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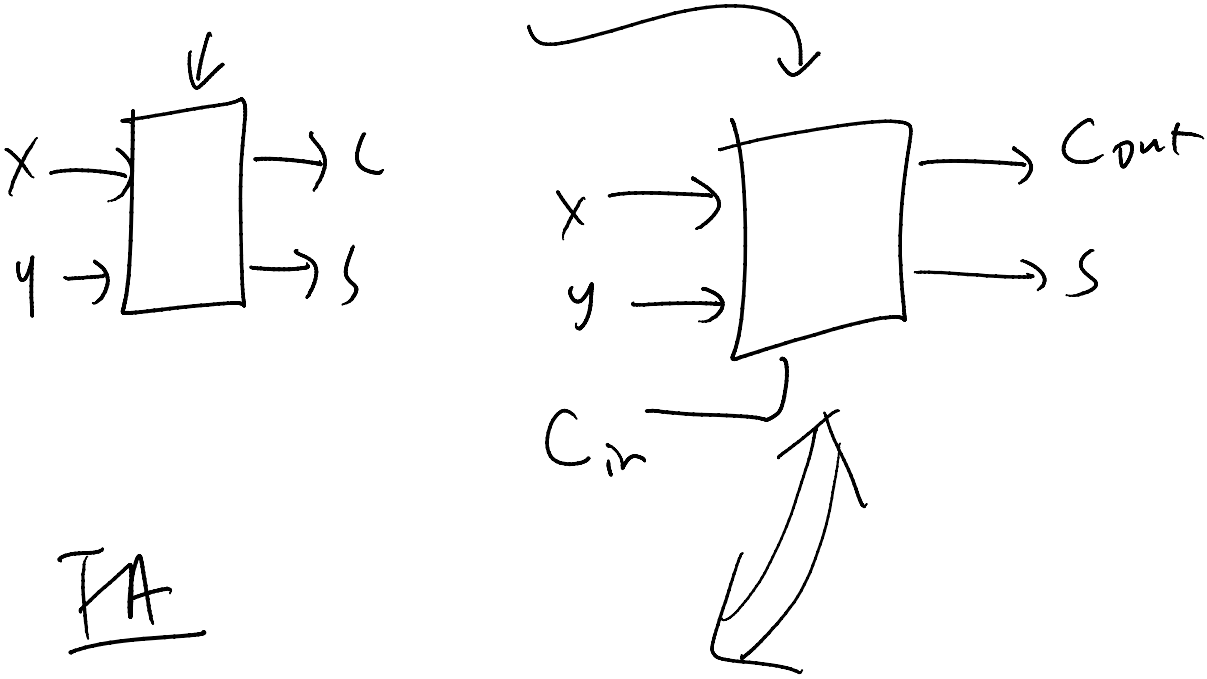
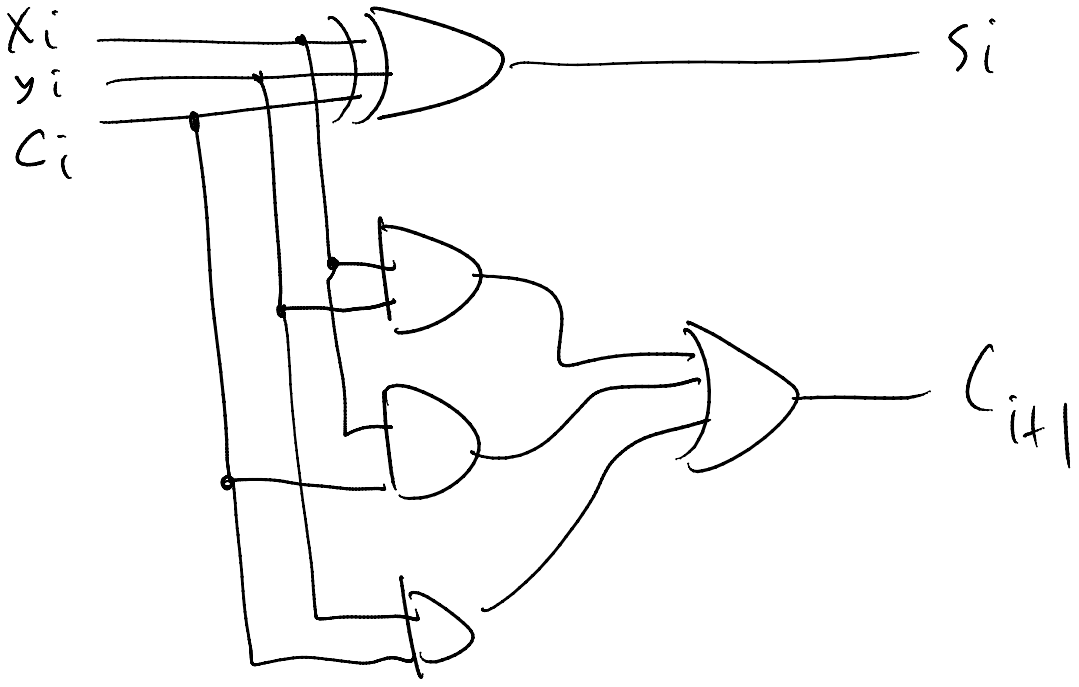
1:13 PM

