UNIQUE COLOSSAL COMPUTER SALE

COLOSSAL COMPUTER SALE WILL OFFER NEW and USED EQUIPMENT

Ann Arbor's Colossal Computer Sale will be held Sunday, 28 June, 1992, from 9:30am to 4:00pm at Washtenaw Community College's Job Skills & Campus Events Building, East Huron River Drive, Ann Arbor, Michigan. Note: The building is handicapped-people friendly. Also, Coffee, Tea, Soft Drinks, and "munchies" will be available.

Hundreds of computer items and systems, as well as a plethora of software products, manuals, books, and magazines will be on sale by scores of well-known local area manufacturers and retailers. Also, large quantities of donated computer equipment (both new and used) will be for sale to interested collectors and hackers. (Tax-deductable donations of used equipment, computer books, periodicals, etc., shall be most gratefully received.)

Held as a benefit for Washtenaw County's Jewish Community center three times a year, the Colossal Computer Sale is regularly attended by thousands of computer users--both novices and skilled "hackers"--and "I'm just looking" people from communities surrounding Ann Arbor. The Washtenaw Community College campus is located near highway US23 (which crosses nearby I-94), therefor making it quite easy for out-of-state folks to attend.

How much does the CCS cost? General Admission is $3/person, and Vendor's Tables (2ft x 6 ft) are $30/ea. We urge all vendors reserve their tables Really Soon Now!

For more tickets, table reservations, or more detailed information, call 313-971-0990 and ask for Merle Goldman, or write to: "WJCC COLOSSAL COMPUTER SALE", 2936 Birch Hollow Drive, Ann Arbor, MI 48108.

Can't make this one? NEXT CCS will be held 4 Oct-92 at the same location by the same folks. Additional CCSs shall be held later in 1993, on 28 March, and 27 June...

Drop by the SEBHC JOURNAL's table and say hello!

READER'S MAILBOX

Dear Lenny

Last night I called Lee Hart to find if there was any progress in development of the H89 notebook-computer version. And I've read many letters of interest in The Staunch 8/89er and SEBHC Journal in connexion with its' development.

Some readers may not realize the amount of time and money this project would entail. Lee informed me that development time alone could be a full year for one person. I was willing to send [him] a check for the cost of one notebook (which I figured to be around $200) to see if it might help get it going faster.

But Lee came up with [what I think is] a better idea: let's form our own company! We'd each invest $50, $100 or whatever we could. This investment would give us shares in the project which might be applied towards eventual purchase of one computer. Individuals donating time toward system development would receive shares proportional to their efforts. Dividing the work-load between ten or more people would thereby reduce the burden for any one individual. Clay Montgomery suggested much the same thing. Also, he said that eliminating a disc drive should help reduce design time. A big plus: eliminating a floppy would greatly reduce power consumption and opens possibility of using solar power to re-recharge batteries. [With low-power ICs, it's quite possible and practical to run it entirely by solar cell in full day-light. -- ed]

[I predict that] in use, one would simply load all important files onto one's Notebook-89 from the H/Z89 and then have this portable data readily available in one's car, boat, golf cart, or wherever. It would permit downloading of important working files back into the H89, something I believe most notebook portables do not do as of this writing.

Lee also suggested the possibility of developing a "chameleon-type notebook" which could emulate popular CPM computers such as Apple, Commadore, Kaypro, and so on, leaving the software applications to be produced by their affiliated CP/M user groups. [What with HDOS 3.02 around, why not work up a pocket machine which would also communicate with the MS-DOS world? -- ed]

Hey! Wouldn't it be great for our H/Z89 group to come up with a development such as this?! Us all working together to create something exclusively our own that might rival even a new eye-bee-em product?! Whoa!! Wouldn't any of you like to show off your "Mini-89" to your PC friends and say: "Yeah, man! It's a new development. It's called a pocketbook, and it never needs recharging."

I've been a member of this group [SEBHC] since November of 1989, and have read letters from many of you who were upset by your computers' having declined so much in value. Frankly, I'm envious of you who have built your computers, and I hate having missed the experience of building my own first computer.

I'm very thankful that I bought my old dinosaur. The experience and knowledge that I have gained is immeasurable. Thanks to the infinite patience of folks like Kirk Thompson, Lee Hart and others, I now have an understanding of computers which I never would have achieved if I had entered the peesee world instead. And I can now share this knowledge with my eleven-year-old stepson.

