BUSS

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MicroNET user 70003,323

Editor: Charles Floto

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Heath Co. to Sell Software Source Code

The Heath Company has announced plans to sell the source code of its internally developed systems software and firmware.

"Source codes to be released include those for Heath's cassette Assembler, Debugger, Editor and BASIC; and the source code for HDOS--Heath's disk operating system. Also being offered are the firmware for the H17 and H89 disk controllers, as well as the firmware for the very popular H19 video terminal."

"A price of $25.00 per listing has been established, except for HDOS, which will be $195.00. The H19 code will also include source on a Heath HDOS diskette and the character generator ROM code. HDOS source code will be available on diskette at a later date, and includes the disk Assembler, Editor, BASIC and DBUG, as well as PIP and other utilities.

"A Heath spokesman pointed out that all products remain copyrighted, and that while the company is making the source code available, they are not placing it in the public domain. He also indicated that Heath would welcome licensing discussions for HDOS from other manufacturers.

"For further information contact: Heath Company, Dept. 350-390, Benton Harbor, MI 49022."

Escape Code Summary Mounts on H19

Clyde J. Hipwell is selling a summary of 41 escape codes for the H19. They include a dozen baud settings, ESC x and y sequences, and controls for the following modes: hold screen, reverse video, graphics, keyboard shifted, alternate keypad. The summary is engraved on a .025" thick black metal plate with silver letters, complete with two-sided tape for mounting over the disk drive cutout cover (or elsewhere). Price of part #ES02 is $6 plus 25¢ postage from Aurora Enterprises, 34345 Groesbeck Highway, Fraser, MI 48026.

H8 Sound Board Under $60

"It's here! Programmable sound for your H8! Kit plugs directly into H8 bus. Features:

- Thousands of sounds--all are software controlled.
- 3 independent channels--can compose music with 3-part harmony.
- One 8 bit I/O port can be used for control of external devices.
- Connect to any audio amplifier or optional on-board amplifier plays through speaker.

"Easy to program--includes full documentation and 8 sample programs for the following effects:

• wind chimes • police siren • phaser • European siren • ocean waves • gunshots • bomb • electronic music

"Kit with documentation (external amp required), $49.95. On-board IC amp option (includes speaker), add $9.95. Bare P.C. board, documentation, $14.95. (California residents add 6% tax.)" Greg Saville, 2345 Balsa St., San Diego, CA 92105.

H19 Video Editor for H11 Running TECO

"This editor is very powerful and allows the H19 to serve as a "window" on the text buffer with the H19 cursor serving as a text pointer. Changes to the text buffer are displayed immediately on the H19 screen. Over 40 editing command sequences are implemented on the H19 special function keys, keypad, and control characters.

"Prerequisite hardware: H19; H11 with at least 16K words of memory, H27. (For best results the H19 should use 9600 baud.)

"Prerequisite software: HT-11 or RT-11; TECO V28 for RT-11, DECUS 11-288; TECO Manual, DECUS 11-350.

"The H19 Video Editor is available postage-paid on an 8" floppy disk for $75 from David L. O'Connor, 370 Eden St., Buffalo, NY 14220, 716/828-0898."

Bill Richter Adds H8 RAM Above PAM

"I have developed a simple modification for the H8-1 4K memory board which allows it to be addressed starting at 000 000 without interfering with the 1K monitor ROM. This gives you 3K of RAM above the monitor, or if not using the H17 disk system, up to 7K to fill the empty space between the monitor and the memory area which the software recognizes. This is a good place to hide machine language routines which will be called from BASIC with the USR function.

"I will send the modification details to anyone who wants them. Please send a stamped, self-addressed legal-size envelope to me. There is no other charge, and no parts are needed to do this modification." William C. Richter, Sunbow Electronics, P.O. Box 62001, Sunnyvale, CA 94088.

Disk Survey Launched

"Probably you have heard the spiel, we no longer handle brand so and so, they are rough, wear out heads, are not polished on the back side, etc. It is hard to know how much of this is self-serving, after all brand this and brand that sell for almost twice as much, and stores like profits, is it not so? Therefore I have conceived The Great Disk Survey. While there is place for rumor and opinion I would like you to stick to facts in the factual portion of the questionnaire.

1. What brand/brands and model do you consider best, why?
2. What brands do you consider worst, why?
3. How many disks do you own, overall quantity?

4. Breakdown by brand and model, quantity.
5. How many disks have lost one or more sectors? Break this down as follows:

Brand	Sectors lost	Quantity	Time in service
ABC	5	1 disk	6 months
ABC	1	3 disks	don't know
DEF	18	1 disk	5 months
DEF	1	1 disk	4 months

6. Have you worn out a head on one of your drives? Has anyone attributed that head wear to your using a certain brand of disk?
7. If you were to replace all your disks at present prices what disk would you buy? Why?
8. Do you know of any disk drive manufacturer or computer manufacturer that specifically recommends any brand of disk? (Manufacturer's name, disk brand)
9. Do you know any manufacturer that recommends you avoid any specific brand of disk? (Manufacturer's name, disk brand)

Please mail your answers to Del Stanton, The Great Disk Survey, 841 North Screenland Drive, Burbank, CA 91505. I will tabulate the results and they will be published in a future issue of BUSS."

Anaheim HUG has Benton Harbor Visitors

"Despite the confusion over when we were meeting last month, the meetings were well attended. It was well worth having the extra meetings in order to have Barry Watzman, Larry Plummer and Jim Blake talk to our group. I would like to again thank the gentlemen from Benton Harbor for coming to our meeting.

"For those of you who could not attend the meetings, I'll try to recap them. On Tuesday, May 20th, Barry Watzman held a question and answer session with our group. He informed the group that there will be a number of new products released in the fourth quarter (October). First, Heath will be releasing CP/M (this will be the standard version running at address 0) for the H89 and the H8. The most important thing about this is that Heath will be providing their own documentation on CP/M (many people had complained to me about the quality of the Digital Research documentation). By the way, it seems that we may get Version 2.2, the latest CP/M release.

