Microprocessor & Interfacing

Interfacing Task:

Source Code:

```
#make_bin#
; BIN is plain binary format similar to .com format, but not limited to
1 segment; ; All values between # are directives, these values are
saved into a separate .binf file.
; Before loading .bin file emulator reads .binf file with the same file name.

; All directives are optional, if you don't need them, delete them.

; set loading address, .bin file will be loaded to this address:
#LOAD_SEGMENT=0500h#
#LOAD_OFFSET=0000h#

; set entry point:
#CS=0500h#    ; same as loading segment
#IP=0000h#    ; same as loading offset

; set segment registers
#DS=0500h#    ; same as loading segment
```

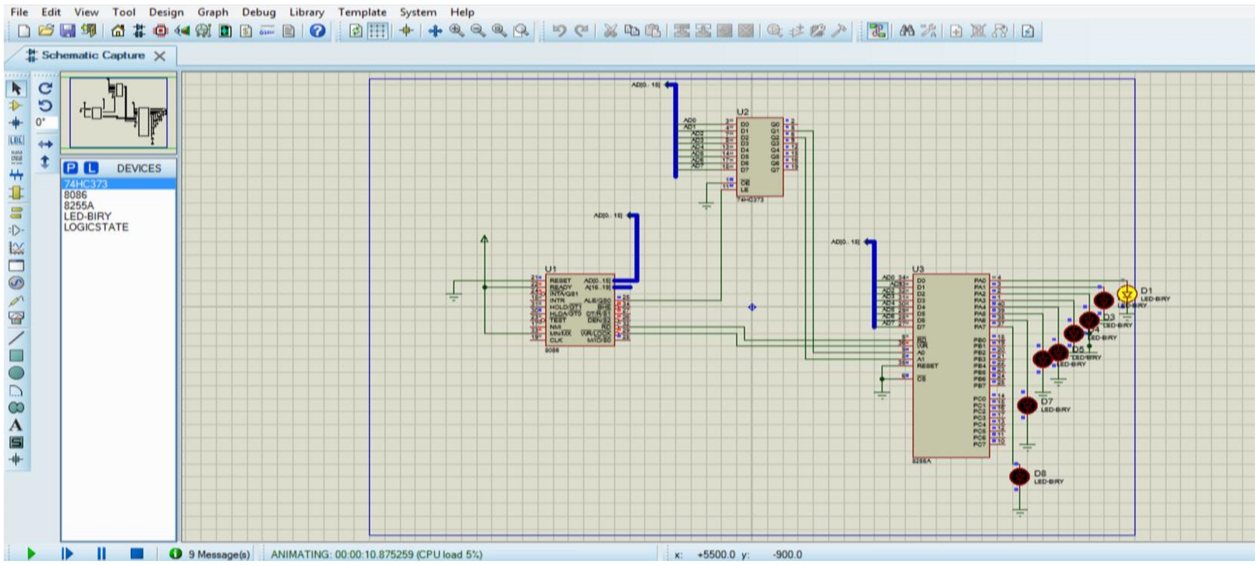
```
#ES=0500h#    ; same as loading segment

; set stack
#SS=0500h#    ; same as loading segment
#SP=FFFEh#    ; set to top of loading segment

; set general registers (optional)
#AX=0000h#
#BX=0000h#
#CX=0000h#
#DX=0000h#
#SI=0000h#
#DI=0000h#
#BP=0000h#

DATA SEGMENT
PORTA EQU 00H
PORTB EQU O2H
PORTC EQU 04H
PORT_CON EQU 06H
DATA ENDS
CODE SEGMENT
MOV AX,DATA
MOV DS,AX
ORG 0000H START:
```

```
MOV DX,PORT_CON

MOV AL,10000000B

OUT DX,AL

JMP XX XX:

MOV AL,00000000B      ; off

MOV DX,PORTA

OUT DX,AL

MOV CX,0DF36H

loopy1:loop loopy1


MOV AL,00000001B      ;D0 = on

MOV DX,PORTA

OUT DX,AL

MOV CX,0DF36H

loopy2:loop loopy2 MOV

AL,00000010B      ;D2= on

MOV DX,PORTA

OUT DX,AL

MOV CX,0DF36H

loopy3:loop loopy3


MOV AL,00000100B       ;D3 = on

MOV DX,PORTA
```