Want to spend Real "quality time" with a kid? Give the kid an H/Z89, and show them how to increase the TLB speed to 3-MHz, increase baud rates, create submit and command files, do some MBASIC programming, and so on. How many parents have bought computers for their kids, handed them a few game discs and felt that they've taught them something about computers. I say, a kid who's staring blankly at a screen and not having a clue as to what's going on inside the machine itself isn't learning much about computers! [Halleluja, brother! -- ed]

There's something really neat about popping the cover off my old '89 and making some kind of modification that reminds me of that hotrod I had during high school. The H/Z89 is a true classic. It was a machine far ahead of its' time when introduced, and provides good service even today. Please do treat her with the respect that is her due and continue to support our efforts to keep her young. I like to think of her as a bright, red '57 T-Bird. How many of you'd like to trade your computerized, fuel-injected, aerodynamic tin can for one? Boy! I sure would!

TOM SLAVIK, 5205 Links Drive, Waco, TX 76708; ph 817-754-5164

[Ho-boy! Tom, I think your letter will start lots of "wanna-bee" designers and hardware hackers buzzing around like yellow jacket wasps behind the fruit orchards! There's nothing like envisioning and actually carrying out improvements to-- and variations on--an older design, especially when they are actual improvements rather than "more of the same" old money-grubber's tricks. Now it's up to all our subscribers to get behind Tom's proposal and create an oversight group. Send your ideas, suggestions and questions (plus an information copy of same for Tom Slavik) to the following "movers & shakers": Clay Montgomery, SIGMASOFT & SYSTEMS, 2433 Winterstone Drive, Dallas, TX 75023-7818; Kirk L Thompson, PO Box 548, West Branch, IA 52358; Lee A Hart, 323 West 19th Street, Holland, MI 49423-3937. If any of you have a subscription to the former HUG BBS (now COM1) in Benton Harbor, MI, you might put a blurb on their service about this idea...who knows, it might even catch on there! You also might try putting a note on CompuServe's ZENITH SIG; again, it might light someone's fuse. We must surely make BIG waves to get a little worthwhile attention! -- ed]

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GIGANTIC CLEARANCE SALE!

CP/M SOFTWARE on HARD SECTOR DISCS

CP/M 2.204 DISTRIBUTION DISC SET....Operating sys & utils $10
E-Z APPOINTMENT/MANUAL...Calendar appointment processor,
   saves & prints daily appointments........................ $10
DESPOOL w/MANUAL...Printer command software.............. $ 5
BIOS-80 DISCS w/MANUAL...for accessing double sided hard
   sectored drives... $ 5
MYCHESS w/MANUAL...Software Toolworks computer chess game $ 5
MBASIC-80 w/MANUAL...programming package.................. $ 8
KEYMAP for WORDSTAR w/MANUAL...program keypad arrow keys. $ 2
CHEAPCALC...simple spread sheet program.................. $ 2
SUPERCALC w/MANUAL...extensive spread sheet program...... $15
CP/M 2.2.04 SETUP DISC...sets up a printer for the H89... $ 3
REMBRANT w/MANUAL...graphics editor package for the H89.. $15
   HARDSECTOR DISCS, good, used, mixed brands, 50 cents ea.
          (MINIMUM ORDER 10 DISCS)
   HARDSECTOR DISCS, NEW DYSAN BRAND...1.00 each
          (MINIMUM ORDER 10 DISCS)

CP/M SOFTWARE on SOFT SECTOR DISCS

INSTRUMENT FLIGHT w/MANUAL...pilot training simulator.... $10
LONG & LOUD w/MANUAL...
   Banner & sideways utility for dot matrix printers...... $15
DATEMATE/MANUAL...calendar appointment processor, makes,
   saves & prints personalized calendars.................. $15
REMBRANT/MANUAL...graphics editor package for the H90.... $15
WORDSTAR 2.26 & MAILMERGE w/MANUAL...word proc package... $ 6
NOTE: I'll convert CP/M only soft to hard or vice versa FREE

HDOS SOFTWARE on HARD SECTOR DISCS ONLY

HDOS 2.0 OPERATING SYSTEM, 3 discs...................... $ 6
PIE FULL SCREEN EDITOR w/MANUAL...word processor......... $ 3

TEXT w/MANUAL...document formatting program.............. $ 3
INTRO to BASIC PROGRAMMING w/MANUAL...programming lessons $ 3
GENERAL LEDGER w/MANUAL...accounting program for MBASIC.. $ 8
CPM2HDOS<=>HDOS2CPM UTILITY...converts ascii files....... $ 5
UD.DVD w/MANUAL...universal device driver............... $ 5
TOUCH-TYPING TUTOR w/MANUAL...typing instruction course.. $ 2
COMPUTER CHEF w/MANUAL...Software Toolworks recipies..... $ 6
BEST OF WOK TALK w/MANUAL...SWTWKS, Chinese recipies..... $ 6
WHAT'S FOR DINNER w/MANUAL...ditto, more recipies........ $ 6
CHOCOLATE BYTES w/MANUAL...ditto, chocolate deserts...... $ 6
DISC XIV...misc. software............................... $ 3

