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H8SCOOP

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INTRODUCTION

This issue ran smoother than issue one, which was expected. By this time, I had good stuff to compile and print, thanks to much feedback from fellow H8ers and H8SCOOPers. As expected, I received a few letters from readers expressing dissapointment in issue #1. Like I stated in issue #1, you have to start someplace, and that was the start! Most letters received were encouraging, and contained useful information. I hope the FEATURE section of this newsletter makes up for the lack of info in issue #1. Much time and effort went into the compiling of the list of H8 compatible software and hardware as found in the feature section, not only by myself, but by others.

Because of the unusually large feature section, other parts will be omitted or condensed in this newsletter. I feel for the time being, I want to keep the newsletter to an eight page length. Occasionally when there is an extra amount of material that must get out, and/or the backlog is getting too large, a 10 or 12 page edition may appear, but the cost of printing and postage of a newsletter that size, mentioning nothing of the work involved, would actually cause me to loose money, at least till the subscriptions increase.

Remember, it's your newsletter. I received many letters from H8ers contributing information, and being patient with the newsletter. There were those few that complained about nothing of real value in the newsletter, and wouldn't you know it, they didn't bother to send anything for the next one either! Complainers we don't need, I do well enough on that myself, but then I do something about it! Contributers is what we all need. Keep it up.

NEW STUFF

It's reported to me if Heath can work out legal hassels and other things, they will soon release(in summer?) a thick document of HDOS CODE, the good stuff we've all been waiting for. If this happens, the dream will come true for many H17 owners. This will allow you to understand what and how HDOS is doing it, and more important, to go in and change the code to suit your applications, especially things like I/O routines. This will be a long waited happening, putting HEATH ahead of many other micros. We back HEATH all the way in this venture, and hope to see it soon.

I have reliable sources that tell me Heath will be releasing a color graphics board for the H8 late this summer. This would allow you to interface the H8 to a color television, and do graphics and other neat stuff under program control. Another good direction by Heath. They really are getting on the ball!

DIGITUS corporation, 22 West 25th. St., Baltimore Maryland 21218, (800) 638-1473 has announced RAINBOW 2000, a color graphics board that will operate off a RS 232 C interface (or a version for parallel interface). This features 3 graphic display modes and four alphanumeric display modes with 32 characters/line by 16 lines. 64 by 32 density graphics with 8 colors, and 64 by 48 density with 4 colors.

I'll try to get one for evaluation and report latter. Ball park prices are $321 dealer price($429 retail). In any event, between RAINBOW and HEATH, it looks like color graphics is finially here.

Tom Larson of HEURISTICS INC, 1285 Hammerwood Ave., Sunnyvale, CA 94086--informs me that soon a speechlink will be available for the H8 computer buss. This will allow the H8 to recognize a limited vocabulary using BASIC language. Requires about 4K RAM plus BASIC of course. He told me back in December of 1979 they already have the unit designed, it's a matter of marketing it now. I haven't heard anything since then, but let's keep our fingers crossed.

WHO'S WHO

There's a request for goodies that will work on a serial port rather than with a parallel port as most of my previous projects required. When I get time, I'm going to work on a poor mans parallel port, and a serial to parallel port converter. Neither should be too hard, it's a matter of time. If anyone out there has such devices, write me. Meanwhile, refer to the FEATURE page, TRU-DATA claims to have a serial to parallel converter circuit available.

ELECTRONIC SYSTEMS, POB 21638, San Jose, CA 95151 (408) 226-4064--has a circuit with parts ($35, part 101A) called a UART + BAUD RATE GENERATOR, which they claim gives serial to parallel and parallel to serial conversion. They also have neat things like RS-232 to TTL and RS-232 to TTY interfaces and more. Write them for a complete catalog.

D.C. SHOEMAKER is big on MODEM communications. He has been using HUG'S MCS MODEM communication package to talk to a TRS-80 computer. If you are interested in trading programs via phone,

contact D.C. If you have general interest in phone communication, and have or plan to get a MODEM, let me know. If interest is enough, I will publish MODEM related stuff!

