

# 8080 Microprocessor Kit

## Quick Monitor commands

### *CPU control keys:*

- RESET**      press RESET will force CPU to restart at the monitor program. The HOME location 8100 will be displayed.
- INTR**        Press INTR will make INT pin of the 8080 CPU pin to logic '1'. SW1 will be used to select interrupt source between 10ms tick or INTR button.

### *Function keys:*

- USER**        The 8080 CPU will jump to location 8050H. User can enter the service code with RET at the end.
- HOME**        Set current address display to 8100.
- Decrement display address by one.
- +**            Increment display address by one.
- DATA**        Set hex entry mode to data field.
- ADDR**        Set hex entry mode to address field.
- GO**          Jump from monitor program to current Address.
- MOD**        Modify user registers contents.
- TEST**        Test hardware, GPIO1 LED, LCD if connected, speaker and 10ms tick (SW1 set to 10ms)
- ALT**         Alternate function, use with hex key that pressed.
- ALT 0**        Display user register AF
- ALT 1**        Display user register BC
- ALT 2**        Display user register DE
- ALT 3**        Display user register HL
- ALT 4**        Display user register SP
- ALT 5**        Display user register PC
- ALT 6**        Display user CARRY flag
- ALT 7**        Display user ZERO flag

- ALT 8**      Display user SIGN flag
- ALT 9**      Display user AC flag
- ALT A**      Display user PARITY flag
- ALT B**      Set break point at current address. The byte will be saved and replaced with DF code (RST 3).
- ALT C**      Clear break point at current address. The byte being saved will be restored.
- ALT D**      Delete byte at current address.
- ALT E**      Insert byte at current address.
- ALT speaker** Toggle beep ON/OFF.

### **Quick Notes:**

1. RST 3 will be used to return to monitor program. The CPU registers will be saved to user registers for debugging. User can put it at the end of program.
2. The 8228 bus controller provides RST 7 instruction on the data bus when 8080 requests the interrupt vector. User can test hardware interrupt by using interrupt vector in RAM at 8038H.
3. Key USER will jump to 8050H. User can define the function with RET at the end.
4. HALT led will be lit when HALT instruction, code 76 has executed.
5. INTE led will be lit when interrupt enable flag is enabled.
6. GPIO1 Led is located at 00H. Logic '1' will turn it ON, logic '0' is OFF.
7. 8080 CPU, 8224 and 8228 are quite hot when operating!
8. To put LCD module to the kit, the POWER must be OFF!
9. RS232 uses CROSS cable.
10. The kit draws about 500-600mA, rather high compare to CMOS circuit. The adapter must provide enough power capability.
11. The low dropout regulator LM2940 requires input DC approx. +5.5V in order to provide +5V output. If we use higher DC input, the regulator will be HOT. Instead if we use a bit higher +5.5V, the chip will be WARM.