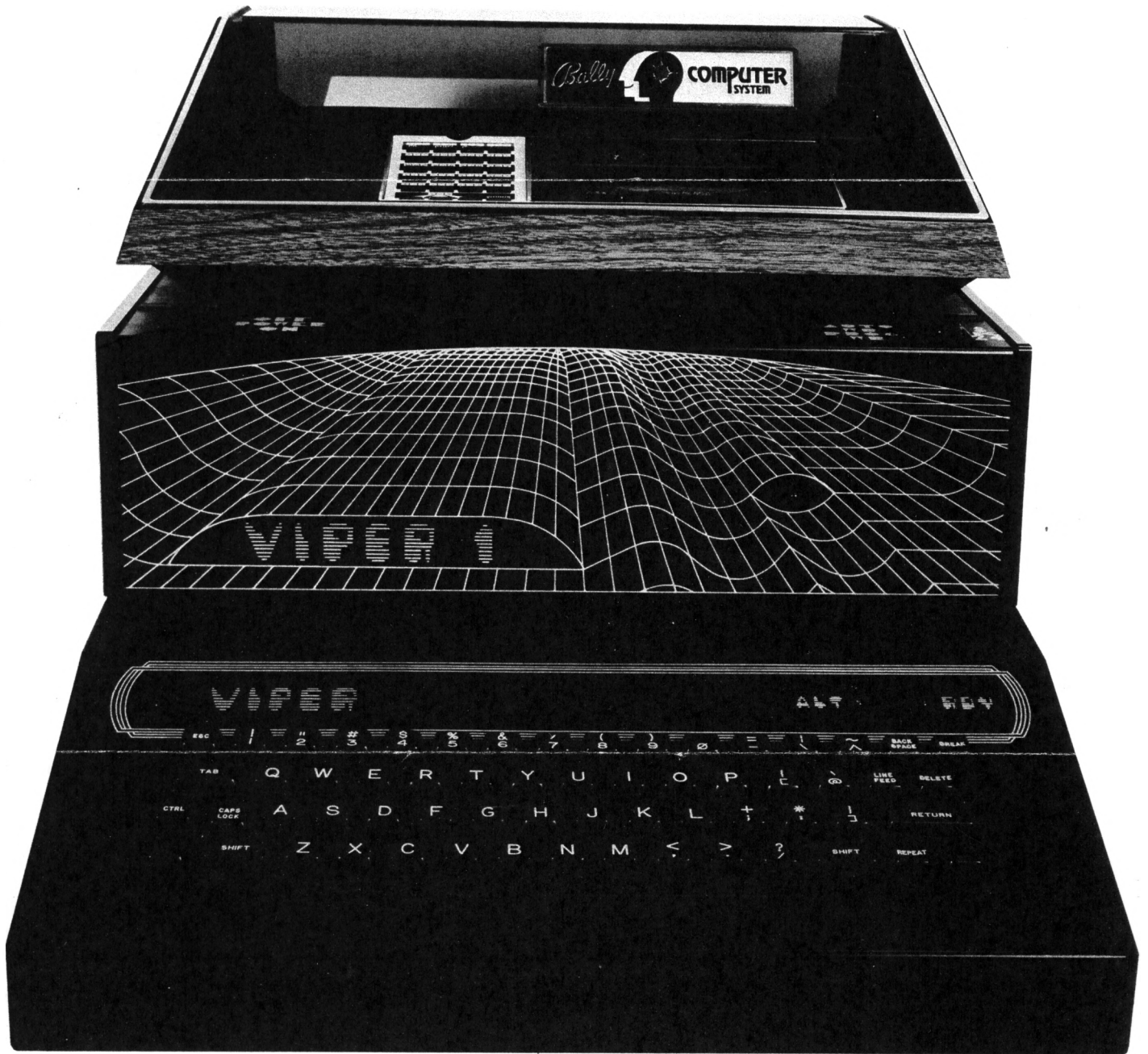


# Video Image Processing Equipment Research



# VIPER SYSTEM 1, 16K\* MEMORY EXPANSION

Unlike most home video games the Bally/Astrovision Professional Arcade is a highly sophisticated graphics-based computer system. With the addition of extra memory and a keyboard you can complete the transformation of your Bally into one of the most powerful and exciting home computers on the market today.

