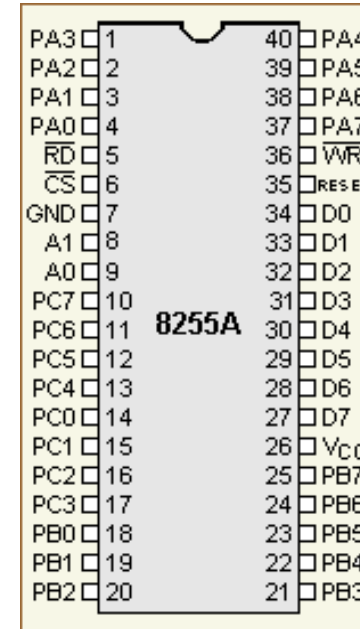


8255 Programmable Peripheral Interface

- The Intel 8255A is a general purpose programmable I/O device which is designed for use with all Intel and most other microprocessors.
- It provides 24 I/O pins which may be individually programmed in 2 groups of 12 and used in 3 major modes of operation.
- The 8255 is a 40 pin integrated circuit (IC), designed by Intel for the 8080 microprocessor.

Pin Configuration



D0 - D7 These are the data input/output lines for the device. All information read from and written to the 8255 occurs via these 8 data lines.

CS (Chip Select Input). If this line is a logical 0, the microprocessor can read and write to the 8255.

RD (Read Input) Whenever this input line is a logical 0 and the RD input is a logical 0, the 8255 data outputs are enabled onto the system data bus.

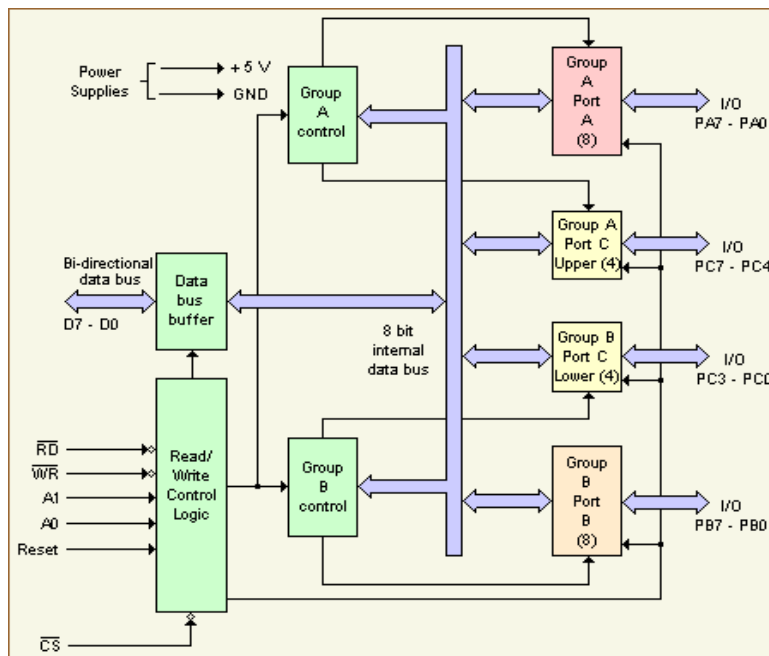
WR (Write Input) Whenever this input line is a logical 0 and the CS input is a logical 0, data is written to the 8255 from the system data bus

A0 - A1 (Address Inputs) The logical combination of these two input lines determines which internal register of the 8255 data is written to or read from.

RESET The 8255 is placed into its reset state if this input line is a logical 1. All peripheral ports are set to the input mode.

PA0 - PA7, PB0 - PB7, PC0 - PC7 These signal lines are used as 8-bit I/O ports.

