video 80 X 24 upper and lower case	320.00

<u>MODEL</u>	<u>PROM/RAM BOARDS</u>	<u>RETAIL</u>
PR1	PROM/RAM, 1702	\$ 129.00
PR2	PROM/RAM, 2708	175.00

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Prices subject to change without notice

Page 1



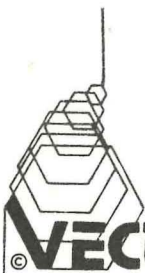


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<u>MODEL</u>	<u>MEMORY BOARDS</u>	<u>RETAIL</u>
8K	8K Static, 250ns	245.00
16K	16K Static	485.00
48K	48K Dynamic	695.00

<u>MODEL</u>	<u>ACCESSORIES</u>	<u>RETAIL</u>
VMT 64	Mindless Terminal with Flashwriter Video 64 X 16	\$ 765.00
VMT 80 U/LC	Mindless Terminal with Flashwriter Video; upper and lower case; 80 x 24	805.00
MS	Micro Stor	1395.00
KBD	Keyboard	225.00

<u>MODEL</u>	<u>CABLES</u>	<u>RETAIL</u>
C	I/O cable, 24 pin dip plug, DB25 connector, ASI-1327	\$ 15.00
VMTC	Mindless Terminal Cable to computer	55.00
VBC	Video Cable; Flashwriter to rear panel	8.50
VMC	Video Monitor to Mainframe	17.50



VECTOR GRAPHIC INC.

Software

<u>DESCRIPTION</u>	<u>RETAIL</u>
UnAssembler	\$ 75.00
ZSM upgrade	40.00
EVIOS	75.00
UNIVID	75.00
3.1 Extended Monitor	75.00
MZOS disk/PROM	60.00
MDOS Update	85.00
Update '79, MDOS + 3.1 Monitor	150.00
CP/M on Micropolis	145.00
VBIOS	15.00
CCA DATA MANAGEMENT SYSTEM	150.00
WORD MANAGEMENT SYSTEM	450.00
CIS COBOL	500.00
PASCAL	95.00
APL	400.00
Custom Character PROMs for Flashwriter II	100.00





VECTOR GRAPHIC INC. PRESENTS THE SOURCERER

A COMPREHENSIVE DISASSEMBLER FOR 8080 OBJECT CODE: The Sourcerer is designed to convert 8080 object code files to source code files, which are easier to understand and modify. The code is systematically converted to Intel standard mnemonics, and the created file is compatible with most 8080 assemblers, including ESP-1 and others based on the Processor Technology assembler.

CREATE ESP FILES DIRECTLY IN RAM: Files may be formed directly in memory, or may be listed on any output terminal device. Several formats are available, including two with decimal line numbers and formatted constants and symbols. All symbols have a leading H followed by their hex equivalents; thus the assembler treats them as labels. All numerical constants have a leading zero and trailing H so they are treated as hexadecimal constants.

SYMBOL TABLE: The Sourcerer operates in two passes. On the first pass, all three-byte codes are used to form a hex symbol table. This table is used on the second pass to affix labels to the file. The symbol table may be listed separately.

CROSS-REFERENCE TABLE: A cross-reference table may be listed. This table consists of each symbol, the RAM addressed from where it is referenced, and the mnemonic codes that reference it.

The Sourcerer is a unique tool, a must for the true software buff. It allows you, in a very short time, to create source files from all those machine code programs that you want to modify, but are reluctant to hack up with haywire patches. Now you can create your own source file, add commands, change subroutines, or delete unused features. Your newly assembled program will be as efficient and compact as the original!

To use the Sourcerer, you'll need a dedicated 4K block of memory. The code itself occupies just over 2K with another short section devoted to scratchpad, input buffer and stack. The remainder of the 4K block is used for symbol table storage.





