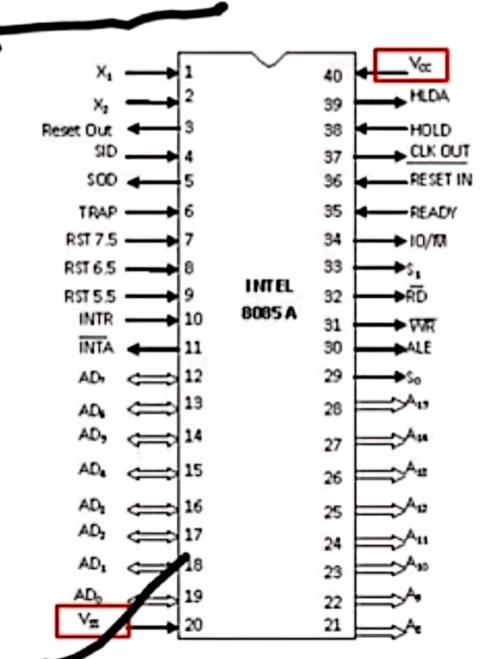
# $V_{ss}$ and $V_{cc}$

Pin 20 (Input) and Pin 40 (Input)

• +5V power supply is connected to  $V_{CC}$ .

 Ground signal is connected to V<sub>SS</sub>.

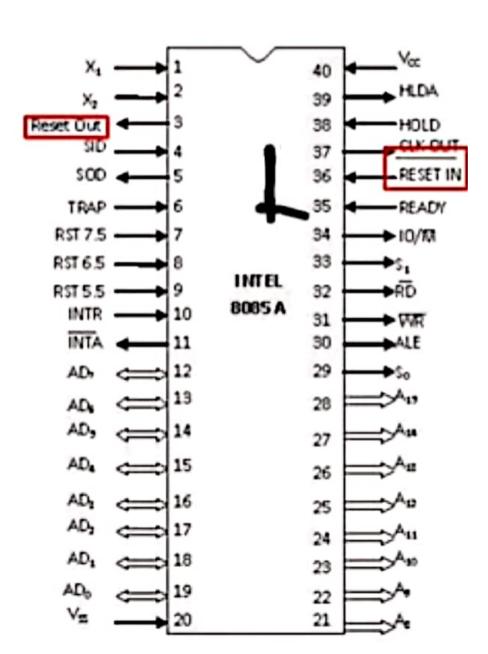


### RESET IN and RESET OUT

Pin 36 (Input) and Pin 3 (Output)

#### RESET IN:

- It is used to reset the microprocessor.
- It is active low signal.
- When the signal on this pin is low for at least 3 clocking cycles, it forces the microprocessor to reset itself.



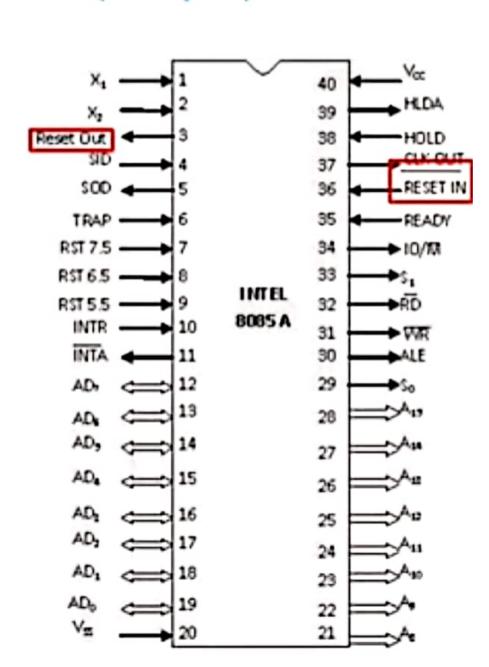
### RESET IN and RESET OUT

Pin 36 (Input) and Pin 3 (Output)

 Resetting the microprocessor means:

Clearing the PC and IR.

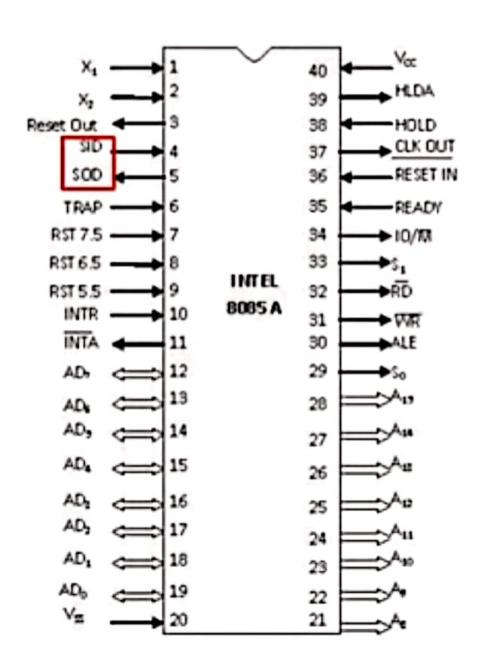
- Disabling all interrupts (except TRAP).
- Disabling the SOD pin.
- All the buses (data, address, control) are tristated.
- Gives HIGH output to RESET OUT pin.