"The next important product coming out in October will be 8 inch floppies. The floppies will probably be dual sided, double density, giving the user about 2 megabytes of on-line storage. The user will still be able to have his 5 inch floppies on-line. The estimated price will be close to $3000.00. To use the 8 inch floppy, the user will have to run either CP/M or a new version of HDOS, which will be available at that time.

"Some other new products will be listed in the July catalog. FORTRAN will be listed for $150.00. This is a fantastic bargain as this same product costs $300.00 under CP/M. For this price, the purchaser will get the FORTRAN compiler, a relocatable macro assembler, and a linker (sorry, the library manager that is distributed with the CP/M version will not be included). Heath will sell a cabinet modification to allow three drives to be mounted in the H17. Barry also mentioned that there is a good chance that Pascal will soon be released for Heath computers.

"Heath is also actively exploring the development of new CPU cards for the H8. One of the processors they are looking at is the Intel 8088. This is a 16-bit microprocessor that will run on our 8-bit bus.

"Jim Blake talked to our group on Thursday, May 22nd. He told us that the new company that I mentioned in the last issue will be probably called SoftStuff instead of Softworx. In any case, the new company will be issuing top quality software for the Heath user. Jim also brought along two gentlemen from MicroNet, a time sharing system. Since the response time on the Source is very bad, HUG has decided to use Micronet for a HUG bulletin board. MicroNet guarantees a five second or less response time. The cost is a one time charge of $9.00. After that, there is connect time charge of $5.00 per hour. Please note that MicroNet already has the following languages available: BASIC, FORTRAN, APL, and Pascal. Their sales pitch convinced me to sign up. I'm 70340,165 and Jim Blake is 70003,207. The rumor that MicroNet would only be available at Radio Shack stores seems unfounded -- my sources hint it will be available at Heathkit stores soon.

"Speaking of new products, we should be seeing a number of new boards for the H8. Aside from the new Z80 board mentioned above [from DG Electronic Developments Co.], we should soon see a color graphic board from the same folks who brought us the H8 music board. For H89 owners, Magnolia Microsystems will be releasing a 16K board that will allow a full 64K of memory in the unit. Magnolia is considering several new products for Heath -- from a 'Speechlab' accessory for the H8, to a PROM board and hard-disk controller for the H89.

"On the software side, we should soon see a TECO-style editor for HDOS and real CP/M RUNOFF for CP/M. Word is an Ohio Heathkit store will be the first to sponsor a CBBS service in the near future--folks at THUG, the Toledo Heath User's Group, are probably happy about that.

"Speaking of other HUGs... I'd like to invite any other HUGs to exchange newsletters with us. On a trial basis, we're including several HUGs on our mailing list now." Bob Mathias

The above is from the AnaHUG Nibble. "The July meeting will be held, as usual, on Thursday, July 17, 1980. By the way, this date is the twenty-fifth anniversary of the opening of Disneyland." Meeting place: Anaheim Heathkit Electronic Center, 330 East Ball Road, Anaheim, California 92805, 714/776-9420. "Dues are $10/year--anyone is eligible for membership. Membership includes subscription to Nibble." (Anaheim Heath User's Group, Al Dallas, Secretary, 133 S. Chevy Chase Drive #210, Glendale, CA 91205.)

H8 Color Graphics Board

"Color graphics board, Heathkit H8 compatible
- Generates 8 different graphic display modes
- Up to 8 different colors
- Highest resolution is 256 pixels by 192 pixels
- Alphanumeric modes--32 characters per line by 16 lines
- Sixty-four ASCII display characters
- RF output to color or BW television
- Contains 8K bytes of static memory
- Memory address DIP switch selectable

Kit, $379.00; assm. & test, $479.00. California residents add 6%." Owen Phairis Computer Products, P.O. Box 3400, Big Bear Lake, CA 92315, 714/585-8354.

BASIC Console I/O for H19

"H19/H88/H89 owners: Revolutionize your BASIC programs by improving your console I/O. Since I developed these techniques I've rewritten most of my BASIC programs to include them and so will you. I'd like to describe them to you in detail and I'll include two programs that use them as examples (one is a graphic game and the other a teaching drill). I'm asking $5 for the writeup and listings. If you're too lazy to type the programs we can negotiate a price for the diskette." Siebert Ickler, 3709 Bentwood, Corpus Christi, TX 78415.

Bimonthly Disk Magazine for HDOS, CP/M

"A new concept in the far reaching world of computer information. Micro Media Magazine is a magnetic disk based production for the enjoyment of Heath and Zenith computer owners and users. It is more than just information about your computer, it will provide software, graphics, reviews, advertisements and articles which will run on your computer. The magazine is available in HDOS and CP/M formats. BASIC programs in the magazine will be available

under Extended Benton Harbor BASIC as well as Microsoft. You, the user will be strongly supported with accompanying documentation which explains how to run the magazine using single or multiple drives in your system. Non-graphic versions of the magazine are for the H8 user using the H9 or other terminals. Micro Media Magazine will appear on a bimonthly basis. The first issue is available now for the months of June and July. Become a charter member and subscribe to the wave of the future. Each new issue will be an experience unto itself, guaranteed to keep your interest level at peaks equaled only by your expectation level for the next issue. Send your order in today. Please specify the system format that you wish shipped." Formats: graphics or non-graphics; Extended B. H. BASIC or Microsoft; CP/M or HDOS 1.5 or HDOS 1.6. Single issue, $11.95; annual subscription, $55. Micro Media Magazine, 1316 Elmhurst Dr., Garland, TX 75041.

HA8-2 Music Synthesizer System Causes Crashes

"I recently purchased an HA8-2 music board from Heath Company for my H8. As far as the music software is concerned, it has worked well and I have had no hardware or software problems.

"However, after using the music board exclusively for a while, I started using HDOS & MBASIC, with the music board still in the computer. I began experiencing program crashes at an alarming rate.

"When I ran the memory test, the test would cycle through several completions and then mysteriously fail. The memory location it was failing at was 000 000.

"I finally decided to try disabling the HA8-2. I left it in place but switched off the Board Enable Switch. Since that time my system has operated flawlessly.

"I would like to know if you have a fix for this problem, since it seems like the HA8-2 is causing the system to crash when used with HDOS and MBASIC. If not, how about providing a more convenient Board Enable Switch so that users can switch the board in and out more conveniently?"

