ANALYTICAL PRODUCTS

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HARDWARE AND SOFTWARE FOR HEATH/ZENITH COMPUTERS

ZCPR3

We are licensed by ECHELON, Inc. to distribute the Z-System for the Heath market. This includes the ZCPR3 system with supporting software utilities, the ZRDOS-plus BDOS replacement and applicable documentation. Comes already installed and includes a bootable disk ready to run.

ZCPR Gives you many features found in UNIX and MSDOS. The ZRDOS is not in the public domain and gives you automatic logon of disks. No more "BDOS ERROR ON B:" messages just because you forgot to do a ^ C after changing disks.

Available for Heath BIOS 2.2.03 and .04 and for CDR BIOS. Check for availability of other BIOS configurations. Call or write for a brochure on this excellent product.

Z-System - specify format and hardware **$98**

NEWWORD - the better word processor from NewStar Software

This fine word processor was created by the same programmers who wrote the original WordStar. Faster than WordStar, same commands as WordStar, MailMerge feature is built-in, supports more printers, has an UNDELETE function and excellent documentation. Includes WORD Plus spelling checker by Oasis - normally a $150 item by itself! We offer this package at discount and also include a function/cursor key patch for the H19/H89.

30 Day Money-Back Guarantee!

CP/M - specify format $115
MSDOS - specify computer $195
(Z100, Z150 or generic MSDOS)

EMULATE

A program which allows the H89 to read/write to the following disk formats.

Actrix	Eagle II	Morrow MD	Superbrain Jr.
AMPRO	Epson QX-10	NCR DecMate 5	Televideo
Beehive Tpr	Fujitsu CP/M86	NEC PC-8001A	TRS80-1 CP/M
CDR	IBM CP/M86	Osborne 1	TRS80-3 CP/M
Cromemco	IMS 5000	Otrona	TRS80-4 CP/M
DEC VT180	Kaypro II	PMC MicroMate	Visual 1050
DEC Rainbow	Magnolia	Royal/Adler	Xerox 820
		Sanyo 1100	Zorba

New formats being added - check for current status

Includes over 42 formats! Uses a modified BIOS - source code supplied. Allows reading of 40-track disks in an 80-track drive. Heath version supports the use of virtual drives.

Contact us if you have a requirement for a format not presently included. Many formats are easy to include if we just get a sample disk.

An MSDOS to CP/M transfer utility is planned for development. Call or write for latest information.

For H37 with Heath CP/M **$59**
For CDR BIOS 2.91 . . . . **$49**
Check for Magnolia version.

WSPATCH

Adds H19/H89 function key patches to versions 3.0 or 3.3 of WordStar. Key functions similar to the PIE editor. Includes provision for redefining the keys by the user. Also includes a printer driver for the Epson MX80/FX80 printers. Comes in the form of a SUBMIT file and uses DDT for installation.

CP/M - specify format **$20**

TIM2 - Real Time Clock

This circuit installs in the left hand expansion slots of the H89 or H89A. Can provide application programs with time and date information. Time is provided in HOURS (24 hour clock), MINUTES, SECONDS and fractions of a second down to THOUSANDTH of a second. Battery backup provides continuous timekeeping when the computer is turned off.

Program access to the clock is through an I/O port. The port address is user selectable by means of a jumper on the TIM2 circuit board. Because Heath did not provide I/O and read/write lines on the expansion bus, the soldering of four wires to the CPU board will be required. This can be done neatly and does not require cutting of any traces. A prepared ribbon cable is included for this purpose.

The circuit is based on the National Semiconductor MM58167 IC. The interrupt feature of this IC is not implemented on the TIM2 circuit board, but can be added fairly easily by the advanced user. Adding automatic interrupt would require adding another wire to the CPU board and the programming of interrupt service routines. Solder pads are provided on the TIM2 board for this purpose, but ANALYTICAL PRODUCTS does not presently support this mode of operation.

The instruction manual includes a listing of some sample programs to be used in accessing the TIM2 board. A more comprehensive software package on disk is available separately for $10. See the listing for CLOCK.

Complete kit...................................$65
Assembled and tested..........................$75

CLOCK

Software for accessing the real time clock. Includes CP/M COM files, Z80 source code (assembles under M80), 8080 source code and Microsoft MBASIC programs. Sets and displays time, date, day of week and clock synchronization. Also includes a general purpose clock utility for incorporation into BASIC and assembly language programs. HDOS version includes a PROLOGUE file for automatic date setting on bootup.

