

## #2) Decoding Algorithm of Hamming Code

	0	1	0	1	1	1	0	0	1	1	0	1	1	0	0	0	1	1	0	0	0	1
	P <sub>11</sub>	P <sub>0</sub>	P <sub>1</sub>	3	P <sub>2</sub>	5	6	7	P <sub>3</sub>	9	10	11	12	13	14	15	P <sub>4</sub>	17	18	19	20	21
P <sub>11</sub>	1																					
P <sub>0</sub>	0	X	1	X	1	X	0	X	1	X	1	X	0	X	0	X	1	X	0	X	1	
P <sub>1</sub>	0																					
P <sub>2</sub>	1																					
P <sub>3</sub>	1																					
P <sub>4</sub>	0																					

Mask  
Mask

Original Code 0 P<sub>11</sub>  
 Recalculated Code + 1 P<sub>11</sub>  
1 error

test 1

R<sub>4</sub>  
R<sub>3</sub>

Original Code 1 1 1 0 1 P<sub>4</sub> P<sub>3</sub> P<sub>2</sub> P<sub>1</sub> P<sub>0</sub>  
 Recalculated Code 0 1 1 0 0  
 BEQ 1 0 0 0 1

error 1 error  
 $2^4$   $2^0$   
 16 + 1

test 2

R<sub>2</sub>  
R<sub>1</sub>  
R<sub>5</sub>

Position 17 has an error

1000110001101101100110

Mask P<sub>1</sub> 101010101010101010

100000001