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SEBHC JOURNAL

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Volume 1, Number 1

Page 2

The Loyal Voice of the Society of Eight-Bit Heath Computerists

Welcome to our fellow Heath/Zenith 8-Bit Computerists!

We hope you will like this all too brief first issue of the *SEBHC JOURNAL* and bear with us as we fight to make each issue better than the last.

Here are a few words about what we're trying to do for you:

First, we are taking up where REMark and other "H/Z-oriented" publications left off when the "blue giant" and his little clown appeared on the computer scene. We shall support all H/Z 8-bit computerists by publishing good, solid information about these still-functioning, lovable and durable machines.

Second, we want you to write letters to us and tell us why you are still using an 8-bit computer instead of a "blue clone". We will try to print your letter in the earliest-possible issue of the *SEBHC JOURNAL*. If you've developed a special technique dealing with a hardware or software problem, tell us--and all the rest of the 8-bit world--about it!

Third, we will gladly print advertisements sent us by those very wise vendors who still support H/Z 8-bit hardware and computerists. We want these folks to know that their ads will be carried FREE OF CHARGE in the *JOURNAL*; we won't charge honest 8-bit vendors as long as they continue supporting our favorite computers! Of course, we reserve the right to check out vendors products and services, and print unemotional and factual reports of what we find good or bad or both about the products. (That's why the ads are printed free--we don't want to follow the slick magazines into oblivion because we printed an honest critique!)

Fourth, when you subscribe to the *SEBHC JOURNAL* you automatically become a full, participating member of the *Society of Eight-Bit Computerists*. Your subscription goes to pay all publication costs, including postage. As of the moment, *SEBHC* is not incorporated as a non-profit organisation (in fact we are "aggressively non-profit" at the moment!), but we'll be incorporated in due course and let you know all about it.

LEONARD

L. E. Geisler,
Editor/Publisher

895 Starwick Drive, Ann Arbor, Michigan 48105 -- 313-662-0750

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The Computer Novice's Choice

Satire by Tim S. Hartlee

I give up! I can't stand it any more! All my formerly sane friends have gone computer crazy. They used to lie about their golf scores and how much they saved on their newest car; now all they talk about is their new "dotwheel laser printer", and lie about how many "K's" their computer has or brag about how fast it runs!

Life was once so easy... My friend Harry couldn't make the 4th hole in two strokes if his life depended on it. But if I'd listen to his story intently enough, he'd buy the next two rounds without even a murmur. And with Iggy, I had it down to a science; whatever he claimed to pay for his latest clunker, I just added 50% and came within a few dollars of the truth.

Eventually I began to believe I just had to get a computer. Without one, my kids would look stupid, my wife wouldn't be able to balance the checkbook, I would never get promoted at work, and my friends would laugh at me.

Trouble is, what kind of computer? I started watching TV commercials and reading magazine ads, but they're worse than useless. It's almost impossible to find even one hard fact in those ads. I know high-pressure hype when I see it. Buying a computer based on today's ads is about as bad as taking golf lessons from good old Harry.

So I decided to risk asking my chums, Harry and Iggy. Now both are really hot on computers, but they bought different brands. Harry has a "Heath H-89", and Iggy an "IBM PC". No matter what one says, the other contradicts him. "Get an 8-bit computer" says Harry. "No, go 16 bits" says Iggy. "A serial printer is better." "No, parallel." "Ya gotta have color." "Monochrome is easier on the eyes (and cheaper)." "Buy a kit and save." "It'll never work, buy it assembled." On and on they went. It was like those magazine puzzles where one guy always tells the truth, and the other always lies. You're supposed to figure out which is the "truther" and which is the "liar".

I'm never any good at puzzles. And the more they argued, the more confused I got. It became clear each one knew his own machine inside and out, but understood next to nothing about the other guy's. There was no way they could make an objective comparison. I began leaning toward the IBM, but I guess only because Iggy shouted much louder than Harry!