CP/M or HDOS - specify disk format $10

DATESTAMPER

This is a product of Plu*Perfect Systems. Provides automatic time and datestamping for CP/M 2.2 files. Fully compatible with standard CP/M systems. Includes a sorted directory utility which shows the time and date of file creation. Also includes a file transfer utility similar to NSWEEP but shows the datestamp information. Works with many real time clocks, including our own TIM2 and the clock option on the CDR Super 89 RAM board.

CP/M - specify disk format.......................$45

KRESMOD

A software package developed by ANALYTICAL PRODUCTS. Supports 4MHz operation using the KRES, Najay, or the ANALYTICAL PRODUCTS speedup mods. You may use the same disk to boot on a computer containing any one of the three modifications. Several problem areas of the Najay and KRES mods have been avoided. Support for Heath CP/M 2.2.03 and 2.2.04 is included. The package comes in the form of pre-assembled BIOS.ASM modules as well as a submit file to patch your own BIOS.ASM source. Modified versions of DUP.COM and FORMAT.COM are included to allow operation at 4MHz.

KRESMOD—specify disk format...................$20
if ordered with the 4MHz mod..........$10

XTEND

An extender board for troubleshooting and testing of the H89 expansion boards. The board plugs into any of the CPU slots and your board then plugs in at the top. This allows you to have clear access to test your board.

Assembled and tested $25

REP3 - AUTOMATIC REPEAT

This circuit provides an automatic repeat function for the H89 or H19 keyboard. By holding any key down for more than half a second, the key begins repeating. An automatic repeat function will be very much appreciated by anyone using a word processor. The circuit also works with the H89A and H19A

The circuit senses closure of any of the scanned keys and closes the existing repeat circuit after a time delay. Repetition rate is therefore the same as pressing the repeat button. The only keys which do not repeat are CTRL, RESET, BREAK, SHIFT and of course the CAPS LOCK, REPEAT and OFF LINE. There is provision for disabling the automatic repeat function on the row of special function keys if desired.

The delay time is set by means of a digital counter and is very precise. Although changing the delay time is possible, doing so usually causes operator problems. For this reason, a user changeable delay time option has purposely been omitted. For those who insist on changing delays, we can provide information on how to do so.

Installation consists of removing the six screws holding the keyboard assembly in place and unplugging the keyboard ribbon cable. The REP circuit board is then plugged in between the keyboard and the keyboard ribbon cable. No modification of existing hardware is required. The kit version requires soldering two ICs, a capacitor, a transistor, several resistors and diodes, and a connector. The circuit board provides pads for connecting an external switch to defeat the automatic repeat function if desired. The switch is not included.

Complete kit $35
Assembled and tested $45

4MHz MOD

Upgrade your H89 to 4MHz operation with this low cost conversion. No soldering or trace cutting required. The hardware module plugs into the socket at U502. No awkward piggybacking on the Z80 CPU. Speed may be toggled with software utility supplied. Includes a relacement Z80A (4MHz). May require the replacement of RAM ICs if your present parts are too slow.

Included software supports Heath BIOS 2.2.03 and 04, CDR Systems BIOS version 2.91M, Magnolia BIOS. 2.24 and Livingston BIOS80.

Standard HDOS will run as usual but the system will remain at 2MHz. HDOS support for 4MHz operation is available for a nominal extra cost. Call or write for details.

At 4MHz, terminal baud rate of 19200 is recommended for fast screen response. WordStar cursor movements will usually keep up even with the repeat key engaged!

Assembled and tested—specify disk format $45

6MHz MOD

Provides maximum high speed performance presently available for the H89 or H89A. This package is similar to our 4MHz mod, but requires several additional changes in hardware and software.

Two capacitors have to be unsoldered on the CPU board and replaced with new parts. All parts normally required are supplied with the mod. Occasionally, the RAM and other ICs need to be upgraded. These would be at extra cost to the customer. A memory test program supplied with the software helps verify proper operation of the modified system.

Peripheral I/O devices such as the serial board usually cannot operate at 6MHz. To avoid the need for additional hardware modification, speed toggling techniques are employed within the supplied BIOS modifications. Some application software, such as MODEM programs, may not operate properly at 6MHz if access to the I/O devices is done outside of BIOS.

Included software supports Heath BIOS 2.2.03 and 04, CDR Systems BIOS version 2.91M, Magnolia BIOS. 2.24 and Livingston BIOS80.

Standard HDOS will run as usual but the system will remain at 2MHz. No support for operation of HDOS at 6MHz is available at this time. Call or write for latest status.