Block Diagram

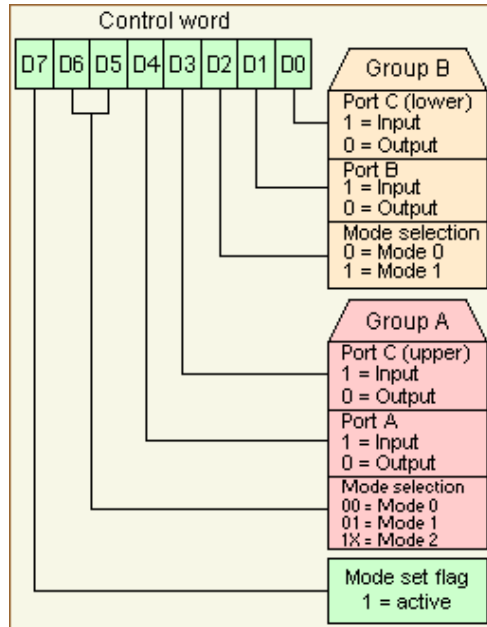


Port Selection

ADDRESS: These input signals, in conjunction \overline{RD} and \overline{WR} , control the selection of one of the three ports or the control word registers.

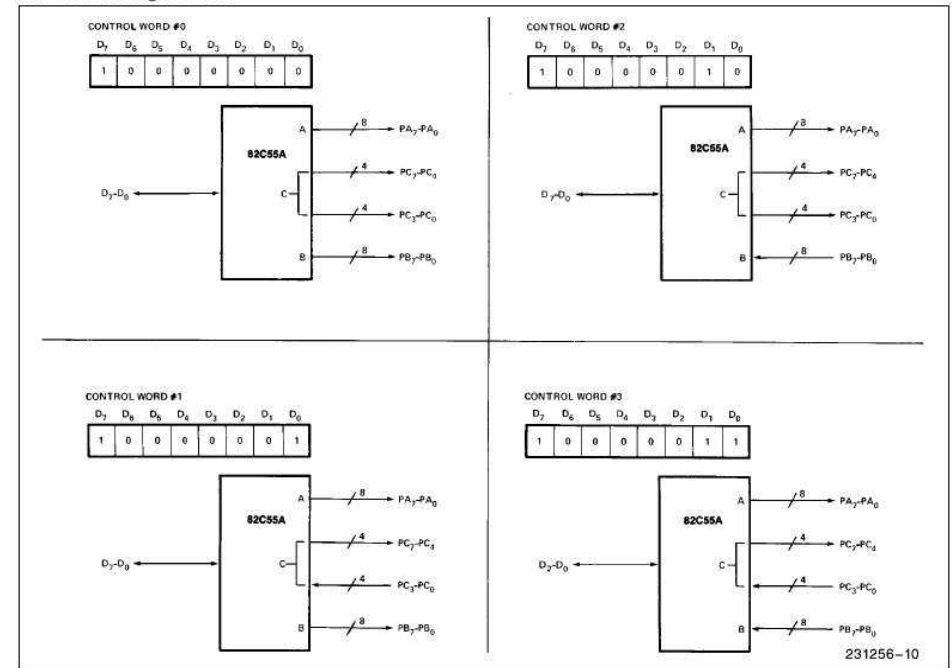
A ₁	A ₀	\overline{RD}	\overline{WR}	\overline{CS}	Input Operation (Read)
0	0	0	1	0	Port A - Data Bus
0	1	0	1	0	Port B - Data Bus
1	0	0	1	0	Port C - Data Bus
1	1	0	1	0	Control Word - Data Bus
Output Operation (Write)					
0	0	1	0	0	Data Bus - Port A
0	1	1	0	0	Data Bus - Port B
1	0	1	0	0	Data Bus - Port C
1	1	1	0	0	Data Bus - Control

Control Word Register

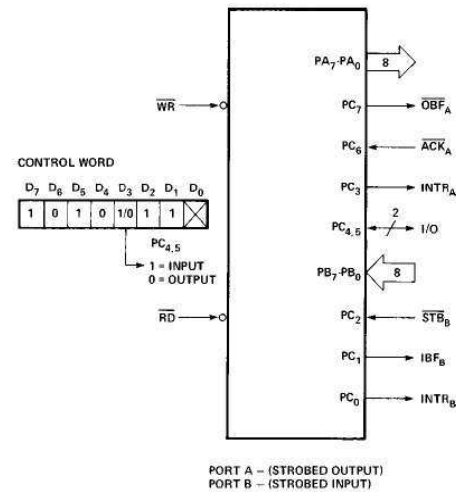
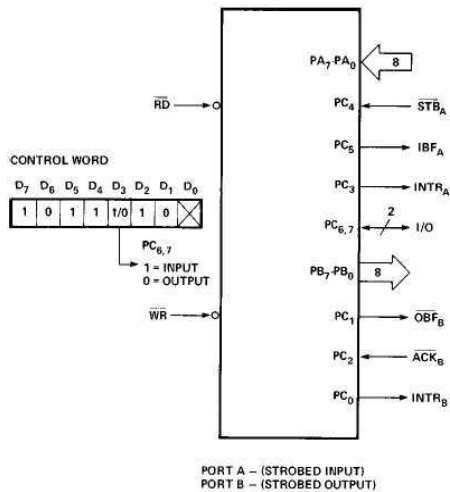


