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Heath Catalog Preview

Several products mentioned in the June 1979 BUSS will be appearing in the April 1980 Heath Co. catalog. These include a Diablo printer, word processing software, a "dual disk drive enclosure compatible in style with the H89," and HDOS capable of supporting three disk drives.

Barry Watzman told BUSS February 4th that the Diablo 1640 is already available as the WH44 at \$2895. He noted that this is the most expensive product Heath® has ever offered. Barry said there will be a special combination price for this printer and word processing software from Zenith Data Systems, the latter being very expensive when sold separately. Heath® may at some future time offer one of the stripped-down daisy wheel printers currently under development by Diablo and Datapoint.

Barry said the coming catalog will have a lot of price changes--mostly increases--resulting from higher parts costs. He did confirm reports of price cuts on memory, the H17, and the Cat Modem (to \$175). The computer product line manager called that last decrease the "most attractive price in the industry."

Barry said Heath® will show off new hardware and software at the 5th West Coast Computer Faire in San Francisco March 14-16 [information from 333 Swett Rd., Woodside, CA 94062, 415/851-7075]. This may include a revised version of the H8 music board described in REMark #8. In place of the resistor network, it will use LSI chips for digital to analog conversion.

Looking farther ahead, Barry said the July catalog will carry the H8-9 replacement for the PAM ROM. This will boot a disk system when RESET is followed by GO. He said there are no plans for a 2K front panel monitor upgrade.

Barry expects CP/M to be available from Heath® in late summer; the firm may continue to develop HDOS for use with 8" disks. These are under development for the H8 and H89. They will be double-density with double-sided drives optional. [On February 15th Rick Kalish told BUSS Godbout's 8" disk controller for the H8 is several months off, not having progressed much since the report in the September issue.]

Barry stressed the importance of recognizing the distinction between the Heath Company and Zenith Data Systems. The latter controls the pricing of assembled products.

He also repeated his denial of the report by Sol Libes "that Heath has discontinued production of" the H8. On February 2nd I had recorded the following paragraph for the BUSS Bulletin line (202/544-3081):

"Byte readers may be concerned about the report of the death of the H8 on page 16 of the February issue. Don't forget that everything in a magazine is at least two months old. The November BUSS carried a denial of this story and news of the future of the H8."

Zenith to Open Third Front in Microcomputer Market War

Bob Vinton reported in the February 11th Electronic News that Zenith Radio Corporation "has begun market research and design planning for a home computer." This is seen as competing with Radio Shack's TRS-80 and the Apple II at a price under \$1,000. Zenith plans to sell its home computer through the same stores that handle its TV sets, not through the Heathkit® catalog or the independent computer stores that handle Zenith Data Systems.

In reporting Zenith's agreement to buy the Heath Company, the August 1979 BUSS noted reports the former firm had "a personal computer development project in progress." Aiming this at the home computer market complements the efforts of the Heath Co., which concentrate on the hobby market, and of Zenith Data Systems, which are directed at the small business and professional market for microcomputers.

Early last summer, before the Zenith purchase agreement, Heath Data Systems released market research indicating the microcomputer market dividing as follows:

	1977	1979	1984
Hobby	70%	30%	5%
Small business & professional	30%	70%	45%
Home computers	-	-	50%

Market size was put at \$300 million to \$600 million in 1977, \$900 million in 1979, and \$3.2 billion in 1984. That would make the hobby market worth \$160 million in 1984, with little competition for the Heath Co. in prospect.

Gary Arlen reported in the February 13th VideoNews: "Zenith is planning new lines of TV sets with peripherals, including phone-answering features, teletext capacity, etc." Teletext involves capturing and decoding information broadcast during the vertical interval of a TV signal. [It was described in the May 1979 Popular Electronics.] A TV with teletext capability might also have an output port to feed data to a home computer. Zenith activity in this area may benefit Heathkit® product development.

HT-11 Software Offered

"I have been using the HT-11 system for over a year and have been surprised that relatively little software is available for use on the system. Since I design operating system and information retrieval software by profession, the solution has been to reinvent the wheel and create the software packages that I felt necessary to make the machine more useful. Since other HT-11 users may be interested in this software, I would like to make the following packages available.