HDOS GAMES on HARD SECTOR DISCS ONLY
$3 each

MUNCHKIN [_] INVADERS [_] SPACE PIRATES [_] SEA BATTLE [_]
GALACTIC WARRIOR [_] ADVENTURE [_] HUG GAMES DISC II [_]

HARDWARE

80trk ds 96tpi DRIVE...388k hard sec, 782k soft sec...... $45
"HERBY" DYNAMIC RAM DRIVE for '89 w/software, 250k installed,
   can be expanded to a full megabyte...................... $30
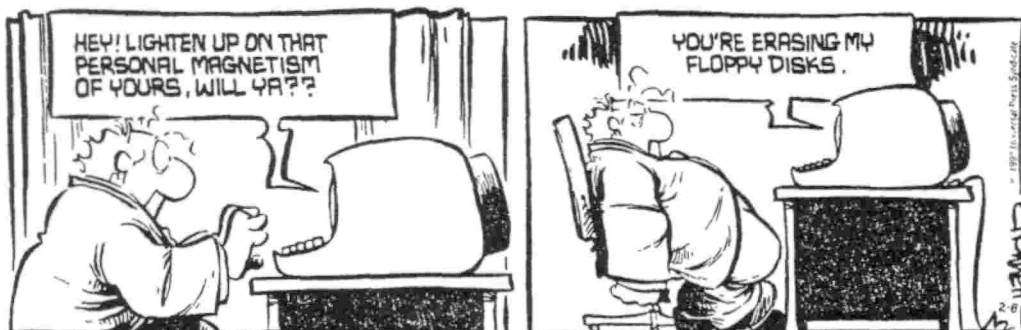GREEN SCREEN CRT for the H/89........................... $25

SHIPPING AND HANDLING CHARGES

PROGRAM DISCS: 1 to 3 for $1.50 total; 4 or more, free
        CRT or DISC DRIVES, $5.00 each

CONTACT:
Tom Slavik
5205 Links Drive
Waco Texas 76708
817-754-5164
Central Time Zone

DUFFY

The +55+ GANG, Part Three

The Ongoing HDOS 2.0 "How-2" Story...
by Leonard E Geisler

Last month we had you make two exact copies of your orig-
inal distribution system disc. The extra copy will actually
be your working system disc, which will contain several pro-
grammes different from some on the first copy. Here are the
files you won't really need every day:

     BASIC.ABS   EDIT.ABS   PATCH.ABS   TEST47.ABS

Power up your computer and boot the un-write-protected,
NO-sticker-over-the-square-notch system disc SECOND copy.
After the HDOS sign-on routine ends, enter:

FLAGS<CR>   (FLAGS then signs on with this message:)

FLAGS ISSUE #50.06.00.

INSTRUCTIONS (YES/NO) <NO> ?

  (Because this is your first time to run this utility,
   enter <CR> and FLAGS then prints:)

FLAGS IS USED TO SET AND/OR CLEAR THE FILE FLAGS. WHEN
PROMPTED FOR THE NEW FLAGS, SPECIFY ALL THE FLAGS THAT ARE
TO BE SET. NOTE THAT IF YOU SET THE "L" FLAG, YOU WILL
NOT BE ABLE TO CLEAR IT AGAIN. THE LEGAL FLAGS ARE:

W   WRITE PROTECT FILE. MAY NOT BE RENAMED, REPLACED, OR
        DELETED
S   SUPPRESS NORMAL LISTING OR COPYING OF FILE.
L   LOCK THE FILE FROM FURTHER FLAG CHANGES.

FILE NAME? _   (Enter: BASIC.ABS<CR> and see this:)

CURRENT FLAGS = W
 NEW FLAGS: _   (Enter <CR> which means "no flags")

FILE NAME? _   (Enter EDIT.ABS<CR>)
CURRENT FLAGS = W
 NEW FLAGS: _   (Enter <CR>)

FILE NAME? _   (Enter PATCH.ABS<CR>)
CURRENT FLAGS = W
 NEW FLAGS: _   (Enter <CR>)

FILE NAME? _   (Enter TEST47.ABS<CR>)
CURRENT FLAGS = W
 NEW FLAGS: _   (Enter <CR>)

FILE NAME? _   (Enter CTRL-D--Hold down CTRL key and press
               letter D key--This gets you out of FLAGS.)

If you like, enter DIR<CR> to see what has happened to the

files which FLAGS worked on. Note that the W flags have all
disappeared from those four files, and that the disc still
has zero free sectors. Now enter this command sequence:

DELETE BASIC.ABS<CR>   (Note one is space between DELETE &
DELETE EDIT.ABS<CR>   any file name. This is a firm HDOS
DELETE PATCH.ABS<CR>   command requirement.)
DELETE TEST47.ABS<CR>

You've just freed up a whole lot of disc space. Don't be-
live me? Enter DIR/S<CR> and you'll see how many sectors are
used, and how many are now free. DIR<CR> should print out
this list of files and space use:

NAME	.EXT	SIZE	xxx	FLAGS	
INIT	.ABS	29		W	(The DATE column was
SYSGEN	.ABS	21		W	(eliminated, conser-
TEST17	.ABS	32		W	(ving column space.)

