IN - Input data from input port

Operands

AL, 8-bit port address

AL, DX

AX, 8-bit port address

AX, DX

This instruction transfers a byte or word from a port to the accumulator register. The port address is specified by the source operand, which can be DX or an 8-bit constant. If the port address is of 8-bit then direct addressing will be used.

Example

IN AX, 04H; Move the content of the port number 04H and 05H to AL and AH

IN AL, 70H; Move the content of the port number 70H to AL.

If the port number is of 16-bit, then indirect addressing will be used and DX will be the default register to specify the port number. To note that the DX register is not enclosed in square brackets like memory addressing.

Example

IN AX, DX; Move the content of the port number specified in DX and DX + 1 to AL and AH

IN AL, DX; Move the content of the port number specified in DX to AL.

OUT - Output data to output port

Operands

8-bit port address, AL

DX, AL

8-bit port address, AX

DX, AX

This instruction transfers a byte or word to an output port from the accumulator register. The port address is specified by the destination operand. Port number may be of 8-bit or 16-bit. For 16-bit port address DX register will be used and for 8-bit port address an 8-bit constant will be used.

Example

OUT 04H, AX; Transfer the content of the AX register to the port 04H and 05H.

OUT 70H, AL; Transfer the content of the AL register to the port 70H.

OUT DX, AX; Transfer the content of the AX register to the port specified by DX and

OUT DX, AL; Transfer the content of the AL register to the port specified by DX.

The flag register remain unchanged.