"Anyone else having this problem?" Isaac A. Davidian

H19 Features Noted by Steven Robbins

"The H19 terminal (and therefore the H89) has a feature which can cause problems for clumsy typists (like myself) but has a useful consequence. If you hold down two keys at the same time and then hit a third key you will sometimes get an additional character. (Try holding down E and D while hitting the I key and notice that K appears on the screen.) This is due to the matrix encoding scheme used for the keyboard. If you hold down any three corners of a rectangular array, the terminal thinks you have also entered the fourth corner. This 'phantom key' feature can be useful, however, in re-enabling a disabled keyboard.

"If you type ESC } in local mode (or if this is sent to the terminal remotely), the keyboard is disabled and can be enabled by having ESC { sent to the terminal remotely. The only other obvious way to enable the keyboard is with the master reset (right-shift reset) which of course clears the screen and forces you to reboot. There is another way. The circuit diagram for the terminal shows an X1 key. CTRL-X1 will enable a disabled keyboard but is not itself ever disabled. The only problem is that there is no physical key attached to X1. The phantom key feature provides a method of handling this. Just hold down (for example) CTRL, T, Y and BACK SPACE and the keyboard is enabled again.

"Another feature of the terminal is that the CTRL key has a special function when used with those keys which produce escape sequences (i.e. the user-definable keys and the shifted keypad). If the CTRL key is held down when these are hit, their action is sent to the terminal only and not to the serial I/O (so for the H89 it doesn't go to the computer). This has the same effect as going off-line before hitting that key. Thus, if you want to move the cursor but not send the escape sequence to HDOS (which won't understand it) you can just use the CTRL key.

"Also of interest -- some of the older H19s and H89s (like mine) have a very slow REPEAT key. If it takes more than 4 seconds to fill a line with characters using REPEAT, you may want to increase the speed. The time between characters is essentially proportional to the product of R414 and C418 on the terminal logic board. My values were 100K and 2.2 mfd and I reduced the resistor by half with good results. The resistor leads are accessible from the rear of the circuit board so you can experiment with different values with the circuit board in place." [Simply tack-solder another resister in parallel.]

...and H89 Line Editor Offered

"I have written an editor explicitly for use with the H89 under HDOS. This editor, called EDIT89, uses the special features of the H89 including user-programmable keys, reverse video, graphics characters and cursor movement. I have experience with editors on big machines (PDP-10 and IBM 370) and have implemented most of the features that I have seen in line editors along with some new ones. It would take an entire issue of BUSS to fully describe this program, but some of the more interesting features are listed below. Send me a long stamped self-addressed envelope and I will furnish you with more information.

"EDIT89 is a line editor which uses the full H89 screen to display a (user-selectable) portion of the file above and below the current line. The current line is displayed in reverse video. Changes are made to the file by issuing simple commands which have simple mnemonics. The 8 special function keys are user-programmable to perform any sequence of commands up to 80 bytes in length. A special change command allows you to move the cursor around on a line and use IC, DC, DEL etc. to edit the line. Tabs are treated in an intelligent way, e.g. spacing the cursor one position past a tab moves it to the correct place. The 25th line is used as a status line, constantly displaying information such as the cursor position, current file name, line number of the current line, number of lines and bytes in the file, and editor mode: INPUT, PIP, LOCAL, etc. In PIP mode you can execute almost all PIP commands while in the editor. For example, if you try to store a file and there is no room on the disk, you can examine the directories (SY0:, SY1:, SY2:), delete files (even if write protected after a warning) and dismount a disk and replace it with another if necessary (on SY1: and SY2:). Other features allow you to move lines from one part of the file to another, duplicate or delete groups of lines, insert or delete any non-printing characters (like NULL or FORM-FEED), repeat the previous command with a single keystroke, go to where you were before executing the previous command, etc. Of course there are the usual search and change commands (change m occurrances of string1 to string2 on the next n lines) which can also be modified by a ZONE. ZONE enables you to search or change only certain columns of the file so that you can, for example, search for the first occurrence of ABCDE which is in columns 3 through 9. Combining these features enables you to do things only the most sophisticated editors can do (search for three null lines in a row, locate lines with more than n characters, double space by inserting a null line after each line, etc.). With all of these features the editor is still simple to use. It is easier than pie, just use those features you need. A list of all commands is always available to you by typing HELP. All of this and more is available for just $50. The current version will not run on an H8/H19 since it uses some Z80 code but if there is demand, an H8/H19 version will be made available." Steven Robbins, 4610 Spotted Oak Woods, San Antonio, TX 78249.

Microsoft BASIC Mailing List Programs

"A group of mailing list programs for the H8-H17 or H89 written in Microsoft BASIC. Seven programs for input, file

correction or editing, sorting by last name (primary field), first name (secondary field), sorting by zip code and printing out the files for mailing labels, etc. These programs handle lists up to 100 addresses with a single disk drive. Five additional programs automatically split larger files for sorting and automatically merge them. Using these programs you can have up to 550 addresses in one list. With multiple drives lists of 1500 to 2000 addresses would be possible. The complete package on disk with instructions and excellent internal documentation in all of the programs is $15.00. Del Stanton, 841 North Screenland Drive, Burbank, CA 91505."

HDOS 1.6 Note from Ed Ranson

"If you are running an old program on HDOS 1.6, BEWARE! I was running an MBASIC program which writes a sequential file to SY1:. The disks I was using were initialized under HDOS 1.5. Since the program is too big to be held on a SYSGENED disk, I use the RESET feature to boot, load MBASIC and then RESET to put my data disk on SY1: and my program disk on SY0:. The program was running fine, it seemed, until I tried to retrieve the file on SY1:. It was not in the directory, and so therefore did not exist. No warning of any kind was evident while running the program. By initializing the data disk with HDOS 1.6, the program ran fine. I repeated this with the same results."

Several BUSS readers suggested that the problem Ed described in issue #23 resulted from attempting to SYSGEN a disk of the same volume number as the original source disk. John Walsh noted: "I had an identical response from my H89 when I was trying to copy files from one disk to another using ONECOPY under HDOS Version 1.5! It turned out I had inadvertently assigned the same volume number to my destination disk as was already assigned to my source disk when I INIT'ed the former. Assigning a unique volume number to my destination disk remedied the problem."

