

Z80 V4.0 Jumper Definitions

See locator map on page 11

Jumper	Function
SW501	ORG0 Config – Refer to slides 6-9 on how to setup such switch based on HW configuration
JP12	MAX jumper. Selects Z80 max frequency Bottom (1-2) selects a MAX freq of 16.384 MHz (works only with the H8-CF-Card adapter) Top (2-3) selects a MAX freq of 10MHz (default)
JP13	RBAT Jumper. Insert jumper to power on the RTC circuit. Remove jumper if replacing RTC IC.
JP2	CHARGE Jumper. Insert to recharge NiMH batteries Remove jumper if using LIR2032 or CR2032 batteries
JP17	H37_INT jumper. Left (1-2) selects “H37”, when present on the H8 bus Right (2-3) selects “NO H37”, when not present on the H8 bus. Set JP17, JP200, and JP201 as a consistent set: “H37” or “NO H37”
JP200	H37 jumper. Left (1-2) selects “NO H37” Right (2-3) selects “H37”
JP201	H37 jumper. Insert jumper if H37 is present on the H8 bus, otherwise leave off.

Z80 V4.0 Jumper Definitions

Jumper	Function
JP20	RESET jumper. Selects source of power-on RESET signal to CPU. Left (1-2) "FP": Use Front Panel reset circuit. Use only for debug and it requires a front panel reset to sync the circuit. Right (2-3) "LM": Use TL7705 voltage monitor reset signal (default).
JP5	NMI Jumper. Default OFF. It is an H89 feature.
JP6	H17-SEL Jumper. Selects polarity of H17 floppy side select signal on buss pin 18. Left (1-2): normal polarity (default position) Right (2-3): inverted polarity
JP7	SEL24 Jumper. When inserted BIORQ signal is present on SL-24 H8 pin. ON with H8 Storage Controller, 82C55 PPI, or AM9511 APU boards that can use the Z80 IORQ signal. Otherwise, OFF.
JP21	BANK_SEL_L jumper. This is for future Z180 use. Do not install a jumper here.
JP19	INT jumper for Front Panel interrupts. Bottom (1-2) "EI": Enables FP 2ms and single-step interrupts (default) Top (2-3) "DI": Disables FP 2ms and single-step interrupts for "H89 mode"
JP8	D2MS Jumper. Controls 2ms H8/H89 Timer. Left (1-2) "OFF": Use only when operating in "H89 mode" without front panel. Right (2-3) "ON": Use when operating in "H8 mode" with H8 front panel. Needed to boot CP/M3. (default).

Z80 V4.0 Jumper Definitions

Jumper	Function
JP30	C2-C1 jumper: When installed, sends 2 MHz clock to the H8 backplane regardless of CPU speed. This is to support the new H8-Front-Panel V1.2 if users want to sync with the CPU clock. Default is “Do not insert”.
JP1	EPROM/EEPROM jumper: 27C256 EPROM: jumpers on 2-3, 4-5 28C256 EEPROM: jumpers on 1-2, 3-4. To write protect, remove jumper on 1-2
JP300	ROMDIS Jumper – When jumper inserted drives /ROM_Disable signal into the H8 bus. Not inserted for normal operation.
JP11	ROM-DIS Jumper. Right (2-3): PAM37 can disable ROM (default)
JP15	RAM_DIS jumper. (see also JP18) Left (1-2) “ENA”: Enables onboard RAM (default) Right (2-3) “DIS”: Disables onboard RAM when using external RAM on the H8 Bus. Note: No need to remove internal RAM from board.
JP18	RAM_CONFIG jumper. (see also JP15) Left (1-2) “PCB”: Select when there is no memory on the H8 bus and using the On-Board RAM. Right (2-3) “H8-BUS”: Select when on-board RAM has been disabled and main memory is on the H8 Bus. Default configuration when using the H8-512KB memory board.