HA FA



FA



$$C_{i+1} = x_i y_i + y_i C_i + x_i C_i$$

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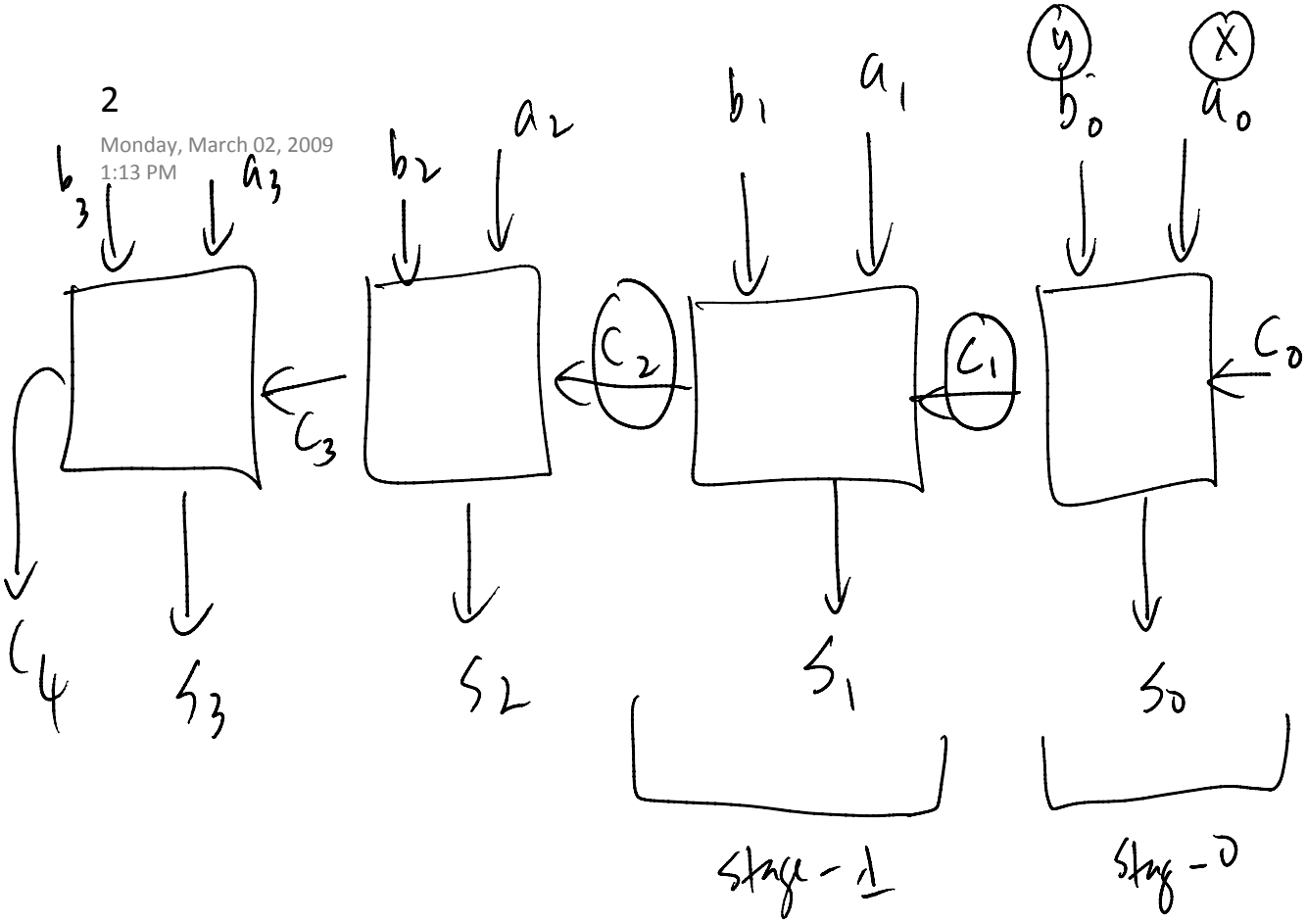

