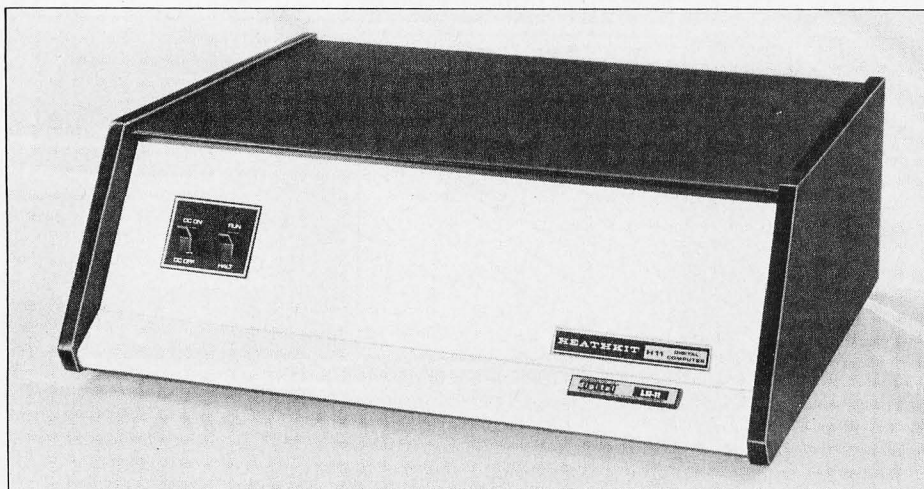Photo 1.

# The New Heathkit Computer Line

On June 1 1977 we traveled to the Heath Company's plant near Benton Harbor MI to take part in the "Heath Computer Product Press Party." This was a gathering of people from various publications to preview the new product line which Heath is introducing to the general public at the Personal Computing 77 show in Atlantic City NJ at the end of August. The major features of the new Heath product line are best described by pictures supplied to us at the press party, along with notes based both on the press release and our experiences.

### The H8 Computer Kit (Photo 1)

The Heath product line has one 8 bit member, the H8 computer based upon the Intel 8080A design. This product, which sells at $375 for the basic processor box, includes cabinetry, front panel with 1 K ROM monitor, processor board and power supply. Memory cards are available with the H8-1 kit for 4 K bytes by 8 bits at $140 and the H8-3 expansion module adding another 4 K by 8 bits to the H8-1 for $95. (The cabinet shown is said to be capable of holding up to 32 K bytes in the form of H8-1 cards fully populated with memory chips.) Peripherals cards presently available include the H8-2 parallel interface card ($150) with three input and three output ports, and the H8-5 serial interface board ($110) which contains RS-232 interfaces at a number of data rates, 20 mA current loop interface, and an audio cassette interface which uses 1200 bps modified Manchester phase encoding at the "Kansas City" standard frequencies.

These systems come complete with software for immediate use, included as part of the price. At the press party, we exercised the H8 with Benton Harbor BASIC, a full implementation of Dartmouth BASIC for the 8080 which takes 8 K bytes and features dynamic storage allocation (programs expand and contract with use of data). The more complete 12 K Benton Harbor BASIC, extended, adds strings and other exten-sions to the 8 K version. Both versions have a number of user-oriented editing features which are both unique and useful as demonstrated to us at the press party. The design and coordination of the systems software for the H8 system were performed by Gordon Letwin, Heath's resident software wizard, whose title is Lead Systems Programmer for the Computer Products Line.