Assembled and tested - specify disk format $59

CDR Super RAM 89

Make your H89 a speed wiz with this board and the included RAM drive software. With our 6MHz mod and the RAM drive, the Heath BIOS assembles (using MAKEBIOS) in less than 1½ minutes! This memory expansion board fits the H89 left expansion slots and can go up to a MEGABYTE! The main board will handle up to 512K, and an expansion board adds the next 512K. The Z80 CPU is relocated to the new RAM board and a ribbon cable connects to the Z80 CPU socket. The optional expansion board is available with a SCSI interface and real time clock option. Note our discount prices!

Main board w/o RAM - specify disk format $175
Expansion board w/o RAM $69

Real time clock option $45
SCSI hardware option $85
Software for SCSI $75
Main board w/512K RAM $239
System w/MEGABYTE RAM $369
Expansion Board w/512K RAM. $133

Note - due to the volatile nature of RAM prices, it is best to call for latest quote.

CDR Controller

Double density disk controller. Includes board, instruction manuals, ROMs and software. Allows control of 5 and 8 inch drives. You can have up to 780K of data on a double sided 80 track drive! Includes BIOS source code and some useful utilities. Please include your CP/M s/n when ordering.

For the H89 FDC-880H. $349

ADAPTER CABLE

Simplifies connecting the CDR FDC880H controller and the H17 controller together. This connection allows the same drives to function as soft sector or hard sector.

Cable assembly $20

HARD DISK SYSTEM

We are preparing some hard disk systems to work with the CDR RAM board above. Call or write for more information.

MAGNOLIA CONTROLLER

Double density disk controller for 5 and 8 inch drives. Includes CP/M package, documentation, ROMs, cables and power supply upgrade. HDOS support available from ULTIMETH.
Model 77316 . . . . $349

WAND

A patch to install in MAGIC WAND to display a description of the special function keys on the 25th line. The patch comes in the form of a SUBMIT file and uses DDT for installation.

The following is displayed:

```
f1 = upln   f2 = dnln   f3 = pgup   f4 = pgdn   f5 = fdpg
BLU = srch   RED = rpt srch   WHT = blk mrk
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For CP/M - specify disk format **$10**

EPSON

The EPSON program is designed to provide a convenient way to preset the Epson printer options from the CP/M command mode. The program works with the MX-80, FX-80 and other compatible printers.

Although several public domain utilities do a similar job, this one is menu driven and is easier to use. Source code is included.

The following features are supported:

FORM LENGTH, LINE SPACING, SKIP PERF, EMPHASIZED, DOUBLE PRINT, WIDE, CONDENSED, ITALICS, PAPER SENSE

Available for CP/M or HDOS - specify format **$12**

DISKETTES

High quality private label diskettes at an economy price.

5'' SSDD 10 hard sector . . . . **$16/box of ten**
5'' DSDD . . . . **$18/box of ten**
8'' SSDD . . . . **$26/box of ten**
8'' DSDD . . . . **$29/box of ten**

MEDIA CONVERSION SERVICE

We can tansfer programs and files from one disk format to another. The cost for conversion is $5 for each source disk plus $5 for each destination disk. You supply the formatted destination disk(s), we pay for the postage. Our capabilities include the formats listed below. Inquire if you need others.

8'' CP/M standard / all HEATH CP/M 5'' formats / Cromenco / IBM CP/M86 / Morrow / Actrix / Kaypro II / Osborne / Xerox 820 / Televideo / NEC P-8001A / TRS80 M1 - M4 CP/M / Zorba / IMS-5000 / CDR / Magnolia / Sanyo / Dictaphone / Superbrain / AMPRO / Epson QX-10 / Dec VT180 / Dec Rainbow / Eagle / PMC MicroMate / Fujitsu Micro16 / Beehive / Otrona

THE SOFTWARE TOOLWORKS

We sell Toolworks software at discount

C/80 Compiler **$41**
C/80 Mathpak **$25**

TURBO PASCAL

Borland Turbo Pascal software for 8inch CP/M, or PCDOS. We can download the 8in CP/M to Heath format.
Turbo Pascal 3.0 -specify format **$59**
Turbo Toolbox - specify format **$45**

Check with us for discounts on other commercial software. We can't beat the volume discount houses, but if you need something they don't handle, we might help

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ORDERING INFORMATION

Add $3 per order for shipping and handling.

Pay by check, money order, VISA / MasterCard or COD. Purchase orders accepted subject to approval.

SPECIFY DISK FORMAT FOR SOFTWARE (hard or soft sector)

Foreign orders are welcome.

California residents add 6% sales tax.

Although we will try to maintain the prices shown, we reserve the right to change prices without notice.