Microprocessor & Interfacing
Lecture 22
8255
Programmable Peripheral Interface--1

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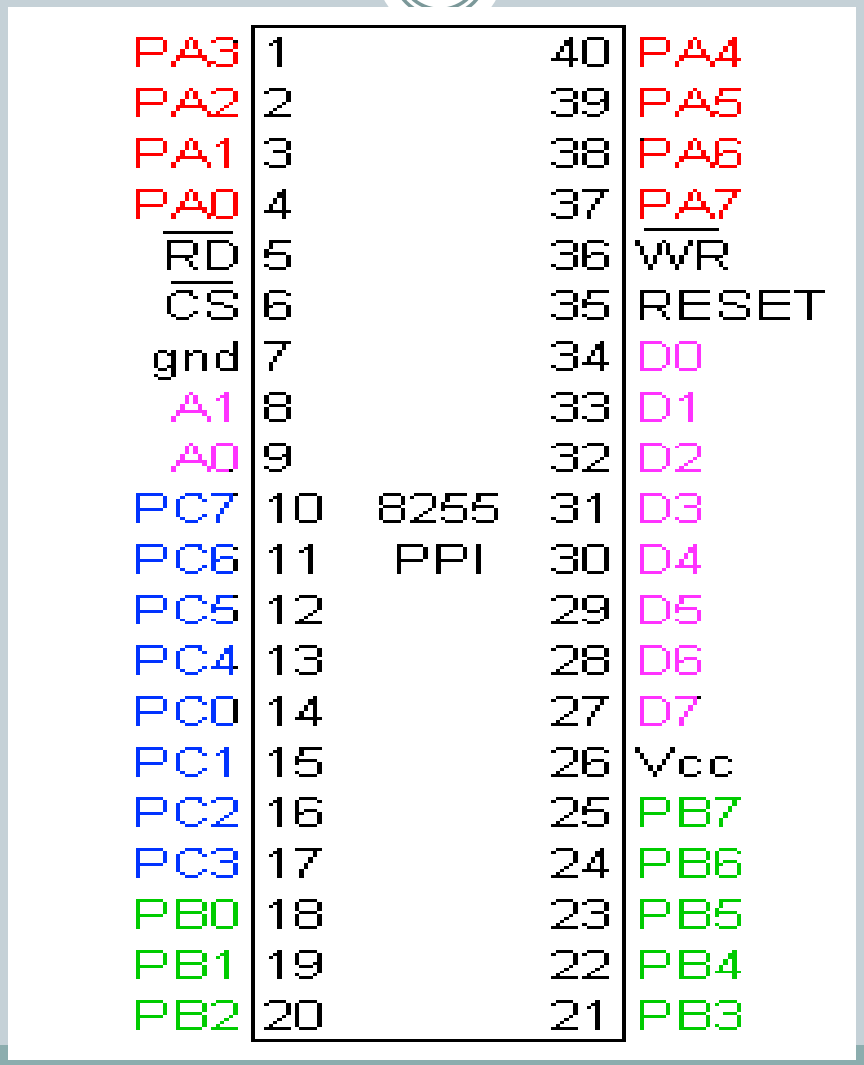
Introduction

- Peripheral interface are the intermediate devices which is used to communicate between the two devices for example if we connect computer and printer then these two device can not work here we required at least one device that can connect these two devices it could be USART or 8255 programmable peripheral interface.

PPI 8255

- Features:
  - It is a programmable device.
  - It has 24 I/O programmable pins like PA, PB, PC (3-8 pins).
  - T T L compatible.
  - Improved dc driving capability

Pin Diagram 8255



Pin Description

- Data bus(D0-D7):These are 8-bit bi-directional buses, connected to 8085 data bus for transferring data.
- CS': This is Active Low signal. When it is low, then data is transfer from 8085.
- Read': This is Active Low signal, when it is Low read operation will be start.
- Write': This is Active Low signal, when it is Low Write operation will be start.
- RESET: This is used to reset the device. That means clear control registers.

Cont..

- Address (A0-A1):This is used to select the ports.