VECTOR GRAPHIC INC. PRESENTS ESP-1

ASSEMBLER, MONITOR AND EDITOR

EXECUTIVE COMMANDS:

- A ASSEMBLE source file to object code with formatted assembly listing and symbol table which may be saved for other files.
 - B BREAKPOINT prints formatted display of all registers when met.
 - C CONCATENATE appends file read in to current file and renumbers.
 - D DISPLAY selected memory contents on terminal.
 - E ENTER displays and/or modifies contents of memory.
 - F FILE creates, assigns and displays file data.
 - G GO TO transfers program control to selected address.
 - H HEX loads paper tape in hexadecimal format into memory.
 - I INITIALIZE assembler, monitor and terminal.
 - K KILL deletes any line or lines from current file.
 - L LIST displays unformatted source as originally entered.
 - M MOVE current file or block of memory to any location.
 - N NUMBER renumbers source lines by chosen increment.
 - P PRINT outputs formatted listing of current file.
 - R READ object or source cassette into memory via Tarbell interface.
 - S SET baud rate using 3P plus S interface card.
 - T TEST selected area of memory and display errors.
 - U USER transfers program control to user location 0000.
 - V VERIFY that two areas of memory are identical and display errors.
 - W WRITE current file or object code onto cassette.
 - X HEXA displays sum and difference of two hexadecimal numbers.
 - Z ZERO any area of memory or fill with a constant.
 - @ ABORT any of the above and reset system.
 - DELETE last character and backspace cursor.
- A, D, L and P displays may be halted with space bar, continued with carriage return or aborted with @.
- 1234 ANY four numeric digits enter editor.

AN EXECUTIVE PROGRAM - AN OPERATING SYSTEM - AN ASSEMBLER
A MONITOR - AN EDITOR - A HOUSEKEEPING PROGRAM - A GOOD FRIEND!



NEW PRODUCTS BY VECTOR GRAPHIC INC.

EXTENDER BOARD - Equipped with current shunts on +8V, +16V lines for measurement of current consumption of board under test.
\$29. includes one 100-pin connector.

Z-80 BOARD - Fully clocked design with on-board wait state select. Switch selectable for operation at 2 mhz or 4 mhz. Runs standard 8080 software without modification. All Z-80 lines are fully buffered.
\$175. kit \$215. assembled

ANALOG INTERFACE BOARD - Designed for interfacing with potentiometers, joysticks or voltage sources. 8-bit digital port with latch strobe can be used as a keyboard input port. Tone pulse generators can be used to produce sounds for games or keyboard audio feedback. Four A to D inputs. MWRITE logic and power on jump feature for computers without front panel.
\$75. kit \$115. assembled

"BIT STREAMER" I/O BOARD - Two parallel ports and one serial port with both RS232C and 20ma current loop drivers are provided. Board is designed for ease of assembly and jumpering. An 8251 USART is employed which is capable of both asynchronous and synchronous communication protocols, including IBM bi-sync.
\$155. kit \$195. assembled

2708 PROM/RAM BOARD - 1K on-board RAM, capacity for up to 12K of 2708 type EPROMs. Board occupies two independently addressable 8K blocks. Complete flexibility is provided to suit virtually any system configuration with a minimum of address jumpers required. Video boards or disk systems can be nested in the 3K of unused address space. Jump on reset feature and MWRITE logic allow operation without a front panel. PROM monitors with 24 commands are available to interface with most popular I/O boards.
\$135. kit \$175. assembled

"FLASH WRITER" VIDEO BOARD - Standard format of 16 lines by 64 characters with a 7 x 9 character matrix is augmented with software controlled reverse video, 3 x 2 graphic elements, vertical and horizontal line elements and reduced intensity fields. On-board keyboard port is independently addressable. Standard TV sync frequencies are accurately generated using an on-board crystal. Line elements can be superimposed on character cells, allowing grid lines and pre-printed forms to be represented.
\$195. kit \$235. assembled



VECTOR GRAPHIC INC.

790 HAMPSHIRE ROAD, A + B
WESTLAKE VILLAGE, CA 91361

PRICE LIST

EFFECTIVE JUNE 1, 1977

VECTOR 1 COMPUTER

Custom cabinet, 18 slot Motherboard S-100 Bus with 6 connectors, power supply 18A, 8V; 2.5A ± 16V, whisper fan, card supports and guides for 6 cards, all hardware, wire and solder. 8080 based CPU board with vectored priority interrupts, and real time clock. PROM/RAM board with 1K RAM, room for 2K ROM type 1702A. 512 byte monitor Options A, B C standard, Option D, AV EV P + \$30. Requires I/O board and terminal or video board, keyboard and monitor.