Ken Wright, Rt. 2 Box 2103, Grayling, MI 49738 whishes to correspond with cassette users about a cassette program sharing arrangement. He has some short programs he is willing to trade to others for their programs. Ken is involved in computer control of a hydraulic assembly machine for demonstration of computer control.

Ralph Bradburn, 300 Route 59, Tallman, NY 10982 operates a chain of speed printing centers. He uses his H8 for inventory control and job record keeping, along with billing functions.

Tor Tverre, Monradsgate 3 A, OSLO 5, NORWAY wants to know the availability of software and hardware goods shipped to foreign customers. If you have something to offer, Tor requests you print along with the add if you are willing to ship to foreign countries. I have had several similar requests from foreigners. I understand there is little or no support for them. Let's keep our foreign H8ers in mind more in the future. I understand Tor waited over 3 months for a Godbout memory board. This can get very frustrating.

Ben Maddux wants to know if 4116-3 memory chips for the dynamic memory can be obtained for less than $15 each. His address is in classifieds. Ben, they are available for $50 for 8 from Exatron Corp, 3555 Ryder St, Santa Clara, CA 95051, 1-800-538-8559.

Harold Adams writes that he is running my 64K expandoram memory project with 48K worth of 4116 chips and a Heath 8K board to give him the full usable 56K, without any problems. If this approach is used, the phantom disable IC chip can be eliminated, making the board easier yet to build. Because only 48K is populated, the cost is also reduced to under $400 for the 48K board.

Several readers have asked about a real time clock for the H8. My H8CLOCK in the goodies article series works fairly well unless there is much disk activity. This is the only way to go unless you want to go to a hardware clock, which presently, is not available.

Several readers wrote in about this info on the H19, this is taken verbatim from Roger Kulstad, Box 644, Valdez Alaska 99686--"The H19 video Terminal operation manual, under terminal configuration, shows the Serial I/O card switch position for a maximum of 9600 baud. This baud rate can also be selected from the keyboard by typing ESCape r L. 9600 baud is nice, but try typing ESC r M. This is faster and just might be 19,200 which is even nicer. I wonder why Heath doesn't tell you about this."

Roger also asks why HUG HDOS software editor (PN 885-1022) does not work with version 50.04.00 of HDOS and the H19 terminal. Escapes are not echoed back as $ or anything and none of the functions will execute.

If anyone has info on this, write Roger, and give him the SCOOP. Roger also wants to know where I got the name PORTZABEE from. That I'll hold for awhile!--Portzabee.

REQUESTS

We would like to hear from any H8ers who have installed GRAFIX in their H9 and the results. I am especially interested in GRAFIX installed in any of the 24 line mod H9's. A report on this will appear in a future H8SCOOP if we get some good response to this request. THE H9 IS NOT DEAD YET!

A request has been made on how Heath makes the H8 a time sharing system when running the weather station with the associated software. Anybody having the combo, write in and let me know. This will be made available in a future newsletter. I suspect interrupts may be involved.

James Czebiniak, 199 Vly Road Ext.,Schenectady, NY 12309 wants some software advice on control of the H14 printer. He wants to know if he can do reverse line feeds from the computer, and if so how? Why does the print head lose home when 8 lines/inch are used? How can the automatic system form feed be disabled? Any info, contact Jim. Since I don't have the H14, I have no idea!

TECHNICAL FORUM--CHIP FAILURE?

A question has been raised as to chip failure of computer devices, especially upon power on, and memory chips going wild for no reason, and latter being OK. Integraged circuits are extreemly prone to line spikes and interference generated on the buss. Keep in mind the low voltages used for logic levels. If an erraneous voltage is induced onto the buss, it can be interpreted as a logic "1" on the address or data line, sending the computer into limbo land.

CONTINUED Pg 7

F E A T U R E

This months FEATURE was going to be a short program, but I felt you would all benefit from this more. Next month will be a short program. This is a fairly complete compilation of the NON-HEATH software and hardware available, through April 1980. It is printed without endorsement, only as a guide to what is available. In other words, let the buyer beware! Some of these may no longer be available, you'll have to check it out yourselves. I doubt if the INFO 2000 system is available.

I wish to thank D. C. Shoemaker for the major contributions making this list possible.