3 FILES, USING 82 SECTORS (102 FREE)

Before proceeding, let's fix a few disconcerting things
about HDOS, then we'll go on to copying in some more useful
files. At the prompt enter these commands in sequence:

SET TT: BKS<CR>
SET TT: NOMLI<CR>
SET TT: NOMLO<CR>

You just reset the terminal (TT:) so that it recognises
the BACK SPACE and CAPS LOCK/SHIFT keys. Press the CAPS LOCK
key so it pops up and enter something. Note that it printed
in lower-case letters instead of SHOUTING AT YOU! If you
make typing mistake, just press the BACK SPACE key and move
the cursor back to the first correct letter and note that you
don't see DIO/O/R when you mistyped DIR. This means you have
civilised the TT.DVD on this disc, and the benefits will
carry over onto all future discs made from it. Now, enter:

SET HDOS STAND-ALONE<CR>

Don't be upset at the rather odd message you'll get--some
Heath programmer had a queer streak of humour and let it
show. Now you can use HDOS's RESET option to change discs
without fear. We'll tell you more about it later.

If you got lucky and some kind of line printer came with
your machine, here's how to copy an appropriate line printer
driver onto this new working disc. Find the original
SOFTWARE TOOLS disc. (We've assumed you are still booted.)

Enter ONECOPY<CR>   ONECOPY will describe itself and
                        tell you to remove the disc(s).

Remove your new system disc, replace with HDOS's SOFTWARE

"+55+ GANG" Part 3 break

TOOLS disc, close the door and enter <CR>. ONECOPY will then load and print out its' own distinctive prompt, thus:

:OC: _

You then enter LPH??.DVD/L/S<CR>

ONECOPY prints out this short file directory:

Name	.Ext	Size	Date	Flags
LPH14	.DVD	7	no-date	S
LPH24	.DVD	7	no-date	S
LPH44	.DVD	7	no-date	S

Note: There may be an actual date instead of "no-date". Also note that the letter "S" under Flags means the named file is Suppressed and won't show up when DIR is called without the /S switch added.

Chose a printer driver which approximately matches your printer. The LPH14.Device Driver is for Heath's old 7-pin H14 dot-matrix printer, and may possibly work with other primative types, while LPH24.DVD should work with MPI dot-matrix printers, and LPH44.DVD works with Diablo daisy-wheel, or similar printer types. My own experience shows that the H14.DVD will actually run a Smith-Corona daisy wheel printer, which means you may want to experiment if you don't have any of the three types named here.

Enter the filename you have chosen (as in example below):

:OC:LPH14.DVD<CR>

You'll be instructed to insert a destination disc, so you replace the SOFTWARE TOOLS DISC with your newly-made SYSTEM DISC, close drive door and wait for ONECOPY to do its' stuff. When finished, ONECOPY should ungramatically display "1 FILES COPIED", and the :OC: prompt will reappear.

Exit from ONECOPY by entering CTRL-D. HDOS then commands: "INSTALL A BOOTABLE DISC IN SY0: HIT RETURN TO REBOOT". Replace SOFTWARE TOOLS distribution disc with your new WORKING DISC and enter <CR>. Now rename the printer device driver as follows:

RENAME LP.DVD=LPH14.DVD<CR>

That changes the printer driver's name in the disc directory so that you can load it into memory on the next boot-up. Use the same procedure for any other printer driver. Just substitute a different driver name for "LPH14.DVD" in above example.

We shall now power the system down so that you can study

the next series of steps in which you will make several working boot discs. Enter BYE<CR>. HDOS then prints:

"INSTALL A BOOTABLE DISC IN SY0: HIT RETURN TO REBOOT"

Either open drive door, or remove your WORKING DISC, then turn off computer. CAUTION: Leaving drive door closed with an HDOS boot disc inside when turning off power can easily trash the disc!

Get a few fresh (or bulk-erased, used) discs. Note: You can obtain a VCR bulk cassette eraser at almost any electronics supply center for under $20. (Radio Shack sells one for about that price.) Also get some fresh self-adhesive disc ID labels. Prepare one disc ID label by printing this text on it with a soft felt-tip marker: VOLUME 003 Label: WORKING EDIT.ABS BOOT DISC. Prepare another ID label with this text: VOLUME 004 Label: WORKING BASIC.ABS BOOT DISC. If you think you may want to try programming in assembly language, prepare a third disc label with VOLUMNE 005 Label: ASM.ABS ASSEMBLY-LANGUAGE BOOT DISC on it.

