UNIT 1 : LOGIC SIMPLIFICATION AND COMBINATIONAL LOGIC DESIGN

Today's Target

- Conversion of Decimal number to Hexa Decimal Number
- Hexa Decimal to Decimal conversion
- Binary to Hexa Decimal Conversion
- DPP

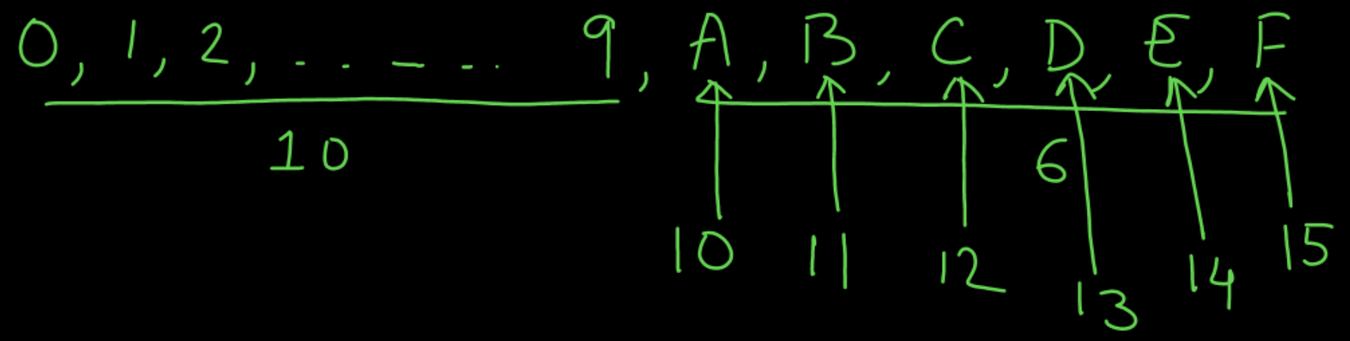
Decimal to Hexadecimal Conversion:

6 10

1) Divide the decimal by 16 until the result is 15 or less.

2) Take the whole number (before the decimal point) and look up the corresponding hex value in the hex-decimal comparison list above (e.g. 10 = A, 15 = F).

3) Take the remainder (after the decimal point) and multiply by 16.



Example: Find the Hex equivalent of decimal number 3509

$(3509)_{10} = (\quad)_H = (\quad)_{16}$

16	3509	5
16	219	11 → B
16	13	13 → D
	0	

↑

A	B	C	D	E	F
10	11	12	13	14	15

$(3509)_{10} = (DB5)_{16}$

Fractional Decimal to Hex Conversion

$(0.1204)_{10} \rightarrow (\quad)_H$

$0.1204 \times 16 \rightarrow 1.9264$ → 1

$0.9264 \times 16 \rightarrow 14.8224$ → 14 ← E

$0.8224 \times 16 \rightarrow 13.1584$ → 13 ← D

$0.1584 \times 16 \rightarrow 2.5344$ → 2

$(0.1204)_{10} \rightarrow (1ED2)_{16}$

Whole & Fractional Decimal number to Hex Conversion

$(148.62)_{10} \rightarrow (\quad)_H$

16	148	4
16	9	9
	0	

$0.62 \times 16 = 9.92$

$0.92 \times 16 = 14.72$

$0.72 \times 16 = 11.52$

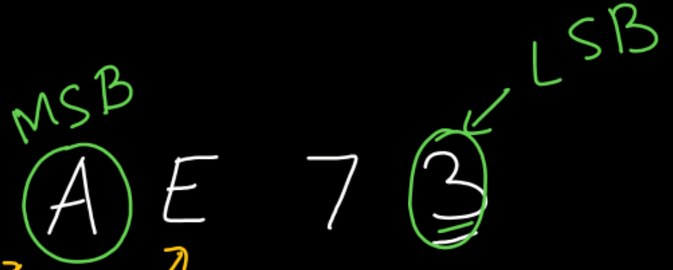
$0.52 \times 16 = 8.32$

9
14 → E
11 → B
8

$(148.62)_{10} \rightarrow (94.9EB8)_H$

Hexadecimal To Decimal Conversion:

$(AE73)_{16} = (\ )_{10}$



$10 \times 16^3 + 14 \times 16^2 + 7 \times 16^1 + 3 \times 16^0$

$= 10 \times 4096 + 14 \times 256 + 7 \times 16 + 3 \times 1$

$= 40960 + 3584 + 112 + 3$

$= (44659)_{10}$

Fractional Hex Number to Decimal Conversion

$(1\,1A\cdot 35B)_{16} \rightarrow (\quad)_{10}$

$1\times 16^{2}+1\times 16^{1}+10\times 16^{0}+3\times 16^{-1}+5\times 16^{-2}+11\times 16^{-3}$

$= 256+16+10+0.1875+0.01953+0.002685$

$=(282.2097)_{10}$

Binary to Hex Conversion

$$(\quad)_2 = (\quad)_{10} = (\quad)_H$$

$$\underbrace{0101}_{5}\ \underbrace{0110}_{6}\ \underbrace{1000}_{8}\ \underbrace{1101}_{D}\ .\ \underbrace{1100}_{C}\ \underbrace{1010}_{A}$$

$$= (568D \cdot CA)_H$$

0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
10	1010
11	1011
12	1100
13	1101
14	1110
15	1111

DPP

Convert

1) $(15287)_{10}=(\ )_H$
2) $(0.1236)_{10}=(\ )_H$
3) $(1764.286)_{10}=(\ )_H$
4) $(1A6D5)_H=(\ )_{10}$
5) $(1ECB.25)_{10}=(\ )_H$
6) $(1011001101010.10101111)_2=(\ )_H$

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Thank You