Product Design Exchange Wanted

"Thanks for considering that we are manufacturing/distributing in Europe Z89 compatible products that can be summarized hereafter:

"1. Big disk unit. We make a Z89 controller for the 10 MB Honeywell Controller that allows 100% buffered I/O operations. It contains its own 1K static memory buffer, and transmits the content of records in both directions by in and out instructions one at a time. So that data transfer rate doesn't interfere with the Z80 refresh circuits. Software interface today works in assembly, but within 45-60 days we hope to finish our CP/M re-conversion.

"2. Clock card. We make a time of day + calendar PC board that allows a program to read or update time of day and date, character per character one at a time through different port adresses (works with BASIC).

"3. Parallel I/O card with (optionally driver), power for 500 ma for each open collector output, or standard TTL. This card works with 40 pins divided into 5 I/O ports.

"4. EPROM programmer that plugs directly into the Z89 and allows re-programming 2708 and 2716 (one at a time). (Needs an additional 25 volts supply for programming; batteries work fine!)

"5. 8 inch disk drive controller for 4 dual-side dual-density units. Works in assembler, we don't supply disk drives, available everywhere.

"6. Remote serial-parallel converter: allows either use of H14 printer with other computers (TRS-80) or remote control of logic operations (256 combinations) and any use of bi-directional conversion from 50 baud to 4800....

"We've started selling these products 3 months ago and get a very good success. We just look for someone that would like to exchange product designs and not distribution/shipping agreements. As we sell professional products and not hobby computer accessories, we are not interested by games and such things. If you can help in exchanging designs, ideas, technologies, etc., thanks for doing it." G. Spriet, L'Intelligence Artificielle Appliquee, 6 avenue du Petit-Chaalis, 77230 Othis, France.

BUSS Interviews New Interface Age Editor

Like Barry Watzman, Jim Blake, and Larry Plummer (see page 2), I was in Anaheim for the National Computer Conference. In the press room I got a chance to talk to Frank Vaughn, who's been head of the editorial staff of Interface Age since mid-April. He moved to southern California from Phoenix, where he did public relations work for huge systems made by Honeywell. Earlier Frank had been section editor for microcomputers at Computerworld.

Vaughn told me he plans to continue Interface Age's movement toward more small business coverage--a move started during what Frank called Carl Warren's "very admirable job." The new editor is tightening the magazine's coverage of new products to final assemblies and major subassemblies, with fewer components described. He noted this decision was based on examining the records of a year's worth of reader service card responses.

While Frank noted his new California base would make it easy to visit different companies in the industry, he gave another explanation for the magazine's location: "My publisher can walk to work." Vaughn described Interface Age as offering readers reality rather than gee whiz. He pointed out that the small businessmen he vows to serve have a real stake in the business, and are ultimately in the decisions business. (Interface Age, P.O. Box 1234, Cerritos, CA 90701; $18/year, $30/2 years, Visa, Master Charge, American Express.)

HDOS Enhancements from Jim Teixeira

"I am enclosing a disk containing a program that I developed called SYSMOD. It modifies Heath HDOS Ver. 1.6 (50.05.00) to provide a set of abbreviated commands (for example, MOUNT SY1: is M1, DISMOUNT SY1: is D1, likewise for CAT and RESET) and some convenient new commands. These include a built-in label changer and an indirect file capability (like SUBMIT in CP/M). Other additional new commands are 'PRINT' which outputs to a printer similar to the 'TYPE' command output to the TT: terminal, and a 'PC' command (PRINT CATALOG) that sends the disk directory along with the volume number and label to the printer (convenient for making directory labels to tape onto disk jackets). The text file on the disk gives a full description of the new and abbreviated commands.

"An additional feature of the modified HDOS is that PIP is kept resident in RAM when in the system level command mode (with the '>' prompt). This greatly speeds up the operation of commands that use PIP (CAT, COPY, TYPE, RENAME and DELETE). Because of this feature, a minimum of 20K of RAM is required for the modified HDOS.

"SYSMOD modifies the SYSCMD.SYS and SYSHELP.DOC files and the resulting HDOS can be used to SYSGEN additional modified copies of itself. SYSMOD does not have to be present once the modification is done.

"Copies of this disk are available for $15 from Jim Teixeira, 62 Churchill St., Sudbury, Mass. 01776."

Richard Sims on H11 Reliability

"I have had my H11 system for a little more than two years. During that time reliability has been such a problem that it at least seems that the system has been down more than it has been up.

"The problems began in early 1978 with the infamous H10 paper tape reader/punch. Since the only H11 software available was on paper tape I naively bought an H10. For nearly 5 months I tried everything to get that abomination to work, including undergoing the ordeal of sending it to the factory for repair; sending the parallel interface board in for checkout; and even obtaining a fresh set of paper tape

software. I was never able to get the software to load without errors - not even once in all those many months. I ended the ordeal by returning the H10 for a refund. But of course that left me with an H11 system which I had never been able to use and which continued to gather dust while we all waited for Heath to make the H27 disk available.

"Promised delivery in late October 1978, it was not until mid-February 1979 that the H27 was finally delivered. This supposedly assembled-and-tested unit turned out to be partially dissembled when received. (See BUSS #14 for a summary of that experience.) I corrected the H27's problems and at last had a functional H11 system - after an incredibly frustrating 14 months of unusability.

"After a few months of blissfully uneventful operation, the next ordeal began with the September failure of the H11-5 serial interface card used with the printer. The factory repair service found that the sockets for IC_3 and IC_4 were bad, and replaced them. This backs up the complaints voiced in the pages of BUSS that Heath is still using inferior quality sockets in its kits. At least the failure of this board was not crippling, and it was repaired at no charge.

"But then things got worse. In mid-October the KD11F processor's on-board memory failed - after the expiration of its one year service contract. This failure was detected by the H27 ROM memory test during start-up: least-significant bits in various locations could not be changed from their set state. I sent the board in for factory repair, noting the presence of an EIS/FIS chip, and requesting that charges be applied to my Heath account.

