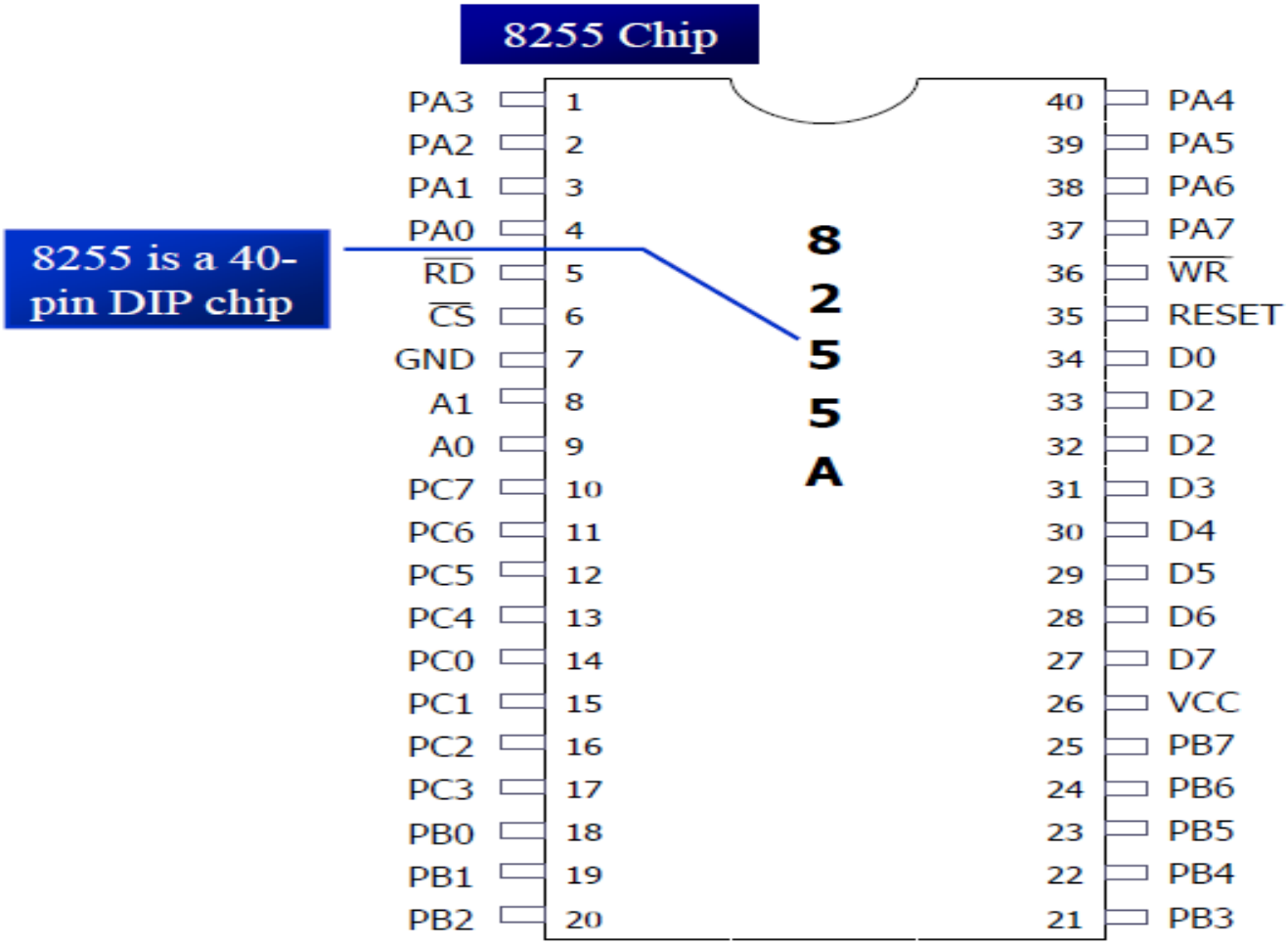
MICROCONTROLLER

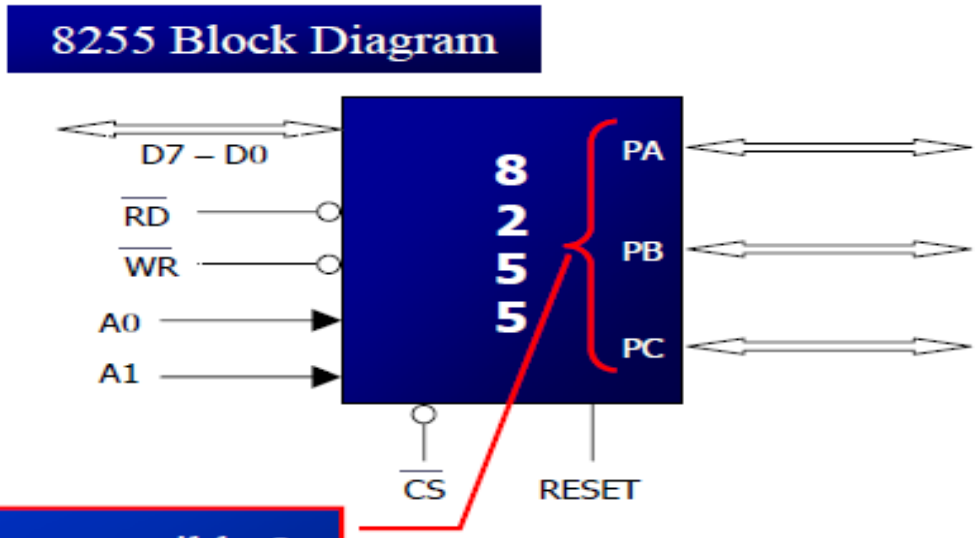
UNIT-V

Lecture-1

PROGRAMMING THE 8255



8255 Features



It has three separately accessible 8-bit ports, A, B, and C

- They can be programmed to input or output and can be changed dynamically
- They have handshaking capability

Contd.

- PA0 – PA7 (8-bit port A)
- Can be programmed as all input or output, or all bits as bidirectional input/output
- PB0 – PB7 (8-bit port B)
- Can be programmed as all input or output, but cannot be used as a bidirectional port
- PC0 – PC7 (8-bit port C)
- Can be all input or output
- Can also be split into two parts:

Contd.

- CU (upper bits PC4 – PC7)
- CL (lower bits PC0 – PC3) each can be used for input or output
- Any of bits PC0 to PC7 can be programmed individually
- RD and WR
- These two active-low control signals are inputs to the 8255
- The RD and WR signals from the 8031/51 are connected to these inputs

Contd.

- D0 – D7
- are connected to the data pins of the microcontroller
- allowing it to send data back and forth between the controller and the 8255 chip
- RESET
- An active-high signal input
- Used to clear the control register
- When RESET is activated, all ports are initialized as input ports

Contd.

- A0, A1, and CS (chip select): CS is active-low

  While CS selects the entire chip, it is A0 and A1 that select specific ports

  These 3 pins are used to access port A, B, C, or the control register

8255 Port Selection

8255 Port Selection

CS	A1	A0	Selection
0	0	0	Port A
0	0	1	Port B
0	1	0	Port C
0	1	1	Control register
1	X	X	8255 is not selected