ARM ASSIGNMENT

Pavan Srinivas Marri
marripavan65@gmail.com
FWC22138 IITH - Future Wireless Communications

Contents

1 Problem

(GATE2020-QP-EE)
Q.54 An 8085 microprocessor acesses two memory locations ($2001H$) and ($2002H$), that contains 8-bit numbers $98H$ and $B1H$, respectively. the following program is executed:
LXI H,$2001H$
MVI A,$21H$
INX H
ADD M
INX H
MOV M,A
HLT
At the end of this program ,the memory location $2003H$ contains the number in decimal(base 10) form

2 Components

Components	Value	Quantity
Breadboard	-	1
Jumper Wires	-	20
LCD	16x2	1
Vaman	-	1

Table 1: Components

3 Implementation

3.1 Solution

LXI H, 2001H; H = 20 H, L = 01 H
MVI A, 21H; A = 21 H
INX H; HL + 1 → H = 20 H → HL = 2002 H
ADD M; [A] + Reference data of HL pair = 21 H + B1 H = D2H → [A]
INX H; [HL] + 1 → 2002 H + 1 H → 2003H
MOV M, A; [A] to Memory, reference of HL pair, 2003 H [D2] β [D2] = A
HLT; Stop Therefore, content in the 2003 H is D2H
Converting in decimal
D x 16^1 + 2 x 16^0 → 13 x 16 + 2 = $(210)_{10}$

4 Hardware

4.1 Vaman to LCD connections

Pygmy	LCD pins	LCD pin label	LCD pin Description
GND	1	GND	
5V	2	Vcc	
GND	3	Vee	Contrast
10	4	RS	Register Select
GND	5	R/W	read/write
9	6	EN	Enable
14	11	DB4	Serial connection
13	12	DB5	Serial connection
12	13	DB6	Serial connection
11	14	DB7	Serial connection
5V	15	LED+	Backlight
GND	16	LED-	Backlight

Table 2: Vaman to LCD

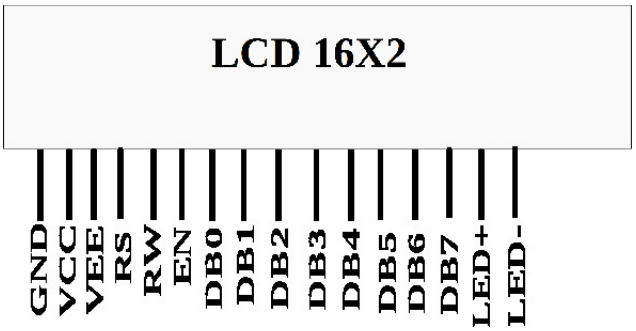

Figure 1: LCD pins

4.2 Procedure

1. Make the coneection to the vaman and LCD as in the table above.
2. Refer fig:1 for the reference of LCD pins.
3. Connect the Vaman to the PC via USB and dump your code into vaman.

4.3 LCD output

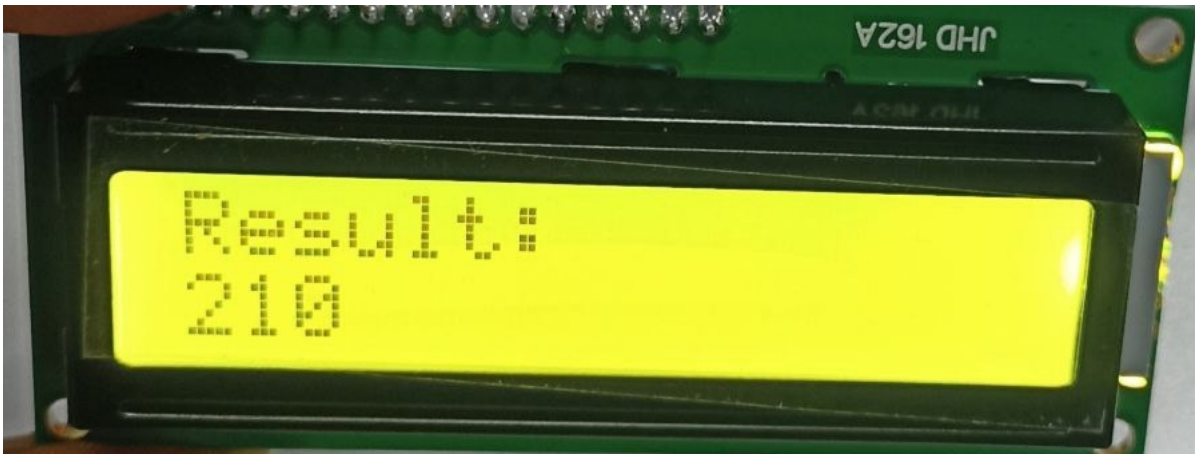

Figure 2: Output

5 Software

Execute the code which is available in the below path and upload it to the Vaman.
https://github.com/Pavan2k01/Digital-Design/blob/main/ARM/main.c

6 Conclusion

Hence, We have executed the above code using Vaman in ARM environment.