"At the end of October I received a bill. I was stunned at the amount: $225, mostly for parts. I received a cursory repair invoice and was asked to pay the amount by COD, Heath account, check, VISA, or Master Charge before the board would be shipped. After recovering from the shock, I was extremely annoyed at the needless two-week delay imposed by this billing process whereas I had specifically authorized payment from my account. A check was dispatched and waiting resumed.

"On November 9th a package arrived. It did not, however, contain my original, repaired board. Instead I got an old version of the KD11F, very obviously a scarred veteran of the repair cycle. This board did not have a bootstrap jumper. Nor did it have the $160 math chip, despite Heath's notation of that accessory on the invoice. Needless to say, I was furious. I wrote a letter to Service Department Supervisor Robert Ellerton, describing the fiasco and my displeasure with it. The board was packed and the letter enclosed to be shipped back the next day. A copy of the letter went to Heath's president.

"Ellerton passed the problem to Parts Department manager Van Vleet, who sent me a November 14th reply. As he explained it, Heath has an exchange program with Digital. "When we receive a defective CPU from a customer, we first verify the defect. If the board is in warranty or under contract, we immediately ship a replacement. If the board is not in warranty or under contract, we advise the customer of the replacement cost to be sure he wants the exchange made." He informed me that a replacement board was being returned, with the missing chip and jumper. On November 19th it arrived: the same battered board that I had objected to.

"There are several things very wrong with this process. In the first place, I was not given the opportunity that Mr. Van Vleet described of consenting to an exchange or its cost. All that Heath ever sent me was a very superficial repair invoice and a payment form. I was not informed at time of payment-due of their board replacement program. Nor was I given any other option than "pay up." This process is extremely unfair to the customer in that he is not told what exactly was wrong with his board and exactly what it took to repair it. Instead he gets a whopping bill and a (questionable) replacement board which eliminates his chance of seeing what the repair was on his original board. For all I know, my board could have been repaired by the ten dollar replacement of a memory chip. Is $225 the standard replacement fee? Heath does not tell us.

"Well, after that dust settled one would expect all to be well for a while. Wishful thinking. After popping the KD11F into the H11 I initiated the start-up sequence. It proceeded for a while, then dropped into ODT at address 152336. I called the Heath hotline. A technician advised that it may be a subtle memory problem, and to try configuring memory downward until a failure threshold was identified. Mine was a Monolithic Systems Corporation product purchased thru Heath as a WHA11-32, configured to run from 4K to 24K, just above the KD11F's 4K memory. Performing the recommended diagnosis, I found that the WHA11-32 would not perform above 16K. The board had been bought in late June, with no Heath documentation having been supplied with it to define the warranty. So, making the Post Office richer still, I sent that off to the factory on November 20th. On December 4th a new replacement memory board arrived, surprisingly a Digital product. It differs from the Monolithic Systems board in being lighter and less flexible in its configuration. This MSV11-D cannot be set for memory size; only starting address - and that only in 8K-byte increments instead of 1K. Anyway, it worked and there was no charge for replacement. A service contract application was enclosed which, considering past experience, was worth $50.

"After two months of downtime my H11 system was once again whole. But... To my dismay I found that after a few minutes of operation the system would lapse into an M-TRAP; or it would go into Halt state at random addresses, often without giving the expected ODT halt address and prompt. This would happen in every usage mode and even when unattended. Needless to say, this made use of the system impossible. The responsible thing to do was to conduct a campaign to attempt problem isolation. I tracked the failure conditions. I replaced every H11 board (except the processor and disk interface) with spares. I wrote to Heath technicians with a summary of the problem. I made the minor system modifications they suggested. I upgraded to the latest operating system level. All to no avail. The only thing left to suspect was the one element whose arrival coincided with the advent of the problem: the marginal KD11F supplied by the Service Department. On February 15th, before the 90 day repair warranty expired, I sent my KD11F processor off to the factory Service Department - for the third time in four solid months of downtime. In my letter I said that I would gladly accept an LSI-11/2 board instead of an LSI-11 because, based on sad experience, I suspect that only "junk" KD11F replacement boards are available these days, and because the on-board memory is only a liability.

"March 3rd saw the arrival of a new LSI-11/2 board and a repair invoice with Mr. Ellerton's authorization of the swap. No charge. An irritated Heath technician noted that the old board "Checked GOOD" in big, underlined letters. Any good technician will, however, readily admit that testing does not necessarily uncover problems, especially the transient kind. You cannot prove that a board is not bad because it is simply impossible to prove a negative. To illustrate thru practical reality: all problems completely disappeared with the new board.

"Reviewing events, one should wonder why two major boards should fail like this, primarily to keep it from happening again. Room temperature and humidity were kept at appropriate levels. DC power to the backplane was at exactly the right voltages. While performing checks, however, I noticed that some boards generate a hell of a lot of heat. The ROMs on the disk interface, for example, are hot enough to burn skin. I also noted that the failed memory board had been physically located beneath the processor board's memory area, and that the memory board itself had some rather hot components. Lastly I noted that the exhausted air from the H11 box was disturbingly warm. I had never paid much attention to the box's air flow design, but now I did. Air enters thru a strip of holes under the left

side and tries to exit thru a minimum of punched holes under the front, right side. Conclusion: excessive attention was paid to H11 appearance and not enough to thermal considerations. In short, very expensive circuitry was being fried to death. It is as though the designers never anticipated the density and temperatures of components on today's boards.