### SID and SOD

Pin 4 (Input) and Pin 5 (Output)

- SID (Serial Input Data):
  - It takes I bit input from serial port of 8085.
  - Stores the bit at the 8<sup>th</sup> position (MSB) of the Accumulator.
  - RIM (Read Interrupt Mask) instruction is used to transfer the bit.



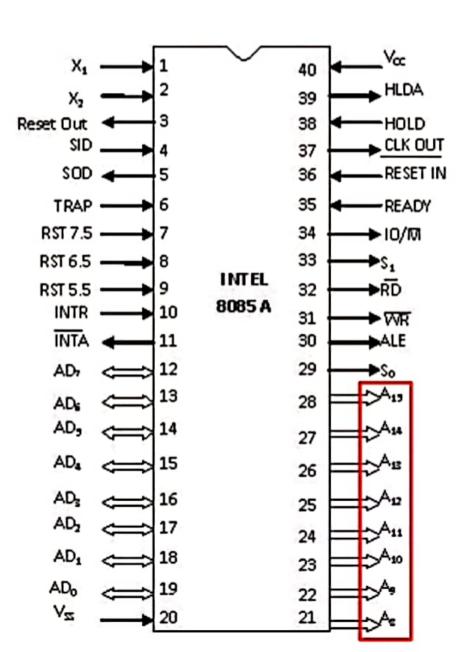
## $A_8 - A_{15}$

#### Pin 21-28 (Unidirectional)

 These pins carry the higher order of address bus.

 The address is sent from microprocessor to memory.

 These 8 pins are switched to high impedance state during HOLD and RESET mode.



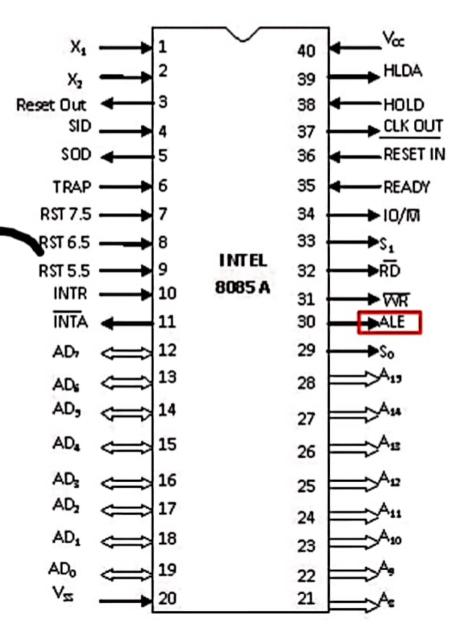
### **ALE**

#### Pin 30 (Output)

 It is used to enable Address Latch.

 It indicates whether bus functions as address bus or data bus.

- If ALE = I then
  - Bus functions as address bus.
- If ALE = 0 then
  - Bus functions as data bus.



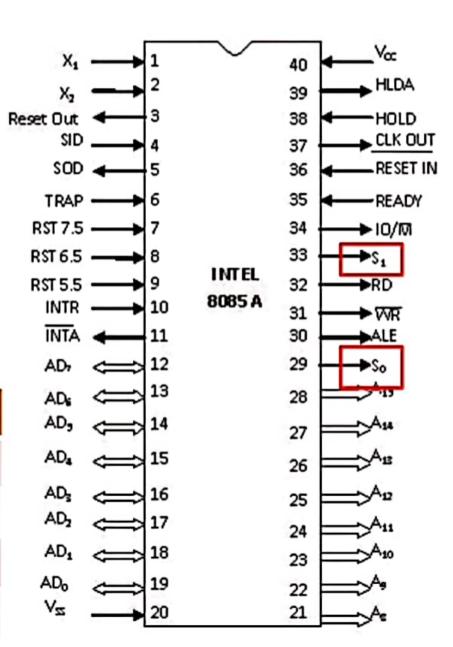
# So and Si

### Pin 29 (Output) and Pin 33 (Output)

S<sub>0</sub> and S<sub>1</sub> are called Status
 Pins.