Z80 V4.0 Jumper Definitions

Jumper	Function
JP9	DUART_Disabled jumper Remove jumper to disable both UARTs/USB. This is required if using the H8-4 serial board/H8-USB boards. Insert jumper for normal operation (H8-4 removed or reconfigured to another I/O ports).
JP10	IOTERM_DIS Jumper – Insert jumper to enable 350Q serial console terminal on P603
JP16	DUART_OSC jumper. Selects clock source for serial port baud rate. Bottom (1-2) “3.68MHz”: selects 3.68MHz oscillator at U4 - use only with specially modified software. Top (2-3) “1.8MHz”: selects 1.84MHz oscillator at U113. This is for standard Heath software (default).
JP4	320Q/340Q Jumper for second serial port (on P604) Top (1-2) “320Q”: selects serial port on 320Q (default) Bottom (2-3) “340Q”: selects serial port on 340Q Removing jumper disables on-board second serial port
JP3	Enables /INT5 for second serial port (on P604). Jumper inserted for normal operation
JP14	SERL_1 (USB) Jumper. Removed to disable USB VDIP1 on ports 330Q-332Q Jumper inserted for normal USB operation (default operation)

Z80 V4.0 Jumper Definitions

Jumper	Function
JP22,JP23	+8v jumpers. Install jumpers here to bypass onboard voltage regulation if you are using an external PC power supply to provide +5v direct to the H8 bus. Warning: Installation of such boards on a stock H8 backplane will burn out the board if such jumpers are not removed prior to installation. If you are using the Pololu buck/boost voltage regulators at U24 and U27 you do not need these jumpers.
JP26,JP27	+18v & -18v jumpers. Install jumpers here to bypass onboard voltage regulation if you are using an external PC power supply to provide +12v and -12v direct to the H8 buss.
JP24	RD_L jumper. Used for very fast CPUs if serial I/O problems are encountered. Right (1-2) : default for most CPUs Left (2-3): bypasses delay flip-flop U112A. Use for very fast CPUs.
JP25	WR_L jumper: Used for very fast CPUs if serial I/O problems are encountered. Left (1-2) : default for most CPUs Right (2-3) : bypasses delay flip-flop U112B. Use for very fast CPUs.

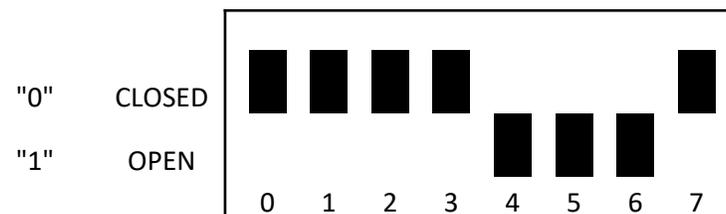
Z80 V4.0 Jumper Definitions SW501 Configuration Switch

Options on the DIP switch at SW501 can be confusing to set. There are several construction parameters for DIP switches that you might encounter:

- 1) Is it numbered 0-7 or 1-8? Do the numbers increase from left-to-right, or right-to-left?
- 2) How is the switch OPEN position labeled? (This would typically be "OPEN", "OFF", or "0", or maybe nothing!)
- 3) In what direction must the segment rocker or slide be pushed for a CLOSED circuit (Usually "UP")?

The numbering on the switch doesn't really matter – it's the circuit board layout that determines what the switch segment controls. If you have a switch that is numbered 0-7, numbers increasing left-to-right....YOU'RE A WINNER! That matches the circuit board definition. Any other switch numbering scheme should be IGNORED! You will be setting the switches based on the circuit board layout regardless of how the switch itself is numbered.

For this circuit board, a CLOSED circuit corresponds to a logical "0". An OPEN circuit corresponds to a logical "1". If there are "0" or "1" labels on the switch, they may not agree with the circuit board definition. IGNORE the "0" or "1" labels on the switch, but you must know the direction the rocker or slide moves for a CLOSED circuit.



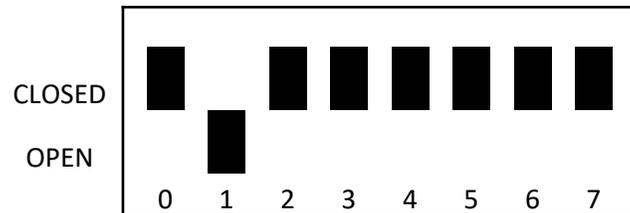
Typical switch set for
0 0 0 0 1 1 1 0

Z80 V4.0 SW501 Setup – PAM37

Configuration Switch SW501 - PAM37

ON or CLOSED = 0 OFF or OPEN = 1

PAM-37 BITS							
0	1	2	3	4	5	6	7
Port 7CH/174Q		Port 78H/170Q		Primary	Unused on H8		AutoBoot
0 0 = H17		0 0 = H37		Boot Dev			0 = No
0 1 = H67		0 1 = H67		0 = 174Q			1 = Auto
1 0 = H47		1 0 = H47		1 = 170Q			
1 1 = unused		1 1 = unused					