"To compensate for these design inadequacies I made some "field modifications." Beginning with the ventilation output at the right-front corner of the box, I took a 3/16" drill and enlarged all the holes in that area. I also increased the number of holes by migrating them toward the front edge of the box. That increased the airflow, but not enough. Whereas that outlet area is wedge-shaped, I decided to "open up" the side bounded by the right foam panel. Being careful of internal parts, I drilled a triangular matrix of holes (roughly 2.5" x 3.5" x 4.5"). The foam responds very neatly to machining and so it was possible to optimize outlet airflow without rendering the cabinet unattractive. I next attacked the inlet area. Heath's design is really atrocious here...the tiny strip of holes on the bottom of the box permitting only a small flow of air to be drawn across the lower portion of innards while heat rises to the top of the box (where all the modules are) to be effectively trapped. There is obvious need for the inlet area to be such that air would be drawn across all module levels. And so I laid out and drilled a 3" x 7" matrix of 3/16" holes in the left (foam) cabinet side. The result is a fairly attractive modification which dramatically increases airflow and cooling. In that the operating life of electronic components is inversely proportional to their operating temperature, and whereas the components in question are demonstrably expensive, I strongly recommend that other H11 owners follow suit. Indeed, it would be very interesting to hear if others have had similar (and perhaps "inexplicable") hardware problems. LSI-11s are more susceptible to such damage because their boards are usually mounted horizontally and with minimal clearance, making for a much worse cooling problem than, say, S-100 configurations. I should mention that the suggested modification does of course permit more fan noise to escape into the room; but that is a small sacrifice compared with the seeming certainty of module failures if the H11 is left "as is." Another alternative would be to chuck the H11 box and substitute one of the better industrial cabinets available. That would be super - and about $1600.

"As a fitting epilogue to the topic of H11 reliability... Remember that H11-5 serial interface board that failed and was sent back to the factory for repair, and which because of system downtime had seen little use since? Well, believe it or not the thing failed again with exactly the same symptoms! I'm glad I didn't buy the H11 to run a business because with its track record I would by now be out of business.

"Some of you may wonder why I send modules back to the factory rather than bring them to the local Heathkit store. It sure would be convenient for me - if only Heath chose to put a kit store in the metropolitan Boston area! As strange as it seems, the nearest stores are inaccessibly located in the suburbs. And an irony that I wish Heath would begin to appreciate is that the only way you can afford to own an H11 system is not to own an automobile. It is just as frustrating not to be able to try out new products. Boston might as well be Death Valley for all that Heath seems to think of the marketplace.

"On January 22 I received the 890-6-3 version of HT-11, which seems to have been modified to eliminate some bugs from PIP, and to make better use of a CRT screen when listing a diskette directory. Also included were instructions for applying an HT-11 patch for 50 Hz operation. I expect that most people, upon determining what it's for, would immediately discard it. There is a paragraph at the end, however, which answers an often-asked question about the line time clock. It says:

'Although the "Introductory Operations" Manual warns you not to boot-up with the line time clock on, there is no harm in doing so. It is possible that a clock interrupt can occur before HT-11 has booted-up far enough to be able to process the interrupt. If this happens, the boot-up will halt, and you will have to start the boot-up over. No damage will have occurred.'"

H89 Add-ons from Magnolia Microsystems

"Just a brief note to keep you informed of current developments on the H/Z 89. ...we released CP/M 2.2 for the unit, priced at $295 (including the modification board). This is the same modification board which we also use with CP/M 1.44. For persons who have already purchased CP/M 1.44 the update charge is $100. Orders should now specify whether CP/M 1.44 or CP/M 2.2 is desired. The price of the modification board with CP/M 1.44 remains at $249."

"We currently have double-sided drives running under CP/M. This allows twice as much storage as a single-sided drive, and the user may mix any combination of single- and double-sided drives (to a three drive maximum). Double-sided drives are priced at $545 for one drive and $1,095 for two drives. Pricing includes case, power supply, and cable.

"Also available is a 10 MByte hard-disk add-on for the 89. This will require the use of CP/M 2.2. The price for this unit will be $5,500 and delivery will be approximately 30 days after receipt of order.

"We do have the entire CP/M User's Group Library here and would be pleased to provide anyone with copies of this on either 8" or Heath mini-disk (10 sector) media. The cost will be $8.00 per disk to cover the costs of media and handling. (Remember that an 8" volume may require two or three mini-disks.)

"Incidently, the modification board does not void your Heath warranty (per a letter from Barry Watzman). Information on the modification board has been sent to the managers of each Heathkit store, and several of them have placed orders for resale. If you are interested in obtaining it, you might first inquire at your local Heathkit store to see if they have them in stock." Ms K. L. C. Gjerding, Operations Manager, Magnolia Microsystems, 2812 Thorndyke Ave. West, Seattle, WA 98199, 206/285-7266.

K. told me July 3rd that Magnolia is also shipping a 16K memory board for the 89 that allows a full 64K of RAM to be used with their modification board. Brad Gjerding mentioned that Magnolia doesn't have to advertise because they keep busy enough filling orders that result from being mentioned in BUSS.

FOR SALE

One H88-3, two port serial board for the H88/H89. Will sell at the old catalog price of $85.00. David B. Alford, c/o Micro Media Magazine, 1316 Elmhurst, Garland, TX 75041, 214/840-1477.

H8-16 16K memory board (Heath) for H8, like new. $250 firm. Contact Len Brune Jr., RD 2 Denver, PA 17517, 717/733-9398 5-9 pm.

Want to trade H9 CRT and H8-4 serial I/O card for good 8K memory cards. Ed Freeman, 8628 Swiss Place, Anchorage, AK 99507.

H9 with GRAFIX modification, asking $250. John S. Coleman, 3788 Kens Lane R#8, Midland, MI 48640.

H9, excellent condition, unaltered, $150. Harvey Gack, 45 Summer St. Apt. B-003, Brockton, MA 02402, 617/683-8069.

H8, $220. Two Godbout 12K memory boards, $130 each. One Heath 8K board, $100. Jud Ahern, 405/364-0129 (Oklahoma).