HARDWARE RELATED

INFO 2000 heads the list with the most expensive peripheral and software system, the INFO 2000 Disk System. This includes a Z80 processor board, dual 8" disks and the operating system. At $2,750, it represents a very expensive upgrade, but had the advantage that by throwing one switch the user could revert to the standard Heath system. INFO 2000's address is 20630 South Leapwood Ave, Carson, CA 90744, 213 532-1702.

Not specifically related to the H-8, but of possible interest to Heath users who own the DECwriter (LA-36) is a modification from Larks Electronics, Box 22, Skokie, Ill, 60076, that doubles the throughput from 300 baud to 600.

Henry E. Fale produces an extensive line of detailed plans and directions for building useful interfaces between the H-8 and the outside world. These applications include a Selectric interface, a sound generator, an 8-channel analog-to-digital-to-analog converter, phone circuits (dialers, autoanswer, ring detector, etc.), 16-channel on/off controller and a jogger computer. He also has plans for a 64K dynamic RAM board based on a conversion of an S-100 board, and TED-8 source code for an assembly language H-8 clock routine that can be called as a subroutine. Henry's address is 2918 S. 7th St., Sheboygan, WI, 53081, phone 414 452-4172.

Northwest Computer Services, 8503 N.E. 30th Ave., Vancouver, WA, 98665, phone 202 573-8381, advertises GRAFIX, a hardware modification to the H-9 CRT terminal that enables it to produce denser graphics, of a simple type similar to the TRS-80. This mod is described as not being compatible with the 24-line mod.

GODBOUT ELECTRONICS now markets 16K and 32K Static memory board for the H8. They have been second-sourcing to Heath for awhile. Bldg 725, Oakland Airport, CA 94614.

Ace Technical Services, Inc., 78-40 16th St., Flushing, NY, 11366, 212 591-0632, offers a combination 4K RAM-3K ROM board, a 2708 EPROM burner board with software, a cable-continuity/short tester board with software, an 8-bit parallel printer interface, a 64-channel temperature monitor board with software, and modified PAM-8 ROM chips which auto boot upon power up or master reset for disk. Also have a prototype wire wrap board for $25.

A 64K dynamic RAM board with on-board refresh is available from Tryonix Electronics, Box 5131, Santa Ana, CA, 92704, 704 830-2092. It may be set up for 16K to 64K in 16K blocks, and uses TMS 4116's. Tryonix sells both kits and assembled and tested boards.

Another dynamic RAM board, this time in an assembled 32K version only, is available from D-G Electronics Development Co., Box 1124, 1827 South Armstrong, Denison, TX, 75020, 214 465-7805. This board may be addressed as four independent 8K blocks-$479. It uses the computer for refresh, and can't be used with HALT, WAIT states, or DMA. This should pose no problem, since you can't use HALTS with PAM-8 anyway. It intercepts them! (That's another story in itself)

TRU-DATA (see software section)--Possiblilty of hardware such as one button boot, Z80 CPU, EPROM programmer, Serial/parallel/serial conversions, and reportedly more. Contact TRU-DATA for more info.

CCM, Inc., Box 2308, Reston, VA, 22091, offers an eight-channel 8-bit analog/digital converter board that comes fully assembled and tested. The price is $125.

SciTronics, Inc., can provide information on interfacing the BSR remote AC line carrier switches as sold by Sears, Radio Shack and others. Their RC-80 controller includes a power supply and case for $189. Their address is Box 5344, Bethlehem, PA, 18015, 215 868-7220.

The Keyboard Studio, 1726 Mansfield, Birmingham, MI, 48008, has a set of plans and a prepared printed circuit board that allows one serial port (either the H8-5 or one of the

H8-4 ports) to operate a phone dialer. Called "Tele-pulse," it can be operated with an optional software package which manages the system. They also have a line of heavy vinyl covers for the H-8, H-14, H-17 and H-19.

Digital Dynamics also has dust covers. At last check, they had covers for the H-8 and the H-9 (as well as the H-11.) Their address is Box 27243, San Antonio, TX, 78227, 512 231-2012.

