



# MICROPROCESSOR

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**LECTURE- 1**

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- Microcomputer – a computer with a microprocessor as its CPU. Includes memory, I/O etc.
- Microprocessor – silicon chip which includes ALU, register circuits & control circuits
- Microcontroller – silicon chip which includes microprocessor, memory & I/O in a single package.

- What is a Microprocessor?



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- What about micro?

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- **Was there ever a “mini”-processor?**

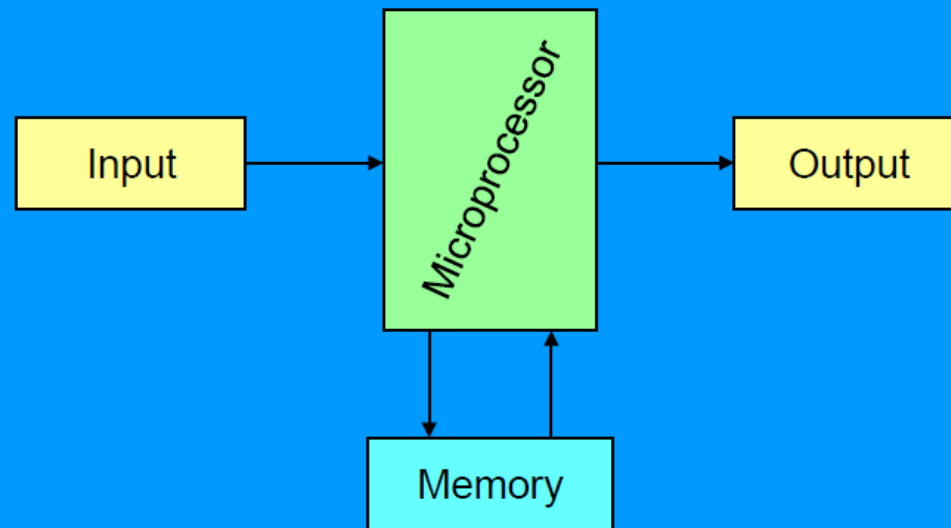
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# DEFINITION OF THE MICROPROCESSOR

- The microprocessor is a programmable device that takes in numbers, performs on them arithmetic or logical operations according to the program stored in memory and then produces other numbers as a result.

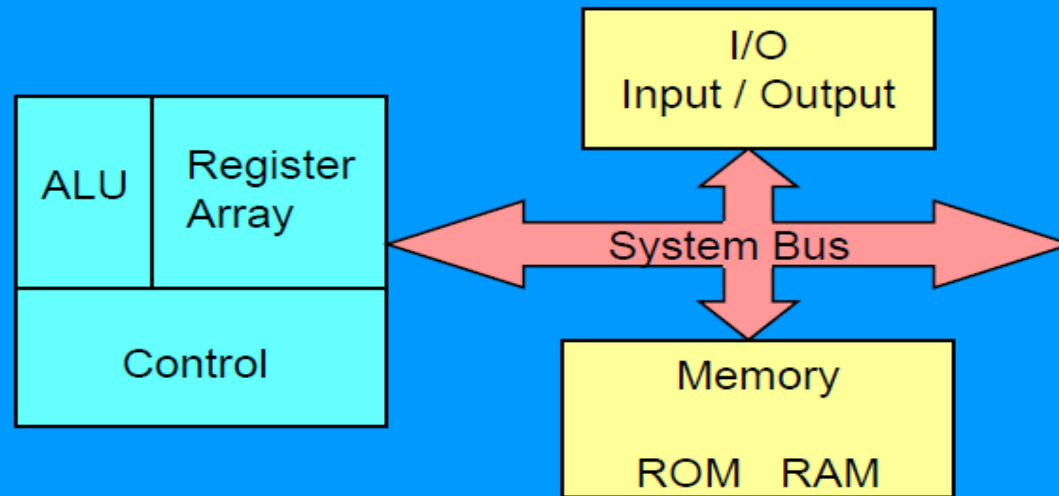
# A Microprocessor-based system

From the above description, we can draw the following block diagram to represent a microprocessor-based system:

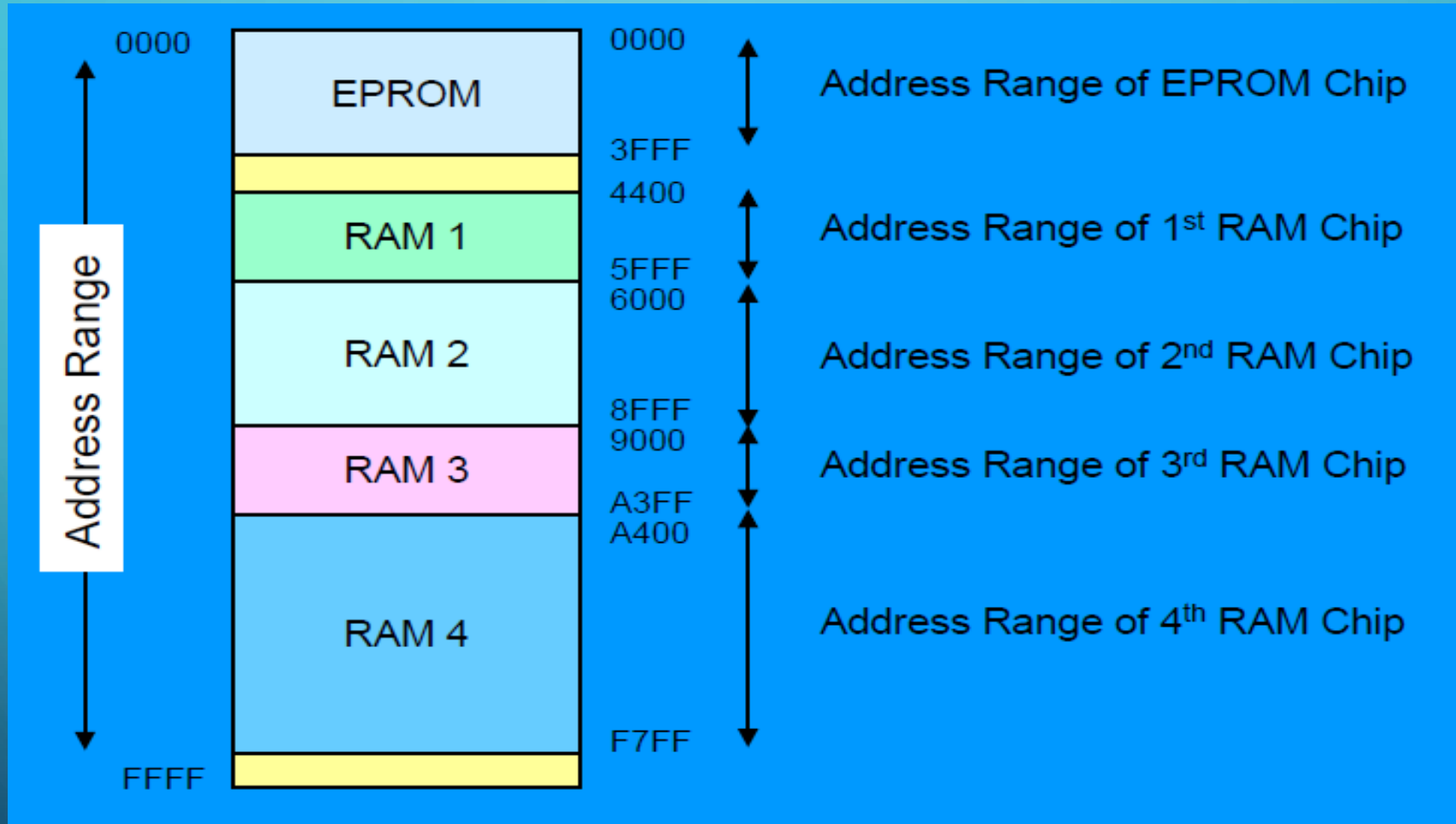


# Organization of a microprocessor-based system

- Let's expand the picture a bit.







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# THE THREE CYCLE INSTRUCTION EXECUTION MODEL

- The microprocessor **fetches** each instruction,
- –**decodes it,**
- –**Then executes it.**

- Machine Language

### ***Machine Code***

```
10011101000110100000  
01100011010001110110  
10000010111101101110  
11110110001011011000  
10000010011100011011  
10010011000111000000
```

# THE 8085 MACHINE LANGUAGE

- The number of bits that form the “word” of a microprocessor is fixed for that particular processor.
- For example an 8-bit microprocessor can have at most  $2^8 = 256$  different combinations.

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The background is a gradient of blue, darker at the bottom. In the corners, there are decorative white and light blue circuit-like patterns consisting of lines and circles.

# THANK YOU

End of Lecture 1

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