

- Based on Grant Searle Z80 Project
- CPU Zilog Z80 operating at 7.3728MHz
- 32 KB RAM 8KB ROM (up to 128KB EPROM)
- Only few interface IC
- PCB with all Test points for Debug
- Microsoft BASIC 4.7



PCB Top View



PCB Bottom View

DESCRIPTION

The Z80 Minicomputer is a single computer board, based on Zilog Z80 CPU working at 7.3728MHz clock frequency, inspired from the project Grant Searle. The board is designed in order to learn Z80 hardware functions, interfaces and working principles, thanks to debug pins to be connected to a logic analyzer or to an oscilloscope. The board is running a customized version of the Microsoft BASIC (version 4.7) stored on the on board EEPROM and accept commands on the RS-232 serial interface.

TECHNICAL DATA

PARAMETER	DESCRIPTION	VALUE			UNIT
		MIN	TYP	MAX	
P	Power Consumption	1	1.1	1.2	W
f_{clock}	Clock Frequency		7.372		MHz
B_r	Serial port Baud rate 8,N,1		115200		Bit/s
V_{IN}	Power Supply Voltage		+12		V
I_{IN}	Power Supply Current		85		mA

PCB TECHNICAL DATA

PARAMETER	VALUE	UNIT
Dimensions Length x Width	110 x 128	mm
Colors	RED	
PCB thickness (RED, YELLOW)	1.6	mm
Layers	2	
Surface finish	HASL	
Copper Weight	1	oz
Material Details	FR4-Standard Tg 130-140C	