## More than a 16K add on!

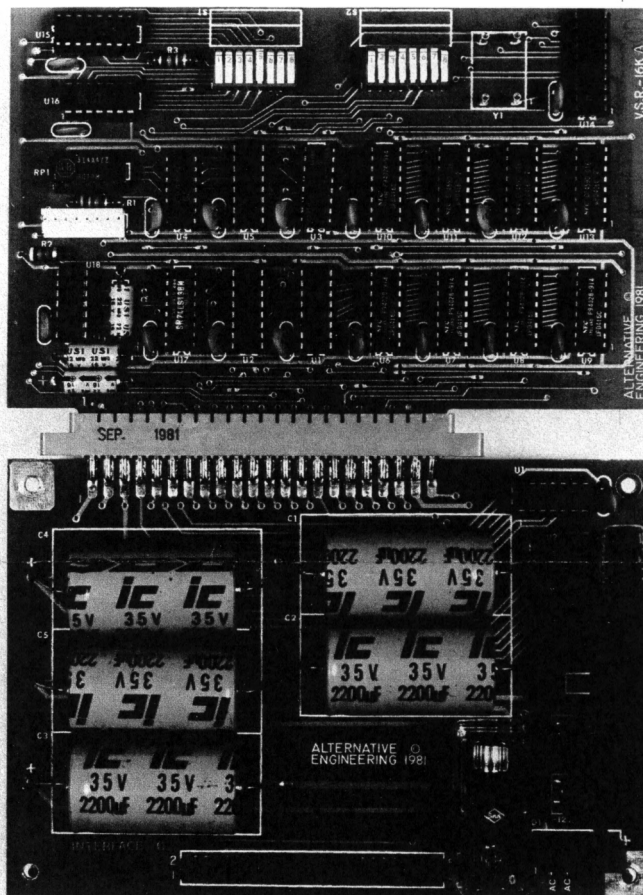
The VIPER 1 is the first in a series of custom manufactured quality products made exclusively for the Bally. This is a 16K\* memory system that includes all these outstanding features and is even expandable:

- 16K\* Dynamic RAM Board (200 ns. access time)
- Remote 8K/24K memory select switch
- Remote Auto Write/Programmable Write Enable switch
- 2-8 position switch paks; No. 1 is used for bank selectable addressing, No. 2 is used for bus controls and selecting either the internal or external clock. (external clock not included)
- VIPER keyboard serial interface
- VIPER to Bally bus interface board with cable
- $\pm 5$ ,  $\pm 12$  volt, fused power supply
- Front panel D.C. L.E.D. indicator
- Illuminated one/off switch
- One switched A.C. outlet
- Custom manufactured aluminum cabinet with simulated wood grain sides
- Dimensions 15 1/4 / 10

## Custom Features

The VIPER 1 has 2 dual position switches on the front panel. The first is labeled 8K/24K. This feature allows you to change the starting address of the 16K RAM board without having to take it out of the cabinet. This convenient feature allows you to copy any cartridges in the cassette slot out to the VIPER RAM. Once they are stored in RAM they can be modified or copied to tape. The second dual position switch is for selecting either the Auto Write or Programmable Write modes. In the programmable mode you can Write Enable or Write Protect the entire 16K of memory. When using Write Enable the RAM acts like ROM—it can be read from but not written into.

The Auto Write function is a combination of Write Enable and Write Protect. Auto Write allows you to use 8K as ROM and 8K as RAM. An example of this is using the extended basic from tape. The first 8K stores the language and must be Write Protected, the other 8K is used to write your programs and must be Write Enabled.



The VIPER SYSTEM 1 power interface card and 16K\* RAM board.

The power interface board includes a serial interface for the VIPER keyboard, and also provides the power to the keyboard.

## New 8K Extended Basic

Included on tape with every VIPER1 is the new 8K, high speed, 4-color, extended graphics basic. This 8K basic (written by the wizard himself!) is packed with special graphics routines and much more!

Here is a brief description of some new commands and variables:

- SAVE: copies the screen image to memory
- SHOW: returns the image to the screen
- CIRCLE: draws a circle, any size, anywhere
- EDIT: enables editing of data within a line no.
- TRACE: lists each program line on the screen and then executes it.
- Separate character and graphics windows
- Faster program execution
- 2 character fonts [3 x 5] or [5 x 7]
- VIPER keyboard driver
- Auto memory search. (automatically

sets up extended basic to run with one or more RAM boards)

Extended basic brings new life to your system and showcases many of the extraordinary graphics features that have made the Bally so famous. Included with it is a video instruction program plus user documentation. (To load extended basic from tape you must already have either Bally basic with interface or the new Astrovision basic.)

