H8 Upgrade
For
H8 Speed-Modification

(Hyperlinks will take you to the appropriate web page.)

1. Upgrade existing hardware to operate at 10 MHz.

   A. Upgrade to faster support chips.

   Z80 CPU – On the H8-Z80 board use the Z84C0010PEG (10MHz) { DigiKey }.
   as on Les' H8-Z80-64-V2.2.

   Original Heath H8-4 Serial Board
   - Replace U145 – 74LS04 with a 74HCT04 IC { Jameco }
   - Replace U144 – 74LS74 with a 74HCT74 IC { Jameco }
   - Replace 8250 UARTs with NS16C450 IC { Jameco }

   Les' H8-4 Board
   - Find 74LS04 and replace it with a 74HCT04 IC { Jameco }
   - Find 74LS74 and replace with a 74HCT74 IC { Jameco }

   H8 Front Panel
   - Replace IC103 with a 74HC4040 { Jameco }

   H8-H17
   - Replace U28 – 74LS74 with a 74HCT74 IC { Jameco }
   - Replace U7 – 74LS04 with a 74HCT04 IC { Jameco }

   Les' H17 Board
   - Find 74HCT04 and replace it with a 74HCT04 IC { Jameco }
   - Find 74HCT74 and replace with a 74HCT74 IC { Jameco }

   H8-Z67 (Norberto's board)
   - Replace U13 – 74LS74 with a 74HCT74 IC { Jameco }
   - Replace U3 – 74LS04 with a 74HCT04 IC { Jameco }

   H8-Z37 (Norberto's board)
   - Replace U13 – 74LS74 with a 74HCT74 IC { Jameco }
   - Replace U3 – 74LS04 with a 74HCT04 IC { Jameco }

   H8-USB (Norberto's board)
   - Replace U13 – 74LS74 with a 74HCT74 IC { Jameco }
   - Replace U3 – 74LS04 with a 74HCT04 IC { Jameco }

   H8-H37/H67 (Heath)
   - Replace U13 – 74LS74 with a 74HCT74 IC { Jameco }
   - Replace U25 – 74LS04 with a 74HCT04 IC { Jameco }

2. If using the Z67-IDE Hard Drive System, upgrade to the Z67-IDE+.

3. Boot the H8 computer for operational test. If OK, proceed to the next step. Otherwise, locate the problem and resolve before proceeding to the next step.

4. Modify the CPU card to receive the variable clock signal from the H8-Speed card and any additional changes defined for your CPU card on Norberto's web-site..

5. Modify the H8 Speed card to deliver a constant 2.048 clock to the front panel. Instructions can be found on. Norberto's web-site.

   Note: The front panel needs a constant 2.048 MHz clock to support OS timekeeping clocks for date stamping and front panel keyboard operation to support the Heath diagnostic routines at all clock speeds.

6. Modify the Front Panel to receive the constant 2.048 clock signal from the H8 Speed card. Instructions can be found on Norberto's web-site.

7. Install the H8 Speed Card connecting the variable CPU clock to the CPU card and constant 2.048 MHz clock to the front panel.

8. Boot the computer and test at 2 MHz for proper operation.

9. Upgrade HDOS floppy drivers with the new drivers for the H8 Speed modification. Drivers can be found on Norberto's web-site.

10. Upgrade QuikStor CP/M with the modified BIOS for the H8 Speed card. Bios file can be found on Norberto's web-site.

11. Boot the computer and test operation at all speeds.