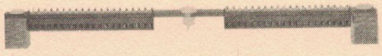
Introducing –

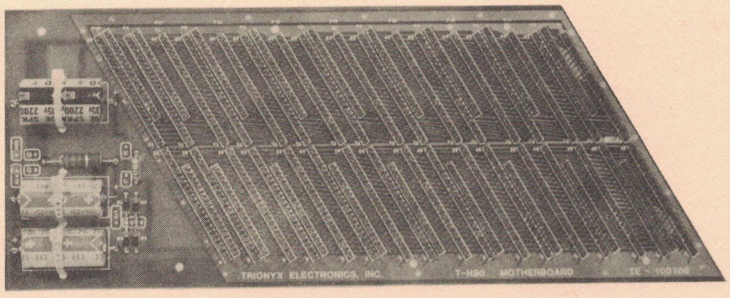
THE NEW H8* COMPUTER

* H8 is a Registered Trademark of the Heath Company

PC Board Mounts Additional Pair of Connectors to Plug Into 90 Pin Bus



Optional 40 Pin Connector Assembly Converts H8 Boards to 90 Pin Bus



Fully Assembled Motherboard - $250.00

Featuring the TRIONYX T-H90 MOTHERBOARD
A Professional-Quality Bus for the H8 Computer

- 3-Layer Board Has Center Ground Plane
- Designed For 4 MHZ Bus Operation
- 7 Auxillary Positions For Port Addressable Bus Interface Cards
- Completely Compatable With Original H8 Computer

- 90 Pin Bus Has:
  - Additional Ground Connections For Reliable Operation
  - 8 Additional Data Bits For 16 Bit CPU Board
  - Additional Address Lines For Expanded Memory Capacity
  - Bank Select Lines For Memory Management
  - Additional Lines For Special Control Signals and Future Defined Functions

PC Board $ 75.00

25 Pin Gold Connectors - Set of 20 $45.00
- Build Motherboard to Original H8 Standard

20 Pin Gold Connectors - Set of 18 $34.00
- Add Additional 40 Pins for 90 Pin Bus

25 Pin Gold Connectors - Set of 14 $35.00
- Add 7 Auxillary Card Positions

Power Supply Parts for Motherboard $16.00
- Includes Extra +18 Volt Filter Capacitor

Bus Termination Card - Complete Kit $29.50

PC Board Connector Expansion Kit $15.00
- Adapts Original H8 PC Boards to 90 Pin Bus: Contains PC Board, Two 20 Pin Connectors, Mounting Blocks and Hardware - One Kit Required Per PC Board

The new T-H90 Motherboard has been designed to provide completely reliable operation of the H8 computer through the use of gold-plated connectors and a well grounded bus. The bus has been expanded from 50 to 90 lines and 7 additional card slots have been added. Full implementation of the Motherboard functions will transform the H8 into a commercial grade computer.

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Phone Orders Welcome (714) 830-2092 - Send For Free Brochure

TRIONYX ELECTRONICS, INC.

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Specialty
Electronic
Products

TRIONYX ELECTRONICS, INC.

P.O. Box 5131, Santa Ana, CA 92704

THE NEW H8* COMPUTER

This is to announce that Trionyx Electronics will be shipping NEW H8 COMPUTERS before the end of this year. Quantity orders have already been placed for all of the major H8 chassis components.

The new H8 computer will be identical in every major respect with the original H8 and will have the same appearance and use the same cabinet and chassis parts. The new H8 computer will be manufactured and sold exclusively by Trionyx Electronics. The Heath Company is not involved with this effort.

The new H8 computer will be designated the TRIONYX 8/16 and will be supplied with our T-H9Ø three-layer, high-speed motherboard. The front panel will be laid out on a new four-layer printed circuit board. The computer will meet FCC class B requirements with this arrangement, together with a few minor changes, when using Trionyx plug-in printed circuit boards on the buss. The original H8 may readily be converted to a T-8/16 computer.

The T-8/16 will be available in kit form for $35Ø.ØØ and fully assembled for $45Ø.ØØ. Neither CPU nor memory boards will be included at these prices. The left side panel will be built to accommodate cooling fans and the a-c power line will be filtered. The T-8/16 will operate with any of the original Heath boards for the H8. Many new boards will soon be become available from Trionyx Electronics for both the original H8 and the new T-8/16 computers.

The new Trionyx T-8/16 will be a multi-processor computer capable of software switching between any number of 8-bit and 16-bit CPU boards. A large number of different CPU boards are planned for the T-8/16. These include boards which will use personal computer software currently produced by such companies as IBM, Apple, Radio Shack, etc. We are also planning experimental CPU boards which use some of the latest MPU chips such as the 68ØØØ and Z8ØØØ, which will allow the H8 to be used as a development system to gain experience using these devices.

We are also interested in parallel processing using several high-speed CPU boards, each with self-contained memory, addressed through a port. This type of board featuring an 8 MHz Z8Ø MPU chip and 64K high-speed RAMS would also make an attractive single CPU/memory board for the H8. Four of these boards together would provide 256K of very efficiently utilized memory and a computing speed over 3Ø MHz! The Microtran Company in San Jose is currently working with us on software to support this concept.