Turn computer back on and re-boot with your WORKING SYSTEM DISC. When the HDOS ">" prompt appears, enter INIT<CR> and proceed to initialise the above freshly-labeled discs as you did earlier in Part One except that you'll reply YES to the "more discs to initialse?" query. Be sure to number and label each disc in accord with the labels you prepared above.

After you've initialised the last disc, answer INIT's prompt with <N> or NO<CR>, put WORKING SYSTEM disc back into the drive, enter <CR> and reboot. The discs you're now about to SYSGEN need only to be bootable, so get them ready to be inserted when called for. All these discs will be SYSGENed in exactly the same way as given in the following steps. Enter this command:

SYSGEN<CR>   You'll get a sign-on message, then SYSGEN asks:

Destination Device<SY0:>?_   Enter <CR> (which means YES)

On <CR> you'll be notified, "Dismounting All Discs:" plus the Volume number and Label of the current disc. Then you'll be told, "Remove the Disk(s). Hit RETURN when ready." DO NOT remove the booted system disc! Just hit RETURN. SYSGEN now reads several files from the system disc, then orders you to, "Insert Destination". Remove the booted disc and replace it with the destination disc (the one you're SYSGENing) and close the drive door. Don't hit <CR>, just wait for the next prompt, which is "Insert Source". Swap the destination disc with the source (SYSTEM) disc and wait. SYSGEN reads more files into memory, then again tells you to swap discs. This back-and-fourth proceedure ends with SYSGEN printing out, "13 Files Copied", followed by "Insert a bootable disc in SY0:. Hit RETURN to reboot:".

MORE READER'S MAILBOX & VENDORS

Dear Len,

[Our] new "R/O Media" column will continue to feature whatever publications I can find which still support 8080/Z80 machines. Of course, you and I are the only ones who support HDOS, but there are quite a few resources out there for CP/M and Z-System users. So you can expect to see a "promo" for the Journal in every issue of 'Staunch pretty much from here on out! [Hey, thanks! -- ed]

Thanks for refering Rashid Irani [NW Territory, Canada, to me] for hardware items. Actually, whatever hardware I mention in 'Staunch is usually owned by someone else! But I'll be listing a "truckload" of stuff myself in my next issue. This ["truckload"] came into my hands through the largesse of Dan Jerome near Minneapolis, MN. He picked up a bunch of hardware and manuals of various kinds when the Minneapolis HEC closed.

I'll let you know what Heath Company prexy Bill Johnson had to say about their dropping their kit line Real Soon Now. [Hey, Kirk, please do so! -- ed]

KIRK L THOMPSON, Editor, The Staunch 8/89er, PO Box 548, West Branch, IA 52358

[Hey, Kirk. It's nice to know that you're still reading the Journal! And when are we going to get a list of all the ex-HEC goodies you've taken under your wing? I hope it's Really Soon Now! You and a few regular subscribers have sent the data I had requested (many thanks!), but the vast majority has yet to respond. I'm running Heather (my H89) at "full war emergency throttle", so this May-92 edition will defin-ately be in the mail WITHIN MAY! Please be in touch more often, old chum! -- ed]

==> EIGHT-BIT SOURCES, SERVICES, and VENDOR DIRECTORY <==

-> Listing last updated on 22 May 1992 <-

CDR SYSTEMS, Inc., 7171 Ronson Road, San Diego, CA 92111; ph: 619-560-1272, 9a-5p Pacific Time Zone--ask for Herman....

Chalfant, Rick, 100 Bayberry Drive, Springboro, OH 45066; ph 513-748-1344. H/Z89s, misc parts. Usually RECORD-A-FONE

D-G ELECTRONIC DEVELOPMENTS Co., 700 S Armstrong, Denison, TX 75020; phone 903-465-7805 (Central Time). Bruce Denton, pres. Eight-bit service & advice available. Bruce's A *Certified* YOU-BETCHA GOOD GUY!

DISK MOVERS, 8534 McCormick Blvd, Skokie, IL 60076; phone 708-679-3727 (Central Time)--ask for Miriam. Fair priced bulk HARD & Soft-sector discs for our H/Z 8-Bit machines. "VERY NICE, VERY HELPFUL PEOPLE."

GOLDSMITH SURPLUS, 2107 N Adams/PO Box 18676, Indianapolis, IN 46218; 317-545-4747, ask for Phil or Eric. Dealers in "Almost Any Surplus Material You Have (or Need)"!

HOYLE & HOYLE SOFTWARE, 111 Sparrow Drive, Isle of Palms, SC 29451. No longer in business, but SEBHC JOURNAL shall be carrying HDOS, CP/M & MS-DOS versions of QUERY!2 & 3, Really Soon Now. WATCH THIS SPACE FOR ANNOUNCEMENTS!

