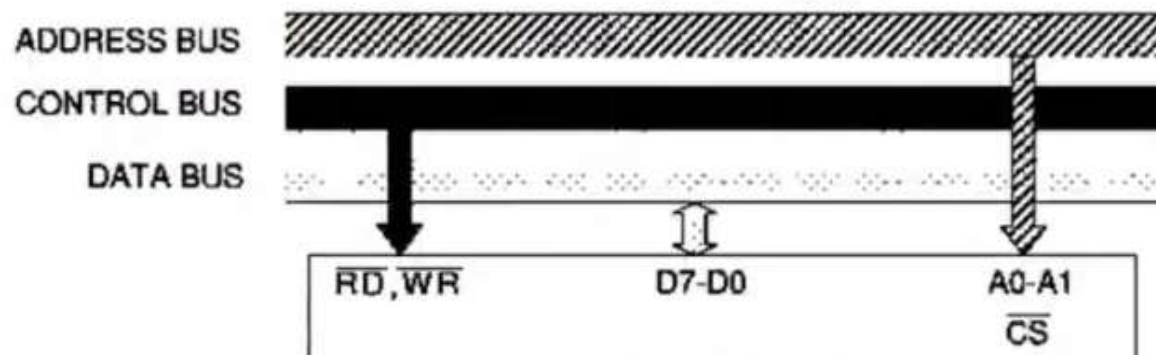


## I/O Mode (Configured by Mode definition CR)

- If bit 7 of the control word is a logical 1 then the 8255 will be configured as I/O mode.
- I/O mode consists of Mode0, Mode1 and Mode2.

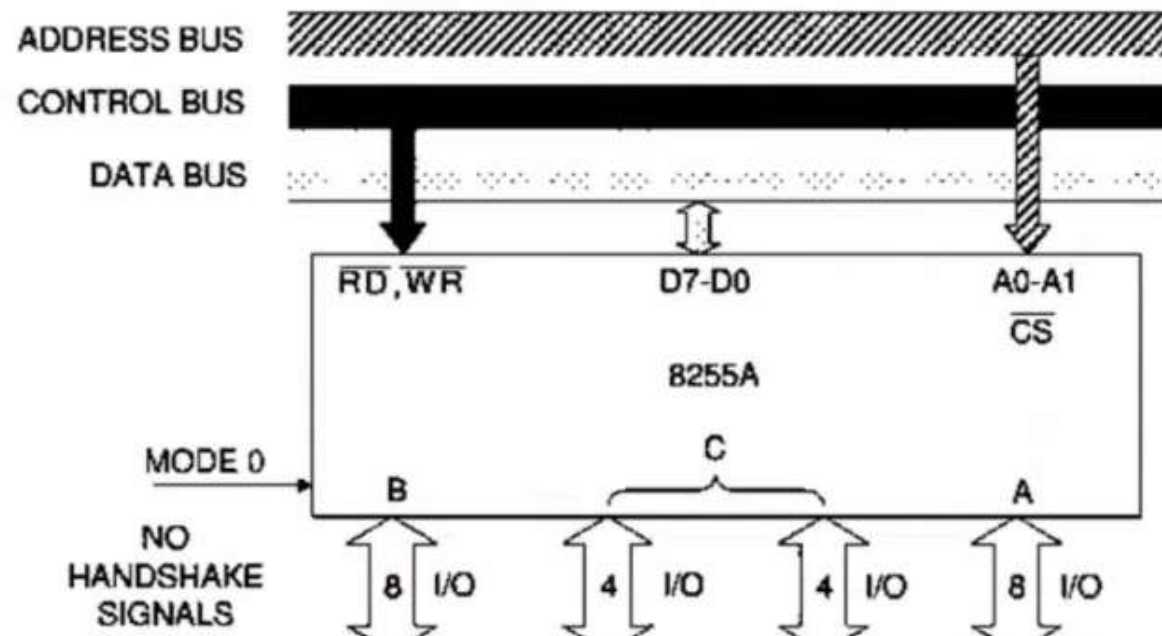
### Mode 0

- Port A works as simple input or output without handshaking.
- Port B works as simple input or output without handshaking.
- Port C can be used together as an additional 8 bit port or they can be used individually as two 4-bit ports.
- When used as outputs, the Port C lines can be individually set or reset by sending a special control word to the control register address.

