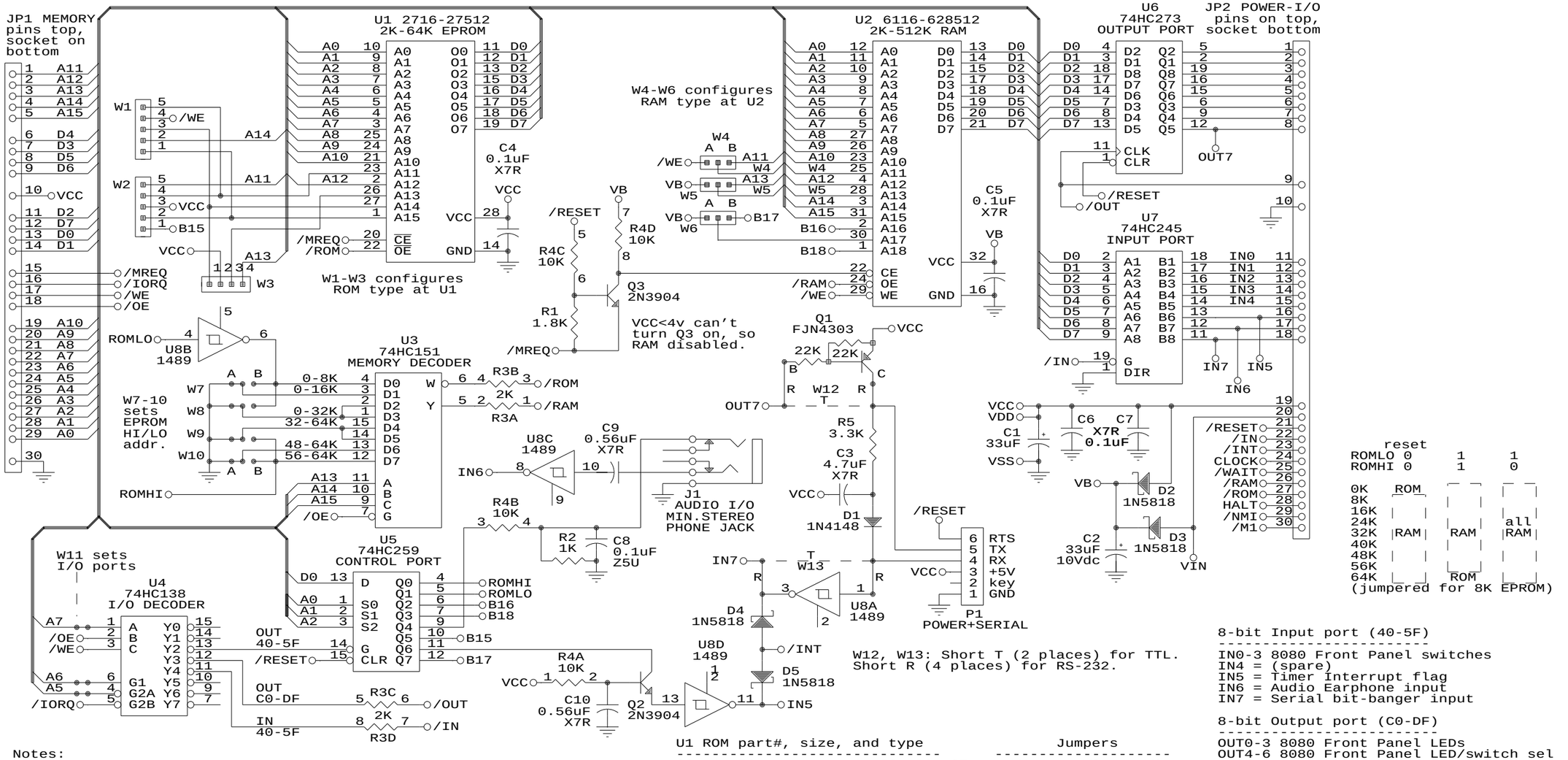

W12, W13: Short T (2 places) for TTL.
Short R (4 places) for RS-232.

VCC<4v can't turn Q3 on, so RAM disabled.

