

8088 Microprocessor Kit

Quick Monitor commands

CPU control keys:

RESET	press RESET will force CPU to restart at the monitor program. The reset prompt 8088 will be displayed.
INTR	Press INTR will make INTR pin of the 8088 CPU pin to logic '1'. SW1 will be used to select interrupt source between 10ms tick or INTR button.

Function keys:

TEST	Test hardware if LCD module was connected, the text message will show on the LCD.
REP	Repeat a given key that pressed.
INS	Insert byte to memory
DEL	Delete byte
STEP	Single step execution
-	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.
OFFSET16	Compute 16-bit offset and write the offset value to memory
OFFSET8	Compute 8-bit offset byte and write the offset value to memory
IP	Set display address to IP value.
REG	Display user register contents, use with hex key that pressed.
REG 0	Display user register AX
REG 1	Display user register BX
REG 2	Display user register CX
REG 3	Display user register DX

REG 4	Display user register SP
REG 5	Display user register BP
REG 6	Display user register SI
REG 7	Display user register DI
REG 8	Display user register CS
REG 9	Display user register DS
REG A	Display user register SS
REG B	Display user register ES
REG C	Display user register FLAG

Quick Notes:

1. INT 3 is used to return to monitor program. The hex code is CCH. The CPU registers will be saved to user registers for debugging. User can put INT3 instruction at the end of program.
2. All segment registers are set to 0000, when jump from monitor to user program.
3. Memory display will show only the first 64kB, 0000 to FFFF. For the next 64kB from 10000 to 1FFFF, user can use it by setting the appropriate segment registers in the program.
4. R8 pullup resistor is optional vector with value of FF. User can put the service routine at location 03FC (low byte) 03FD(high byte). The code segment stored at 03FE and 03FF are 00,00.
5. GPIO1 Led is located at 00H. Logic '1' will turn it ON, logic '0' is OFF.
Simple code that writes 8-bit in AL to GPIO1.

```

400  B0 01      MOV AL,1
402  E6 00      OUT 0,AL
404  CC        INT 3

```

6. To put LCD module to the kit, the POWER must be OFF!
7. RS232 uses CROSS cable.
8. The kit draws about 180mA, most chips produce no heat, only 8284 and 7805 are a bit warm.
9. R20 is for LCD contrast adjustment.