Trionyx Electronics, Inc.

New H8* Motherboard = New H8 Computer

The motherboard which carries the computer bus lines is the very heart of the computer. The motherboard is to the computer hardware what the operating system is to the computer software. All of the transactions between the computer boards take place on the computer bus. The functions of the computer, its capabilities and its limitations, are determined by the signal lines defined on the bus.

The present Heath H8 motherboard is very poorly designed. Originally supplied with tin-plated connectors, Heath is now shipping both kit and assembled versions of the H8 computer with gold-plated connectors. This was very quietly done. Those who supported Heath most, by purchasing their product when it was first introduced, are now struggling with tin connectors without any notification that they can be the cause of the most exasperating kinds of system problems.

This is true of most of the products Heath has sold for their computers. Designs are continuously upgraded and improved without any notification to prior purchasers that there are ways to improve their equipment. The policy at Trionyx Electronics, Inc. is very different. Improvements to our designs are published and distributed free of charge to all purchasers, often with parts included. We hope that this service has been noted and is appreciated. We feel that the computer hardware should be supported in exactly the same manner as the software.

The H8 motherboard is very poorly grounded from a signal transmission point of view. This causes distortion of the signals appearing on the bus - which results in unreliable system operation. System operation is then affected by the location and sequence of the boards plugged into the bus. Some boards will work better in some systems than others. The H8 computer has only a single ground connection from the boards to the bus and only one ground line on the bus. This does not work well and is simply not acceptable.

There are no unassigned signal lines on the H8 motherboard. There is no provision for memory expansion or additional control signals. The memory read command is not asserted until 200 nanoseconds after the memory addresses are applied to the bus. This is an incredible waste of memory access time. A memory request signal is needed to begin memory cycles ahead of the memory read and write commands. The 50 pin bus severly limits expansion of the capabilities of the H8 computer.

What is Heath's answer to these problems? It is widely understood at this time that Heath will discontinue production of the H8 and soon offer an entirely new computer to the H8 user's market. This new computer will presumably have a 16 bit processor and a Winchester-type mass storage device. It will have to have a completely different bus structure.

The H8 is still a very good computer. We like the H8 very much and will continue to produce new products for it. The H8 computer still has enormous potential for development in its present form. We challange the Heath Company to produce a new computer which can compete with the H8 - upgraded with new products which will be developed by Trionyx Electronics., Inc.

New high-technology products for the H8 computer cannot be developed using the present motherboard. In particular, 4 MHZ CPU operation requires a well grounded bus. The use of new LSI integrated circuit packages on high component density printed circuit boards which will be produced by Trionyx Electronics, Inc. will enable the H8 computer to employ many new hardware products within the confines of the present chassis, using the Trionyx T-H90 Motherboard.

* H8 is a registered trademark of the Heath Company in Benton Harbor, Michigan.

A mass memory system is curently under development for the H8 and will be available very soon. This is a two to three board system which will provide up to one megabyte of RAM memory for the H8. A memory controller board plugs into the H8 buss. One or two memory boards also plug into the H8 buss but are connected to the controller through a short buss connecting the left side of the boards. This mass memory can be used as either a disk emulator (RAM disk) or as main memory for CPU boards having the capability to directly access large amounts of memory.

As a disk emulator, the mass memory can be operated directly as auxillary memory using standard device drivers. Ultra high-speed, quiet operation is obtained as well as additional data storage. The mass memory can also be used in a completely automatic mode as a cache memory along side the regular floppy disk drives to eliminate repeated accessing of the floppy disks. This will greatly speed up the system and prevent wear and eventual damage to the floppy diskettes due to repeated disk accessing. Diskette wear is proving to be a real problem with the new large capacity, high performance floppy disk drives.

An intelligent floppy disk controller (model C-H8) is also under development for use with our new T-8/16 computer. This will be an enormously powerful floppy disk controller which will have the capability of reading a large number of disk formats. The C-H8 will operate with either hard sector or soft sector floppy disks. Hard sector disks can be used in the soft sector mode. The C-H8 will control up to eight (8) separate floppy disk drives. The drives may be either 5 in. or 8 in., single side or double side, single density or double density, in any combination. Up to four winchester-type hard disk drives may also be controlled on a SASI buss by the C-H8.

The C-H8 is scheduled for release soon. It should be the best floppy disk controller in the world - for any computer! The C-H8 is being designed to become the centerpiece of our new T-8/16 computer. The disk controller is the most important part of any small computer. The entire T-8/16 concept is being established around the C-H8 disk controller. The C-H8 will be required for use with our new CPU boards and to read the disk formats of other computer systems.

HDOS and CP/M will both be supported as 8-bit operating systems for the T-8/16 computer. MSDOS will be made available for our 8Ø86 16-bit CPU board for the T-8/16. (The 8Ø86 uses an external 16-bit wide data buss which provides faster operation than the 8Ø88.) An auxillary board will also be made available for use with the 8Ø86 CPU board, which will enable it to run standard IBM PC software. This auxillary board will support the IBM keyboard and a high-resolution (RGB) color monitor. A large amount of public-domain IBM software will be shipped with this IBM board set. We are continuously collecting and evaluating this software.