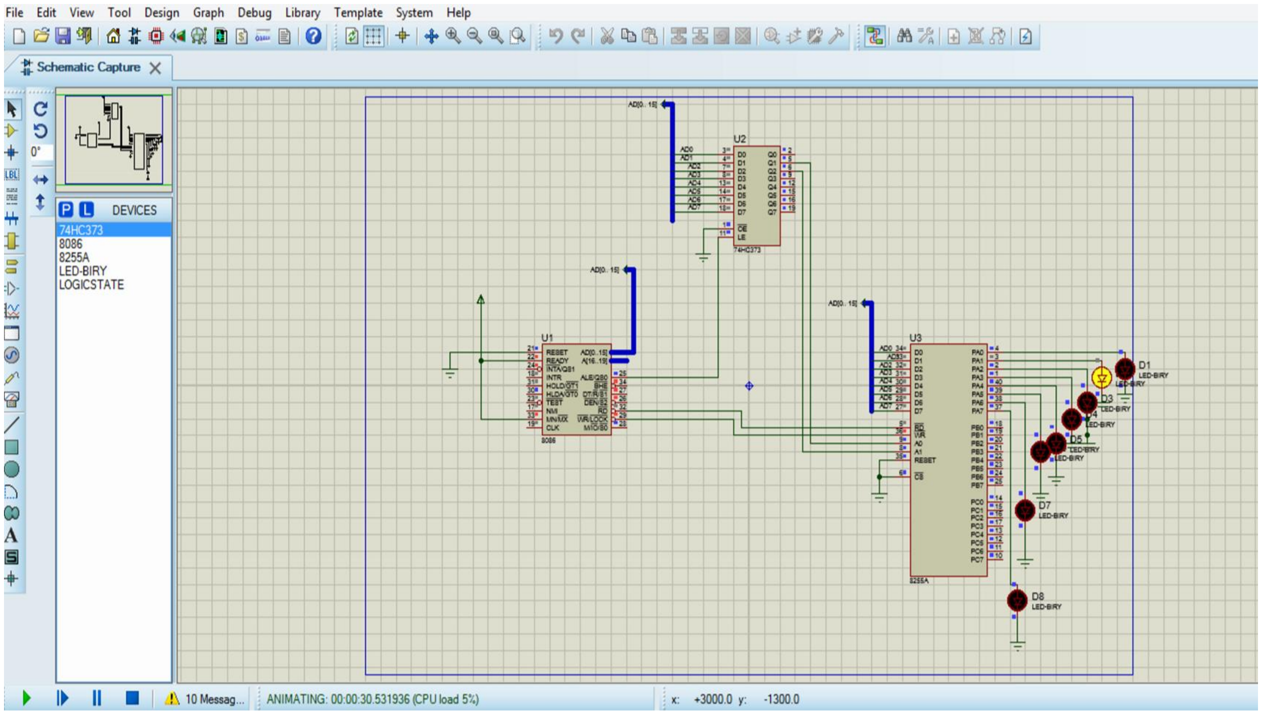
```
OUT DX,AL
MOV CX,0DF36H
loopy4:loop loopy4

MOV AL,00001000B      ;D4 = on
MOV DX,PORTA
OUT DX,AL
MOV CX,0DF36H
loopy5:loop loopy5



MOV AL,00010000B      ;D5 = on
MOV DX,PORTA
OUT DX,AL
MOV CX,0DF36H
loopy6:loop loopy6



MOV AL,00100000B      ;D6 = on
MOV DX,PORTA
OUT DX,AL
```