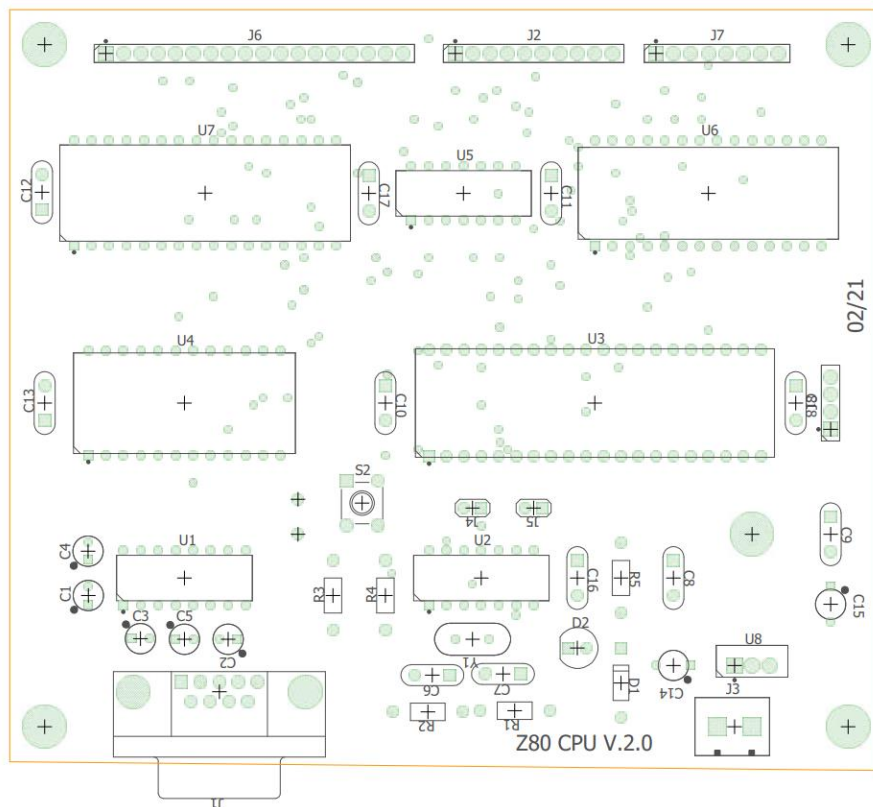
BILL OF MATERIALS

- C1, C2, C3, C5: 1uF 25V electrolytic [4]
- C4: 47uF 25V electrolytic [1]
- C14, C15: 100uF 25V electrolytic [2]
- C6, C7: 22pF [2]
- C8, C9, C10, C11, C12, C13, C16, C17, C18: 100nF ceramic [9]
- *D1: diode 1N4148 [1]
- D2: led diode green [1]
- J1: Sub-D RS-232 connector [1]
- J2: header male 10 pin (DATA bus) [1]
- J3: phoenix 2 way (Power Supply) [1]
- J4, J5: header male 2 (optional NOT port) [2]
- J6: header male 18 pin (ADDRESS bus) [1]
- J7: header male 8 pin (I/O signals) [1]
- J8: header male 4 pin (Power connector) [1]
- R1: 1 Mohm [1]
- R2: 1 Kohm [1]
- R3: 2.2 kohm [1]
- *R4: 3.3 Kohm [1]
- *R5: 390 ohm [1]
- S2: switch 2 way [1]
- U1: MAX232N [1]
- U2: 74HCT04 [1]
- U3: Zilog Z80 CPU: Z84C0010PEG [1]
- U4: MC68B50 ACIA Controller [1]
- U5: 74LS32 [1]
- U6: 62256-80 SRAM, 256 Kb (32 K x 8) [1]
- U7: 27C1001 EPROM 1Mb (128X8) **PROGRAMMED** [1]
- U8: 78L05 regulator [1]
- Y1: Oscillator 7.3728MHz, FOXSLF [1]
- 1 M3 screw, 1 M3 nut for U8 [1]
- Z1: 16 pin socket [1]
- Z2, Z5: 14 pin socket [2]
- Z3: 40 pin socket [1]
- Z4: 24 pin socket [1]
- Z6: 28 pin socket [1]
- Z7: 32 pin socket [1]

* For D1 also MUR120 can be used. For R4 a resistor between 2.7Kohm and 3.3 Kohm can be used. For R5 a resistor between 300 and 390 can be used

USER INFORMATION

Please use socket and mount IC with PIN1 as indicated by the point as per following figure. Jumpers J4 and J5 set GND to the unused NOT port of U2.



PCB References

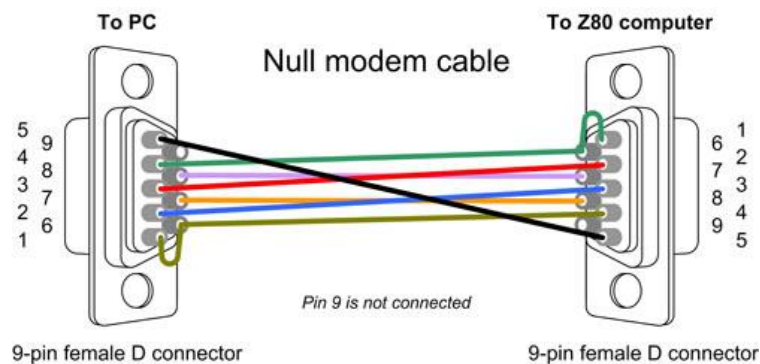


POWER UP AND SOFTWARE TEST

- Connect a serial cable to a terminal.
- Provide a +12V input on J3 connector.
- Press RESET button (S2) On the terminal following text shall appear:
Z80 SBC By Grant Searle
Cold or warm start (C or W) ?
- Press C for cold start. (Press W if you want to resume a program previously in memory). On the terminal following text shall appear:
Memory top?
Press ENTER to use full memory, otherwise enter the value that you require.
- Press ENTER. On the terminal following text shall appear:
Z80 BASIC Ver 4.7b
Pier Aisa (C) 2021 Youtube
32382 Bytes free
Ok
- Type PRINT FRE(0) and check that the result is:
32382
Ok

ADDITIONAL INFORMATION

Scheme for the cable to connect Z80 Minicomputer board to the PC:



HEADERS SIGNALS

J6.1	N.C.
J6.2	N.C.
J6.3	A0
J6.4	A1
J6.5	A2
J6.6	A3
J6.7	A4
J6.8	A5
J6.9	A6
J6.10	A7
J6.11	A8

J6.12	A9
J6.13	A10
J6.14	A11
J6.15	A12
J6.16	A13
J6.17	A14
J6.18	A15
J2.1	N.C.
J2.2	N.C.
J2.3	D0

J2.4	D1
J2.5	D2
J2.6	D3
J2.7	D4
J2.8	D5
J2.9	D6
J2.10	D7
J7.1	INT
J7.2	RD
J7.3	WR

J7.4	BUSRQ
J7.5	OSC
J7.6	MREQ
J7.7	M1
J7.8	IORQ
J8.1	+5V
J8.2	+5V
J8.3	GND
J8.4	GND

ORDERING INFORMATION

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