Hamming decoder

07 October 2014   21:30

State

dStrobe	S2	S1	S0	S2'	S1'	S0'	OUT_
0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	0
X	0	0	1	0	1	0	0
X	0	1	0	0	1	1	0
X	0	1	1	1	0	0	0
X	1	0	0	1	0	1	0
X	1	0	1	1	1	0	0
X	1	1	0	1	1	1	0
X	1	1	1	0	0	0	1

Valid check

AB\DC	00	01	11	10
00	1	1		
01	1	1		
11	1	1	1	
10	1	1		

$V = \sim D + ABCD$

$OUT = S2 \cdot S1 \cdot S0$

S2'

S0\S2S1	00	01	11	10
0			1	1
1		1		1

$S2' = S2 \cdot \sim S0 + S2 \cdot \sim S1 + \sim S2 \cdot S1 \cdot S0$

S1'

S0\S2S1	00	01	11	10
0		1	1	
1	1			1

$S1' = S1 \cdot \sim S0 + \sim S1 \cdot S0 = S0 \oplus S1$

S0'

S1S0\DS2	00	01	11	10
00		1	1	1
01				
11				
10	1	1	1	1

$S0' = S1 \cdot \sim S0 + D \cdot \sim S0 + S2 \cdot \sim S0$