Mullen Computer Products, Box 6214, Hayward, CA 94545, has one of the most useful of H-8 accessories, an extender board for the H-8 buss. A great aid to experimenters and troubleshooters, for $39. Note: Heathkit now offers this board also.

George Risk Industries, GRI Plaza, Kimball, NE 69145 claims to have an upgrade kit available for the H9 keyboard.

SOFTWARE RELATED

This list consists primarily of those who advertise their products and send out brochures. The list is probably lacking in individuals that write software and do not advertise much. If you're one of them, drop me a line, and we'll mention it in a future H8SCOOP.

John Eggert of Eggert Engineering, 95 Adams Drive, Stow, MASS, 01775, has a 32K version of "Adventure" available on tape. Virtually identical with Heath's disk version, it runs a bit faster as it resides entirely in memory. To do this, some of the instructions are given on paper instead of in the program, and there's an even briefer version for 24K machines. Both require the H8-5 interface. A 16K disk version is available, too.

The Keyboard Studio offers several BASIC programs on disk. Mailing List requires the H-19 and 32K, and stores about 1000 entries. Multiple sorts are featured, and label printing can be readily configured. Datalog.BAS is a data base that maintains up to 150 single-record entries on one disk. Quizmaster allows the creation and administration of individually tailored tutorials on the H-19. A graphic subroutine package illustrates the software creation of graphics subroutines that can be incorporated in user programs. Electronic Billboard types messages "stock exchange" fashion across the CRT, and Dice Roll draws dice on the screen for games. Score Display allows the display of large-format numbers on the screen for games and similar appli- cations. They will also provide source code for most programs, at a reduced rate.

Tru-Data, 19 Sands Point Drive, Toms River, NJ, 08753, has a ribbon for the H-14 that prints darker, longer. They also have one for the LA-36. They provide software utility type programs for disk like ZAP which duplicates disks quickly, UNLOCK which removes all flags from a disk, and more. They have a payroll program for $195, Disassembler, Maze, Games, Pictures and more. They have DISK and TAPE programs. Average price, $15/program plus disk.

Clark Systems Corporation has programs that run under Microsoft BASIC, including a general ledger, mailling list programs, and personal use programs that do things like budgeting, interest calculations and shopping lists. Their address is Box 490156, Atlanta, GA, 30349, 404 964-1262. (Note - this is the same address used by Ed-Pro, Inc., that used to advertise cassette-based programs and recently was advertising the personal use programs. Possibly a reorganization or a name change.)

J. D. Hill, 6400 Gila Court, Plano, TX 75023, provides a series of programs on both tape and disk. They include a data base management system, a personal accounts payable program, a BASIC development system (including a whole series of utilities) and a CAI system

STRUCTURED BASIC SOFTWARE TRANSLATOR program using "END, ELSE, WHILE, IF, UNTIL, and more. See REMark issue 8. Last time I talked to Gene, He had disk with documentation available for $25. Well worth it if you're into that type of thing. Write Gene and/or see REMark issue 8 for more info. Gene Bellinger, 4929 Red Fox Dr., Annandale, VA 22003.

DELTA SYSTEMS 3667 Montalvo way, Santa Barbara, CA 93105 (805) 682-1270. Jog a Thon software computer billing package for 40K dual disk $229(whew!) Stamp Collector Program(M-Basic, 40K dual) for $35.

J.E. Brancheau, POB 67, Trenton, MI 48183 offers 76 programs from the book "Some Common Basic Programs", debugged and converted to run on the H8. $15 for cassette tape.

Lifeboat Associates, of course, provides CP/M in a Heath-compatible format, and will provide many applications packages in a similar format. The list is far too long to reproduce; check Byte or Microcomputing for the most recent. 2248 Broadway, New York, NY 10024.

Another CP/M-based applications package is available from Micro-Ap, 9807 Davona Drive, San Ramon, CA, 94583, 415 828-6697. Called Selector III- C2, this is a full-service information management program, to which may be added a general ledger program. They configure the software to the computer system, so it should be optimized for the H-8/H-89.

A. E. Dessler, 5126 Loch Lomond, Houston, TX, 77096, lists four game-type disk programs for use with the H-8, at least some of which will require the latter's front panel and would be unsuitable for the H-89. He also has an H-8 implementation of PILOT, and a set of assembly language subroutines with wide application.

