

An-Najah National University
Department of Computer Engineering
Microprocessors (10636322)

Assignment # 3

Assuming 8088 based system solve the following question:

Design a complete 8088 system hardware that has the following components

- a. RAM 256 K RAM that starts at address 00000H . You have only one 128K and 32K ICs.
- b. 12K8 ROM composed of 32K ICs ending at address FFFFF.
- c. 8x8 keyboard
- d. 8 digits Multiplexed seven segment display
- e. Two stepper Motors. Motor 1 is 100Step and Motor2 is 200Step

Show clearly the following components:

1. The Address decoding for the Memory and I/O devices (you must define the addresses)
2. The hardware required for each component.
3. Write the software to read and denounce your keyboard. Then show the entered value on the seven-segment display (suppose the read numbers are between 0 – F only).
4. Write a Subroutine which turns Stepper Motor1 to a given angle Theta read from the keyboard.
5. Suppose that we added a port with 4 push button keys (inc, dec, right, left) , show the required hardware change.
6. Write the software that identifies the pressed button and denounces the key: When inc/dec is pressed, increment/decrement the speed of Stepper motor 1. While, when right/left pressed , change its direction.

Deadline: Saturday 20/12/2020

Good Luck