Then Harry had a brilliant idea. He suggested I borrow his computer for a week or so, since he'd be gone on vacation. Not to be outdone, Iggy said he'd bought a second machine for his wife, so he would loan me his computer, too so that I could make an A-B comparison just like you do with hi-fi systems, and pick the one I liked best.

Saturday, I came back from the hardware store to find an imposing collection of equipment covering our kitchen



"THEY'RE COMPUTER BYTES."

CodeWorks

table, and a small grey device sitting on the coffee table. I was evidently supposed to set up and do my A-B trial run without any help!

At first, I wasn't sure which computer was which. Each computer had a little empty indented rectangular place for a label on the front panel; the boys obviously were trying to make this a true "blind" test. But curiosity got the better of me; I asked my wife, who said Harry had been fooling with the machine on the kitchen table. Aha! So the Heath H89 was the collection of white boxes covering the kitchen table, and the IBM PC was the little grey box with a sheaf of typed instructions laying atop it on the coffee table. Can't outsmart me, even if you didn't label the instruction sheets!

Comparisons and Tests

My first impression of the Heath H89 was size! There's nothing "micro" about this package! The main box is 20" wide by 16" deep and 6" high, and weighs almost 30 pounds. The monitor is separate, almost as big, and weighs even more. The keyboard is 18" wide by 3" deep, and HEAVY. All told, this beast weighs in at over 70 lbs and occupies over 3 square feet of desk space. It took me about a half hour to haul it all into my office and hook up the various cables. I found what I consider an oversight, that is, BACK PANEL CONNECTORS

ARE NOT LABELLED! I had to make extensive use of the stack of typed instructions the boys had left for me before I got everything correctly plugged in.

In contrast, the grey IBM PC is all in one modest grey box, 17" wide by 20" deep and 13" high, taking only 2/3 the desk space of the H-89. And 25 pounds lighter than the H-89's main box. A label by the power cord socket shows it uses only half the power used by Heath's H-89. I just carried it to and sat it on a little typewriter table, and it was nearly ready for use. Connectors on the back were neatly labelled, so I had only to plug in the power cord, flip the back-panel power switch on, read the instructions and away we'd go!

Curiously, the white H-89 has two power switches, one on the monitor's front, the other on the main box in the back right corner. The front switch controls only the monitor so you leave it on all the time and use the main one in back. Odd, but it works.

When you turn on the H-89, it performs a series of self-tests taking about a minute. According to the instruction sheet, if a disk is in the first disk drive, it then automatically reads in the "operating system"--whatever that is. All told, it takes a minute and a half before you're ready to go. Note: After I got so I could use this computer I began to wish I could find a way to disable the self-test (nice--I guess--but that long wait very quickly gets tiring).

You can "reboot the system disk by hitting the CTRL, ALT and DEL keys simultaneously" according to the instructions (hard for people with only one hand!). If the machine somehow "hangs up" or a program "crashes", you have to turn the power off, wait a few seconds, power up and wait through the self-tests again.

The grey PC also has its power switch in the right rear corner. When you press it to ON, you immediately hear "beep-beep" and about 15 seconds thereafter "H:" appears on the screen (my wife thinks it's saying "Hi!"). You then type first the B (for boot) then RETURN key to read in the "operating system" from a disk in the left-hand drive slot, and you're ready to go.

At first I thought it was extra trouble to have to command it to "boot" the disk. But then--after reading the supplied instruction sheets--I discovered that letters other than "B" do all sorts of useful things. You can do various "diagnostic tests", "examine or change memory", and "boot" off any disk drive other than the left-hand one. Very handy.

Unlike the H-89 there is a true "reset" function, obtained by hitting the right SHIFT and RESET keys simultaneously (only two fingers on one hand!), a real timesaver when learning to write your own programs, and the computer "hangs up" in some unimaginable state. In fact, I found myself resetting the system more often than necessary just because it was a quick and easy way to get back to a known state.

The H-89 came with a 12" green monitor, with front panel brightness and contrast controls, but I was unable to adjust these controls to get a sharper image!