Mode 0 : Basic Input/Output

MODE 0 Configurations

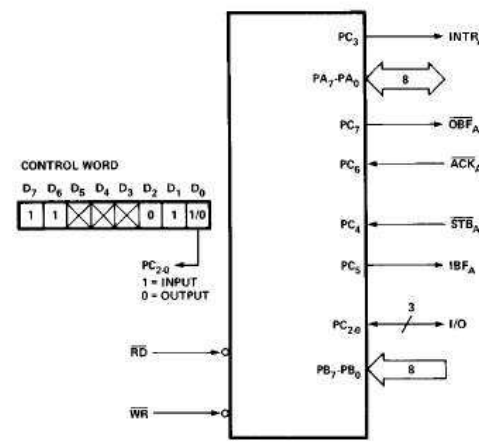


Mode 1 : Strobed Input/Output

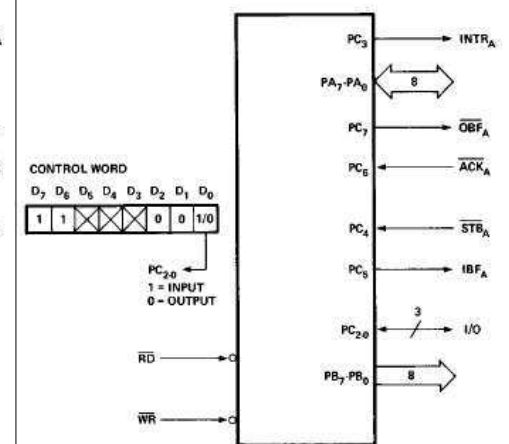


Strobed Bidirectional Bus I/O

MODE 2 AND MODE 0 (INPUT)



MODE 2 AND MODE 0 (OUTPUT)



Mode Definition Summary

	MODE 0		MODE 1		MODE 2
	IN	OUT	IN	OUT	GROUP A ONLY
PA ₀	IN	OUT	IN	OUT	↔
PA ₁	IN	OUT	IN	OUT	↔
PA ₂	IN	OUT	IN	OUT	↔
PA ₃	IN	OUT	IN	OUT	↔
PA ₄	IN	OUT	IN	OUT	↔
PA ₅	IN	OUT	IN	OUT	↔
PA ₆	IN	OUT	IN	OUT	↔
PA ₇	IN	OUT	IN	OUT	↔
PB ₀	IN	OUT	IN	OUT	—
PB ₁	IN	OUT	IN	OUT	—
PB ₂	IN	OUT	IN	OUT	—
PB ₃	IN	OUT	IN	OUT	—
PB ₄	IN	OUT	IN	OUT	—
PB ₅	IN	OUT	IN	OUT	—
PB ₆	IN	OUT	IN	OUT	—
PB ₇	IN	OUT	IN	OUT	—
PC ₀	IN	OUT	INTR _B	INTR _B	I/O
PC ₁	IN	OUT	IBF _B	$\overline{\text{OBF}}_B$	I/O
PC ₂	IN	OUT	STB _B	$\overline{\text{ACK}}_B$	I/O
PC ₃	IN	OUT	INTR _A	INTR _A	INTR _A
PC ₄	IN	OUT	STB _A	I/O	$\overline{\text{STB}}_A$
PC ₅	IN	OUT	IBF _A	I/O	IBF _A
PC ₆	IN	OUT	I/O	$\overline{\text{ACK}}_A$	$\overline{\text{ACK}}_A$
PC ₇	IN	OUT	I/O	$\overline{\text{OBF}}_A$	$\overline{\text{OBF}}_A$