Example:

H37 at 170Q, Z67-IDE at 174Q, Primary Boot from Z67-IDE

0	1	0	0	0	X	X	0/1
CLOSED	OPEN	CLOSED	CLOSED	CLOSED	DON'T CARE	DON'T CARE	YOUR CHOICE

Auto Operation

If section 7 of switch SW1 on the Z80 CPU board is set to **1**, the system will automatically boot from hardware unit **0** on the primary device when you turn the power on or perform a master clear (by pressing both the **0** and the **D** keys).

Note: This feature is only to boot from Hard Drives. On floppy drives, the diskette could be accidentally erased during the power-on sequence inside the Computer.

Z80 V4.0 SW501 Setup

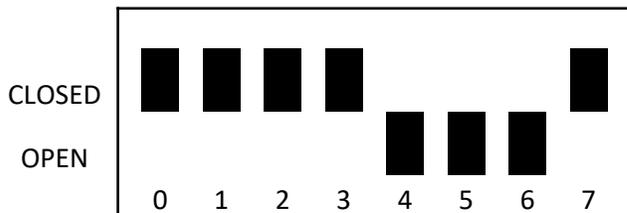
Douglas Miller ROM h8mon2-v2.0b24.rom

<durgadas311@gmail.com>

Switch SW501 - Douglas Miller ROM

ON or CLOSED = 0 OFF or OPEN = 1

PAM37 Bits				Custom Bits			
0	1	2	3	4	5	6	7
Port 7CH/174Q		Port 78H/170Q		Default Boot Device			Console
0 0 = H17		0 0 = H37		0 0 0 = MMS77316 5"			Baud Rate
0 1 = H67		0 1 = H67		0 0 1 = VDIP1			0 = 9600
1 0 = H47		1 0 = H47		0 1 0 = Device at 7CH/174Q			1 = 19200
1 1 = unused		1 1 = unused		0 1 1 = WizNet			
				1 0 0 = MMS77316 8"			
				1 0 1 = GIDE			
				1 1 0 = Device at 78H/170Q			
				1 1 1 = Use config setup values			



Example:

H37 at 170Q, H17 at 174Q, Z67-IDE at 274Q, use EEPROM config, 9600bps console

0	0	0	0	1	1	1	0
CLOSED	CLOSED	CLOSED	CLOSED	OPEN	OPEN	OPEN	CLOSED

Three-Controller (17/37/67) Setup

Douglas Miller ROM h8mon2-v2.0b24.rom

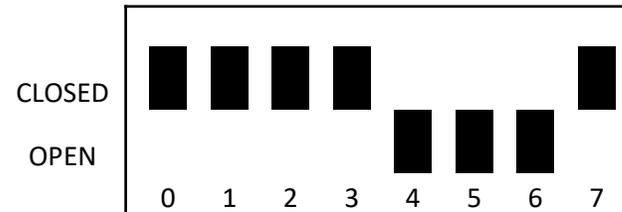
<durgadas311@gmail.com>

H17 controller at 174Q / 7CH
H37 controller at 170Q / 78H
H67 controller at 274Q / BCH

Set SW501 as shown at right (see p 8)

Use ROM monitor 'C' command to set
EEPROM values as shown at right.

Primary boot is H67 Unit 0
Secondary boot is H37 Unit 0



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H8: Config setup v0.2
Primary/Default boot device (E):
Primary/Default boot unit (0):
Primary/Default boot string ():
Secondary boot device (C):
Secondary boot unit (0):
Secondary boot string ():
H8-512K RAM installed (Y):
H67 Port (FF=use SW1) (BC):
H47 Port (FF=use SW1) (FF):
H37 Port (FF=use SW1) (FF):
H8:
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Z80 V4.0 SW501 Setup

Terry Gulczynski ROM (WIP)