LINDLEY SYSTEMS, 8139 E Mawson, Mesa, AZ 85207 -- phone: 602-380-9175. Scads of neat 8-bit software. Ask Bob or Bill Lindley for a catalogue. "REALLY FINE FELLOWS!"

MAGNOLIA MICROSYSTEMS, 2818 Thorndyke Avenue West, Seattle, WA 98199; phone 206-285-7266 (Pacific Time). Special memory upgrades and op-systems for H/Z89s & 90s.

MICRO COMPUTER REPAIR SERVICE, 2308 Industrial Highway, Ste C Ann Arbor, MI 48104; ph 313-663-3646. FLOPPY DISC DRIVE REPAIRS & SALES. Ask for Mike Morris, "A SUPER GUY"!

MICRONICS TECHNOLOGY, Suite 159, 54 Dalrada Road, Montgomery, AL 36109; phone 205-244-1597 voice, 205-244-0192 bbs CTZ Darrell C Pelan, pres. Soft & Hardware, '89 hardiscs Catalogue & 8-bit help available. A REALLY GOOD GUY!

New Orleans Data General Services, 7230 Chadbourne Drive, New Orleans, LA 70126; phone 504-241-9388--"Dave". H/Z-8/89 colour, sound & music boards. Dave provides tech advice on their products. A REALLY GOOD GUY!

QUIKDATA COMPUTER SERVICES, Inc., 2618 Penn Circle, Sheboygan WI 53081; 414-452-4172; Henry Fale (pronounced Folley) Prop. Klone Computer Mfgr, sales, service, H/Z 8-bit machine support, parts; pubs "H-SCOOP" (H/Z user news letter), 24-hr H/Z BBS. Henry's "A REALLY GOOD GUY!"

SIGMASOFT & SYSTEMS, 2433 Winterstone Drive, Dallas TX 75023-7818; 214-596-0116 (Central Time Zone)--Clay Montgomery--hardware/peripherals mfgr, software publisher, hard-ware & tech support, RAM drives, Hi-Res grafix addons for H/Z89s. Catalog & help; A *FANTASTIC* GOOD GUY!

SKYCASTLE COMPUTER PRODUCTS, Box 1412, San Carlos, CA 94070; 415-254-3931 after 6pm Pacific Coast time--ask for Mike. Calligraphy-II, a FANTASTIC dot-matrix grafix printer software utility. We can't publish the SEBHC JOURNAL without it! *MIKE'S A REALLY-SUPER GOOD GUY!*

TMSI/LEE HART, 323 West 19th Street, Holland, MI 49423; phone 616-396-5085 (evenings, weekends--usually). Misc. 8-bit hardware items, hardware/software support for '89/90 users. "LEE'S A NICE GUY & TOP-NOTCH ENGINEER!"

Please tell everyone you found out about them from the SEBHC JOURNAL!

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HEY--LOOK WHAT RICK SENT US!

PostScript, X10 with CP-290 and Other Stuff

Copyright 1992 by Rick Swenton

Things around here are always busy. I don't know how I ever find the time to sit and write a single word.

Well, this article was written on a PC and printed on a PostScript printer. I send Lenny a camera-ready (copier-ready) original, ready to print. It was prompted mainly by Karl Ruling's letter expressing an interest in PostScript and X10 CP-290.

I am by no means a resource on PostScript. All I have is an older QMS Printer which is a standard Cannon CX Laser Engine fitted with a QMS controller board. This board is a fast 68000 computer with about 2 MB of RAM and many ROMS containing the Adobe licensed PostScript interpreter and printer operating system. Think of this as a very big computer whose sole purpose in life is to run a laser engine and process (interpret) PostScript instructions.

How to you use PostScript from a Z80-based system? It is easy to do but it is not what you would expect. I don't know of any 8-Bit Word Processors which support PostScript printers. This is because the system resources like RAM and speed just aren't there in an 8-Bit system like an H89. Modern Word Processors such as WordStar-4 support laser printers like the Hewlett Packard LaserJet series but this is very different from being able to support PostScript.

The HP PCL (Printer Control Language) is nothing more than Escape codes used to control the printer. All you have to do is make the word processor send the correct codes for such things as bold, underline, italics, etc.

PostScript, on the other hand, is a computer program! Create a document on a PC and have the word processor "print" the document to disk as a PostScript file. If you then "type" the PostScript file on the screen, you will discover that it is just like a computer program. It looks **nothing like** the original document.

Here is an example of a very simple PostScript program:

/Courier findfont 10 scalefont setfont

72 720 moveto
(This is my first PostScript Program) show

showpage

The first line selects the font (Courier) and scales (expands or reduces like a zoom lens) the font to 10 Point.