We also plan to make available most of the original Heath-designed printed circuit boards for the H8 computer. The T-8/16 is intended to be fully compatible with the original H8 computer on both a hardware and software basis. All of the original H8 printed circuit boards will run in the new T-8/16. We also plan to make the H17 5 in. floppy disk drive system available in the original (3-drive) style cabinet. The T-8/16 is intended to be a multiple application computer suited for beginners as well as for the most advanced users.

We feel the H8 can become one of the finest computers in the world. We can do many things for the H8 that IBM and Zenith will not want to do for their computers. We will continue to make new products for the H8 which will incorporate the latest advancements in computer technology. This is relatively easy to do on a buss-oriented machine such as the H8. In the hands of the Heath Company the H8 never realized its full potential. The initial success of the H8 was amazing. Its promise has yet to be fulfilled.

Trionyx Electronics is a small, privately owned company. We are not interested in selling as many computers as possible. We do not wish to expand the size of our business. We are dedicated to the attainment of quality and excellence in all our undertakings. Making money is not our primary goal. We enjoy what we are doing. We like the H8 computer. The H8 is going to be around for a very long time.

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NEW! from TRIONYX ELECTRONICS, INC.

FAN PANEL ASSEMBLY

for the H8 COMPUTER

We are now shipping a replacement left side panel for the H8 computer fully assembled with a pair of 4-1/2 in. cooling fans.

This is a very attractive, highly functional new product for the H8 computer. System reliability should be greatly improved with forced air cooling of the H8 computer box.

The new fan panels are an exact replacement for the original left side panel in the H8. These panels are brand new and were recently purchased from the Heath Company in a special arrangement. A new production run was made to deliver these panels.

High performance, low profile fans were selected for this product. The fans used are only 1 in. thick. This is a requirement to accommodate new, longer boards which will soon be used in the H8 computer. Both the mass memory and 16 bit CPU boards for the H8 will extend into the left side cavity to plug into short length internal buss boards.

The fans are operated at reduced voltage to provide extremely quiet operation. Sufficient air flow is assured by using a pair of large area fans. The fans connect to the ac power with a pull-apart connector. Finger guards and air filters are provided for each fan. The filters may be removed for cleaning or replacement.

A solid state electronic motor speed control board will be included with the fan panel assembly at no additional cost. This is a very small board which will mount inside the AC power inclosure in the H8 computer and will have a control adjustment to set the fan speed. A single hole will have to be drilled in the AC shield inclosure for the speed control adjustment shaft.

The fan speed should be set for a quiet level of operation. This will depend upon the environment and the individual user preference. The fan speed can be changed at any time by lifting the chassis lid and adjusting the speed control.

These new fan panel assemblies are extremely attractive and of very high quality. The external appearance of the H8 will be considerably enhanced with this new product addition. The panel assemblies (model no. FP-H8) are available at $150.00, each. Complete instructions are included for installation.

NEW PRODUCT ANNOUNCEMENT

VOLTAGE CONVERTER

for the

TRIONYX M-H8 64K MEMORY

for the HEATHKIT H8* COMPUTER

* H8 is a registered trademark of the Heath Company in Benton Harbor, Michigan

Model VC-MH8

$19.50 Kit **$29.50 Assembled**

$49.50 Assembled and Installed

Use +8 Volts Only With the 4116 Dynamic Memory Chip

The M-H8 64K dynamic Memory from Trionyx Electronics uses all three power supply voltages on the Heathkit H8 computer bus: +18 Volts, +8 Volts and -18 Volts. The 4116 dynamic memory chip used on the M-H8 memory board uses +12 Volts, +5 Volts and -5 Volts. These voltages are obtained from the three voltages supplied on the H8 bus and are supplied to the memory chips through voltage regulators on the M-H8 memory board.

Only small amounts of current are drawn from the +18 Volt and -18 Volt H8 power supply and the Trionyx M-H8 memory should work with most H8 computer configurations. However, for some applications, the H8 computer +18 Volt and -18 Volt power supply may be fully loaded and unable to supply the M-H8 memory board. In this case, the VC-MH8 voltage converter can be used to convert the M-H8 memory for operation with the H8 +8 Volt power supply only. The VC-MH8 voltage converter uses the H8 +8 Volt power supply to generate both +12 Volts and -5 Volts for the 4116 memory chips used on the M-H8 memory board.

The VC-MH8 voltage converter consists of a tiny 1 in. x 4 in. printed circuit board holding 26 parts which permanently mounts on the M-H8 memory board, using short plastic spacers and riser wires, just below the memory chip area, in place of the +12 Volt and -5 Volt regulator circuit parts.

SPECIFICATIONS: Input: +6 to +12 Volts (+8 Volts nominal)

Output: +12 Volts at 100 ma.
- 5 Volts at 5 ma.

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