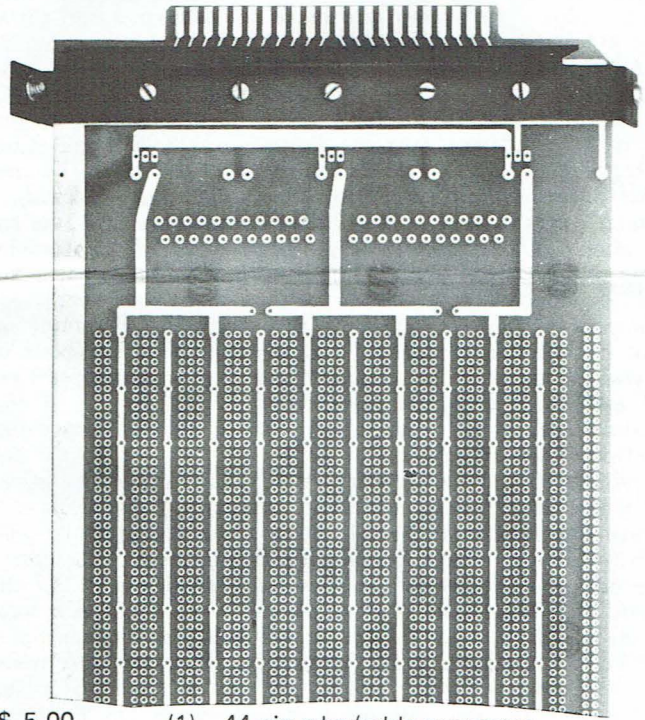
WH8-16, $300. Robert Hines, 1620 Elm Ave., Winter Park, FL 32789, 305/644-2332 (business hours).

1 Godbout 12K memory board @ $120. 2 H8-1 8K memory boards @ $80. Will pay U.P.S. shipping. John Bennin, 620 Hill St., West Baraboo, WI 53913, 608/356-7202.

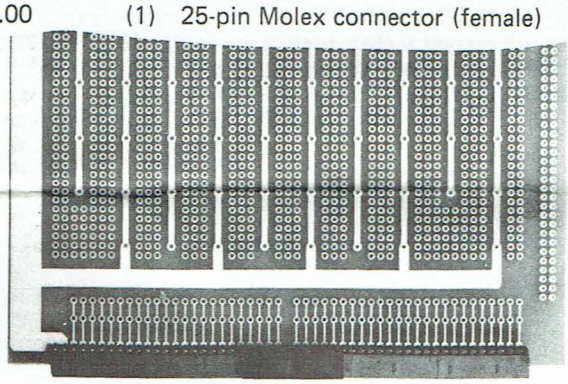
H8 RAM: (1) 8K Heath board $85; (1) 12K Godbout board $150; (1) DG32 32K board $375. All three for $525. Edwin R. Ranson, 35020 45th Ave. South, Auburn, WA 98002, 206/838-3308.

2 WH11-1 cards, $75 each. Glen, 503/760-6524

Mullen H8 Prototype Board



$ 5.00	(1)	44-pin edge/cable connector
$ 2.00	(1)	5 Volt regulator with (2) 39uF capacitors
$ 1.00	(1)	25-pin Molex connector (90° male)
$ 1.00	(1)	25-pin Molex connector (female)



"Now you can build an I/O board for your H8 computer, which can be connected to the outside world easily, several ways. Designed for use with a hooded 44-pin edge/cable connector opposite the bus connector, or to many different Molex connectors from holes along the board top, or you can kluge on your own connections into the space available.

"This board uses 0.042" diam. plated thru holes on 0.1" centers, for use with wirewrap pins or direct solder connections. A skillfully designed hole pattern, with interlaced power and ground traces with built in jumper locations available, make this board versatile and easy to use.

"Locations for (3) 5 volt regulators along the mounting bracket/heat sink, with locations for (2) filter capacitors each, and extra holes grouped near the ±16 volt bus connections for other voltage regulators, provide for many power options."

HKB-1 is $46 plus $1.50 shipping and handling (plus tax in California) from Mullen Computer Products, Box 6214, Hayward, CA 94544, 415/783-2866 (Visa, Master Charge).

Larry Henderson notes: "the mounting of power regulators is not done in the Heath manner using wires to the regulator which is, in turn, mounted outboard on the mounting bracket. Instead the regulators are to be mounted directly to the bracket, and the leads soldered directly into the board."

"Here a word of caution is in order. The insulated wires are not present running over the edge of the mounting bracket. It is therefore possible to cause a short in the board mounted forward of the kluge board in the H8 cabinet if you power up the H8 with the top mounting bracket loose or not in place. A wise move for the careful hacker is to insulate the edge of the bracket with non-conductive tape or some other media. I like to slit apiece of quarter-inch polyethylene or clear vinyl tubing lengthwise and press it over the front edge of the mounting bracket."

$8.25 HDOS Assembly Language Development Package

"The following functions are included:

1) Read the terminal in line mode
2) 32 bit arithmetic for add, subtract, multiply, divide
3) Convert a character number to a 32 bit binary number
4) Convert a 32 bit binary number to a character number
5) An edit routine that works similar to the PRINT USING function
6) Routine to fill N bytes of core with a given value
7) A keyword search routine
8) An array processor
9) A time loop routine, to pause the user
10) Routine to convert the date in the form DD-MMM-YY to a 3 byte date in the form DMY
11) A routine to determine the number of days between two dates
12) A routine to convert a date in the form DMY to DD-MMM-YY
13) A routine to set up a loop as in BASIC FOR/NEXT
14) A routine to convert a byte of core into printable octal
15) A test program that uses all of the above functions

The cost is $8.25 or if the user sends me a floppy disk $5.75." Bill Trepak, 19014 Bassett St., Reseda, CA 91335.

ONECOPY as a STAND-ALONE Substitute

"Jim Gillogly's SET HDOS STAND-ALONE note in BUSS #23 is similar to what I have been doing using ONECOPY to transfer from disk to disk. If you use ONECOPY to install a bootable disk, and once the disk is in place use CNTRL-D to return to HDOS you can now run that disk just as if it had been booted. Well almost, you must have loaded any device drivers prior to first calling ONECOPY, otherwise they are not accessible. The sequence goes like this: Boot up a disk, type "LOAD AT:", and go to work. When you want to change disks type ONECOPY, when it asks for the source disk install the new disk you want to use and press carriage return. Respond to ":OC:" with CNTRL-D and you are home free on the new disk. One thing I noticed, when you operate with a disk loaded in this manner the double CNTRL-Z escape from Heath BASIC, MBASIC and EDITOR no longer works. By the way, the CNTRL-D escape from EDIT.ABS results in the "Are you sure? (Y or N)" question; if you then press CNTRL-D again you go back to HDOS.