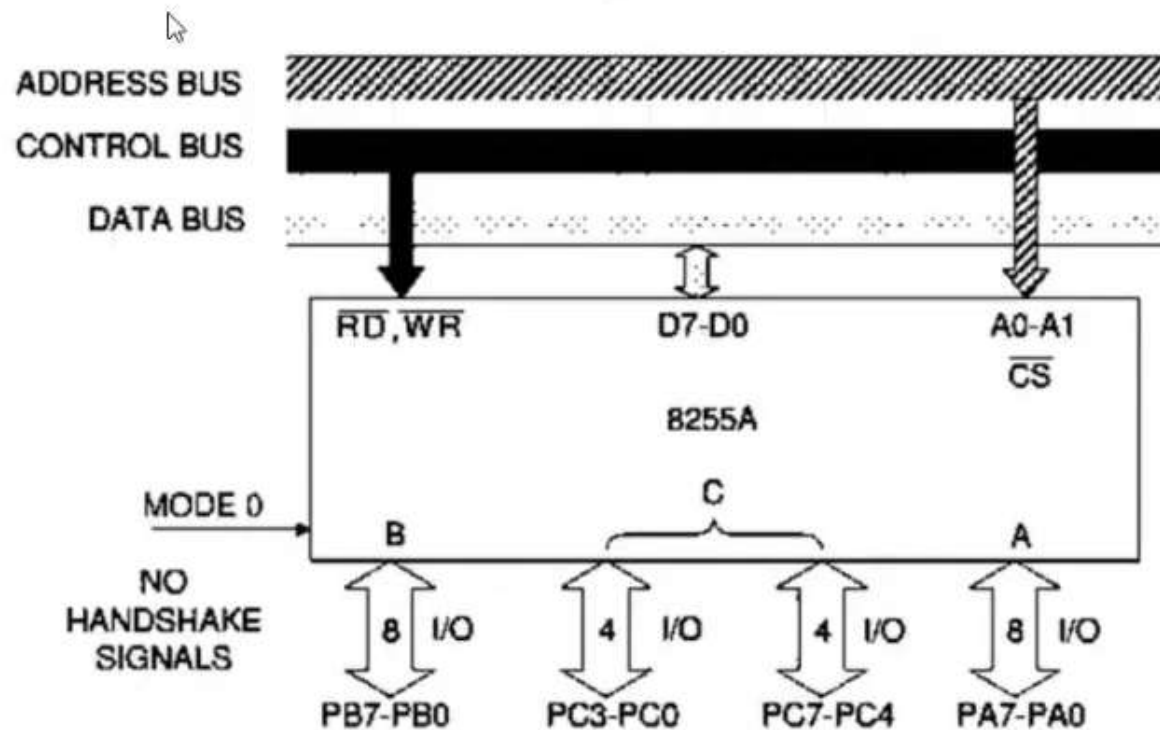


## Mode 0

- Port A works as simple input or output without handshaking.
- Port B works as simple input or output without handshaking.
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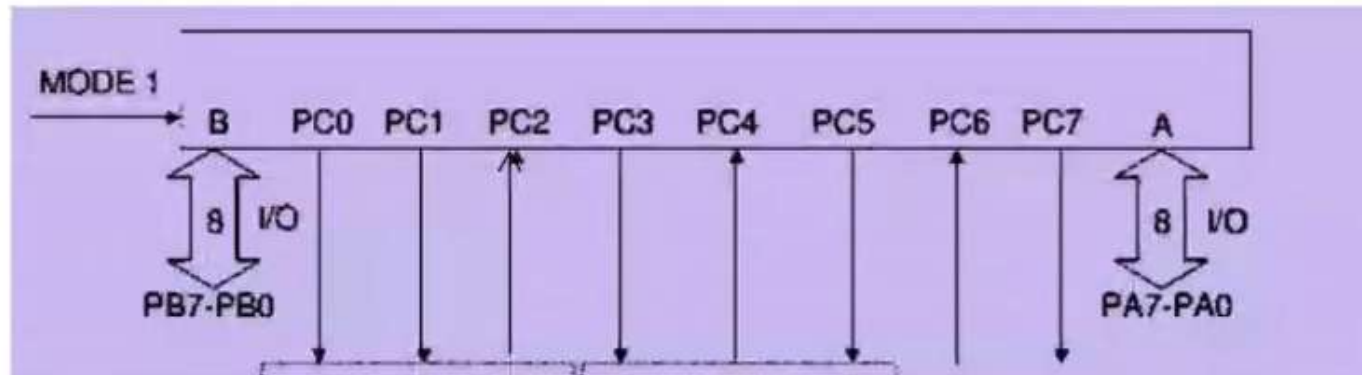
- Port A works as simple input or output without handshaking.
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## I/O Mode (Cont.)

