

CHAP 7

1.設計8bits無號數的平方電路。以5bits為例講解：

$$\begin{array}{r}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_4 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_3 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_2 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_1 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_0 X_4
 \end{array}
 \\
 \hline
 \begin{array}{r}
 P_9 \\
 P_8 \\
 P_7 \\
 P_6 \\
 P_5 \\
 P_4 \\
 P_3 \\
 P_2 \\
 P_1 \\
 P_0
 \end{array}
 \end{array}$$

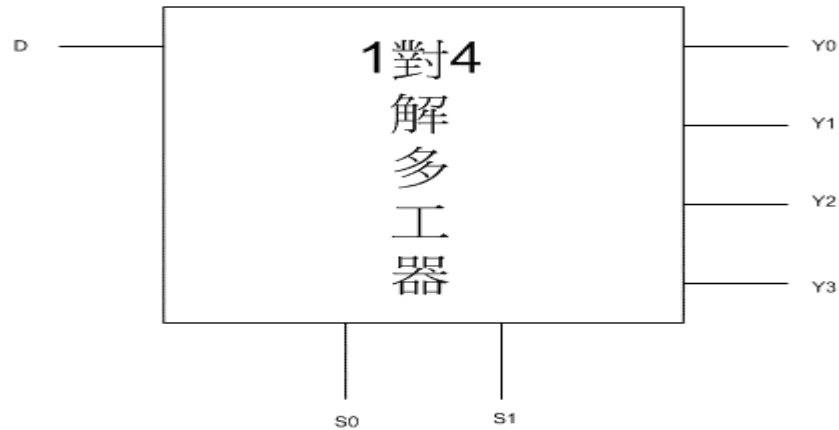
(a) Multiply x by y

$$\begin{array}{r}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_4 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_3 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_2 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_1 X_4
 \end{array}
 \begin{array}{r}
 \\
 \\
 \\
 \\
 X_0 X_4
 \end{array}
 \\
 \hline
 \begin{array}{r}
 P_9 \\
 P_8 \\
 P_7 \\
 P_6 \\
 P_5 \\
 P_4 \\
 P_3 \\
 P_2 \\
 0 \\
 X_0
 \end{array}
 \end{array}$$

2.請設計16位元累加器，如下圖。



3.請使用 if else 敘述，描述一個一對四的解多工器。



1對4的解多工器

S1	S0	Y0	Y1	Y2	Y3
0	0	D	0	0	0
0	1	0	D	0	0
1	0	0	0	D	0
1	1	0	0	0	D
*	*	*	*	*	*

4.用Behavioral Modeling實現圖一的紅綠燈控制電路狀態圖並測試。