"This ONECOPY requires carrying ONECOPY on all your disks, 19 sectors, compared to the 62 sector saving offered by Jim's stand-alone method, but it may be more suitable for the faint of heart. As for me I guess it is a case of NIH. Del Stanton"

BUSS to Use MicroNET

On July 5th I received my MicroNET user's kit. My user ID is 70003,323 (listed in the user directory as Charles Floto). I haven't got all the hardware I'll need yet, but it is on order. Meanwhile other MicroNET users can send me messages on the Bulletin Board and I'll respond when I get connected.

MicroNET costs $5 per connect hour when reached through one of its 38 phone numbers spread around the U.S. I've put together a list of the telephone exchanges in which they are located. To see if there's one near you, look for your area code on the list and check your phone book to see if you can make a local call to the exchange(s) listed. Many other areas can reach MicroNET at an additional cost of $2/hour. List entries are in form (area code) / (exchange) [, (exchange)]: 201/575; 202/452; 203/324; 212/391; 213/937, 984; 214/745; 215/563; 216/452, 696, 867; 301/837; 303/861; 312/372; 313/962; 314/872; 317/632; 404/262; 408/496; 412/-232; 415/324, 347, 391, 961; 419/248; 502/585; 513/228, 241; 516/433; 602/790; 609/921; 614/457; 617/489; 713/236; 714/-530, 566; 817/334; 901/454. (Personal Computing Division, CompuServe Inc., 5000 Arlington Centre Blvd., Columbus, OH 43220.)

BUSS Bits

Retail stores are in the process of getting FORTRAN for HDOS.

"The new manager of the Heathkit Electronic Center in Woodland Hills (San Fernando Valley), California said that he is interested in starting a local HUG group. If you would like to attend call the store at (213) 883-0531 and ask Jim Griggs to add your name to the list."

Kilobaud Microcomputing continues to carry H8 articles. Subscription rates are going up to $25/year. Through July 18 they'll accept subscriptions at the old rates: $18/year; $30/2 years; $45/3 years. (Canada, $18, 1 year only; foreign, $23, 1 year only.) Subscription orders should be sent to P.O. Box 997, Farmingdale, NY 11737 (Master Charge, Visa, AmEx, 'bill me', or payment in U.S. funds).

Next month the subscription rates of BUSS will be going up; new rates will be similar to the old rates of the magazine in the paragraph above.

"Does anyone sell or have a design for a device that would permit me to use my existing ASR33 teletypes as a remote terminal/printer for the H89? My limited understanding is that I need something to convert from the RS232 to the 20ma current loop used by the teletypes, but don't know where to find such a device or how to build one." Bill St. Cyr, 2705 Florida Ave., Suite C, Kenner, LA 70062, 504/466-0864.

San Jose HUG meets 1st & 3rd Wednesday of each month, 7-9 pm at Heathkit Electronic Center, 2350 S. Bascom Ave., Campbell, CA 95008. Other HUGs wishing to exchange newsletters should write Larry Moseley, 7025 Burnside Dr., San Jose, CA 95120.

"Please explain PATCH."

"My primary use of my H8/H19 is for radio teleprinter use on the amateur bands. A lot of software is available from a group that operates on 14.0825 MHz. Irv Hoff W6FFC is the author of the software and is a very capable and knowledgeable person giving many many hours of assistance to people needing help." Karl "Skip" Prinsen.

"The Richmond (Va.) Heath Users Group has been formed. Call Jim Scott (H) (804) 232-2925, (B) 358-2171 ext. 206, or Carlos Chafin (H) 231-6759, (B) 358-3852 for information about current activities and next meeting date."

Buss, 325 Pennsylvania Ave., S.E., Washington, DC 20003

Walt Bilofsky told me July 4th he expects to have the manual for his HDOS LISP interpreter ready around the end of August. His H19 screen editor PIE 1.5 now has a macro feature allowing such functions as global search and replace ($29.95). TEXT formatter 3.1 can now remount disks while running ($34.95). As noted in BUSS #23: "Add $2 per order First Class postage and handling; California residents please add 6% sales tax." (The Software Toolworks, 14478 Glorietta Drive, Sherman Oaks, CA 91423.)

ETA-3400 wanted by George Kelm, WAAB Service Center, P.O. Box 160, Yap, Caroline Islands, TT 96943. George notes that he can be reached by first class mail and zone 8 parcel post. He's also interested in hearing from anyone who's expanded an ET-3400.

A 10 megabyte Winchester disk for the LSI-11 is $5950 from Corvus Systems, Inc., 2029 O'Toole Ave., San Jose, CA 95131, 408/946-7700.

The Zenith Data Systems exhibit at the National Computer Conference included LSI-11 software from Kennedy Data Systems, Inc., 4150 Rio Bravo, Suite 242, El Paso, TX 79902, 915/532-3056. Five business packages are available at about $1500 each: general ledger, payroll, professional time and charges, accounts receivable, accounts payable.

In front of the booth I ran into a visitor from Heath Company. Computer Products Director Larry Plummer said that by the end of 1980 H8 owners won't worry about not having an S-100 bus. Seems there are a number of new circuit boards under development.

Jim Clark notes H44 control board should have switch section 2 on and section 3 off.

"WANTED: H8 8K memory boards, fully populated or not, as many as I can get hold of." Anthony Marshall, 2109 White St., N. Las Vegas, NV 89030, 702/649-5398.

Ray Cherry reports a schematic diagram is not included in the $25 documentation package for the H8 Z80 CPU card from DG Electronic Developments Co., P.O. Box 1124, Denison, TX 75020. Buyers of the board get one.

"We are looking for an Accts/Receivable, Accts/Payable, and inventory programs which will run on Extended Benton Harbor BASIC and will show zeros and correct the penny error in the BASIC." Microsoft BASIC programs would also be of interest to Alva's Jewelry, 150 S. Belknap St., Stephenville, TX 76401, 817/965-7324.

July 3rd Lobo Drives denied the report in the August Popular Electronics that they have a rigid disk for the H89.

An APL character generator for the H19 is $50 plus $2 postage & handling (U.S. funds only) from Micro Interfaces, Inc., P.O. Box 14520, Minneapolis, MN 55414, 612/426-4603.

Charlie

Walter Bilofsky *30
14478 Glorietta Dr.
Sherman Oaks, CA
91423