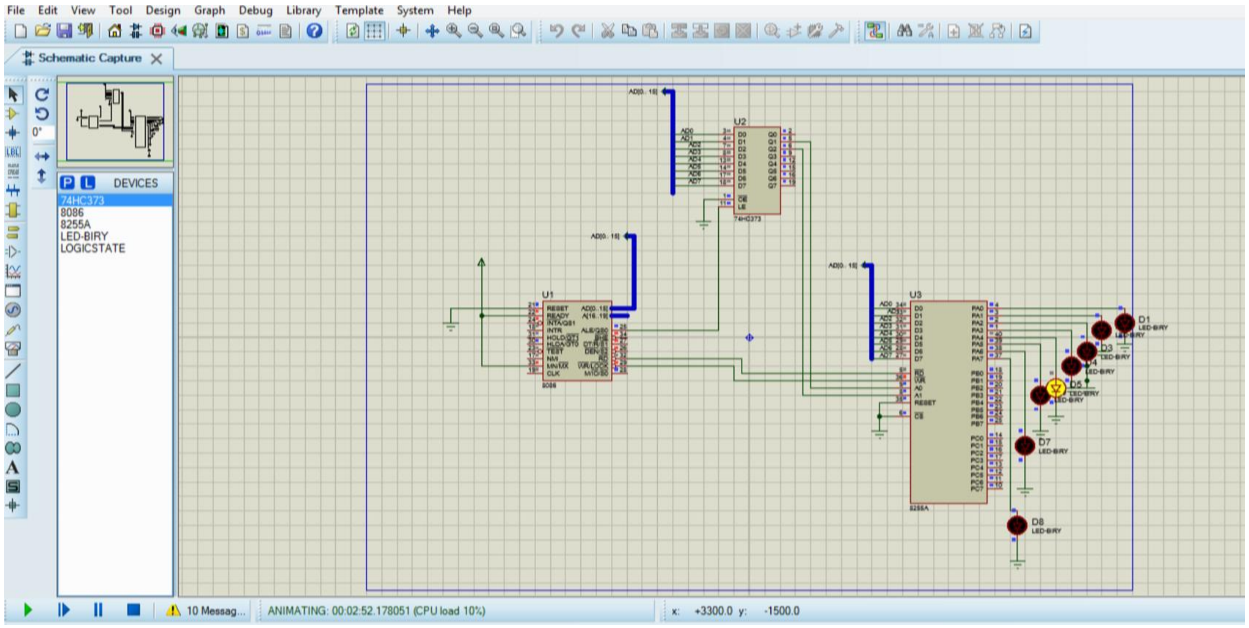
```
MOV CX,0DF36H

loopy7:loop loopy7 MOV

AL,01000000B       ;D7 = on

MOV DX,PORTA

OUT DX,AL

MOV CX,0DF36H

loopy8:loop loopy8



MOV AL,10000000B       ;D8 = on

MOV DX,PORTA

OUT DX,AL

MOV CX,0DF36H

loopy9:loop loopy9

JMP XX

CODE ENDS

END

HLT          ; halt!
```

Output:


File Edit View Tool Design Graph Debug Library Template System Help
Schematic Capture
DEVICES
74HC373
8086
8255A
LED-BIRY
LOGICSTATE
U1
U2
U3
D1
D3
D5
D7
D8
9 Message(s)
ANIMATING: 00:00:10.875259 (CPU load 5%)
x: +5500.0 y: -900.0

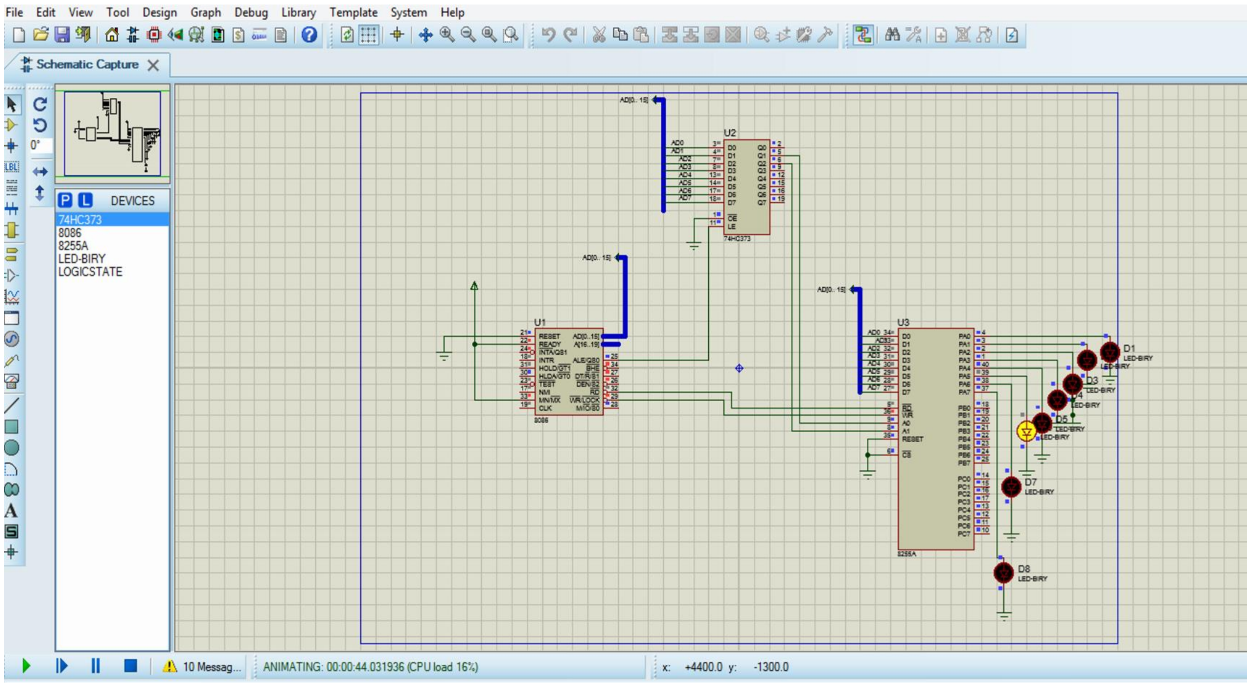
When D1 is Blinking D2 is not Blinking also D3 to D8.


