8086 Microprocessor is a 16 bit microprocessor and was designed in 1978 by Intel. Unlike, 8085 , an 8086 microprocessor has 20 bit address bus. Thus, is able to access 220 i.e., 1 MB address in the memory. As we know that a microprocessor performs arithmetic and logic operations. And an 8086 microprocessor is able to perform these operations with 16 bit data in one cycle. Hence is a 16 bit microprocessor.
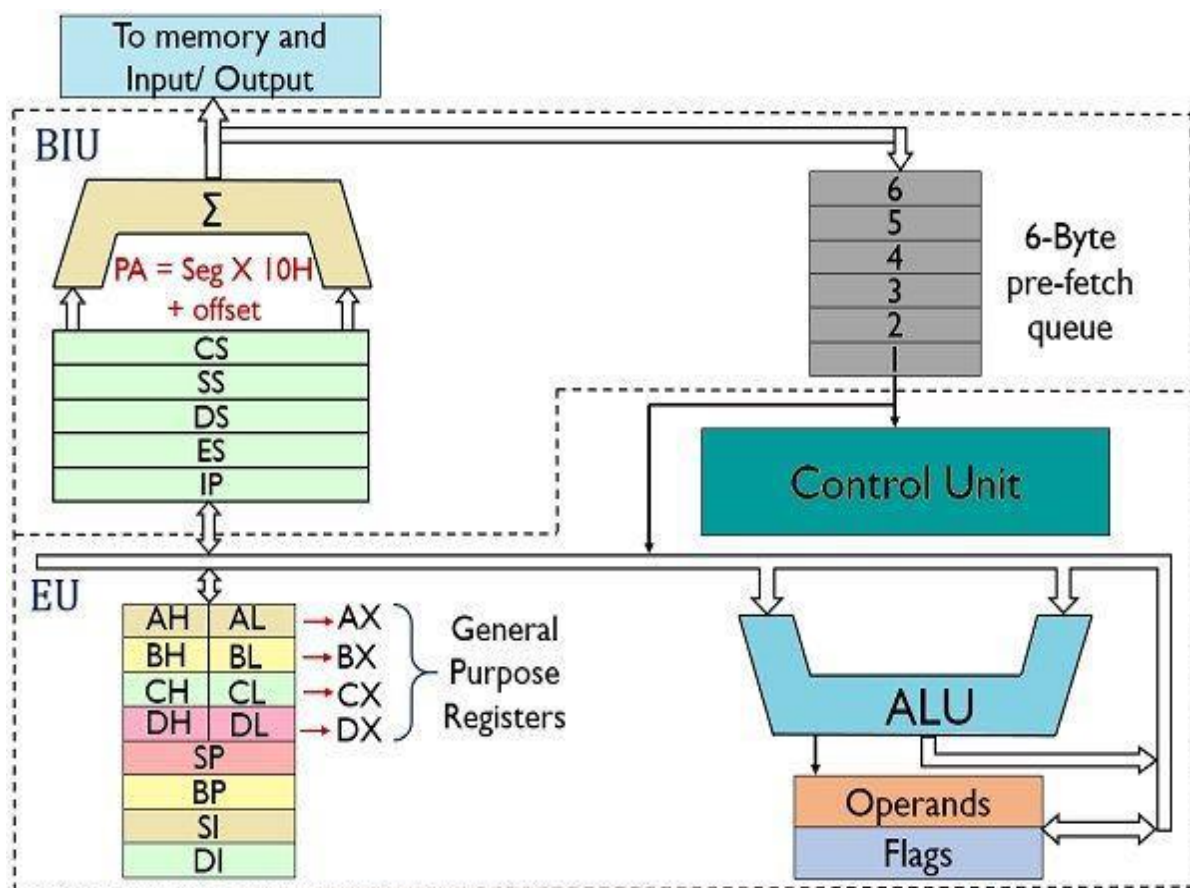
Block Diagram of 8086 Microprocessor The architecture of 8086 microprocessor is composed of 2 major units, the BIU i.e., Bus Interface Unit and EU i.e., Execution Unit.

The figure below shows the block diagram of the architectural representation of the 8086 microprocessor:

Block Diagram of 8086 Microprocessor

Electronics Desk

Bus Interface Unit (BIU)

The Bus Interface Unit (BIU) manages the data, address and control buses. The BIU functions in such a way that it:

Fetches the sequenced instruction from the memory, Finds the physical address of that location in the memory where the instruction is stored and Manages the 6 byte pre fetch queue where the pipelined instructions are stored.

An 8086 microprocessor exhibits a property of pipelining the instructions in a queue while performing decoding and execution of the previous instruction.

This saves the processor time of operation by a large amount. This pipelining is done in a 6 byte queue

Execution Unit (EU)

The Execution Unit (EU) performs the decoding and execution of the instructions that are being fetched from the desired memory location.

- *What is microprocessor and how it works?*

The microprocessor is a multipurpose, clock driven, register based, digital integrated circuit that accepts binary data as input, processes it according to instructions stored in its memory, and provides results (also in binary form) as output.

- *Application of 8086 microprocessor*

is used for general purpose like it is used in traffic signals for control purpose . It's also used for small applications like for calculator, scientific calculators & small arithmetic operations.

Differences between 8085 and 8086 microprocessor :-

8085 microprocessor	8086 microprocessor
1-The data bus is of 8 bits.	1-The data bus is of 16 bits.
2-The address bus is of 16 bits.	The address bus is of 20 bits
3-The memory capacity is 64 KB. Also 8085 Can Perform Operation Up to 2^8 ie. 256 numbers. A number greater than this is to taken multiple times in 8 bit data bus.	3-The memory capacity is 1 MB. Also 8086 Can Perform Operation up to 2^{16} ie. 65,536 numbers.
4-The input/output port addresses are of 8 bits.	4-The input/output port addresses are of 8 bits.
5-The operating frequency is 3.2 MHz	5-The operating frequency is 5 MHz, 8MHZ,10MHZ.
6-8085 MP has Single Mode Of Operation.	6-8086 MP has Two Modes Of Operation. 1. Minimum Mode = Single CPU PROCESSOR 2. Maximum Mode = Multiple CPU PROCESSOR.
7-It not have multiplication and division instructions.	7-It have multiplication and division instructions.