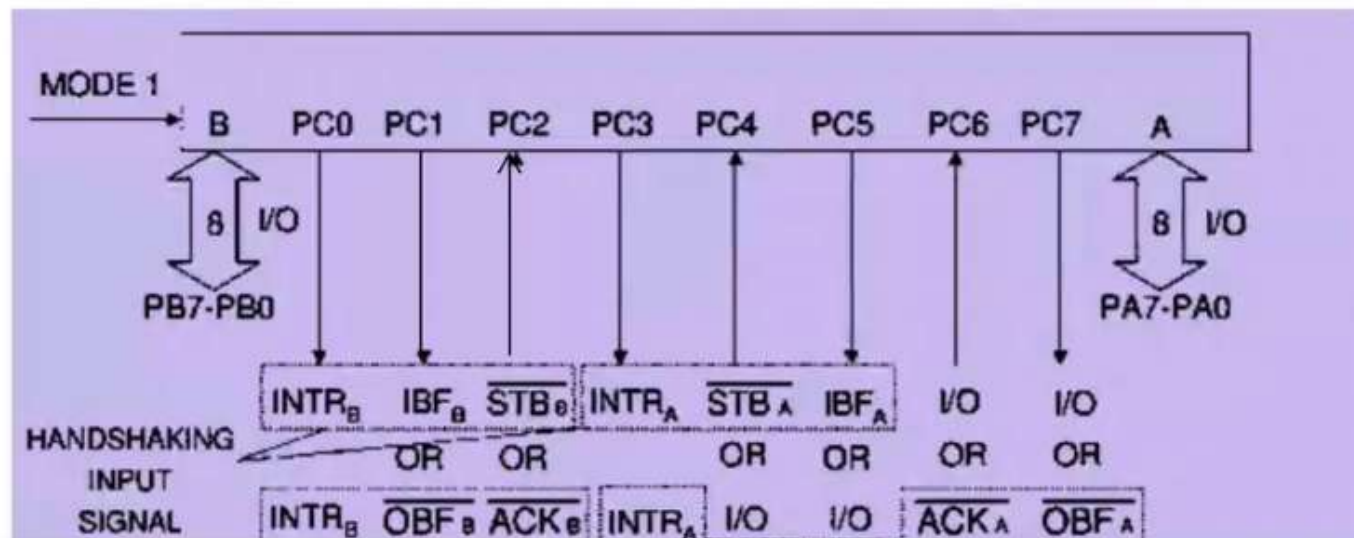
### Mode 1

- Used for handshake input/output operation.
- Port B is initialized in mode 1 for either input or output, Pins PC0, PC1 and PC2 function as handshake lines.
- Port A can also be configured as input or output in mode 1. But handshake signal pins are not same for input and output mode as like Port B.
- If port A is initialized in mode 1 as handshake input port, then pins PC3, PC4 and PC5 function as handshake signals. (PC6 and PC7 are available for using as input lines or output lines)
- If port A is initialized as handshake output port, then PC3, PC6 and PC7 function as handshake signals. (PC4 and PC5 are available for using as input or output lines)



