

[<< Search more Solutions!](#)

Found Errors in Solution? >> [Report here!](#)

Answer

(a)

Here 8255A is connected as a peripheral for input and output operations. In order to select the 8255A the output of NAND gates has to be low. So address lines A2 - A7 are all set and to select individual ports the address must be ,

	A7	A6	A5	A4	A3	A2	A1	A0
Port A	1	1	1	1	1	1	0	0

	A7	A6	A5	A4	A3	A2	A1	A0
Port B	1	1	1	1	1	1	0	1

	A7	A6	A5	A4	A3	A2	A1	A0
Port C	1	1	1	1	1	1	1	0

Port A - FCH

Port B - FDH

Port C - FEH

(b)

Control Word Register

D7	D6	D5	D4	D3	D2	D1	D0
----	----	----	----	----	----	----	----

D7 - In 8255A there are two modes BSR mode or I/O mode. So if D7 set then it works in I/O mode and if it is cleared it works in BSR mode. So in order to select mode 1 the MSB D7 must be 1.

D6 & D5 - Used to select mode 0, mode 1 or mode 2 in I/O mode.

Mode 0 - Port A, B and C can work either as input function or as output function.

Mode 1 - In this either port A or B can work and port C bits are used to provide handshaking.

Mode 2 - In this mode only port A will work, port B can either is in mode 0 or 1 and port C bits are used as handshake signal.

D6	D5	Mode
0	0	mode 0
0	1	mode 1
1	x	mode 2

So to select mode 1, D6 must be cleared and D5 must be set.

D4 - Used to select the direction of Port A. If D4 is set then Port A will act as input port and if D4 is cleared then Port A will be output port.

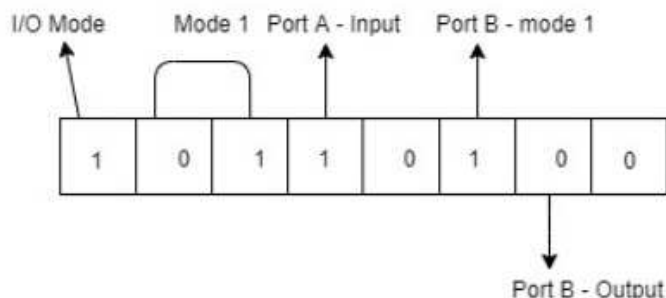
D3 - Used to select the direction of Port C higher bits. If D3 is set then Port C higher will act as input port and if D3 is cleared then Port C higher will be output port.

D2 - Used to select mode of port B. If it is 0 then port B is in mode 0 otherwise in mode1.

D1 - Used to select the direction of Port B. If D1 is set then Port B will act as input port and if D1 is cleared then Port B will be output port.

D0 - Used to select the direction of Port C lower bits. If D0 is set then Port C lower will act as input port and if D0 is cleared then Port C lower will be output port.

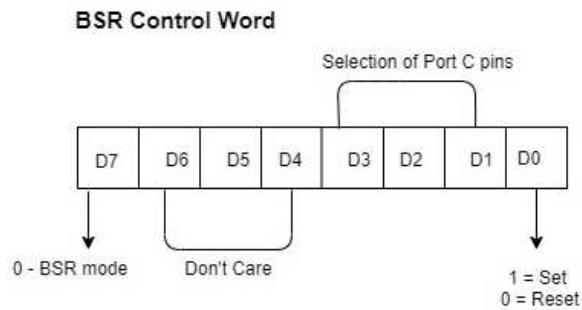
So the control word to set up Port A as input and Port B as output in mode 1 will be ,



So the control word is B4H

(c)

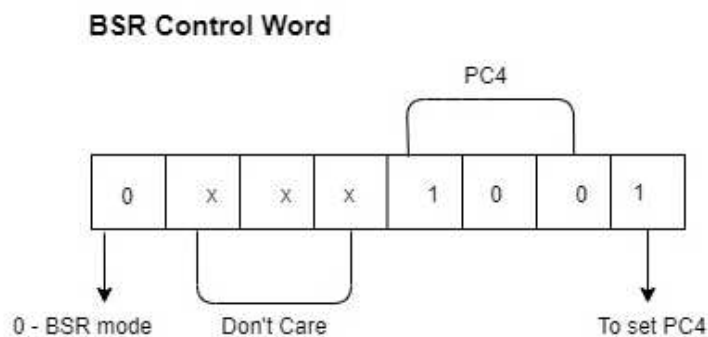
The BSR word is given by,



D3	D2	D1		
0	0	0	Set / Reset	PC0
0	0	1	Set / Reset	PC1
0	1	0	Set / Reset	PC2
0	1	1	Set / Reset	PC3
1	0	0	Set / Reset	PC4
1	0	1	Set / Reset	PC5
1	1	0	Set / Reset	PC6
1	1	1	Set / Reset	PC7

The 8255A has two internal flip-flops as interrupt enables $INTE_A$ and $INTE_B$ for Port A and Port B interrupt signals. These interrupts are only generated when flip-flops are enabled by BSR control word. The $INTE_A$ is enabled by setting PC4 to high.

So the corresponding BSR control word will be,



(d)

Since the printer is connected in Port B which is output port, the output to the printer is status controlled. So the status of \overline{OBF}_B line can be checked by the D1 bit of Port C lower bits in the control word register.

if the answer is helpful to you please give positive rating.if any doubts please provide comment i will try to clarify your doubt



Likes: 1



Dislikes: 0