The characters always seemed a little fuzzy and hard to read. Poking my nose to the screen revealed why: Each character was 6 dots wide by 8 dots high, in a box of 8x8 dots. The characters are a little too big for the box--they almost touch each other horizontally--and actually do touch vertically; the tail of a "y" touches the top of a "T" on the next line below.

The letters come onto the screen very slowly and flicker a lot. When I tried out "type filename" to display a file on the screen, text scrolled along leisurely but difficult to read because it's so jerky. You can watch each line get erased and rewritten in a new location, a rather amateurish touch!

By contrast, the grey IBM's display was clear and sharp. It was also green, with exactly the same number of characters wide and high as the H-89. But the PC has just a brightness control located on its' back panel where you can reach it easily with your left hand (very nice). Closely examining the screen, I saw each dot clearly--NO fuzziness. Characters are 5 dots wide by 9 high in an 8x10 box. Plenty of room between characters, and lines are vertically separated and easy to read.

The grey IBM is at least twice as fast when a file is "typed" onto the screen, and doesn't have that annoying flickering like the H-89. Files scroll upward smoothly, rather like sheets in a typewriter. And the display is much easier to watch for hours without eyestrain or fatigue. The giant appears to have done its' homework.

The nicest thing about the white computer's keyboard is its "feel"--much like a good quality typewriter. It has 83 keys, ten of which are function keys, very handy for special uses, I believe. And all the keys have an auto-repeat feature, nice help for busy typists.

But that's about all I can say for it. Firstly, the key layout is screwy! SHIFT, RETURN, CAPS LOCK, and other commonly-used keys are not in the usual typewriter keyboard locations. A touch-typist must relearn them. There's a numeric keypad, but it's crowded into the right end of the main keyboard. The keyboard is noisy (clickety-clack!), and there is no known way to silence it. The SHIFT LOCK and NUM LOCK keys don't have visible indicators and won't even lock down when pressed. I understand you can buy replacement keyboards (at extra cost, naturally), but that their quality is highly variable. I guess the Heath company just doesn't know anything about building good typewriters like IBM!

The grey IBM-PC keyboard in contrast, has an excellent layout. It's obvious that IBM, with its experience in designing the industry standard "selectric" typewriter, really knows what it's doing in keyboard design. There are 84 keys, positioned right where you would expect them to be. There is a separate numeric keypad, and 9 "special function" keys along the top of the main key layout. The keys have a rather light "touch" although they seem to work OK, even with fast typing. The key click--which annoyed me--is electronic, and Iggy's (?) instructions showed me how to easily turn it off by typing in some commands (ah, silence!).

Operating Systems

The white H-89 has a Disc Operating System ("DOS"). There seems to be some confusion over this name for it's variously called "PC-DOS", "MS-DOS", or "ZDOS". But whatever the name, they all work the same. I think it's just the marketing guys trying to convince you that "their" version is special so they can charge more (like "generic aspirin" vs "Anacin" maybe).

The grey IBM PC runs the "CP/M operating system". It's apparently a little less popular than "DOS", but I'm told it's been around longer and has a strong following (like Avis and Hertz). The two operating systems are so similar in use that it's easier to talk about the differences rather than the similarities.

After "booting up", both computers respond with an "A>" prompt. There are built-in commands for listing the files on a disk (DIR), and to RENAME, ERASE, TYPE, and COPY files. With "DOS" has you spell out the whole name (RENAME, ERASE), while "CP/M" just uses the first 3 letters (REN, ERA). A full name is easier to remember, but the short names are easier to type.

Both operating systems need a separate program to report on the "status" of a disc. "DOS" uses something called "CHKDSK" (Check disk), and "CP/M" uses "STAT" (status). "CHKDSK" just reports memory size, plus free and occupied space on a disk. "STAT" does a bunch more: It provides an alphabetized listing of "files" on a disc, their size, status, and free disc space. "STAT" can also alter a file's or disc's status, and report on many other system parameters of interest to the operator. It's a pretty handy tool to have.

"DOS" uses a built-in "COPY" command to transfer files between discs. The syntax feels backwards to me. For example, "COPY FROM=TO" will copy the file "FROM" to the file "TO". "CP/M" uses a program called "PIP" to copy files between discs and even send them to your printer or another computer by way of a "dumb-modem cable" (whatever that is).