VECTOR 1 without CPU

VECTOR 1 without CPU and PROM/RAM

VECTOR 1 without PROM/RAM

Order No.	Kit	Order No.	Assembled
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V1 A	\$619	V1 AA	\$849
V1 B	499	V1 BA	699
V1 C	349	V1 CA	499
V1 D	519	V1 DA	719

VECTOR 1+

The Vector 1 with front panel cutout to accommodate Shugart Drive mini-floppy, includes necessary power supply regulator board.

Add \$40 to above V1 prices.

CPU BOARD

8080A microprocessor, 8 level vectored priority interrupts, real time clock.

CPU	150	CPU 1A	190
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PROM/RAM BOARD

1K RAM, space for 2K 1702A type PROMs. Power-on-jump feature.

PR 1	89	PR 1A	129
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512 BYTE MONITOR ON 2, 1702A PROMs (for use with Tarbell tape interface)

A: 3 P + S, MITS SIO Rev. 1

B: MITS 2 SIO

C: IMSAI SIO 2

D: Polymorphic Video Interface (includes video driver)

E: 3 P + S w/o inverted status bits

AV: 3 P + S plus VDM driver

EV: 3 P + S w/o inverted status bits plus VDM driver

P: Polymorphic Video Interface Rev. 1.2 (includes video driver)

40	---
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70	---
70	---

ESP-1 5K ASSEMBLER

Monitor and editor on cassette, documentation

29.50	---
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THE SORCERER — DISASSEMBLER

Convert 8080 object code files to mnemonic object code files, on cassette, documentation

25	---
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PRICE LIST CONTINUED

	Kit	Assembled
8K STATIC RAM BOARD		
8192 byte memory, sockets, low power		
450 ns access time	\$255	\$265
250 ns access time	265	275
18 SLOT MOTHERBOARD		
15" x 8½" for S-100 Bus, uses most readily available .125" x 0.25"		
100 pin connectors. Provision for bus termination, bleeder resistors. Can be used to retrofit ALTAIR.	49	---
Assembled with 18 connectors		165
DUAL 50 100 PIN CONNECTORS .125" x 0.25"	6	---
CARD GUIDES, for 6 boards	3	---
POWER SUPPLY KIT		
18A, 8V; 2.5A ± 16V includes transformer, diodes, bridge rectifier, capacitors and hardware. Can be used to retrofit ALTAIR SUPPLY.	60	---
TRANSFORMER		
18A, 8V; 2.5A ± 16V. Primary taps for 110V, 120V, and 130V. Replaces ALTAIR 8080A transformer.	30	---
TOP QUALITY CHIP SETS		
Includes (6) 8097, (1) each 8080A, 8224, 8212, 18MHZ crystal	39	---

Prices subject to change without prior notice.

Z-80

CPU BOARD

TECHNICAL INFORMATION

The VECTOR GRAPHIC Z-80 CPU BOARD is a fully S-100 bus compatible product designed to provide users the best performance at a reasonable price. Based on the Z-80A microprocessor, operation at 4 MHz clock rate is jumper selectable. Included is a jumper selectable automatic wait state which allows 4 MHz operation with slower memory boards while actually maintaining 80% or better throughput speed. All interface signals are fully buffered and the carefully engineered board layout assures reliable operation at 4 MHz. Another special feature of the Z80 CPU is jumper selectable MWRITE generation for use in systems

without a front panel switch console or other source of MWRITE. Quality features include solder mask on both sides of the PC board, plated through holes, gold plated edge contacts, all IC's prime parts from reputable manufacturers, all IC's socketed, and card extractors for easy installation and removal. Available factory assembled and tested or in easy to build kit form.

SPECIFICATIONS

INTERFACE	S-100 BUS COMPATIBLE
PROCESSOR	MOSTEK Z-80A (MK-3880N)
NUMBER OF DATA BITS	8
NUMBER OF ADDRESS BITS	16
INSTRUCTIONS	158 (INCLUDING ALL 78 8080A INSTR)
CLOCK	2 OR 4 MHZ JUMPER SELECTABLE
POWER REQUIREMENTS	+8 VDC @ 750 AMP (TYP)
INTERRUPTS	ALL THREE Z80 MODES
I/O DEVICES	256 INPUT/OUTPUT



Vector Graphic, Inc., 790 Hampshire Rd., A + B
Westlake Village, CA 91361, Tel: (805) 497-6853