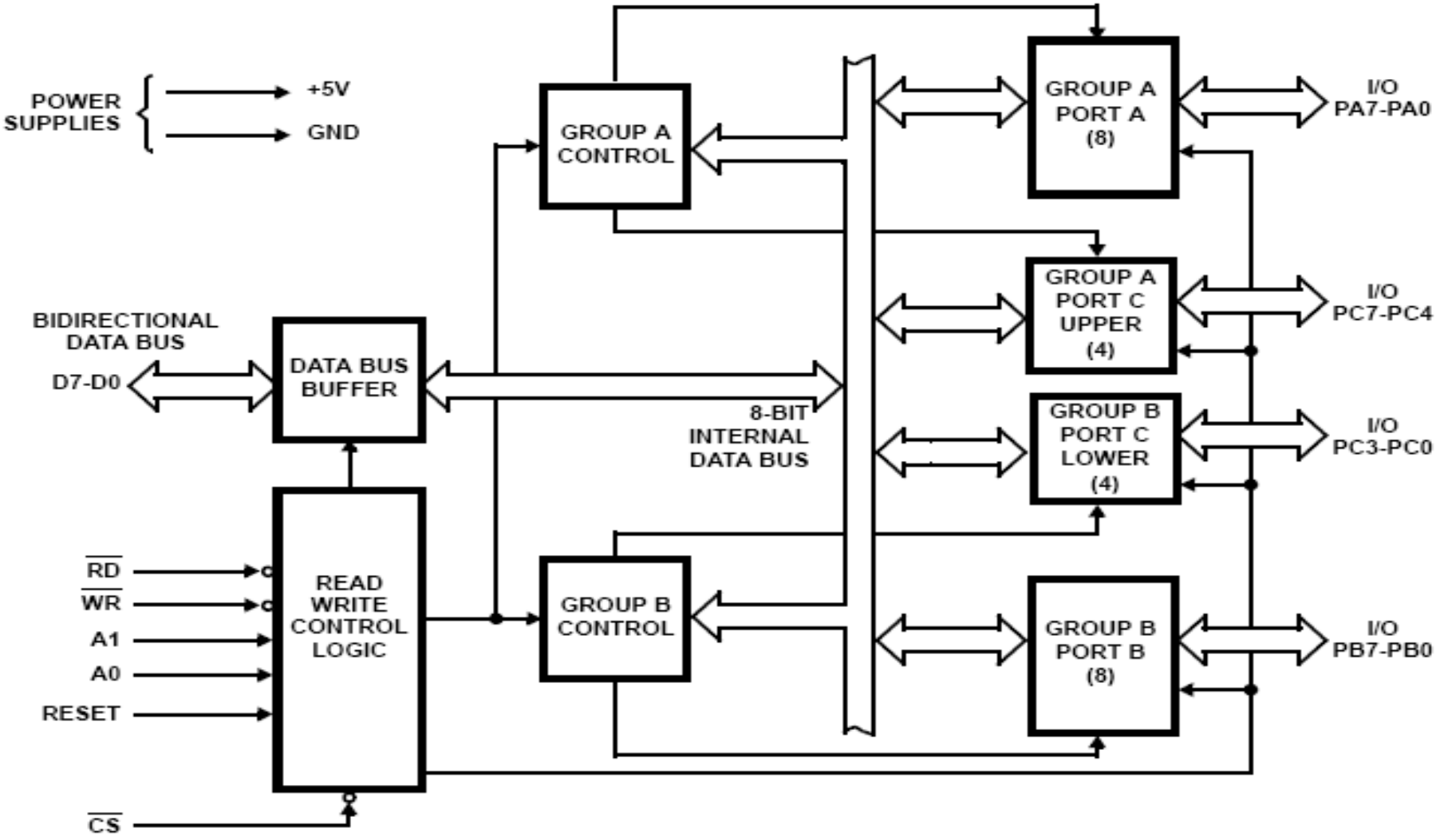
A1	A0	Select
0	0	PA
0	1	PB
1	0	PC
1	1	Control reg.

Cont..

- PA0-PA7: It is the 8-bit bi-directional I/O pins used to send the data to peripheral or to receive the data from peripheral.
- PB0-PB7: Similar to PA
- PC0-PC7: This is also 8-bit bidirectional I/O pins. These lines are divided into two groups.
  - 1. PC0 to PC3 (Lower Groups)
  - 2. PC4 to PC7 (Higher Groups)

  These two groups work separately using 4 data.

Block Diagram



Data Bus Buffer

- It is a 8-bit bidirectional Data bus.
- Used to interface between 8255 data bus with system bus.
- The internal data bus and Outer pins D0-D7 pins are connected in internally.
- The direction of data buffer is decided by Read/Control Logic.

Read/Write Control Logic

- This is getting the input signals from control bus and Address bus
- Control signal are RD’ and WR’.
- Address signals are A0, A1, and CS’.
- 8255 operation is enabled or disabled by CS’.