"Pascal. The package consists of a Pascal compiler and a p-code interpreter heavily optimized for use on the LSI-11. The language is identical to 'standard' Pascal with the

following exceptions: 1) the I/O commands have been modified to more naturally support HT-II files. The system supports both direct access and standard sequential text file I/O. The text file I/O primitives support manipulation of characters and strings, but do not allow multiple fields on a single I/O call, and do not provide automatic conversion of numeric fields. Standard procedures are provided conversion between numeric and text forms, and for opening, closing, creating, deleting and renaming HT-II files. 2) A number of extensions are supported, most notably the ability to execute another Pascal program from within a user program, and an 'include' file facility which allows the automatic insertion of files in an input stream. The compiler provides detailed error checking and messages, and the compiled p-code benchmarks favorably with HT-II FORTRAN. The system is self-sizing and requires the full 28K words of memory to compile itself, although smaller programs and possible USR swapping can reduce this, somewhat. The current version requires the EIS/FIS instructions, although I will generate a non-EIS/FIS version if there is interest.

"REMOTE supports the use of the HII as a terminal device for another machine. Its primary use is to allow communications with a remote computer using a standard dialup modem or to allow the HII to control another device (such as a microprocessor) over a serial line. The package supports automatic transmission of files to the remote device, selectable parity generation, and possible suppression of carriage return or line feed information. All commands are entered from the keyboard during the terminal session, and the available options make it useful with a wide variety of remote devices. The program is written in FORTRAN and Assembler, requires a serial interface, and a modem if it is to be used over telephone lines.

"All of these packages are distributed on HT-II compatible diskettes, include full documentation, and do not include source code. Documentation may be purchased separately and the purchase price applied to later purchase of the software package.

"Prices for the individual packages are:

	Package Price	Documentation Only
Pascal	150	30
REMOTE	50	15
ARCHIV	50	15
XASM68/LINK68	65	20
TEXT	30	10

"Further information on any of these packages is available from: Black-Turtle Systems, P. O. Box 20098, Columbus, OH 43220." Howard Turtle

C Compiler, Z80 Assembler, H89 Screen Editor, REACH

"As a result of the development work I've been doing recently, some nice HDOS software is now available: a C compiler, a two-dimensional text editor, a Z80 assembler, and a program for remote time-sharing access. Most of the programs will eventually be marketed through Programma, but for the moment they are available direct from me.

"C80 is a compiler for a subset of the C programming language. It supports character and 16-bit integer data, pointers, arrays and strings, macros, data initialization, a full complement of arithmetic and logical operators, and all C control statements including while, if-then-else, for, switch-case, and goto. C/80 does not support structures, pointers to pointers, or long and floating point data types. The compiler requires an H8 or H89, HDOS, 32K, and an upper-lower case terminal. It comes with a standard C library providing file I/O and dynamic storage allocation. The reference manual for C/80 is Kernighan and Ritchie's "The C Programming Language" (Prentice-Hall), which does NOT come with the compiler but is available in many computer stores. The C/80 compiler is \$39.95.

"Programma's PIE 1.0 text editor uses the H89 screen as a window into your file. Cursor motion keys position the

cursor so changes can be typed anywhere on the screen. PIE capabilities include character and line insert and delete, string search, move and copy single and multiple lines, and scrolling of text in the window. An H89 with 16K of memory is required, with up to 48K allowing editing of larger files. The price of PIE 1.0 is \$24.95.

"UVAsm 1.0 is a Z80 assembler for the H89 with 32K of RAM. It accepts Zilog Z80 mnemonics and produces HDOS absolute files. It is compatible with Radio Shack TRS-80 source code. UVasm costs \$24.95.

"REACH is a program which turns the H89 into a remote timesharing station. The H89 can be used as a dialup terminal, transfer files between the H89 and the remote computer, and output from the remote computer to a local printer. Hardware required is an H89, 16K of memory, and the H88-3 Serial Interface. REACH sells for \$19.95.

"The above programs are available on HDOS disk from **Walt Bilofsky, Software Consultant**, 14478 Glorietta Drive, Sherman Oaks, CA 91423. California residents please add 6% sales tax."