The second line selects the 'x-y' coordinates on the page to begin printing. The origin of the coordinate system is the lower left hand corner of the page. The 'x' value increases to the right and the 'y' value increases upward. Each unit is 1/72 of an inch. This would place our image starting ten inches from the bottom of the page and one inch from the left edge -- in other words, one inch from the top and left edges of the page.

The third line contains the text to be printed in parenthesis and the **show** command prints the string on the page.

The fourth and final line calls the **showpage** command which completes the job and ejects the page from the printer.

The easiest way to use PostScript on an 8-Bit system is to get some PostScript files from places like GEnie in the PostScript Roundtable area. These are ordinary ASCII files which are PostScript "documents". Download them to your H89 using a normal file transfer. Then use your modem program to do a file transfer to your PostScript Printer. Be sure you establish a two-way communication environment between your H89 and the printer. When you type Control-T, the printer will respond with **[status:idle]** message. Don't proceed if you can't do this. If you type **showpage** [enter], the printer should eject a blank sheet. Be sure you set-up the communications parameters correctly for your printer. A typical setting would be 9600 baud, 8-bits, one stop bit and no parity. The printer also expects either X-ON/X-OFF software handshake or DTR hardware handshake. If you can't establish either handshake, then you could possibly overrun the input buffering of the printer and crash long jobs. Try lower baud rates or delays in sending

MORE of RICK'S INPUT

characters.

Use your modem program to do an ASCII file send to the printer. If there are any problems, the printer will tell you what happened on the screen. This is why two-way communications is essential during any PostScript printing session.

You really have to play around yourself. I enjoy looking at other people's programs and playing the "what if I change this command" game.

If you are serious about PostScript, there is a fantastic resource person -- Don Lancaster, the famous author and columnist. He runs a company called Synergetics. They stock all the essential Adobe manuals as well as Don's personal publications. You can contact Don at (602) 428-4073 on GEnie in the PostScript Round Table (PSRT) in the Computer Services area.

Don posts his latest magazine articles on GEnie as PostScript files. When I download them and print them here at home, they come out of the printer looking like pages right out of the original magazine -- graphics, figures, captions, advertizements and all!

Don personally does a lot of programming in "raw PostScript". This means that he publishes documents which he created by writing the PostScript program by hand. This also means that he can take advantage of all the special and exotic features of PostScript because he is not limited to only those features supported by the word processor.

If you don't have access to GEnie and want some PostScript files to experiment with, let me know and I would be happy to compile a disk for you. Be sure to tell me what disk format you want.

The CP-290 and X10

There is a booklet which comes with the CP-290 called "Programming Guide for Advanced Programmers". This booklet describes the native mode command format for the CP-290. In other words, it tells how you need to set-up the bytes to send to the CP-290 to make it do something.

As Karl Ruling pointed out, it is frustrating to have all programs IBM or MAC compatible. For CP/M there is my X10.COM program (available from SEBHC) as well as another older program available on GEnie and other CP/M bulletin boards. My program is a full-screen, user-friendly system which can perform immediate commands, scheduled events and almost all of the built-in CP-290 features. The older program can do this too, but it has a simple screen display. Mine is state-of-the-art, written in Z80 assembly language and uses the modern routines from the Z-Libraries (SYSLIB, ZSLIB, VLIB, etc). My program runs just as well under plain CP/M as it does under Z-System. Although it does not yet conform to the emerging standards promoted by Jay Sage for built-in CP/M support, it is a stable, sound and fully documented program.

Here is an example of how to make the CP-290 do something with a native mode command. Let's use MBASIC and connect the CP-290 to your printer port so that the LPRINT statement will send characters out of the printer port. Be sure to configure the printer port to 300 baud.

Suppose you want to turn on module A-1. Turn to page 12 in the Programmers Manual. The first 16 bytes sent to the CP-290 need to be 0FFH. You can set up a FOR/NEXT loop like this:

```
FOR I=1 to 16
        LPRINT CHR(255);
NEXT I
```

Next we need to send the ID1 Direct Command which is a 00000001.

```
LPRINT CHR$(1);
```

Now we need the LEVEL and FUNCTION information with the LEVEL in the first 4 bits and the FUNCTION in the last 4 bits. The LEVEL is only for dimming, so we will set that to zero. The FUNCTION will be "ON", so we will use the "ON" code 0010 on page 14. The whole byte would be 00000010 which is a decimal 2.

```
LPRINT CHR$(2);
```

Moving on, we need the HOUSECODE in the first 4 bits with the last 4 set to zero. The HOUSECODE we want is "A" which is a HEX 60 on page 10. It is not stated, but the "60" includes the last 4 bits being zero! The whole byte is 01100000 which is a decimal 96.

```
LPRINT CHR$(96);
or   LPRINT CHR$(&H(60));
```

RICK'S INPUT--FINI

The next two bytes are a bit mapped expression of the unit codes to act upon. Since the next byte is for units 9 through 16, we will send a zero.