 They tell the current operation which is in progress in 8085.

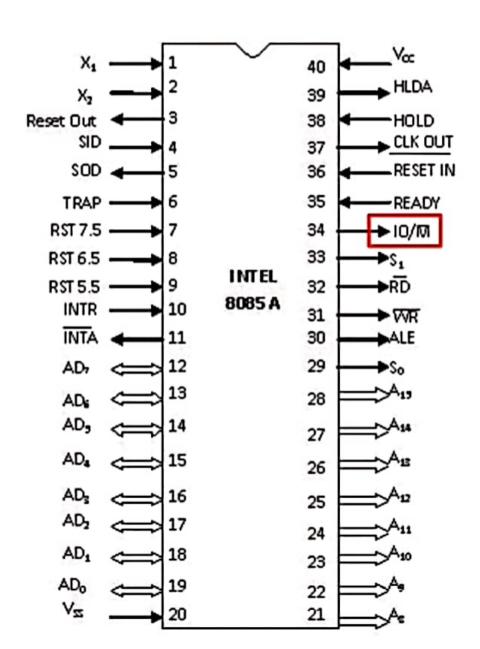
S <sub>0</sub>	Sı	Operation
0	0	Halt
0	1	Write
1	0	Read
	l	Opcode Fetch



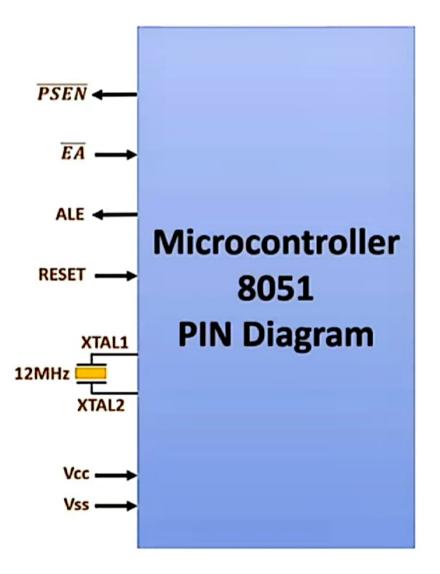


 This pin tells whether I/O or memory operation is being performed.

- If  $IO/\overline{M} = I$  then
  - I/O operation is being performed.
- If  $IO/\overline{M} = 0$  then
  - Memory operation is being performed.