\*Extended basic is also available in a cartridge with built in 2000 baud cassette interface

\*Optional

## Quality and Performance

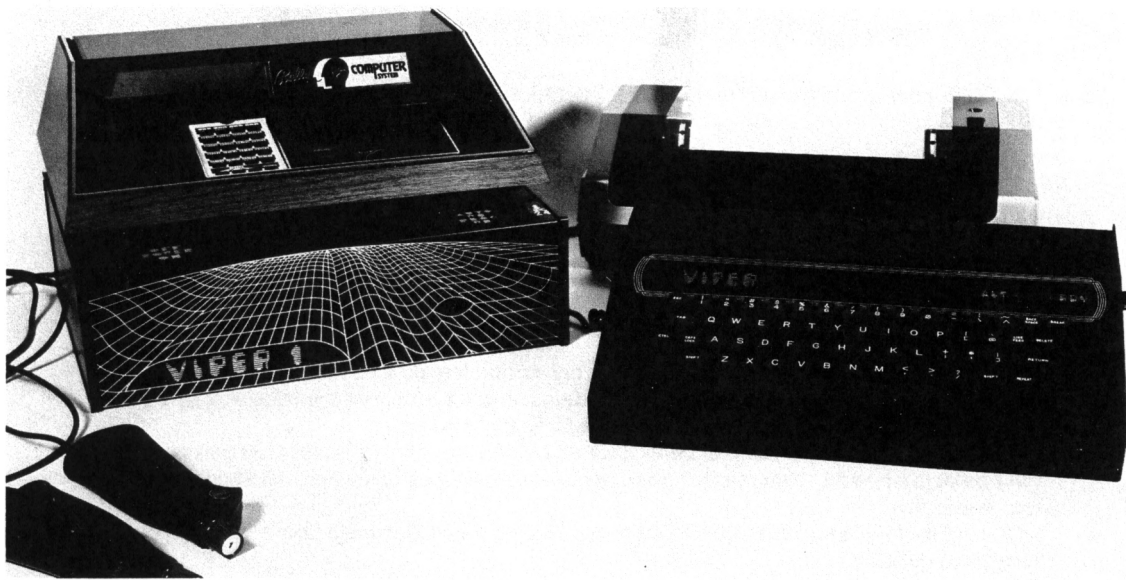
Because quality and performance are No. 1 at Alternative Engineering, every VIPER product is pretested (burnt in) and quality inspected before being shipped. The printed circuit boards are of the highest quality and are all made with these outstanding features:

- Fully socketed
- Gold plated fingers
- Masked on both sides
- Silk screened

VIPER

Video Image Processing Equipment Research

VIPER is an Alternative Engineering Trademark



## —VIPER SYSTEM KEYBOARD—

The VIPER KEYBOARD is the perfect complement to your VIPER SYSTEM. It features a 62-key, typewriter style, alpha-numeric layout, for fast, efficient data entry. Designed to be software and hardware compatible with all the VIPER SYSTEMS, 1, 5, and 10, it will continue to meet your needs as your system grows.

The keyboard circuitry generates a total of 512 unique codes. These include the full upper and lower case ASCII characters, a 128 code alternate character set, and 256 user defined functions. All 26 ASCII "control" characters, A through Z, are further defined by EXTENDED BASIC as command word tokens. This speeds data entry and saves valuable memory space. Also provided on board, is audio feedback, for positive data entry verification. In addition to the VIPER SERIAL INTERFACE circuitry, a parallel output port is included for further flexibility.

The lightweight, yet rugged aluminum housing, is designed to match the other VIPER products, both in styling and long term durability. It features two front panel indicators for READY STATUS and ALTERNATE CHARACTER SET. The keyboard assembly is cushion mounted for a smooth, quiet touch. Transmission of the 9-bit character, to your VIPER SYSTEM, is through a 10 ft., coiled cable, for comfortable, remote operation. An extension cable is also available.

With the VIPER KEYBOARD and your VIPER SYSTEM, you'll have a powerful, full-sized computer at your fingertips. And, it is ready to expand to meet your growing needs.