With "PIP", you enter "PIP TO=FROM", which I like better than "COPY". After some experimentation, I decided it's like a "BASIC" "LET A=10" statement, which copies 10 into A. I renamed PIP to "LET" so it is easier for me to remember. Can't do that with "DOS"!

Both operating systems have a set of programs to "format" and make "bootable discs" and do other house-keeping jobs. The set for "DOS" seems intended for a very naive and unsophisticated operator, since most functions are quite limited and inflexible in their use. There are no options, only one disc format, no choice of printer "baud rates" or memory size, etc., just a bare minimum of utilities necessary to run the system and do simple jobs, a copy of Microsoft BASIC, and some very simple-minded sample programmes.

"CP/M" on the other hand looks as if it is aimed at a more intelligent user. It has an "assembler", "editor", and "debugger" for writing your own programmes plus many

pages of "CP/M source code" so you can see how it works. The "system utilities" have lots of options. My favourite is the "CONFIGUR" programme. With it you can re-configure just about any aspect of the system. If you add more disc drives or a new printer, "CONFIGUR" lets you modify "CP/M" so the new hardware interacts perfectly with your programmes and the computer.

As an example of this, I borrowed a printer from the "software wizard" where I work to try on both computers. It's an Okidata u92, "with serial interface at 1200 baud" (see how good I'm getting with the jargon?!). With the IBM PC, I simply ran "CONFIGUR" and followed the "menus" (why do they call them that?) to set the "baud rate". The program even told me what connector to plug the printer into. I had some trouble with the "hand-shaking", as there are 4 possibilities and naturally it was the fourth combination that worked. But once set up, the printer worked perfectly with every program. I've stacks of "hard copy" (computer-printed stuff) to prove it!

No such luck with the white H-89. "DOS" doesn't have a "configure" program, and there wasn't a clue in the instructions as to how to set up for a printer. I finally invited my software wizard friend from work over one evening, and he spent hours typing in all sorts of arcane commands to get it working. Even then, it didn't print right with all the programs--"PRINT SCREEN" didn't work, and so on. He said, "that's because the software expects an Epson MX-80 printer, and there seems to be no provision for changing it. The only solution is to get a different printer, or change some parts inside the printer so it looks like the Epson."

My then friend pointed out that are some other rather odd differences between "DOS" and "CP/M". In theory "DOS" is for a "16-bit operating system", while "CP/M" is for an "8-bit system". From what I've learned about the two different systems one might think the newer "16-bit technology" would be faster and more efficient in memory and disk usage but it's not so! Here's a comparison my friend made for me of equivalent programs in each operating system:

CP/M		DOS	
---	---	---	---
	6K	system boot file	22K
DIR	5K	disk directory	DIR 18K
REN	*	renames files	RENAME *
ERA	*	erases files	ERASE *
TYPE	*	types files	TYPE *
PIP	6K	copies files	COPY *
STAT	8K	status reports	CHKDSK 6K
DDT	5K	debugger	DEBUG 12K
FORMAT	6K	formats discs	FORMAT 7K
SYSGEN	2K	make it bootable *	
MBASIC	24K	Microsoft BASIC	MBASIC 32K
	---		---
Total	62K	Total	97K

* Included in DIR file

In other words, "DOS" takes 50% more disk space, and in almost every instance, "CP/M" programs are smaller, yet have more functions. It seems IBM's legendary software expertise has produced a superior product despite its humble "8-bit" origins.

A Note About Disk Drives

Both machines I tested have two 5-1/4" disc drives (I wonder why they call 'em discs when they're actually square?). In the Heath, both are mounted horizontally, side-by-side in the main box. In the grey IBM, two half height drives are mounted vertically just to the right of the screen. I like that, as it is more natural to put a disc into the drive vertically--that's the way they're stored in file boxes.