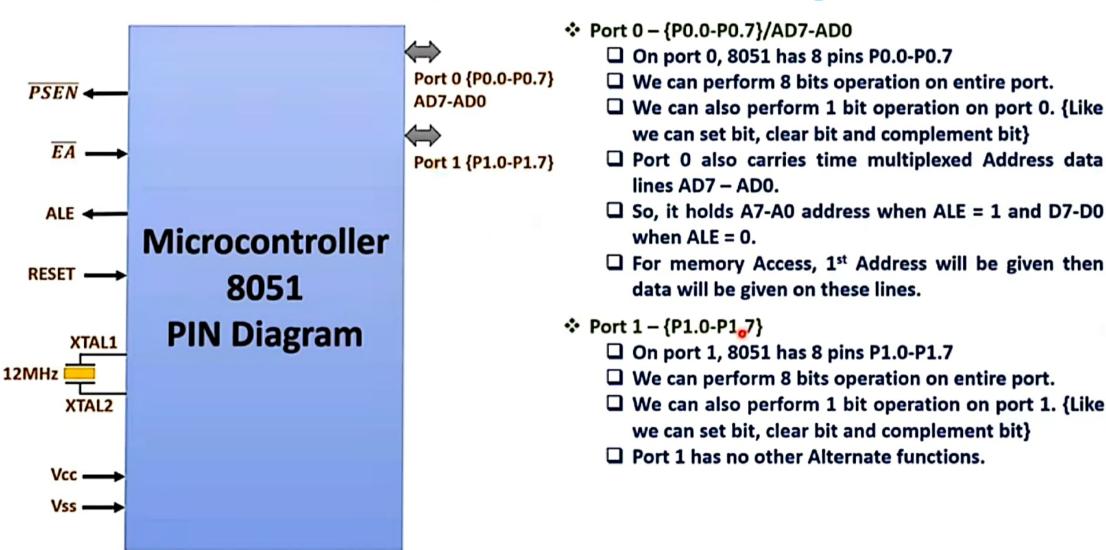


## PIN Diagram of 8051 $\mu$ C

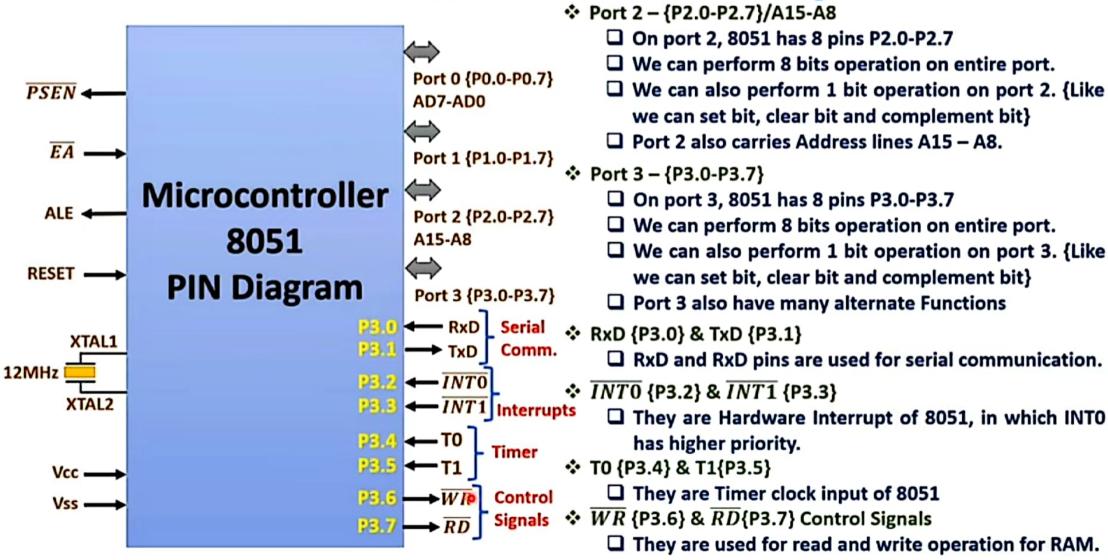


FA - Enable External Access
8051 has internal 4KB ROM.
$\Box$ If $\overline{EA}$ = 0, 8051 will discards internal 4KB ROM and
external ROM memory location will starts fron
0000Н.
$\Box$ If $\overline{EA}$ = 1, 8051 will consider internal 4KB ROM with
starting address 0000H to ending address 0FFFH and
External ROM memory location will starts fron
1000H.
→ PSEN - Program Status Enable
☐ 8051 has 16 bits Address A0-A15. by that we can
interface 64KB of external ROM and 64KB of externa
RAM, making it total 128KB memory space.
Both have same address range 0000H to FFFFH.
$\square$ $\overline{PSEN}$ reads data from external ROM.
$lacktriangledown \overline{RD}$ and $\overline{WR}$ are used for read and write of external
RAM.
$\square$ $\overline{PSEN}$ is referred as program status enable, as i
allows program to be read from external POM

## PIN Diagram of 8051 $\mu$ C



## PIN Diagram of 8051 $\mu$ C



### PSW / Flag Register in 8051 $\mu$ C

AC F<sub>0</sub> P RS<sub>0</sub> RS1 **OVR** PSW.7 PSW.6 PSW.5 PSW.4 PSW.3 PSW.2 PSW.1 ❖ P - Parity Flag 11 1 1 Example: ☐ P = 1, Odd Parity {Odd Number of 1's in result} A = CCH 1100 1100 □ P = 0, Even Parity {Even Number of 1's in result} ADD A,R1 R1 = E6H 1110 0110 OVR – Overflow Flag A = B2H 1011 0010 □ OVR = 1, Signed overflow ■ OVR = 0, No Signed overflow F0 – User Defined Flag

□ OVR = 0, No Signed overflow
 □ It happens when result goes beyond 127 to -128.
 □ After overflow, sign of result {MSB} becomes wrong.
 ❖ RS – Register Bank Select
 □ RS = 00, Register Bank 0, {Default}
 □ RS = 01, Register Bank 1
 □ RS = 10, Register Bank 2
 □ RS = 11, Register Bank 3
 □ By CLR and SETB instructions we can select register bank.

SETB PSW.3 ;Here RS = 01 means bank 1 is selected

☐ Example

CLR PSW.4

- □ Set by user using SETB PSW.5
   □ Clear by user using CLR PSW.5
   ❖ AC Axillary Carry Flag
   □ AC = 1, Nibble to Nibble Carry
   □ AC = 0, No Nibble to Nibble Carry
   ❖ CY Carry Flag
   □ CY = 1, Result has Carry.
  - CY = 1, Result has carry.

    CY = 0, Result has no Carry.