Walt Bilofsky has a set of programs available, including a "c" compiler, a Z-80 assembler, an H-89 screen editor and a program called "Reach" that seems to sound like a MODEM routine. His address is 14478 Glorietta Drive, Sherman Oaks, CA, 91423.

Dr. Jim Gillogly, 2520 Chard Ave., Topanga, CA, 90290, has taken Walt's "c" compiler and written two application programs, a text formatter and a Huffman coding routine called "Pack."

J.J. Thompson, 281 Warren Ave, Kenmore, NY 14217 has available a set of file converter programs, CPM to HDOS--CPMCOPY.ABS for $17, and HDOS to CPM for $17, or both for $30.

COMMSOFT, 665 Maybell Ave., Palo Alto, CA 94306 has a ham communication software package available. Write them for more info.

DISTRIBUTED DATA INC., POB 5288, Little Rock, AR 72115 has a software package for interfacing the H8 to a timesharing system.

CALIFORNIA DATA BASE, 4554 Cristy Way, Castro Valley, CA 94546 has various games available in BASIC. They will also do any BASIC code conversion to B.H. Extended Basic.

Patric Swayne, 290 Springdale, Sebastpool, CA 95472, has some interesting things he has been working on. Super Tiny C Basic, a FOCAL interpreter, and a front panel monitor, to name a few. Write Pat for more details. I understand HUG will have his Tiny C, and possibly FOCAL.

Tidewater Software, POB 4465, Virginia Beach, VA 23454 has H8 Assembly software available. There is a 7 page catalog available for the asking. Such things as memory dumps, relocatable code, ABS to ASM file producer, and much more is available from them, all for the H17 disk system.

A firm I haven't heard from for a long time, but that used to produce some first-rate software, was called Multi-Micro Media, Box 1025, Arvada, CO, 80001. The only program I have any knowledge of is an 8080 instruction set educator, written in assembly language, with extensive documentation. Other programs they offer(ed): two BASIC game tapes with multiple games on each, four tapes of machine-language games using the front panel, a ham code practice program, a disassembler and a version of Hammurabi in machine language. Drop them a line to see what's currently available.

MICROCOMPUTING'S Instant Software. They currently have two rather trivial-looking game tapes, but this may be just the beginning. Look for a tape monitor program by Patrick Swayne that will reside in the H-8's RAM. And that may be just the beginning.

MISCELLANEOUS

Bill Keepers, P.O. Box 2630, APO Miami 34002, wrote me last year about having plans for a H8 general purpose cabinet/desk combo for the do it yourselfer. It houses an H8, CRT, H14 printer, H17 dual disk drives, cassette, plus room for books, tapes, etc. Uses 2 muffin fans for cooling, and has ample outlets. Pretty nifty! Contact Bill for more info.

H8 RELATED MAGAZINE ARTICLES

The following is a listing of magazine articles that featured something on the H8 or related equipment, mainly relating to project type articles.

CHEAP VIDEO FOR YOUR H8. This project by Don Lancaster makes use of the H8's memory to store and display characters on a CRT, using the computer for I/O, and memory mapping. ** KB March, 1979

CONOPS--Control operating system monitor for H8 tape system by Chesney Twombly. This article comes in many parts doing various different things for the H8, all in Hexadecimal! ** KB July, 1979.

H8 DISSAMBLER for CONOPS by Chesney Twombley. ** KB January, 1980.
H8 STRING FINDER for CONOPS by Chesney Twombley. ** KB February 1980.
CASSETTE TAPE QUALITY TEST for CONOPS by Chesney Twombley. ** KB March 1980.
8080 LOADER/RELOCATOR for CONOPS by Chesney Twombley. ** KB April 1980.

H9 PAGE ERASE--Simple $5 hardware circuit allows software control (CNTL-E) of page erase function, by William Richter. ** KB March 1979

H17 SEEK TIMES may be usable to 6ms, even though tests only go to 8ms. D.C. Shoemaker. ** KB June 1979, page 22.

H17 Switch-Toggle switch lets you equalize wear on your dual disks, by Gerald Hale. ** KB December, 1979.(I just switch mine once a year).