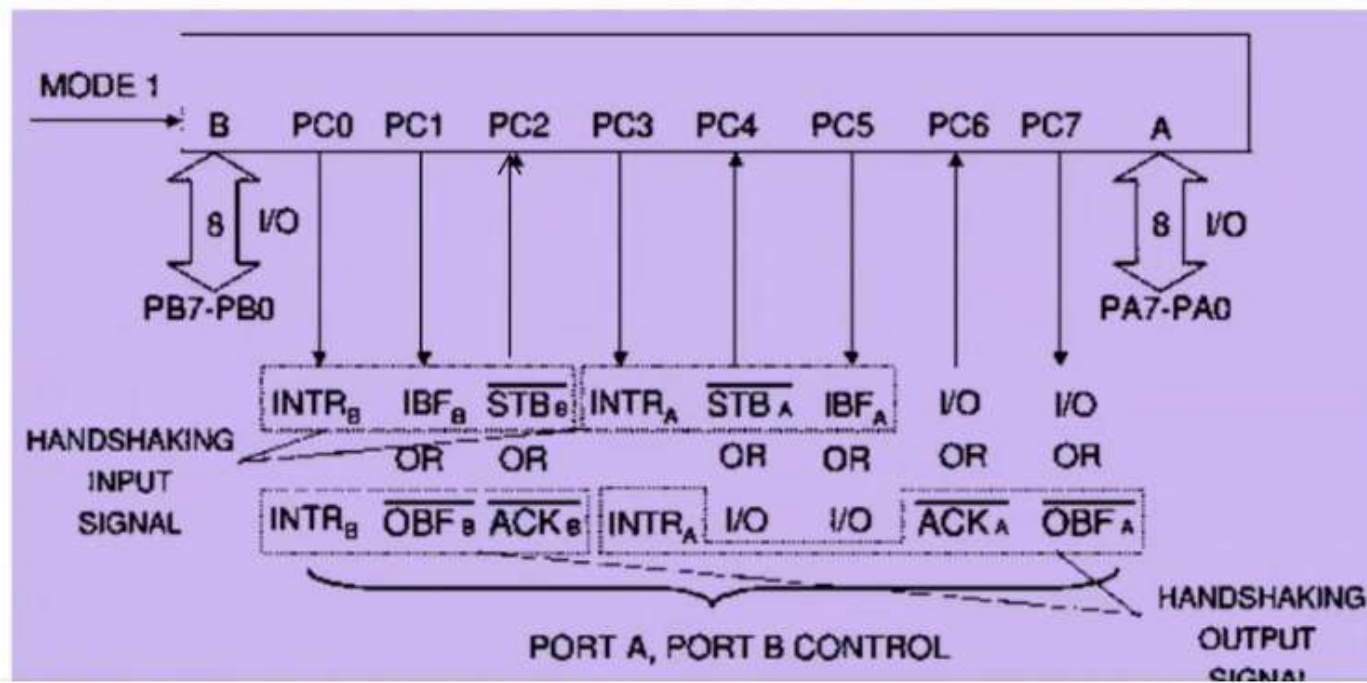


- Used for handshake input/output operation.
- Port B is initialized in mode 1 for either input or output, Pins PC0, PC1 and PC2 function as handshake lines.
- Port A can also be configured as input or output in mode 1. But handshake signal pins are not same for input and output mode as like Port B.
- If port A is initialized in mode 1 as handshake input port, then