COE-341 Cheat Sheet

by theganesbioss1 via cheatography.com/72445/cs/18329/

Conversions

0.375 * 2 = 0 + 0.75	Binary: 0.011
0.75 * 2 = 1 + 0.5	0.5 * (1 + 0) = 0.5
0.5 * 2 = 1 + 0	0.5 * (1 + 0.5) = 0.75
Binary : 0.011	0.5 * (0.75) = 0.375

Floating point

−118.625 using the IEEE 754 system

1110110.101=1.110110101 * 2^6 ; This is normalized

Biased exponent = 6+127 = 133 (In binary: 10000101)

1 10000101 11011010100000000000000

Carry Lookahead adder

Pi = ai ⊕ bi

Gi = ai . bi

C0 = G0

C1 = G1 + G0P1

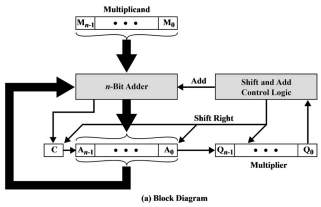
C2 = G2 + G1P2 + G0P2P1

Cout = G3 + G2P3 + G1P3P2 +G0P3P2P1

Faster than ripple carry

Large OR gates should be used

Binary Multiplication



(a) Block Diagram

C	A	Q	M		
0	0000	1101	1011	Initial Values	
0	1011	1101	1011	Add	First Cycle
0	0101	1110	1011	Shift	
0	0010	1111	1011	Shift	Second Cycle
0	1101	1111	1011	Add	Third Cycle
0	0110	1111	1011	Shift	
1	0001	1111	1011	Add	Fourth Cycle
0	1000	1111	1011	Shift	

(b) Example from Figure 9.7 (product in A, Q)

Figure 10.8 Hardware Implementation of Unsigned Binary Multiplication

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Not published yet.

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