Masking

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Firebird ATmega2560 Robotics Research Platform

Agenda for Discussion

- Masking
 - What is Masking
 - Examples









Outline

Masking

What is Masking

√ Masking in basic terms is hiding.





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- ✓ Sometimes, we need to change the state of only one pin of the port thereby keeping the rest of the pins unchanged.
- The Masking can be attained by using AND operator and OR operator.
- ✓ Whenever we want to SET a particular bit we use OR operator.
- √ Whenever we want to RESET a bit we use AND operator







• Example: Setting a bit :





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 - a. PORT B has data 0x83 (unknown to us). We want to set PB2 and keep rest of the data intact.

D7	_	_		_			
1	0	0	0	0	0	1	1





- Example: Setting a bit :
 - a. PORT B has data 0x83 (unknown to us). We want to set PB2 and keep rest of the data intact.

D7	D6	D5	D4	D3	D2	D1	D0
1	0	0	0	0	0	1	1





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D7	D6	D5	D4	D3	D2	D1	D0
1	0	0	0	0	0	1	1



D7	D6	D5	D4	D3	D2	D1	D0
1	0	0	0	0	0	1	1

OR

D7	D6	D5	D4	D3	D2	D1	D0
0	0	0	0	0	1	0	0





D7	D6	D5	D4	D3	D2	D1	D0
1	0	0	0	0	0	1	1

OR

D7	D6	D5	D4	D3	D2	D1	D0
0	0	0	0	0	1	0	0



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• Example: Resetting a bit :





- ① Example: Resetting a bit :
 - a. PORT B has data 0x53 (unknown to us). We want to reset PB4 and keep rest of the data intact.

D7	D6	D5	D4	D3	D2	D1	D0
0	1	0	1	0	0	1	1





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D7	D6	D5	D4	D3	D2	D1	D0
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	0	1	0	1	0	0	1	1

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1	0	1	0	0	0	0	1	1







D7	D6	D5	D4	D3	D2	D1	D0
0	1	0	1	0	0	1	1



D7	D6	D5	D4	D3	D2	D1	D0
0	1	0	1	0	0	1	1

AND

D7	D6	D5	D4	D3	D2	D1	D0
1	1	1	0	1	1	1	1



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D7	D6	D5	D4	D3	D2	D1	D0
0	1	0	1	0	0	1	1

AND

D7	D6	D5	D4	D3	D2	D1	D0
1	1	1	0	1	1	1	1

• PORTB = PORTB & 0xEF;



Thank You!

Post your queries on: http://qa.e-yantra.org/