pins PC3, PC4 and PC5 function as handshake signals. (PC6 and PC7 are available for using as input lines or output lines)
- If port A is initialized as handshake output port, then PC3, PC6 and PC7 function as handshake signals. (PC4 and PC5 are available for using as input or output lines)



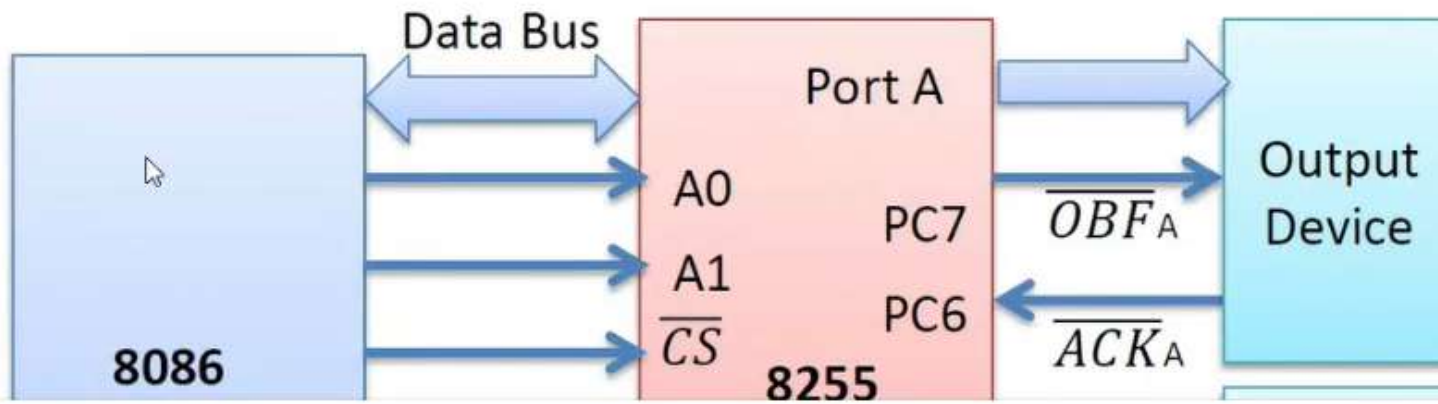
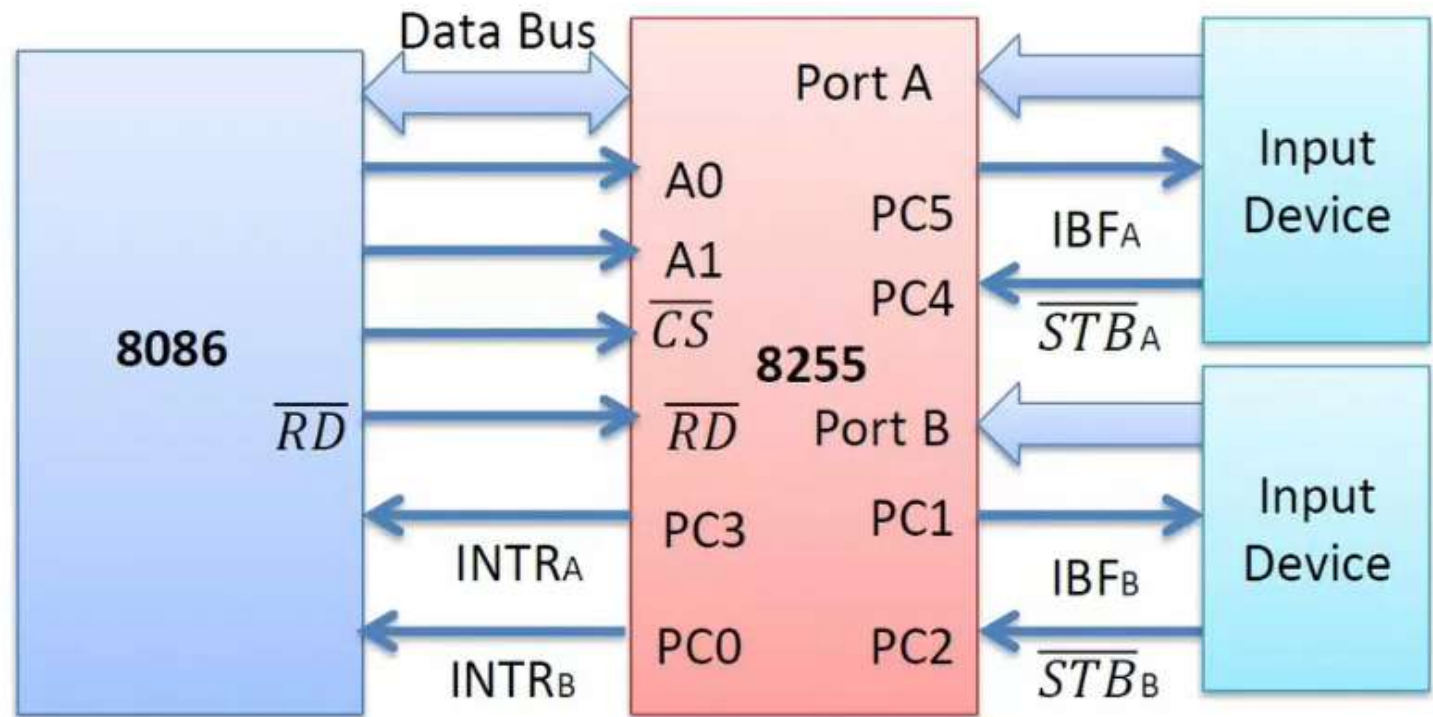
FUNCTION AS HANDSHAKE LINES.