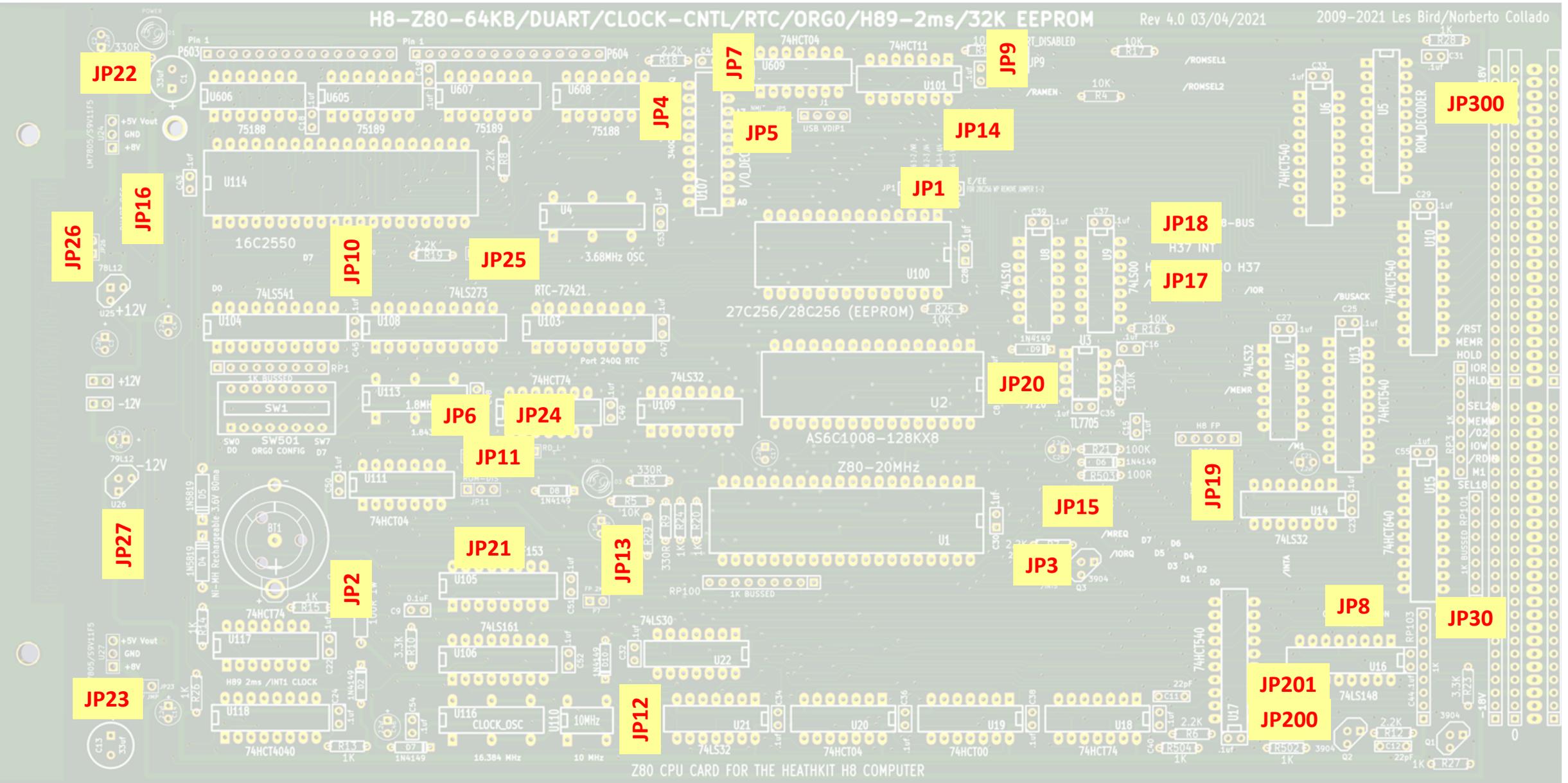
<terrygski@cfl.rr.com>

Switch SW501 - Terry Gulczynski ROM

ON or CLOSED = 0

OFF or OPEN = 1

PAM-37 BITS					Custom Bits		
0	1	2	3	4	5	6	7
Port 7CH/174Q		Port 78H/170Q		Primary	Unused	Console	ROM Type
0 0 = H17		0 0 = H37		Boot Dev		Baud Rate	0 = 8K
0 1 = H67		0 1 = H67		0 = 174Q		0 = 9600	1 = 32K
1 0 = H47		1 0 = H47		1 = 170Q		1 = 19200	
1 1 = unused		1 1 = unused					



V4 CPU jumper locator map provided by Glenn Roberts