Text and Pack for HDOS

"Here are some short descriptions of the two products I have developed for HDOS. Both were written on my H89 in C/80, Walt Bilofsky's augmentation of the Bob Cain Small C compiler. Walt suggested that the readers of your newsletter would be interested.

"A text formatting program for HDOS called Text simplifies preparation of correspondence and other documents. It will fill text (even out line lengths by moving words around) and justify (make the right margin even). It allows for underlining, indenting, and double- or triple-spacing (more if desired). It separates pages automatically for a 66-line printer, but with a simple command the page length can be changed. Headers or footers with automatic page numbers may be specified. The user can input normal paragraphs with five-letter indentation, completely indented paragraphs, indented paragraphs with a hanging label, or he may choose his own style. The commands are easily learned and fully documented.

"The Pack program helps to relieve the problem of limited disk space. Pack uses Huffman coding to compress text files by taking advantage of uneven character frequencies in the file and assigning shorter codes to more common characters. It chooses the best coding for each file. English text files are normally reduced by 30% or more, and repetitive data may be reduced by 50% or more. Programming language files (BASIC, C/80, etc.) typically compress a little more than English. The same program is used to pack and unpack the files.

"Both programs are available on HDOS mini-floppies from Dr. Jim Gillogly, 2520 Chard Ave., Topanga, CA 90290. Text costs \$29.95 and Pack costs \$19.95. California residents please add 6% sales tax. The documentation will be sent free - send a SASE."

Standard CP/M for H89

"It is not necessary to be restricted to HDOS or the modified version of CP/M offered elsewhere. A simple plug-in modification to your WH89 will allow you to make use of the best of both: continue to use all existing HDOS software, but also make use of all industry standard CP/M software. This makes accessible a large quantity of existing software available under CP/M.

"Up to two additional mini-disk drives can be added to the modified WH89, allowing a total of 306K bytes of disk storage under CP/M.

"The Hardware Modification Kit and standard CP/M 1.4 Operating system with documentation is introduced at only \$249.

"WH89 with 48K, dual RS-232 I/O, modification package and industry standard CP/M 1.4 as above --- installed and tested only \$2780 (lists at \$2929.)

"When purchased with a system, HDOS and Microsoft BASIC (under HDOS) are available at \$75 each.

"Additional 40-track mini-disk drives are available at \$395 each.

"Media conversion to the WH89 from software supplied on standard 8" CP/M disks is available for \$25 per disk. Licensed software is converted from original media only and subject to approval of original vendor.

"Delivery is currently approximately two weeks. Magnolia Microsystems, 2812 Thorndyke Avenue West, Seattle, WA 98199, (206) 285-7266."

GRAFIX for the H9

"GRAFIX is a modification that allows discrete portions of the H9 video terminal to be turned on or off.

"GRAFIX works within the format set by the H9 video terminal. GRAFIX does not change the number of lines displayed nor the number of characters per line. That is, there are still 80 character locations per line and 12 lines giving a total of 960 character locations.

"Working within this format, GRAFIX has the ability to change what is being displayed at each character location. This is done in the following manner. The H9 video terminal uses a word length of seven bits. However, memory and I/O are provided for an eight bit word length. GRAFIX is enabled when the eighth bit of a given character location is a one. When GRAFIX is enabled, the normal display from the character generator is disabled. Thus GRAFIX has the ability to intermix its graphics with the normal alphanumeric of the H9 terminal.

"When GRAFIX is enabled, it divides the character location into six (6) pixels as shown in Figure 1. Each pixel can be turned on and off individually by GRAFIX. However, all six pixels must be specified at the same time for a given character location.

"The entire character location is utilized (normal blanking between characters and between rows is disabled) thus continuous graphic displays are possible both horizontally and vertically.

"GRAFIX connects to the character generator circuit board via five DIP jumpers. The five ICs that are removed from the character generator board are then installed on GRAFIX. The GRAFIX circuit board contains 13 new ICs of which 12 are in the Schottky LS series. The maximum current draw on Vcc totals 128 milliamps (56.5 ma actual measurement). All ICs are installed in sockets."