- Port A can also be configured as input or output in mode 1. But handshake signal pins are not same for input and output mode as like Port B.
- If port A is initialized in mode 1 as handshake input port, then pins PC3, PC4 and PC5 function as handshake signals. (PC6 and PC7 are available for using as input lines or output lines)
- If port A is initialized as handshake output port, then PC3, PC6 and PC7 function as handshake signals. (PC4 and PC5 are available for using as input or output lines)



## I/O Mode (Cont.)

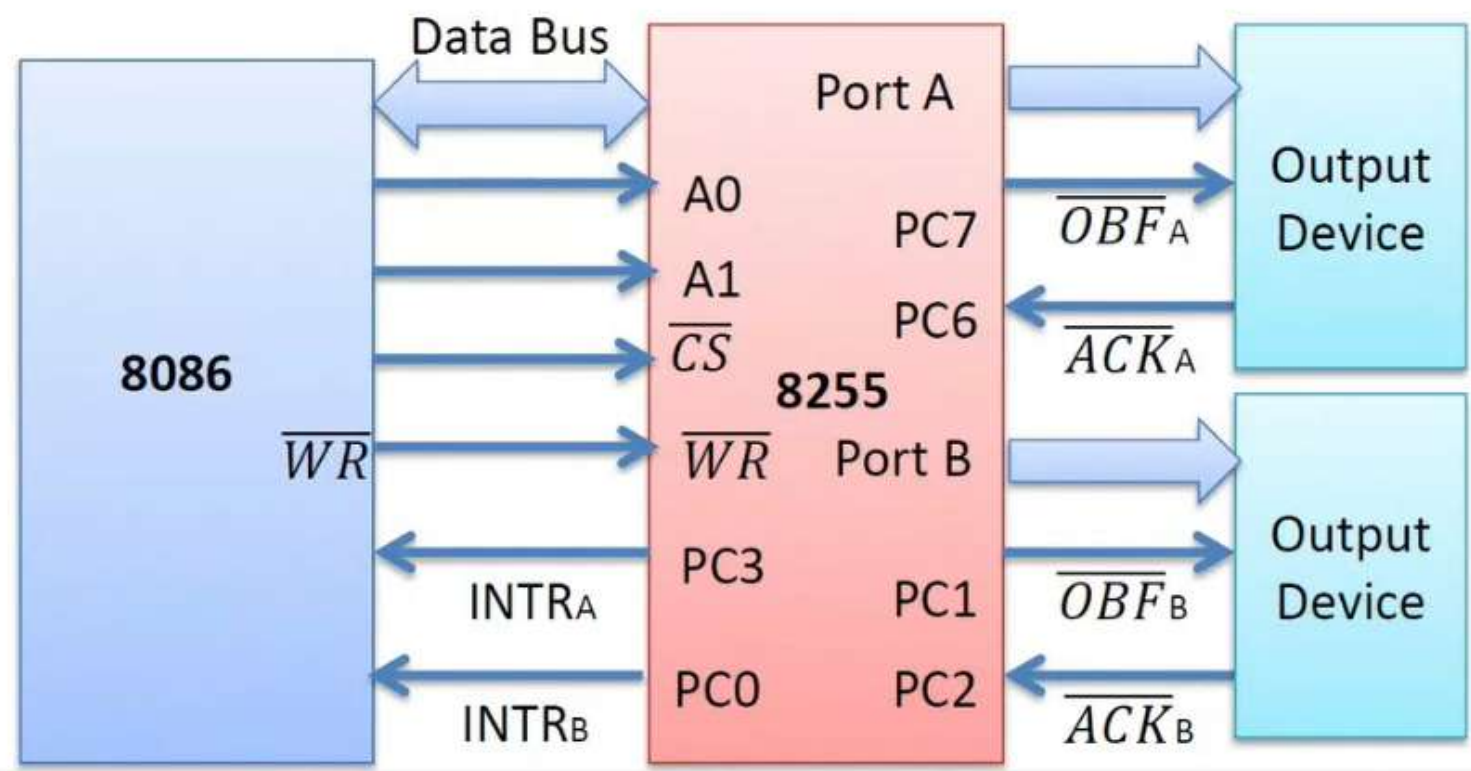
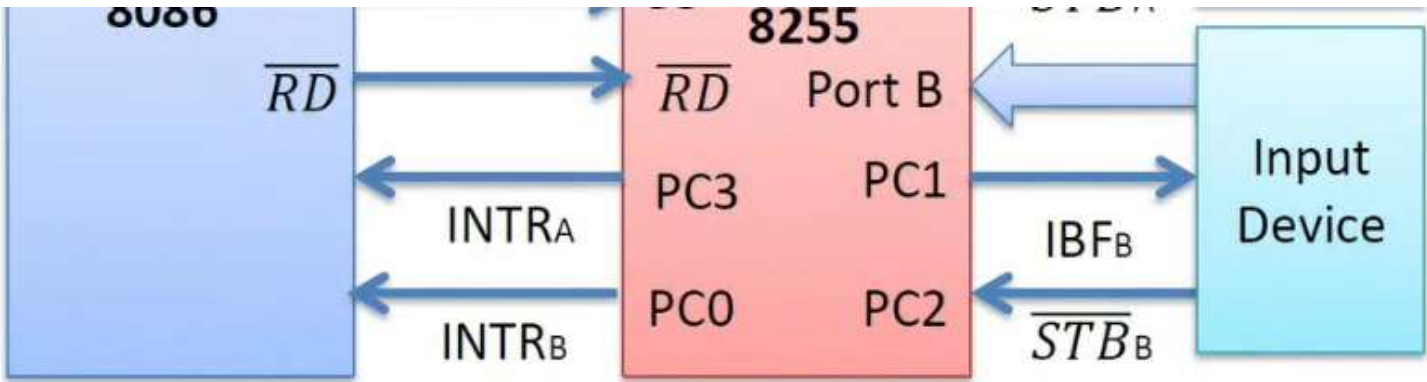
Connection of Handshaking lines when Port A and Port B configured as Input in Mode 1



Connection of Handshaking lines when Port A and Port B configured as Output in



configured as Input in Mode 1



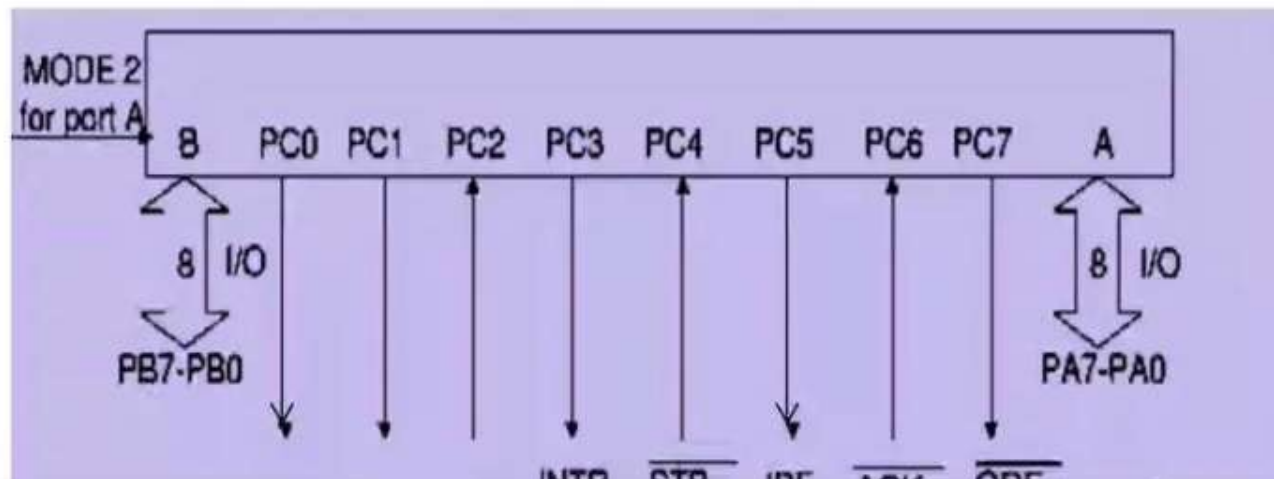
Connection of Handshaking lines when Port A and Port B configured as Output in Mode 1