H8 ALARM COCK progam by Adrian Thorton. As it says "The most expensive clock on the block" ** KB December 1979.(Totally ties up the H8!)

BASIC RENUMBER PROGRAM by Adrian Thorton. ** KB August 1979 page 58.

H17 BASIC--SPEED up loading BASIC on H8/H17 by D. C. Shoemaker. ** KB March 1980, page 101.

MAGAZINE PRODUCT REVIEWS

THE FOLLOWING REVIEWS ARE RELATING TO THE H8

BYTE March 1979 by Dr. Paul Poduska, page 12.
MODERN ELECTRONICS, June 1978 by Carmine Prestia, page 26
CC, Jan/Feb 1978
CC, February 1979
CC, August 1979, by Bill Phillips, page 12
ELEMENTARY ELECTRONICS, Nov/Dec 1978
BYTE, October 1978 by Gordon Letwin on PAM-8

THE FOLLOWING ARE ON THE H9

BYTE, September 1978-Lower case
BYTE, October 1978 by Terry Steeden

THE FOLLOWING REVIEWS ARE ON THE H14 PRINTER

CC, October 1979, Page 34
KB, February 1980, Thomas Prewitt

THE FOLLOWING REVIEWS ARE ON THE H17 DISK SYSTEM

KB, April 1979 by Ron Rocheleau
CC, September 1979 by Don Skiff

THE FOLLOWING REVIEWS ARE ON THE H19 VIDEO TERMINAL

KB, November 1979, page 22
KB, February 1980 by Ralph Wynkoop

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CC is Creative Computing
KB is Kilobaud Microcomputing
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All in all I find Kilobaud Microcomputing to be the best H8 supporting magazine on both product reviews and projects. I have discontinued my subscription to Interface Age, due to their lack of support and negative attitude toward the H8 system. If Kilobaud plays their cards right, they may end up being THE magazine H8 users will subscribe to, and I hope so. They have given H8ers the best shake so far.

Ever since Sol Libes of BYTE threw H8ers into a panic by printing the H8 was being discontinued by Heath, I have my doubts about Byte(See Byte, Feb. 1980 Pg. 16). He also said "it was dedicated exclusively to the 8080 and therefore was destined to an early death." Eat your words Sol! Enough said.

My experience has shown me that warm or hot IC's are even more prone to this phenomena, and some IC's run very hot to touch, enough to cause a burn if touched! I have installed a fan in my H8 due to similar erratic very occasional memory problems, and have not been bothered ever since. I also use line filters on all my computer equipment, to absorb line spikes and keep them out of the computer, thus off the buss.

Another serious problem is intermittants. This can be a solder joint or a component that is fine until a certain temperature is reached, and then the solder joint will open enough that conduction drops to the level of causing problems. Electronic components can behave in a similar manner. The trouble with these, is it's almost impossible to spot. Inspection rarely will show the fault. When this happens to me I go back and resolder all points using enough heat to allow the solder to flow freely. Sometime a cooling agent like freon can be used to cool the suspected component or joint during operation. This works better on audio and video related problems since you can observe what is happening. With a computer, it's hard to tell. Sometimes, all you can do is try substituting components if you can narrow the problem down to a board, or an area of a board. All I can say, is it takes lot of time and patience in most cases, and it can be very trying.

PS I am assuming the computer equipment is properly designed to start with, using proper shielding and termination techniques on the computer buss. I am also assuming, the buss has not been loaded down to the point the TTL drivers are overloaded. Then you can't tell what will happen. Like I said before, those H8 expansion ideas are nice, but there's a limit to how far you can load a buss before there's trouble, unless you add the proper buss drivers along with the design. This I haven't seen yet. Enough said.

CLASSIFIEDS

WANTED--Paper tape version of Heath(Wintek) editor for use with paper tape punch (H-10), along with copy of addendum which accompanied origional package. D. C. Shoemaker, 2000 A Foxridge, Blacksgurg, VA 24060.

