

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 110110101000000000000000

Carry Lookahead adder

$$P_i = a_i \oplus b_i$$

$$G_i = a_i \cdot b_i$$

$$C_0 = G_0$$

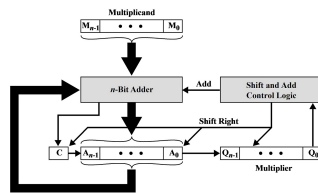
$$C_1 = G_1 + G_0P_1$$

$$C_2 = G_2 + G_1P_2 + G_0P_2P_1$$

$$C_{out} = G_3 + G_2P_3 + G_1P_3P_2 + G_0P_3P_2P_1$$

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
0	0101	1110	1011	Shift
0	0010	1111	1011	Shift
0	1101	1111	1011	Add
0	0110	1111	1011	Shift
1	0001	1111	1011	Add
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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