The discs for the white H-89 hold 362 "K" each, of which 322 "K" is actually available if it's a "bootable" disc. And the drives emit a rather annoying "Bronx cheer" while working. After learning how to run the computer, including the "standard utilities" ("MBASIC", and a "text editor") I found sometimes I had to put data files on a second disk, because the first disk was nearly full.

On the other hand, the grey IBM PC discs held over twice as much as the H-89's, that is, 732K (with 782K free if "bootable"). The drives worked very quietly. Since the IBM's "CP/M" files were smaller, I found I could easily use one disc for each job, rather than two separate data and program discs. Once again the benefit of superior technology is apparent!

Performance Comparison

The white computer supposedly has a "sixteen-bit 8088 processor running at the very high speed of 4.71 MHz" (whatever MHz's are!) compared with the grey computer's slow-speed "Z80 2-MHz CPU". In order to prove to myself whether these speed differences meant anything, I asked my software friend to suggest a quick and dirty test program so that I could check out the two machines. He had me get out my stop watch and then enter and run this Microsoft BASIC programme:

```
10 FOR I=1 TO 5000
20 PRINT I
30 NEXT I
40 END
```

I ran the program on each computer and compared stopwatch readings: The grey IBM PC won, 89 seconds to the H-89's 105 seconds!

Then I tried several different statements in place of line 20, using "math functions", "subroutine calls", etc. and found that the two machines were pretty well matched, never differing by even 2:1. The grey computer was faster printing to the screen from the programme, and the white computer was slightly faster when there

were no print statements, or if doing multiplication or division.

"This makes sense when you think about it," my software friend said later when I described these findings. "The grey computer has two Z80s, one handling the screen, and one doing the 'thinking'. When the screen is being updated, both work in parallel, so the computer is faster. The white computer has only one 8088, which must do everything. So the more screen activity, the slower the thinking gets. The 8088 has "hardware multiply and divide", so it gains speed only when these functions are used extensively."

He continued, "It appears that two heads (or 2 CPUs) are better than one. And just think; if you could run the Z80 at 4 MHz, it would be faster than the 8088 at everything!"

Disaster Strikes!

Finally having become somewhat proficient in running the two computers, I'd mastered a few of the BASIC games my friends Harry and Iggy had provided on discs they'd left with their machines. Also, I'd written several letters, and had started the "great American novel" that I always knew I could write, even though it was slow going until I'd learned some necessary word-processor commands and functions.

One night I was busily typing away, quite oblivious to the thunderstorm brewing outside. Now, since we live at the far end of the power company's "extension cord", our lights tend to wax and wane a bit during storms so I was using the grey computer--its' screen is undisturbed by all but the very worst power line variations (the white computer's screen shrinks and blooms in step with the house lights).

Suddenly a blinding flash and a deafening report came from outside. All the house lights went out momentarily and then came back on. The IBM "beeped" and showed its' familiar H: prompt, so I checked to see if it was still in operating condition. It seemed ok, and then I looked at the H-89's screen (I'd been using it as a sort of "scratch pad" while actually writing with the grey computer) and saw blankness--my novel's backup copy had vanished! Turning the white computer's power switch on and off did nothing; it was completely lifeless, so I assumed I'd lost everything that was stored on discs in both machines.

I was afraid to tell Harry about what had happened to his H-89 computer, so early the next day I dropped it off for repair at a computer shop I knew of.

To be absolutely safe, I also took the grey computer in for a checkout. I got the bad news after work: The white H-89 needed a new power supply, at the staggering cost of \$157.00! (I had to borrow money from my wife, and "brown bagged" lunch for weeks afterward!)

When I went to pick up the repaired computer, I asked the technician who'd done the work about what had "Probably just a blown fuse," he said, "But these're

non-repairable modules. Ya can't just replace a two-bit fuse, gotta replace a whole module! Kind of a dumb design, ya know what I mean?!"

I then asked about the IBM. He was a little confused until I pointed to it. Then he said, "Oh, that! It's fine. Don't get too many of 'em in here, they don't break very often. Cheap to fix, though. The fuse is right out in back, and even the power transformer is only about thirty bucks or so. Most guys built 'em as kits, and fix 'em themselves. By the way, anything you had saved on disc is still there; those little grey beasts are virtually indestructable, unless lightning actually fries 'em!" I couldn't figure out how you could build an IBM PC yourself, but guessed it probably was one of those IBM "clone" computers I'd heard about. (Have to ask Iggy about that later.)