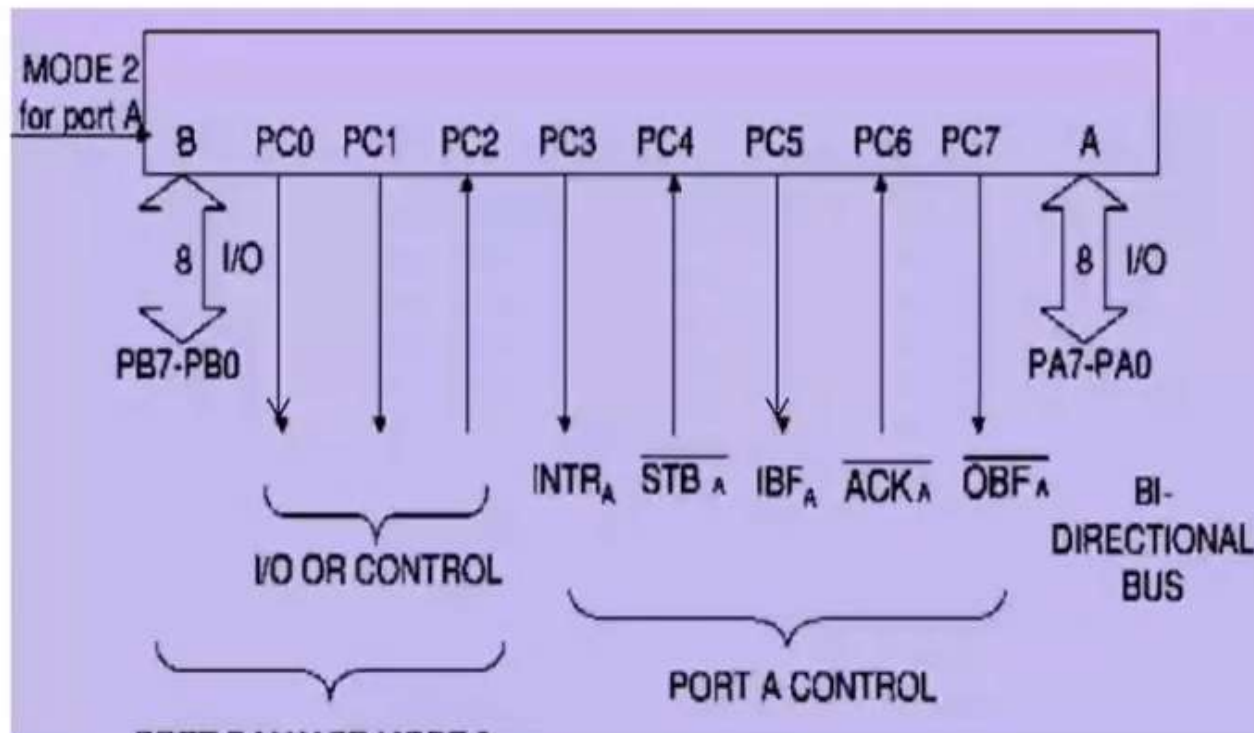
## I/O Mode (Cont.)

### Mode 2

- Only port A can be initialized in mode 2.
- In mode 2, port A can be used for “bi-directional handshake” data transfer i.e. data can be input or output on the same eight lines.
- Pins PC3, PC4, PC5, PC6, PC7 used as handshake lines for port A.
- Port B is operating in either mode 0 or mode 1.
- If port B is in mode 0, then PC0, PC1 and PC2 used for I/O.
- If port B is in mode 1, then PC0, PC1 and PC2 used as handshake lines.