8-bit Input port (40-5F)

IN0-3 8080 Front Panel switches
IN4 = (spare)
IN5 = Timer Interrupt flag
IN6 = Audio Earphone input
IN7 = Serial bit-banger input

8-bit Output port (C0-DF)

OUT0-3 8080 Front Panel LEDs
OUT4-6 8080 Front Panel LED/switch sel
OUT7 Serial bit-banger output

8-bit Control port (4x-5x)
---
x=0 ROMHI: D0=1 enables ROM bank at 32-64K
x=1 ROMLO: D0=0 enables ROM at 0-8K
x=2 B16: D0 controls RAM address A16
x=3 B18: D0 controls RAM address A18
x=4 Audio Mic Out: D0 sets level
x=5 B15: D0 controls ROM/RAM address A15
x=6 2msec Timer: D0=0 STOP/RESET, D0=1 RUN
x=7 B17: D0 controls RAM address A17

Notes:

1. Bus connectors JP1-2 pinouts same as Z80 and 8080 MC boards.
2. I/O jumpers W11 can change port#s to avoid conflicts.
3. 2K-512K ROM. Jumpers W1-3 set size. Enabled in 8K-32K banks by W7-10. Default configuration: ROM at 0-8K after RESET (ROMLO=0). Set ROMLO=1 to disable ROM at 0-8K. Set ROMHI=1 to enable ROM at 32K-64K. Output bits B15-B18 select 32K banks.
4. 2K-512K bytewide RAM. RAM fills memory wherever ROM is not enabled. Writes always go to RAM even when ROM is enabled at that address.
5. 64K bank size for 128K or 512K RAMs! To move data between RAM banks, use a program in ROM to a) read from source RAM bank to a register, b) switch to destination RAM bank, c) write register to RAM bank. Tedious; but it minimizes hardware. :-/
6. Provides RS-232/TTL serial port using bit-banging software. Same circuit as Z80MC. For RS-232, install Q1, Q2, D1, and C3. For TTL levels, do not install Q1, Q2, C3, or D1; and install jumpers to short C3, Q1 B-E, and Q2 B-E.
7. Audio I/O simulates cassette storage (or use PC sound card etc.) Bit-bang audio tones like RCA VIP and other classic computers.
8. Power: Needs regulated +5vdc at about 0.5 amps. Use P1 to provide both power and serial I/O. Can use Sparkfun FTDI USB-serial cable.
9. One jumper wire is required (under U5; marked JUMPER on the board).

U1 ROM part#, size, and type

28-pin ICs		1	23	26	27
27512	64K EPROM	A15	A11	A13	A14
27256	32K EPROM	VCC	A11	A13	A14
27128	16K EPROM	VCC	A11	A13	VCC
2764	8K EPROM	VCC	A11	x	VCC
28C256	32K EEPROM	A14	A11	A13	/WE
28C64	8K EEPROM	x	A11	x	/WE
24-pin ICs			21	24	
2732	4K EPROM		A11	VCC	
2716	2K EPROM		VCC	VCC	
28C16	2K EEPROM		/WE	VCC	

Jumpers		
--W1---	--W2---	-W3-
	3-4	1-2,4-5 1-2
	3-4	1-2,3-4 1-2
1-2,3-4	1-2	3-4
1-2,3-4		3-4
2-3,4-5	1-2	1-2
2-3	1-2	
	4-5	2-3
	3-4	2-3
1-2		2-3

U2 RAM part# and size

32-pin socket & ICs	3	25	28	30
628512 512K RAM	A14	A11	A13	A17
628128 128K RAM	A14	A11	A13	VCC
28-pin ICs		1	23	26
62256 32K RAM	A14	A11	A13	VCC
6264 8K RAM	x	A11	VCC	VCC
24-pin ICs		21	24	
6116 2K RAM		/WE	VCC	

Jumpers		
W4	W5	W6
B	B	B
B	B	A
B	A	A
A	A	

TMSI c/o Lee Hart		
Title: 8080 Memory-I/O Card		
Size: B	Document Number: C:\ORCAD\SHEET\Z80\8080MIO.SCH	REV: A
Date: June 25, 2017	Sheet 1 of 1	