## —ADDITIONAL EXPANSION—

**VIPER OPTIONAL EQUIPMENT** allows you to customize your system to best suit your applications. A whole series of hardware and software accessories, include the following:

### —VIPER MULTI-BUS ADAPTOR

The MULTI-BUS ADAPTOR will allow more than one circuit card to be used simultaneously in your SYSTEM 1. It allows expansion to 32K RAM and the addition of more I/O ports for other peripherals!

### —VIPER EPROM PROGRAMMER CARD

The EPROM PROGRAMMER will allow you to put your favorite software into 2K or 4K EPROMS. Power up ready to run!

### —VIPER RS-232 INTERFACE CARD

The RS-232 INTERFACE will allow the use of printers, terminals, modems and other RS-232 compatible equipment.

### —VIPER 16K RAM CARD

Fast 200 ns dynamic ram, switch selectable bank addressing, and programmable write protect; expansion in 16K increments for real flexibility!

### —HEADWARE® ROM CARTRIDGES

A series of languages, including EXTENDED BASIC 5.0, utilities, such as the VIPER FILE SERVICE, and games in non-volatile, read only memory cartridges.

### —HEADWARE® SOFTWARE

Cassette tapes with both the original 300 baud and new 2000 baud versions for use under either Bally Basic or Astrovision Basic.

### —VIPER KEYBOARD EXTENSION CABLE

## —SPECIFICATIONS—

### ENVIRONMENTAL:

AMBIENT TEMPERATURE  
40°F to 110°F  
RELATIVE HUMIDITY  
20% to 80%

### ELECTRICAL REQUIREMENTS:

110-117 VAC (25w max.)  
3 Prong grounded circuit

### MECHANICAL:

SYSTEM 1 (5 lbs.)  
4.25"H x 15"W x 10"D  
KEYBOARD (2.5 lbs.)  
3"H x 15"W x 9"D

### FUNCTIONAL:

MEMORY CAPACITY (RAM)  
16-32K\*  
INPUT/OUTPUT  
Serial keyboard power interface  
Bi-directional RS-232 ports\*  
OPERATING SYSTEM CAPACITY (ROM and EPROM)  
16-40K\*  
ADDITIONAL CAPABILITIES  
2K and 4K EPROM programming\*

\*with VIPER OPTIONAL EQUIPMENT

# —LIMITED WARRANTY—

THE LIMITED WARRANTY APPLIES TO THE VIPER 1 AND THE FREE EXTENDED  
BASIC ON TAPE

Alternative Engineering Corporation, P.O. Box 128, Gardiner, Maine, 04345 hereby warrants to the original purchaser only, that this product will be free from defects in materials and workmanship, under normal use, for a period of 90 days from the date of purchase.

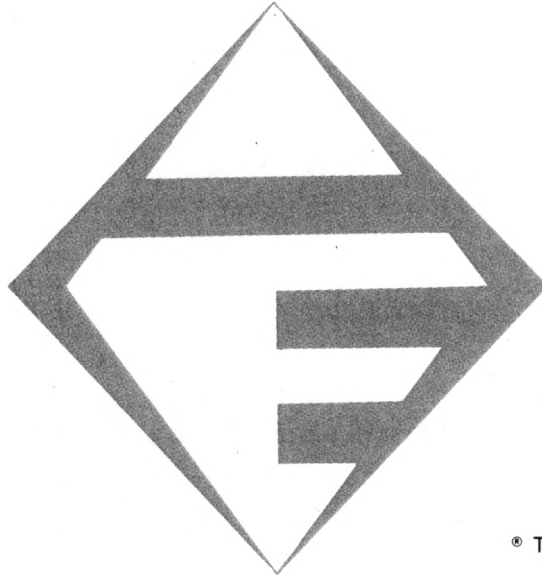
The Warrantor shall have no liability or responsibility to purchaser or any other person or entity with respect to any liability, loss or damage cause or alleged to be caused directly or indirectly by this product, including but not limited to any interruption of service, loss of business and anticipatory profits or consequential damages resulting from the use or operation of this product.

If during this 90-day period a defect in this product should occur, the product may be returned to Alternative Engineering Corporation or to an authorized dealer and Alternative Engineering Corporation will repair this product without charge.

When requesting performance under the terms of this warranty, the original purchase date must be established by the customer by means of a bill of sale, invoice, or other acceptable documentation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitations or exclusions may not apply to you.



® TRADEMARK

**VIPER SYSTEMS**  
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