FOR SALE--Heath ETW-3100 trainer. DC electronics course with cassette and all experimental parts. Good learning for anyone needing to brush up on the basics if you plan to get into your own hardware design. Half price of $95. Ted Benglen (see below)

WANTED--10MHZ scope in good working condition and reasonable priced. Ted Benglen II, 822 E. Country Rd. 30, Ft. Collins, CO 80525.

FOR SALE--GODBOUT 12K memory in good working order. Will sell for $125 + postage. 2-Heath 8K boards. $80 each, or both for $150. Ben Maddux, 843 Thistledown 3, Memphis, TN 38117. (901) 682-8187 (7-9PM Mon-Fri).

GOOD GUYS and BAD GUYS

* GOOD GUY--Bill Perry from Trionyx. In the short time Trionyx has been selling 64K memory boards, they have gone out of their way to give good service to their customers, and reading my mail, this has not gone unnoticed. From my reports, I can say the 64K board is top quality, as is the service, and it works excellent. I have had many readers write in praising the board.

As far as for Bill, it's greatfully reported he goes out of his way to help his customers. He can be counted on for prompt service and more important, follow up, after the sale. He really cares, and that's the backbone of a GOOD GUY.

Those having the 64K boards, reported little or no problems in getting it up and running, and no problems once it was up and running. The few problems encountered were promptly taken care of by Bill. Keep it up Bill, we need more like you.

* GOOD GUYS--Many readers have been sending in names of some of their local Heath store guys for this column. Because they only apply to specific geographic locations, and most of our readers would not benefit from these, they will not be printed. Let me say though, that lot of Heath good guys are popping up, and I don't want to neglect them. Suffice it to say for the time being, there ARE lot of good HEATH guys out there, and it looks like it's getting better all the time, as I mentioned last month. I don't know quite what is happening, but if it keep up, Heath well could pull ahead of some of the others, and this seems to be the general feeling of many of my readers.

PEEKING & POKING

GENERALIZATION

There was a time when the H8 package was standard. All that was available was the H8, H9, 8K memory boards, and the cassette tape system. You always knew when software or hardware was released, it would be compatible with everyone. Not so anymore.

The many terminals in use cause the serious programmer looking for a market, to generalize the software. When good graphics programs are written with the H19 in mind, all those without one are left out(including myself). Keep in mind the H9 and others(Hazeltine 1500 in my case). When a program is written specifically for the graphics, then specify that it will only run on the H19, and keep in mind, you'll be leaving out over half the H8ers. When writing other programs, generalize as much as possible to use standard features of most CRT terminals, and then if you wish, add directions latter for modifying to run on a specific terminal for special effects. Easy enough? Yes, and more of the group is included.

When writing a specialized program, again, write it to cover as many possibilities as you can, else it may not perform well for another's application. For example, use BH Extended Basic whenever possible an practical because the majority of H8 users have it, and it consumes minimal memory. There may be specialized programs that require more speed or precision, where MICROSOFT BASIC may be required. Just keep in mind, this will automatically eliminate the market for most H8ers, because of either memory limitations, or because they don't have MBASIC. The same line of thought applies to CPM

For the benefit of H89ers, most software contained within should apply to your system, but none of the hardware. Some H89ers have written in asking. I must stand firm to my origional concept on H8SCOOP to keep it only for the H8. Since they are basically the same machine, most software will apply, with little or no modification.

There is already great diversification due to some H8ers having tape and others having disk, the main difference being file handling capabilities as far as programming goes. Those who have the tape system may find many programs running on the disk system quite useless to them, if disk file operations are a main feature of the program. This is both understandable and unavoidable in most cases.

I have already received several requests from beginners with the tape system, and also beginners with the disk, to feature easy BASIC programming aids and advise to get them started. If any beginners have specific problems or requests, feel free to write and I'll see what I can do. Meanwhile, those of you having programming hints or goodies, send them in. I will try to throw a few out each month.

So keep that in mind. If you more advanced ones out there have some hints and goodies to benifit the beginners, share them. Likewise, when some of you beginners stumble on some good ideas, share them. But keep in mind the main thins--GENERALIZE as much as possible.

THE END

JUNE issue deadline--May 17

Subscription Rates--$12/Year ($16 overseas)

PHONE HOURS: 4PM-10PM Monday, Tuesday, Thursday, and Sunday. No collect calls