Conclusions

My mind was pretty well made up. It had to be the little grey PC for me. Now I could see why everyone was saying "ibm, IBM, *I*B*M*." Once you make an objective comparison of the two computers it is clearly evident which is superior to even an untutored novice like me! The little grey box was smaller, lighter, faster, quieter, and easier to use than the big and clumsy collection of heavy white boxes! In particular, I liked its' standard typewriter keyboard layout (ignoring the extra keys which are easy to memorise anyway) and the fast, clear, screen display. Programmes generally run faster and the discs hold twice as much data. And I felt confident that if I wanted additional disc drives, or a printer, I could handle their installation all by myself. Also, I knew I could change a two-bit fuse next time the power lines went ape!

When Iggy and Harry came over that weekend, I wrapped my arms around the little grey box and announced that I'd made my choice--it was the IBM PC for me! Iggy stared at me in complete bafflement. But Harry threw his head back, howling with laughter. Finally, wiping tears from his eyes, he reached into his pocket and stuck a shiny label on the front of my little grey friend.

It said: Heath H-89 Computer.

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H-SCOOP, the independent double density newsletter for H/Z computer support is probably the best asset you and your system can enjoy. You see, we've been supporting only H/Z systems since before Zenith was ever part of the whole scenario. In fact, we've been in the H/Z support business ever since the first H8's came rolling off the assembly line - 1977. The first issue of the newsletter was mailed FIRST CLASS MAIL April 1980; it has continued each and every month like clockwork ever since.

Why H-SCOOP? Because H-SCOOP is the only H/Z related publication that dares to be different! Since we are not affiliated with Heath or Zenith, we tell it like it is. Keep in touch with the latest developments from Heath, Zenith and other independent vendors. The latest in hardware and software. The best prices. Know the vendors you can feel confident to deal with - and those to stay away from. Keep in touch with those having similar interests as yourself, and know who is doing what with their systems. Have a problem or need some advice? Use the REQUEST column. Want to sell or buy something? CLASSIFIEDS gets results. Reports. Reviews. Good guys & Bad guys - who are they? Who can you trust to deal with?

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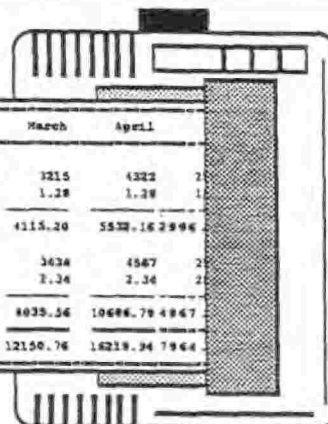
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TECHNOLOGIES, INC.

IBM LEADS THE COMPUTER FIELD AND IT SEEMS THAT EVERYONE IS READY TO FOLLOW

TMSI, however, doesn't believe in playing follow the leader. That's why we designed the H-1000. Its performance, speed, and low cost will make your H/Z89 more than a match for the IBM PC and its clones.

A STATE-OF-THE-ART UPGRADE FOR YOUR H/Z89 COMPUTER OR H/Z19 TERMINAL

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The H-1000's 8-bit side is an exact replacement for your present H/Z89 CPU board. It lets you use all your favorite H/Z89 software and hardware without ANY modification. And with its 4MHz Z80, extended memory (128K to a full megabyte), and ghost disk, your existing CP/M and HDOS programs perform like never before!

The 16-bit side features an 8086 running at over 8MHz; 40% faster than even the newest IBM AT. You get the fastest screen response and program execution of any PC compatible on the market today. Run CP/M-86, MSDOS, Wordstar, Supercalc, MBASIC, and dBase-II at speeds unreachable by any "clone." And with our IBM Emulator disk, you can run most IBM PC programs, too. The H-1000 isn't just PC-compatible, it's better!

