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BIU (Bus Interface Unit)

BIU takes care of all data and addresses transfers on the buses for the EU like sending addresses, fetching instructions from the memory, reading data from the ports and the memory as well as writing data to the ports and the memory. EU has no direction connection with System Buses so this is possible with the BIU. EU and BIU are connected with the Internal Bus.

It has the following functional parts –

Instruction queue – BIU contains the instruction queue. BIU gets upto 6 bytes of

next instructions and stores them in the instruction queue. When EU executes instructions and is ready for its next instruction, then it simply reads the instruction from this instruction queue resulting in increased execution speed.

Fetching the next instruction while the current instruction executes is called pipelining.

Segment register – BIU has 4 segment buses,

i.e. CS, DS, SS& ES. It holds the addresses of instructions and data in memory, which are used by the processor to access

memory locations. It also contains 1 pointer register IP, which holds the address of the next instruction to executed by the EU.

CS – It stands for Code Segment. It is used for addressing a memory location in the code segment of the memory, where the executable program is stored.

DS – It stands for Data Segment. It consists of data used by the program and is accessed in the data segment by an offset address or the content of other register that holds the offset address.

SS – It stands for Stack Segment. It handles memory to store data and addresses during execution.

ES – It stands for Extra Segment. ES is additional data segment, which is used by the string to hold the extra destination data.

Instruction pointer – It is a 16-bit register used to hold the address of the next instruction to be executed.

Operating Modes of 8086

There are two operating modes of operation for Intel 8086, namely the minimum mode and the maximum mode.

When only one 8086 CPU is to be used in a microprocessor system, the 8086 is used in the Minimum mode of operation.

In a multiprocessor system 8086 operates in the Maximum mode.

Thank you