$$C_{i+1} = x_i y_i + x_i c_i + y_i c_i$$

$$= x_i y_i + (x_i + y_i) c_i$$

$$g_i = x_i y_i \quad , P_i = x_i + y_i$$

$$\boxed{C_{i+1} = g_i + P_i c_i}$$

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$$C_{i+1} = g_i + p_i C_i$$

where $g_i = x_i y_i$, $p_i = x_i + y_i$

C_0 incoming

for $i=0$, $C_1 = g_0 + p_0 C_0$

for $i=1$, $C_2 = g_1 + p_1 C_1$

$= g_1 + p_1 (g_0 + p_0 C_0)$

$= g_1 + p_1 g_0 + p_1 p_0 C_0$

for $i=2$, $C_3 = g_2 + p_2 C_2$

$= g_2 + p_2 (g_1 + p_1 g_0 + p_1 p_0 C_0)$

$= g_2 + p_2 g_2 + p_2 p_1 g_0 + p_2 p_1 p_0 C_0$

$\therefore$

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$b_3 b_2 b_1 b_0$ unsigned $0 \rightarrow 15$

$0 \rightarrow 9, A, B, C, D, E, F$

0	0000
1	0001
2	.
3	.
4	.
5	.
6	.
7	.
8	1000
9	1001

Binary Coded Decimal (BCD)

56_{10}

0101 0110

5 6

IN BCD

$$\begin{array}{r} 0101 \\ +\ 0110 \\ \hline 1011 \\ +\ 0110 \\ \hline 10001 \end{array}$$

$$\begin{array}{r} 5_{10} \\ +\ 6_{10} \\ \hline 11_{10} \end{array}$$

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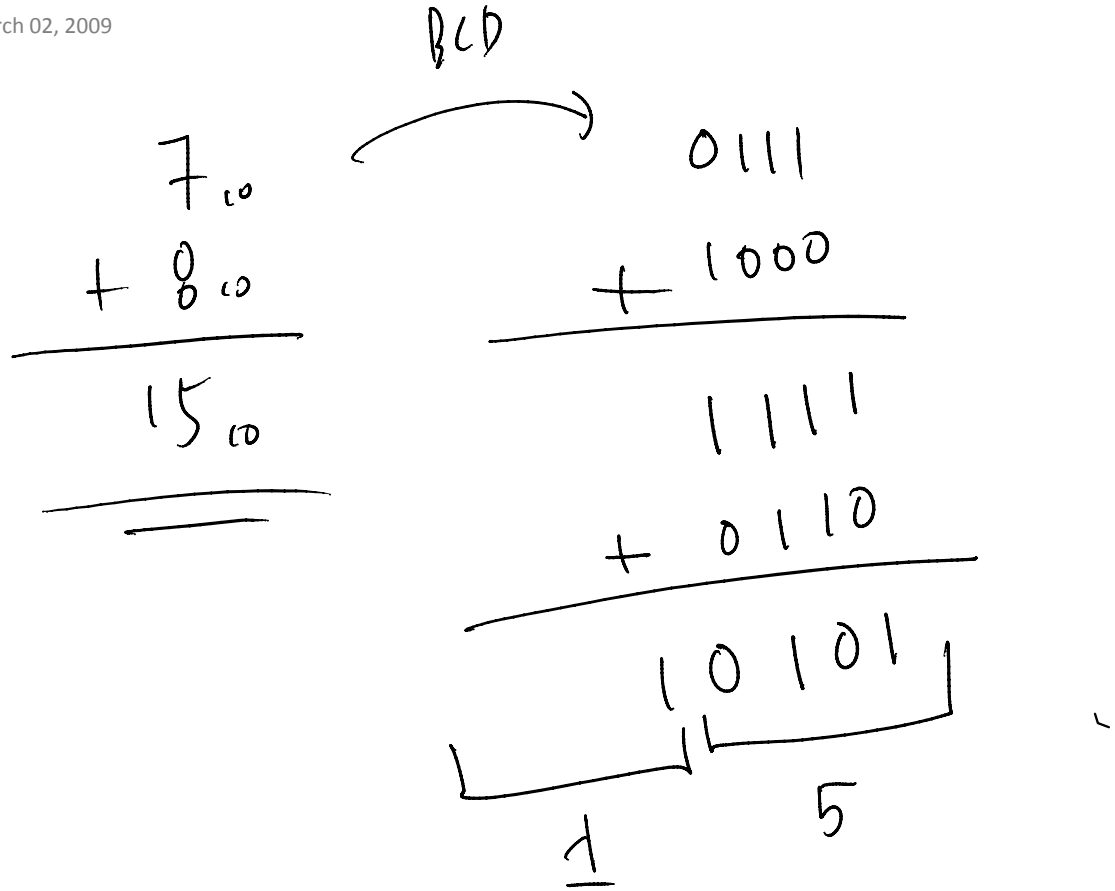