### The H11 Computer "Kit" (Photo 2)

The second star in the Heathkit constellation is the top of the line H11 system, a confirmation of persistent rumors over the past year that Heath had allied itself with Digital Equipment Corporation. The H11 is an LSI-11 board from Digital Equipment Corp, mounted in a Heath supplied chassis and accompanied by Heath's switching power supply, backplane assemblies, and heavy duty documentation. It is intended for use with a terminal such as the Heath H9 or the LA-36 DECwriter which Heath will market, and at the time of initial deliveries the H11 is intended to be used as a stand alone paper tape system using the Heath H10 product as its paper tape facility. (Floppy disk systems and software are in the works but are not yet available from Heathkit.) The H11 computer itself is $1295 for the cabinet, LSI-11 board, Heath backplane and power supply. This price of course includes the built-in terminal support software of the LSI-11, the 4 K by 16 bit semiconductor memory of the LSI-11 board, and a terminal interface. Purchase of the Heathkit enrolls the user in the DECUS library and includes complete DEC systems software on paper tape: Editor, PAL-11 assembler, linker, ODT, BASIC and FOCAL languages. (BASIC requires additional memory.) Other components of the H11 line include the H11-1 4 K by 16 bit memory board at $275, the H11-2 parallel interface board at $95, and the H11-5 serial interface board at $95. The
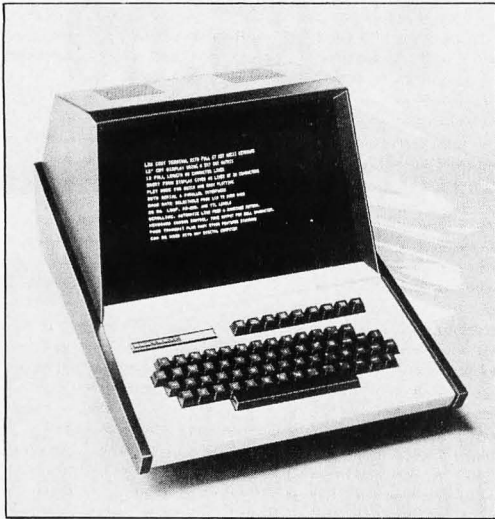
Photo 2.

Photo 3.

H11 box will accommodate up to 20 K words of memory, according to the press release copy.

### Other Systems Products

Both the H8 and the H11 are designed for use with other products which have generic applicability to any computer system. At present these include the H9 video terminal and the H10 paper tape reader and punch unit.

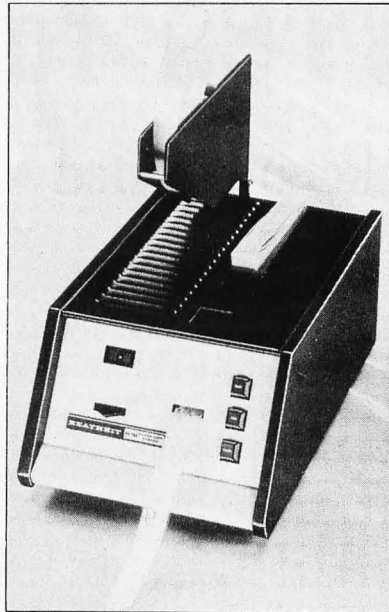The H9 video terminal at $530 is probably one of the best buys available



Photo 4.

in a kit based terminal unit today. Its features include a full 67 key ASCII encoded keyboard, a 12 line by 80 character display format (upper case only), a formatting option for four columns of 12 lines of 20 characters built into its hardware, a block trans-

mission feature, and a limited plotting mode of operation. The entire unit is contained in an attractive cabinet, as seen in photo 3.

The H10 paper tape reader punch is Heath's principal mass storage unit for use with the H11 product line as currently available (although, according to the people at Heath, this is by no means intended as the last word in that area). It can also of course be used with the H8, and any other computer which has a parallel 8 bit TTL compatible interface for input and output. Features of this unit, shown in photo 4, include a built-in power supply, stepper motor drive, a stand alone tape copy mode, and data rates of 50 characters per second reading, 10 characters per second punching. The price of the H10 kit is $350.

All Heathkit products can be purchased under Heath Company's revolving charge credit plan, a benefit which should be of major interest to potential computer hobbyists. Shipping dates for all new computer products are scheduled for the fall. For further information write for the "Computer Information Package" — Heath Company, Dept 360-26, Benton Harbor MI 49022.■

### Computerized Morse Code Reception Package

Polaris Computer Systems has announced a Morse Code reception package for Altair (S-100) bus 8080 microcomputers. The package consists of a tone to DC converter module and complete software. The converter connects to the communications receiver via headphone jacks and to the computer via a parallel IO port. The converter contains a phase locked loop for tone decoding and adjustable center frequency and band width controls. Its design is highly immune to impulse noise. Provision for audio and visual synchronization (with an oscilloscope) of the incoming signal is provided.

The software adjusts for variations in transmission as each code element is received, allowing for manual or automatic transmission of CW at speeds ranging from 5 to 60 words per minute. Noise and dropout negating logic is included. Final output of received text is to an SIO port for display to a printer or CRT.

Package price in kit form for the converter, object program and complete documentation is $95. An assembled and tested version lists at $145. Source tapes and complete turnkey packages are also available. A schematic of the converter, object dump and documentation of the device are available for $17. Polaris Computer Systems is located at 3311 Richmond Av, Houston TX 77098.■

Note: *A group of other Altair (S-100) bus interface new products items begins on page 152.*■