Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

Course No : **CSE2214**

Course Title : **Assembly Language Programming Sessional**

Assignment No : **01**

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Section :A

Question No: 01

Question: Draw the diagram of Intel 8086 Microprocessor organization.

Answer:

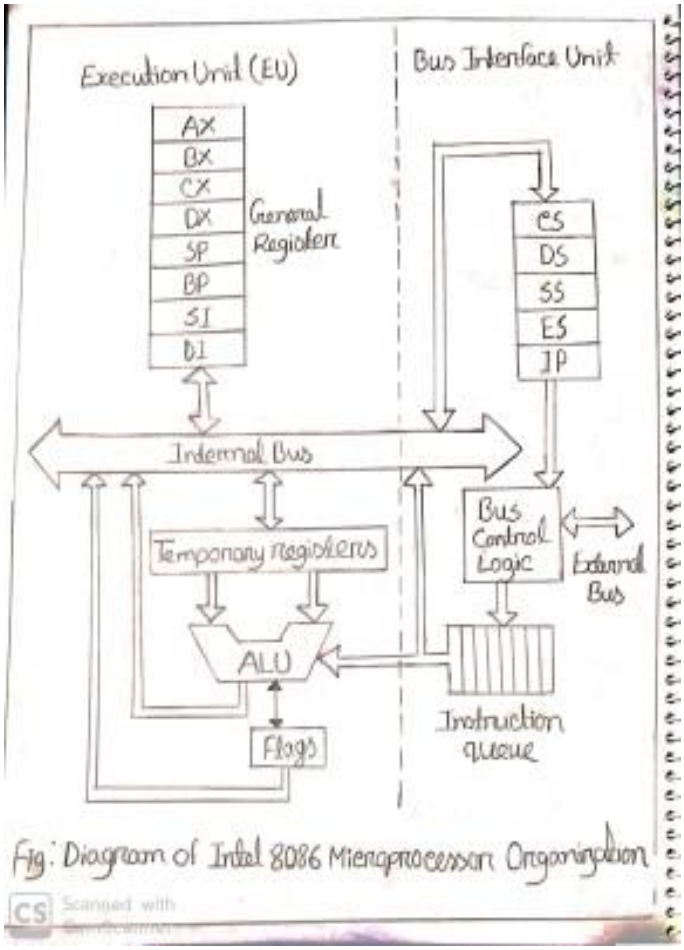

Fig: Diagram of Intel 8086 Microprocessor Organization

Question No: 02

Question: Consider a machine language instruction that moves a copy of the contents of register AX in the CPU to a memory word. What happen during the fetch cycle and execution cycle.

Answer:

Machine instruction	Operation
10100011 00000000 00000000	**Fetch the contents of AX to memory word 0**

The instructions performed by a CPU which controls computer by executing programs stored in the memory. The CPU performs perfoms following steps to execute this machine instruction:

❖ Fetch Cycle:

- ♦ Fetch the Instruction from memory.
- ♦ Decode the instruction to determine the operation.

❖ Execution Cycle:

Execution Unit contains Arithmetic and Logic Unit (ALU) which perform arithmetic (+,-,x,/) and logic (AND, OR,NOT) operations, Eight registers for storing data(AX, BX, CX, DX, SI, DI, BP and SP). It also contains temporary registers for holding operands of the ALU and Flags register.

- ♦ Performs the operations on the data according to the instruction.
- ♦ Store the result in main memory (RAM).

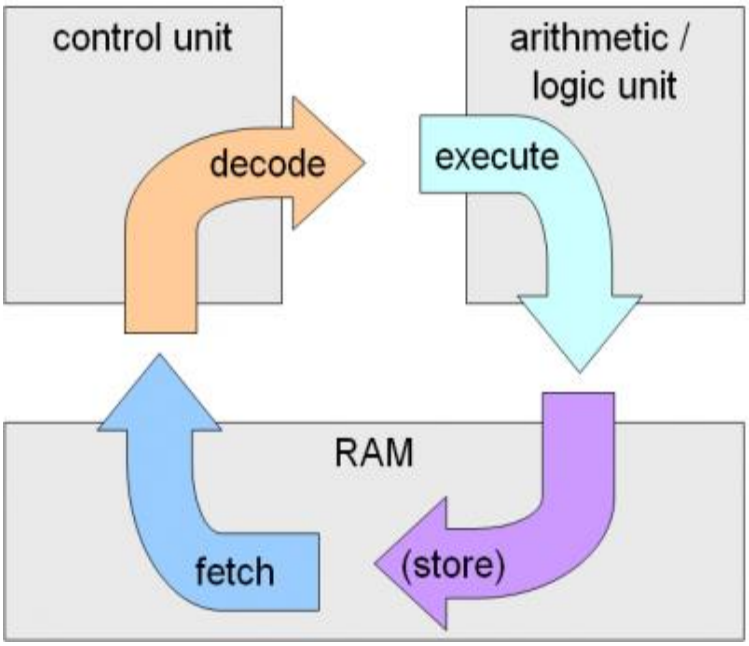

Fig: The fetch-execution cycle

Question No: 03

Question: Discuss data bus, address bus and control bus.

Answer:

Processor communicates with memory and I/O devices by using

signals that travel along a set of wires called buses. There are 3 kinds of buses:

1. Address Bus
2. Data Bus
3. Control Bus

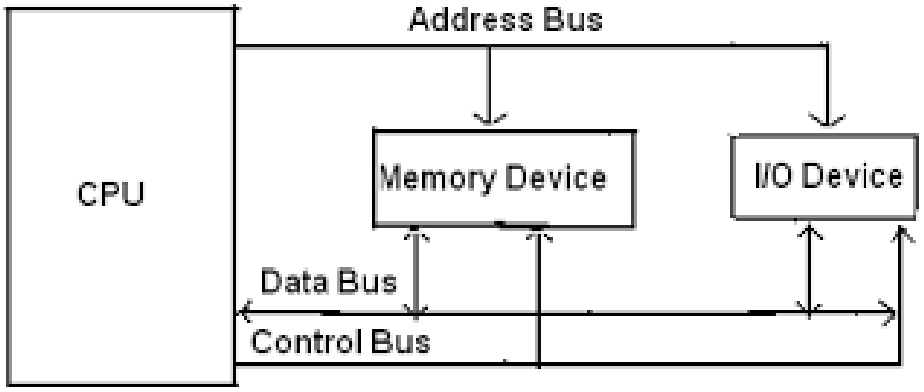

Fig: Bus connections for a microcomputer

1.ADDRESS BUS:

- To read the contents of a memory location, the CPU places the address of the memory location on the address bus.
- It is used to transfer data between devices.
- Microprocessor 8086 has 20-bit address bus.

2.DATA BUS:

- It receives the data, sent by the memory circuits on the data bus.
- It is also called memory bus.
- Microprocessor 8086 has 16 data lines.

3.CONTROL BUS:

- A control signal is required to inform the memory to perform a operation. The CPU sends the control signal on the control bus.
- Some control signals are:
  - Memory read
  - Memory write
  - I/O read
  - I/O Write