

Hw 4-2

6.) Convert 5ED4 to binary num?

$$5_{\text{ED4}} = 24,276 = 0101111011010100$$

$$\begin{array}{l} S=0101 \\ E=1110 \\ d=1101 \\ 4=0100 \end{array}$$

hex is attractive because of compact representation, easy conversion, and binary compatibility. These properties make hex attractive for computer use.

7.) What is decimal # represented by 8-bit unsigned 1111 0110

a) Unsigned integer = 246

b) 2's complement = -10 $-0000\ 1010 \approx -10$

c) Sign magnitude = -118

21.) Asked to multiply 2 binary numbers.

a)

$$\begin{array}{r} 100011_7 \\ \times 110113 \\ \hline 1000 \\ 00000 \\ 10001 \\ \hline 110011 \end{array}$$

$$11011101 \quad 221$$

b.) need 8 bits to store result in unsigned form
c.) $17 \cdot 13 = 221$

$$\begin{array}{r} 11011101 \\ 11001101 \\ \hline 11011101 \\ 00000000 \\ \hline 11011101 \\ 00000000 \\ \hline 11011101 \end{array}$$

2.) Convert given #'s into binary, multiply with sequential multiplier, fill in table

a) 7, 19

$$\begin{array}{r} 100111_9 \\ \times 111_7 \\ \hline 110111 \\ 10011 \\ 10011 \\ \hline 10000101 \end{array}$$

b)

$$\begin{array}{r} 111101000_1000 \\ \times 00011001_25 \\ \hline 111101000 \\ 0000000000 \\ 0000000000 \\ 111101000 \\ 0000000000 \\ 0000000000 \\ \hline 25,000 \end{array}$$

$$\begin{array}{r} 011000110101000 \end{array}$$

	Cycle-1	Cycle-2	Cycle 3	Cycle 4
Initial vals	0000000	0100111	1110011	10000101
Product	0000000	0100111	1110011	10000101
Multiplicand	100111	1001110	10011100	100111000
Multiplexer	111	011	001	000
Init	1	2	3	

P	4	5	6
0000000000	111101000	111101000	1000110101000
111101000	111101000	1111010000	111101000000
011000110101000	00001	00000	00000
	0110000110101000		