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Interested in graphics? Now you can add graphics to your H-1000, H/Z89, or H/Z19 to rival \$10,000 CAD/CAM systems. For economy, choose the "Graphics-Plus" GP-19. It features 64k of display memory, 512 x 250 dot resolution, Tektronix compatibility, and simple high-level commands to draw points, lines, block moves and area fills. The GP-19 has its own dedicated Z80, freeing your computer to do the thinking while the GP-19 does the plotting. But the real "plus" is the text enhancements; full VT-100 compatibility, 16K off-screen memory, 132 character x 50 line displays, programmable function keys, "Plain English" setup mode, and more! Graphics... Plus! Now only \$495.

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LETTERS

*Dear Lenny,

I think that starting an H8/H89 newsletter is a very good idea. Even if HUG's REMARK and SEXTANT do supply H8/H89 and 8-bit related articles from time to time, they are inadequate to meet a serious H8 user's needs.

[Presently there's] no support, strange vendors, and lots of horror stories from others who write REMARK and SEXTANT and complain about how a vendor "shafted" them. [We 8-bit users] would certainly benefit from such a newsletter.

Phillip McCrum

35 Rogers Court

Brea, California 92621"

[Comment: Also, there are those HUGgers who own the H/Z dual processor machines. And they need support for the Z80 side but I've seen only one or two articles published which touched on that. Our SEBHC JOURNAL is probably going to be the only real support they'll be seeing very soon! -- Editor]

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H89 SCRAPBOOK by Dan Jerome c/o

Analytical Products, 20663 Ave 352, Woodlake, CA 93286

H19/H89 TERMINAL BOARD CLOCK SPEEDUP

Operating speed of the H-89's H19 terminal board can be increased to three, four, or even 6MHz by making some simple modifications. Increasing terminal logic board speed results in improved and faster performance, but these modifications should not be undertaken without first understanding that they are not supported by Analytical Products or Heath.

H-89 MODELS:

Changing speed on the older H-19 is fairly easy to do; just change the jumper at JP10 (lower left-hand corner of the board). Dig out your Heathkit Illustration Booklet and turn to page 19, terminal board layout. Locate JP10 and note that there is a permanent trace connecting pins 2 and 5. Now locate JP10 on the terminal board and see if the trace is there on the component side, or if there is a soldered jumper instead. Carefully cut the trace with an Xacto knife or equal (or unsolder the jumper). Next solder a jumper as indicated below for:

3MHz -- Jumper between JP10 pins 1 - 5

4MHz -- Jumper between JP10 pin 6 and U413 pin 9

6MHz -- Jumper between JP10 pin 6 and U412 pin 14

Check your work, then reconnect terminal board and turn on power and see if the terminal works ok. If it does, you're through. If it acts flakey, replace the terminal board Z80 CPU IC with a Z80A.

Note: Standard Heath terminal board ROM U422 works fine at 6MHz but some other vendor's parts such as the Super-19 ROM may not.

H-89A MODELS:

There are no convenient jumpers on the H-19A terminal board. Get out your Heathkit Illustration Booklet and

turn to page 15, terminal board layout. Locate U426, a 7404 near the center of the board and remove it. Carefully bend out pins 1 and 3 on this IC so they won't go into the socket then re-insert the IC.

3MHz -- Locate U427, a 74LS161, and carefully solder a jumper to the shoulder of pin 13 on U427 and to pins 1 and 3, U426. U427 pin 13 should still be in the socket when you're done.

4MHz -- Locate U429 (7492) lower center of board, remove and bend out pin 9 so it won't go into socket and replace IC. Solder jumper between U429, pin 9 and U426, pins 1 and 3.

6MHz -- Locate U427 (74LS161 just above U426), remove it and bend out pin 14 so it won't go into socket and replace IC. Solder jumper between U427, pin 14 and U426, pins 1 and 3.

IMPORTANT: Replace U451 (74LS74) with a 74S74 to ensure correct 8250 timing. You may also have to replace the Z80 CPU (U430) with a Z80A for 4MHz, or a Z80B for 6MHz operation. See above NOTE regarding non-Heath terminal board ROM U437.

