Array Multiplier :-

& y = multiplier

- In general, let x = multiplicand

for 4x4 bit multiplier, x

$x_3 x_2 x_1 x_0$ $y_3 y_2 y_1 y_0$

- normal multiplication.

x_3 x_2 x_1 x_0 → 4 bit

y_3 y_2 y_1 y_0 → 4 bit

			x_3y_0	x_2y_0	x_1y_0	x_0y_0
		x_3y_1	x_2y_1	x_1y_1	x_0y_1	
	x_3y_2	x_2y_2	x_1y_2	x_0y_2		
x_3y_3	x_2y_3	x_1y_3	x_0y_3			
z_6	z_5	z_4	z_3	z_2	z_1	z_0

output will be of 7 bit.

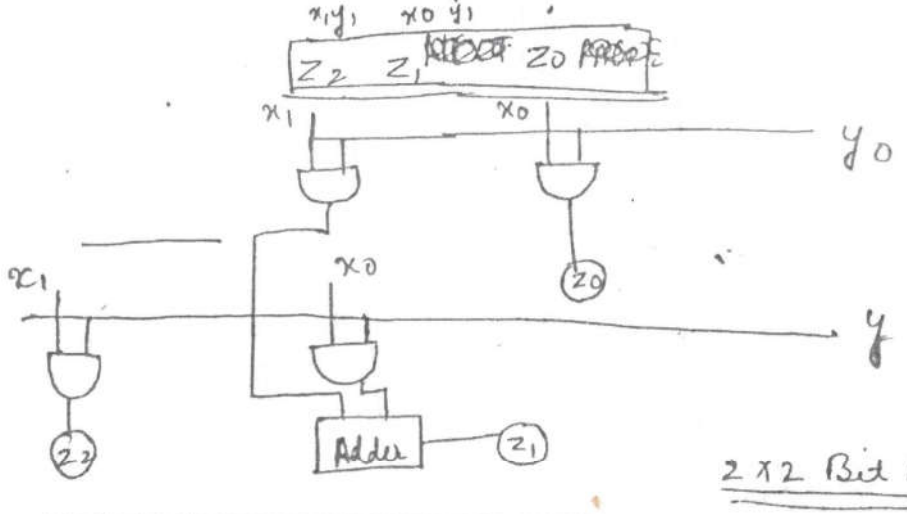
- For showing this using logic gates, we will use AND gate for multiplication and adders for adding the outputs

- 2x2 bit multiplier :- x_1 x_0 / y_1 y_0 output = 3-bit

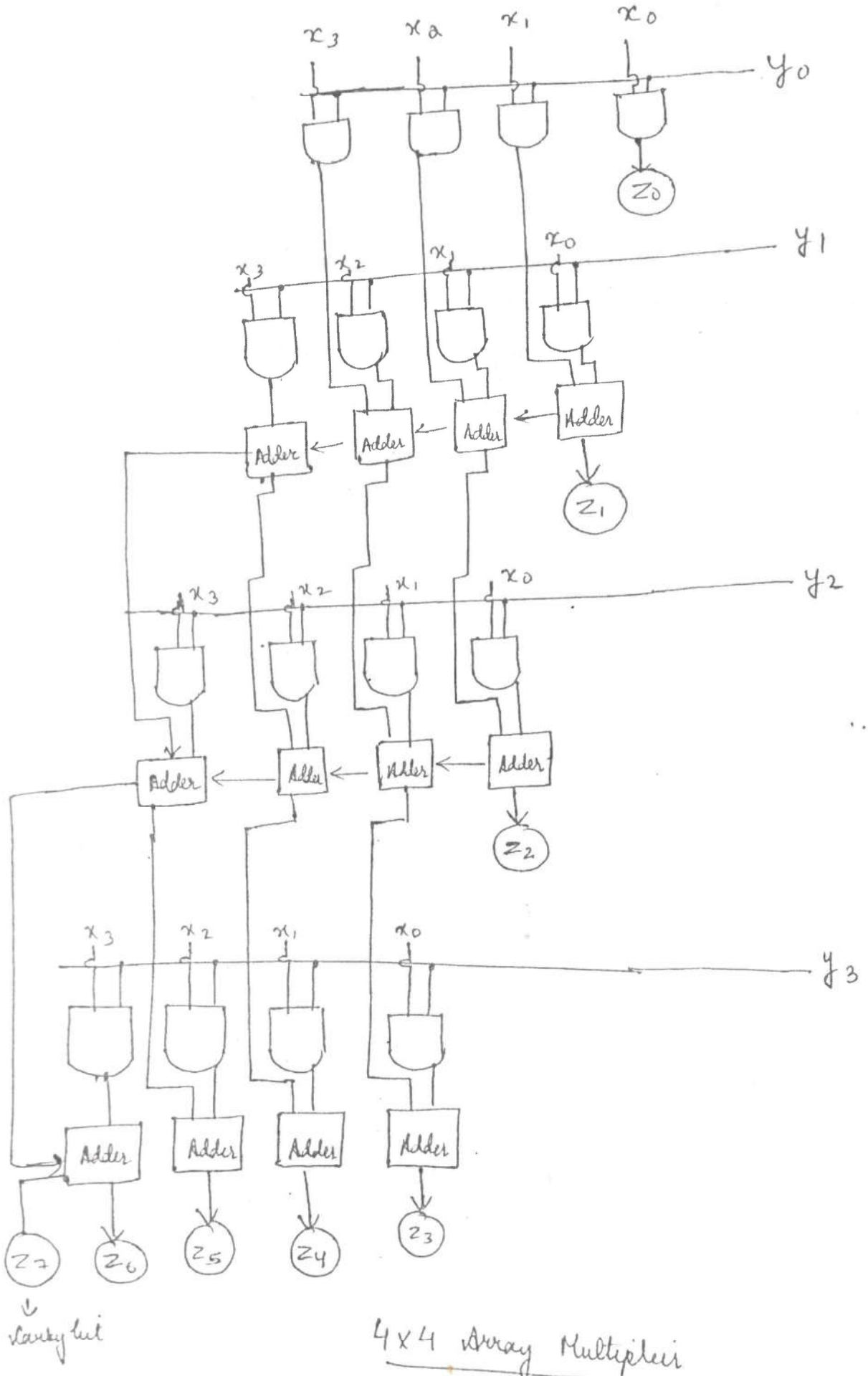
x_1y_0 x_0y_0

x_1y_1 x_0y_1

z_2 z_1 z_0



2 x 2 Bit Array Multiplier



4x4 Array Multiplier