File Edit View Tool Design Graph Debug Library Template System Help
Schematic Capture
DEVICES
74HC373
8086
8255A
LED-BIRY
LOGICSTATE
U1
U2
U3
D1
D3
D5
D7
D8
10 Messag...
ANIMATING: 00:00:30.531936 (CPU load 5%)
x: +3000.0 y: -1300.0



ANIMATING: 00:02:52.178051 (CPU load 10%)

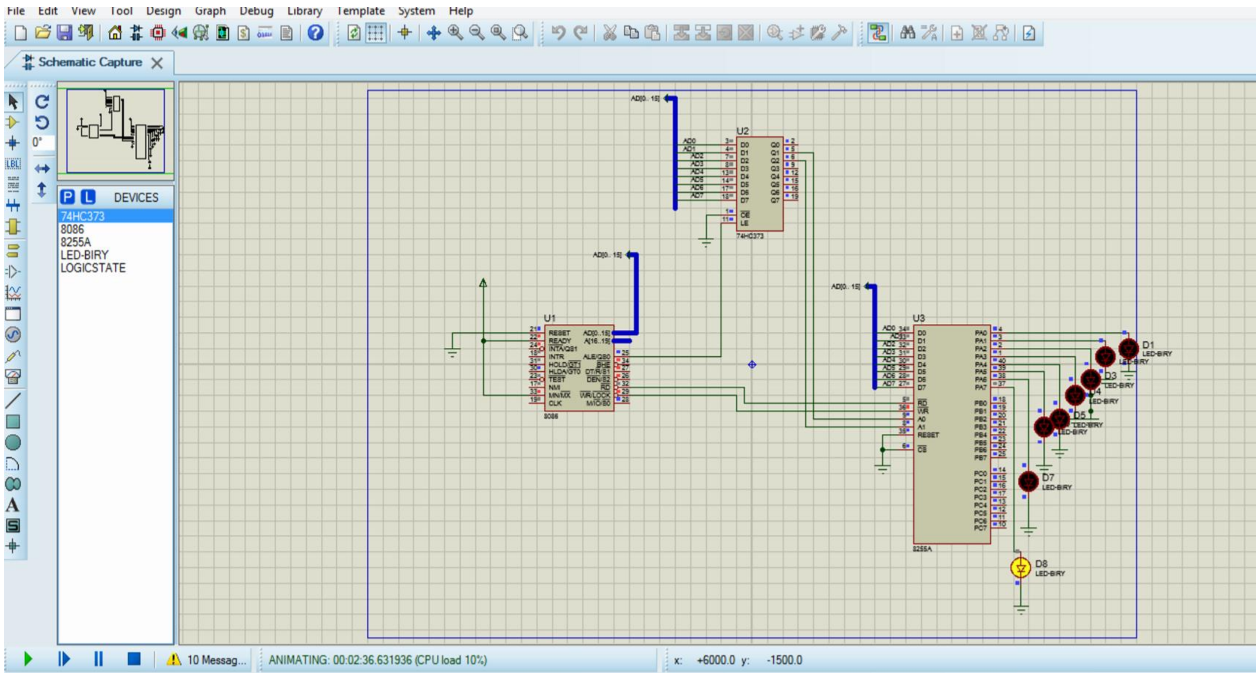
x: +3300.0 y: -1500.0



ANIMATING: 00:00:44.031936 (CPU load 16%)

x: +4400.0 y: -1300.0

Upto D8



ANIMATING: 00:02:36.631936 (CPU load 10%)

x: +6000.0 y: -1500.0

---THE END-----------------------------------