Assignment → 3

8086 Microprocessor

✗ Prepare a report on 8086 microprocessor architecture & its functional units.

→ 8086 microprocessor is an enhanced version of 8085 microprocessor that was designed by intel in 1976. It is a 16-bit microprocessor having 20 address lines & 16 data lines that provides up to 1MB storage.

The functional units of 8086 microprocessor are:

① BIU (Bus interface unit)
→ The segments registers, instruction pointer & 6-byte instruction queue are assiociated with the bus BIU.
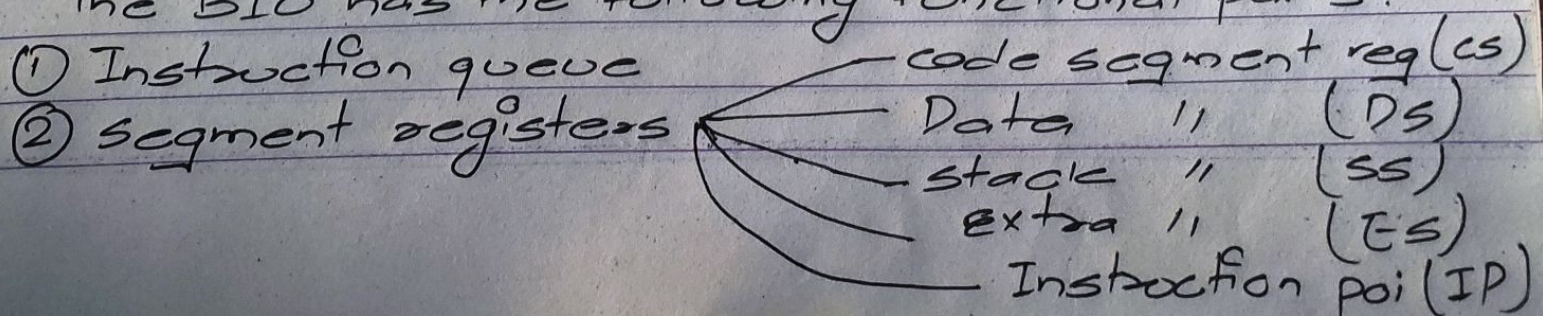
The BIU:
- Handles transfer of data & addresses,
- Fetches instruction codes, stores fetched instruction codes in first-in-first-out register set called a queue.
- Reads data from memory & I/o devices.
- Writes data to Memory & I/o devices.

The BIO has the following functional parts:
① Instruction queue
② Segment registers
- code segment reg (CS)
- Data '' (DS)
- Stack '' (SS)
- Extra '' (ES)
- Instruction poi (IP)

② EU (Execution unit)

→ The EU receives opcode of an instruction from the queue, decodes it & the executes it. While the EU decodes or executes an instruction, the BIU fetches instruction code from the memory & stores them in the queue.
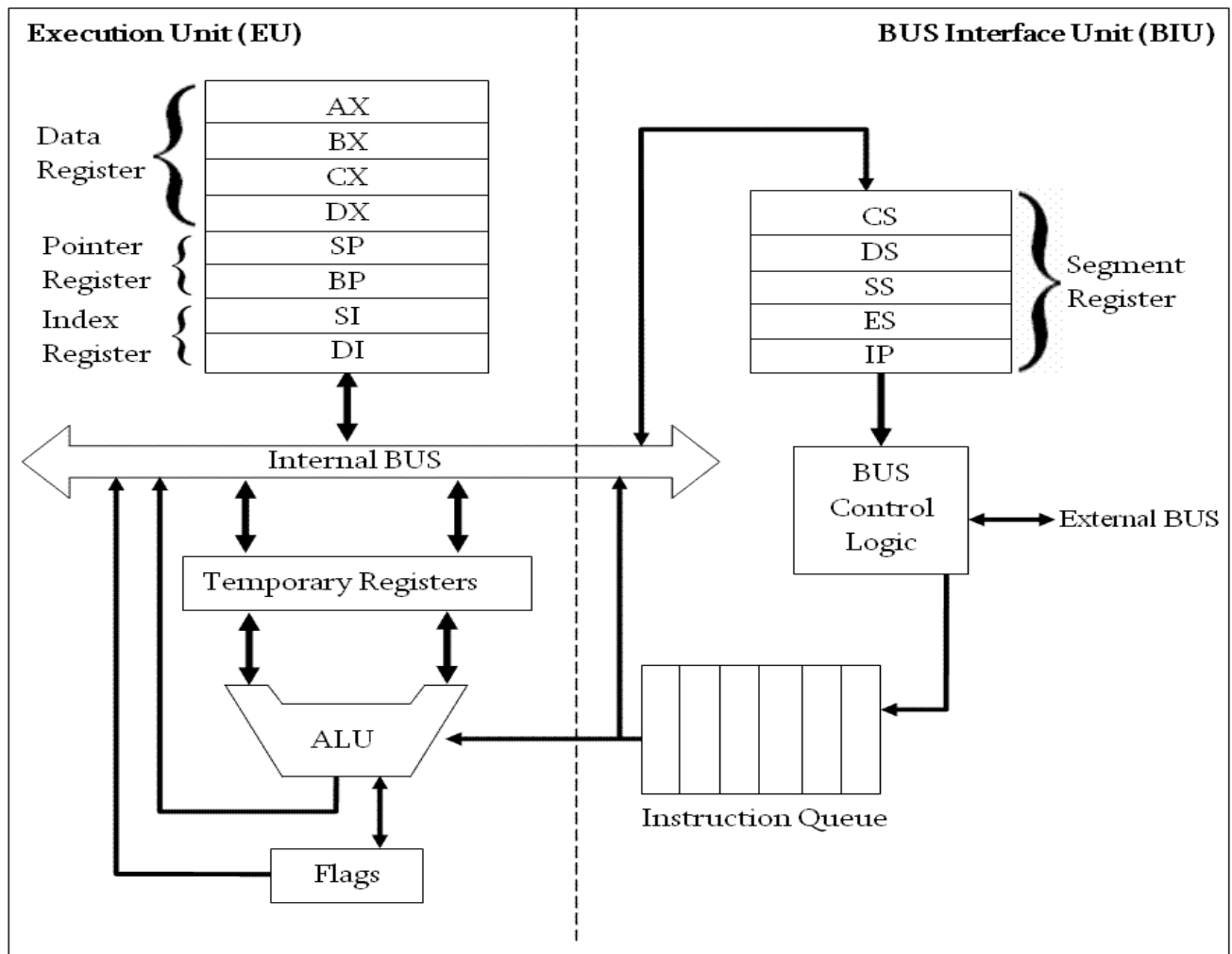
- General purpose registers
- Index register
- ALU
- Flag register
- Interrupts.

Fig: Block diagram of 8086 Microprocessor.