Blocks 1 and 2 are six scan lines high, while 3-6 are each five lines in height. Each block is four dot positions wide. So the pixels in the character location with a binary value 11011001 are:

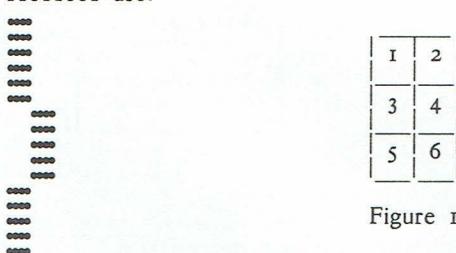


Figure 1

This results from bits 1, 4, and 5 being one while 2, 3, and 6 are zero. (The black dots above represent white spots on the screen.) Each character position of memory holds six pixels of the 5,760 in the total screen 160 pixels wide by 36 high. GRAFIX adds 64 graphics characters to the 64 ASCII characters of the H9. Since the graphics characters take up all 128 dot positions of a character location (ASCII characters use only 35), GRAFIX will not work as described with an H9 modified to display 24 lines.

GRAFIX comes with detailed installation instructions, software hints, and a circuit description. It could be described as 'Heath-style' documentation. GRAFIX is \$59.95 as a kit and \$69.95 assembled and tested from Northwest Computer Services, Inc., 8503 N.E. 30th Ave., Vancouver, WA 98665, 206/573-8381. January 30th I got a note from Timothy G. Prager about the GRAFIX notice in BUSS #20: "The response has been almost as good as from the ad in the January issue of Byte."

AD-8/4H Analog Subsystem

"The AD-8/4H is a high performance analog interface circuit that allows H8 users to input analog signals (voltages) on up to 8 channels as well as output on 4 channels.

"A fast analog-to-digital (A/D) conversion circuit is featured on the AD-8/4H, with the total time from initiation by a software signal to end of conversion being approximately 100 us. An 8 channel multiplexer allows selection of any of up to 8 analog signals which may be input to the AD-8/4H. The AD-8/4H accepts input of signals in the range of 0 to 5 volts.

"The AD-8/4H includes a fast digital-to-analog (D/A) conversion circuit for outputting signals to an analog device. This device could be a plotter, meter or display, for example. For output the AD-8/4H incorporates a sample and hold circuit for each channel which allows the output terminal to 'hold' a voltage very accurately for up to 1 second. This allows the controlling computer program to do other things (such as read input data) without having constantly to drive an output signal. The D/A section outputs a signal in the range of 0 to 5 volts; both the A/D and D/A sections have 8 bit resolution.

"The AD-8/4H is the size of a standard H8 circuit board (6.25" x 12"), incorporates 19 integrated circuits and fits an H8 50 pin slot. A 10 page user manual is provided which describes the circuit theory, application use, and contains sample program listings. The AD-8/4H comes fully assembled, 'burned in' and is accurately calibrated.

"Both VISA and Master Charge are accepted. CCM, Inc., P.O. Box 2308, Reston, VA 22091." F. Cary Green

Problems with PAL-11S and LINK-11S

"I would like to ask if any of your readers can help me with a problem. I wrote Heath about it in November but they haven't been able to solve it. Although I have had my H11 since 1977, I have only been using it with BASIC and FOCAL (which work OK) until recently when I tried to use the assembler and linker (PAL-11S: Part No. 880-53; LINK-11S: Part No. 880-54). There are two problems:

1) On reading in the object module tape, the linker stops after each check sum and displays '*'. A carriage return causes the next block of tape to be read in. However the manual says the tape should read in until control D is typed on the console.

2) When the object module has all been read, typing E and carriage return causes the linker to start the initial command dialogue over again. However the manual says it should display PASS 2.

"Heath thought that my H10 was dropping a byte. Therefore I directed the assembler object module output to my ASR-33 Teletype which I use as a line printer. I compared the resultant tape with the previous one and found no difference. I also tried inputting the IOXLP object module tape into the linker. It had the same two problems.

"Thanks for your help. Yours truly, James C. Wilcox, 2200 Via Alamitos, Palos Verdes Estates, CA 90274, (213) 373-1834."

More on Lower-Case Output from H9 Input

"Enjoy BUSS very much for its wealth of information.

"Found Don Rodenz's ALPHACON program to be particularly useful for me. Brian O'Connell's program, TEXTCON, is a good example of how one good idea inspires others.

"I, myself, use the Text Editor for preparation of my letters. I found corrections and revisions are made faster and easier using the Editor.