SETTING BAUD RATE TO 19200, CP/M

Make a system (bootable) disc and run CONFIGUR. Set console baud rate to 19200. When exiting CONFIGUR the screen will have garbage on it, but just ignore that and turn off computer power.

Now set dip switch SW501 on CPU board to 1 (ON) position, and Terminal Logic Board S401 sections 0 - 3 to 1011 [19200 baud].

Turn computer power back on and boot the modified disc. You'll have the fastest screen in town!

[Editor's note: This is a good fix, but TMSI (H-1000 upgrade CPU board for H-89s) has come out with an even better one which not only gives you fast operation but no more black screen-refresh flickers and with (presently) four different character/graphics sets in three ROMs plus 4 fast CMOS memory ICs and two other logic ICs, and complete instructions! I have the "SUPERSET" upgrade in my H89A and it works just fine. Phone Lee Hart at 313-994-0784 for more details.)

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APOLOGY: We received a very nice advertisement from Analytical Products, then promptly mislaid it! It definitely will be run in our next issue together with more letters which inspired us to start the Society of Eight-Bit Heath Computerists JOURNAL. -- Editor

We wish to thank SPECTRE TECHNOLOGIES, Inc., of Woodland Hills, CA (see ad, page 10) for permission to use their special April Fool copy as the front and back of our 1st JOURNAL edition! -- Editor

SEBHC JOURNAL

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Did you like this rather abbreviated first edition? [Yes] [No]

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Please make^y subscription cheque out to P. E. S. Thank you!
(Please show this issue to all your H/Z Eight-Bit Computerist friends.)

In this issue —

Street beat: Warren Beatty slips disk and goes floppy on Hollywood Blvd.

Memory-starved RAM butts user groupie to death!

Collins Dynasty crashes: Jackie's new book, *Hollywood Drives*, takes a nosedive. 'A hard disk is good to find,' says sister Joan

Alien marries four-pen plotter in bizarre peripheral ritual

What to do if your megahertz?

HP gets contract: Soviets will launch LaserJets to match Reagan's Star Wars

Lady Di reveals tragic secret: Prince has Multimates

Boy George goes Unix! Tours with Vienna Boys Choir

Megabyte diet brings Orson Welles back from the dead

SHOCKING EXCLUSIVE! IRS's Drug Test Results

Washington — The Internal Revenue Service released results of mandatory drug testing for all computer programmers.

"We found absolutely no evidence of illegal drugs in our employees," said IRS chief John Smith, "but we are very

concerned by the potentially toxic levels of Fritos and Twinkie particles found surging through their bloodstreams."

No disciplinary action is planned against the offending employees, but they are required to attend junk food 'detox' centers.

Can 16 bits Cause CANCER?

New York City — A noted doctor warns that there may be a link between 16-bit computers and liver cancer.

Dr. Morris J. Katz, of Sloan Kettering Institute, suggests a mad rush back to eight bit computers is imminent.

"The extra bits in 16-bit machines have to go somewhere. Our research indicates that they may leak from printer or modem ports and can pile up in the liver, causing a multitude of health problems *even* for the occasional computer user."

What's the solution? Dr. Katz prescribes the 8-bit CP/M operating system. As an alternative, users of MS/DOS systems should wear filtered breathing equipment and rubber gloves to block the stray bits.

Conan Unveils New Beefed Up Keyboard

San Francisco — A new steroid keyboard has just been released by the Conan Computer Corporation. Sixty pound springs back up each key.

Users can now pound their way to bigger biceps and end ugly wrist fat forever. Also offered are finger weights to prevent keyboard burnout.

Nautilus plans to release an aerobic version in the Fall. "Just let 'em try," says Conan's Lucille LaLanne, "and we'll give them a knuckle sandwich."

- **Ms-DOS undergoes sex change: Now Mr-DOS**
(Exclusive Photos, page 4)
- **Siliconeheads Consume Mass Quantities at Faire**

COWS MUST GO!

Coalinga to become next Silicon Valley!

See Real Estate, page 6