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multiplication

Normal Binary

unsigned

$$\begin{array}{r} 5 \\ \times\ 6 \\ \hline 30 \\ \hline \equiv \end{array}$$

$$\begin{array}{r} 0101 \\ \times\ 0110 \\ \hline 0000 \\ 0101 \\ 0101 \\ 0000 \\ \hline 00111110 \end{array}$$

16 8 4 2

24 + 6

30

$$\begin{array}{r} 5 \\ \times\ 2 \\ \hline \end{array}$$

2^x

$$\begin{array}{r} 0101 \\ \times\ 0010 \\ \hline 01010 \end{array}$$

$$\begin{array}{r} 0101 \\ 01010 \end{array}$$

8 + 2 = 10

5/2 0101 ↓

010.1

2.5

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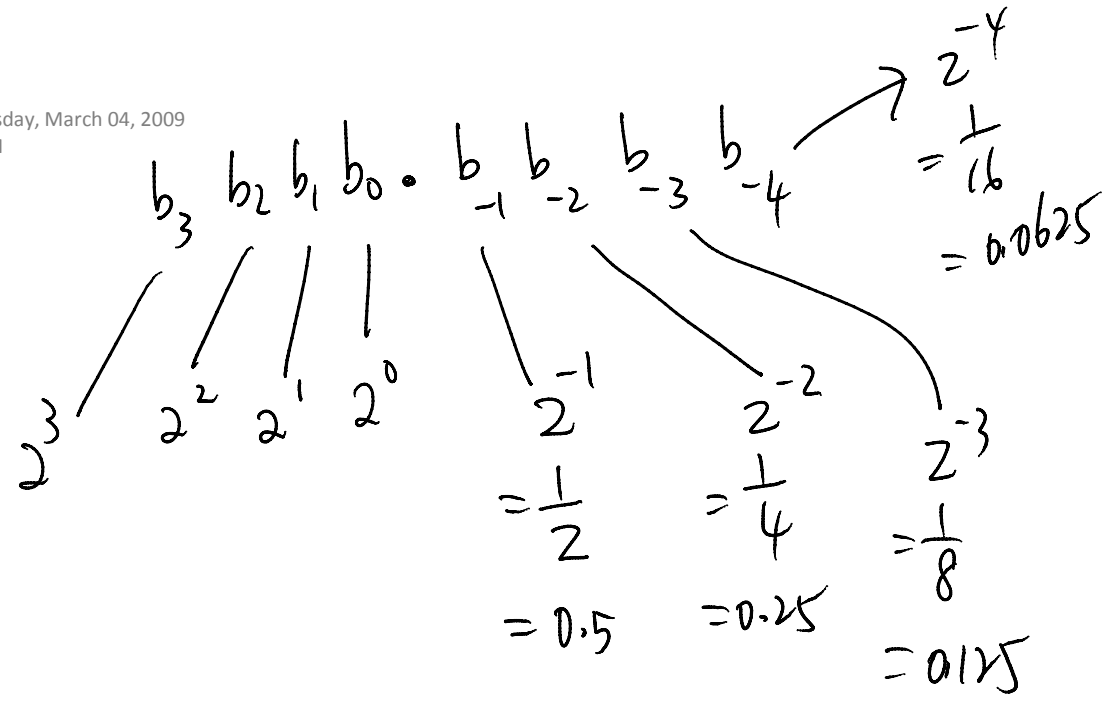

0.0 ?

0000.1101

0000.1100