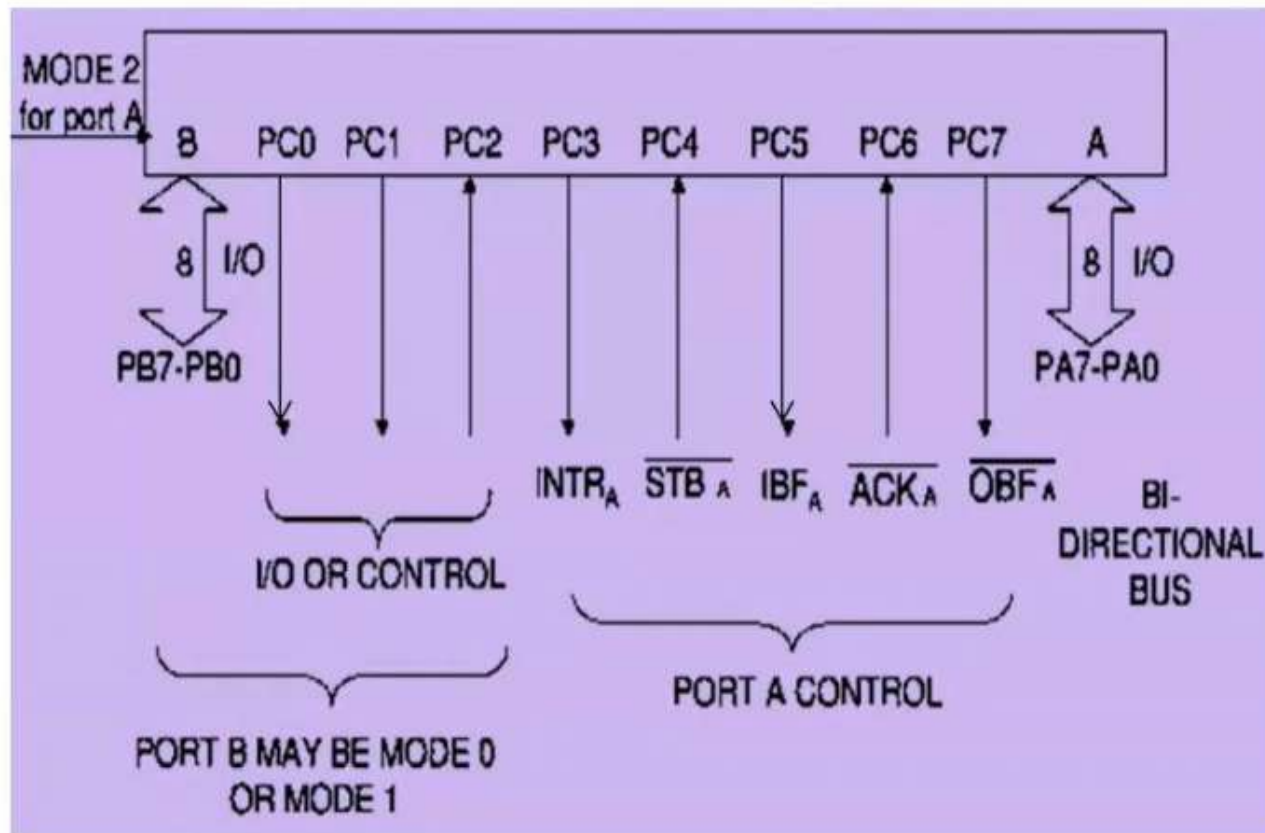


- In mode 2, port A can be used for “bi-directional handshake” data transfer i.e. data can be input or output on the same eight lines.
- Pins PC3, PC4, PC5, PC6, PC7 used as handshake lines for port A.
- Port B is operating in either mode 0 or mode 1.
- If port B is in mode 0, then PC0, PC1 and PC2 used for I/O.
- If port B is in mode 1, then PC0, PC1 and PC2 used as handshake lines.



input or output on the same eight lines.

- Pins PC3, PC4, PC5, PC6, PC7 used as handshake lines for port A.
- Port B is operating in either mode 0 or mode 1.
- If port B is in mode 0, then PC0, PC1 and PC2 used for I/O.
- If port B is in mode 1, then PC0, PC1 and PC2 used as handshake lines.





## I/O Mode (Cont.)

### 8255A modes summarization

Mode	8- Bit Port A	8-Bit Port B	Handshake lines for mentioned Mode	Other Port C pins available for I/O
0	I/O	I/O	N/A	PC7- PC4 and PC3- PC0
1	Input	I/O	PC3, PC4, PC5 (Port A) PC0, PC1, PC2 (Port B)	PC6, PC7
1	Output	I/O	PC3, PC6, PC7 (Port A) PC0, PC1, PC2 (Port B)	PC4, PC5
2	Bi-Directional	N/A	PC3, PC4, PC5, PC6, PC7	PC0, PC1, PC2 (If Port B in Mode 0)