"My method is as follows:

1. Bring in the Text Editor.
2. Type 'I' when prompt appears and type in your text. DON'T FORGET THE SLASH FOR CAPITALS!
3. When finished with the text, exit the insert mode with CTRL C.
4. Type a space, 'U' and 'RETURN' to get the total number of lines used.
5. Type a space and 'I' and type in the number received in line 4.
6. NEWOUT with a filename & extension of your choice (for this letter I used BUSS.TEM). Type 'B' and exit the Editor.
7. Bring in BASIC and ALPHACON.
8. NEWOUT on the previously created file, name the new file (BUSS.LTR) and let ALPHACON go to work.
9. When ALPHACON is finished, return to HDOS and COPY the converted file to the H14 (COPY LP:=FILENAME.EXT).

"The resultant hardcopy can be used as a proof sheet for corrections and modifications or, if lucky, the finished product.

"NOTE: Use the comma as a delimiter instead of the slash when using the Editor in the Edit mode.

"One other item. In order to keep track of ALPHACON's progress on the screen I changed Line 170 to read: '170 PRINT, N-I;"LINES TO GO";NEXT I;CLOSE #1;CLOSE #2'.

"Additionally, I use the '/' rather than the slash on the uppercase 'L' key as a flag. It saves using the shift key." Tom Kyle

Remote AC Control for H8

H8 interconnection information is available for a replacement for the command module used with BSR remote AC line carrier switches sold by Sears, Radio Shack, and others. The RC-80 Controller includes a power supply and case. It's \$184 from SciTronics, Inc., P.O. Box 5344, Bethlehem, PA 18015, 215/868-7220.

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First Class Mail

Creative Computing has a new editor: Ted Nelson. How foresighted of them to feature his photo in their ad all these months! Or did David Ahl hire him to avoid the expense of taking someone else's picture? Former editor John Craig is now publisher of InfoWorld, which was called The Intelligent Machines Journal before it was taken over by the publishers of Computerworld and Computer Business News. Nelson says he'll be stressing computer graphics and interactive systems. The April issue will be a parody of computer publications: Computerworld, Byte, et Ahl.

BUSS Bits

Ms K. Gjerding reports Magnolia Microsystems will exhibit its H89 modification described on page 2 at the 5th West Coast Computer Faire.

Kansas City, Missouri and Benton Harbor, Michigan are set as sites for modem bulletin board services for Heathkit® users. BUSS has also heard talk of starting one on the east coast. Any others?

A directory of such computer message systems is being put together by the Amateur Radio Research and Development Corporation (AMRAD). If you're associated with one write for a questionnaire to David W. Borden, Rt. 2, Box 233B, Sterling, VA 22170.

A couple of local HUG groups mentioned in BUSS have reported it brought people out of the woodwork or from even farther away. Could your club benefit from a similar notice? For example:

The Capital Heath Users Group (P.O. Box 341, Fairfax, VA 22030) would like to exchange newsletters with other local HUGs. The club meets the third Monday of each month. An assembly language users group has been started for members. CHUG-ALUG is studying HDOS.

Extensive documentation comes with the H8 memory boards from Trionyx Electronics, P.O. Box 5131, Santa Ana, CA 92704, 714/830-2092.

A black nylon micro-porous screen held under tension on a plastic frame which will fit behind the bezel on a Heath® CRT is \$22.50 from Sun-Flex Company, Inc., 3020 Kerner Blvd., San Rafael, CA 94901, 415/456-8482. Douglas Rosestone recommends his firm's \$.50 cleaning cloth for this contrast-enhancing filter. Orders may be by MasterCard, Visa, check, or purchase order.

Mike Frieders reports that the H14 ribbon praised in the last BUSS has so much ink it makes a mess of his paper. He's now using one intended for teletypewriters.

Another suggestion for improving H14 output is to double the separation between the platen and the print head.

H8 FORTRAN by July? Heath® to offer the Mullen H8 extender board?

George Risk Industries is planning two products for the H9. Their keyboard upgrade kit is at the prototyping stage. It will feature a wide Return key and auto repeat on all keys in place of the Repeat key. A later product will allow lower case to be generated by either their keyboard or an unmodified H9.

Charlie

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