    LPRINT CHR$(0);

The next byte is for units 1 through 8 with 1 being the most significant bit. Since we wanted unit 1, the byte would be 10000000.

    LPRINT CHR$(128);

    or LPRINT CHR$(&H(80));

Finally, we need to send the CHECKSUM of the 4 bytes starting with the LEVEL/FUNCTION byte. Using my HEX calculator, I come up with E2H which is 11100010.

    LPRINT CHR$(226);
    or LPRINT CHR$(&H(E6));

Don't forget the semi-colon (;) at the end of each LPRINT statement or MBASIC will add CR/LF characters to the transmission and mess everything up! If everything went well, then module A1 should have come on!

As you can see, it is rather complex to program the CP-290 just to do the simple task of turning on a single module. The most complex thing to program in native mode is to schedule an EVENT. This command is 28 bytes long and has many bit-mapped definitions where a single bit stands for a day of the week or a unit code. The most awful bit-map is the binary coding of the event number where the least significant 5 bits of the event number is stored in the most significant 5 bits of byte 18 and then the most significant two bits of the event number are stored in the least significant bits of byte 19! They must have done this because it was required to make the CP-290 controller chip inexpensive.

If you would like to see how it is done in Z80 assembly language, just let me know and I can send you the source code. Be forewarned. It is 80 pages long. But that's not bad for a 24K self-contained file with built-in help screens!

The X10 TW523 Power Line Interface

There is an interesting device available from X10. This is the TW523 Two-Way Power Line Interface. This is a small plug-in box slightly bigger than a regular module. It is a simple power line interface which provides the user with a safe way to send X10 signals into and receive X10 signals out of the power line.

This unit is not like the CP-290. It has no intelligence inside. You can not program it. It is simply a safe way to keep you from electrocuting yourself.

Theoretically, you can connect this to an H89 serial port and, with the proper software, you can make the H89 do the things that the CP-290 does. The only difference is that you need to have the H89 powered up all the time if you are performing scheduled events (and the H89 needs a clock chip).

This is a very low-level interface where the H89 would need to send the proper synchronized bursts of 120 KHz signal over the power line during zero-crossings.

Ken Davidson wrote a complete description of the TW523 in the September/October 1988 issue of *Circuit Cellar Ink*. I was thinking about starting work on a Z80 X10 system using this interface. I know that Lee Hart was also interested in this kind of system and less interested in the CP-290 because of the 290's use of a proprietary microprocessor. If something went wrong, the part may not be available. The whole CP-290 could be discontinued some day. Lee is justified in feeling secure with using an H89 as the brains of a project he can personally keep running for many years without the need for rare parts.

Even the whole X10 system is being threatened by the emerging CEBus (Consumer Electronics Bus) standards which integrate home control with CEBus appliances such as VCRs, TVs, Stereos and kitchen appliances. The idea is that from any CEBus control point (like a computer, a wall mounted controller, or a handheld remote) you can control **anything** on the bus anywhere in the house. You could program your computer to tell your VCR to start taping channel 2 at 8PM tonight and turn on the coffee maker at 7 AM tomorrow. Now if I could only get it to mow the lawn!

Well, that's it for now! See you next time.

OH, PUH-LEEZE!

DUFFY by Hammond

CALL UP SALES ANALYSIS FILE.

WHAT (URP!) SALES ANALYSIS FILE?

AARGH!!

BERSERK AGAIN, DUFFY? WHAT'S WRONG NOW?

THAT *@#&*?& COMPUTER IS WHAT'S WRONG!

THE INFERNAL THING ATE MY SALES ANALYSIS... ERASED IT SOMEHOW!

WEEKS OF WORK DOWN AN ELECTRONIC DRAIN IN THE BLINK OF AN EYE!

I SWEAR, THAT MACHINE'S GONNA BE THE DEATH OF ME!

HMP.

MAYBE THAT'S WHY IT'S CALLED A COMPUTER TERMINAL.

6-13

EUREKA!   by Munro Ferguson

FUSE - MANY ELECTRICIANS ARE CALLED, BUT FUSE ARE CHOSEN.

RING RING

WATT - FIRST QUESTION AN ELECTRICIAN ASKS.

WATT?

WIRE - THE SECOND QUESTION.

WIRE YOU CALLING ME?

CHARGE - AMOUNT ON THE BILL YOUR ELECTRICIAN SENDS.

MUNGO ELECTRIC REPAIRS
MATERIALS
THINGS   693.82
LABOR   120.31
OVERTIME   57,336.12
PIZZA   1,361,153.92
TOTAL   98,753,921.54

SHOCK - SENSATION EXPERIENCED UPON COMING IN CONTACT WITH A CHARGE.

MUNRO 8-17