

UTAustinX: UT.6.01x Embedded Systems - Shape the World

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HEX TO DECIMAL CONVERTER

You have already learned how to convert from a hexadecimal number to its decimal represntation. All you need to do is to calculate its value by multipling each coefficient by its placeholder values and summing all of them together. If you want to practice, Choose a 4-digit hexadecimal number number. Try to calculate the decimal representation. Then type the number in the following field and click "convert" to check your result.

0x05AB

Convert

Decimal Value = $0*16^3 + 5*16^2 + 10*16^1 + 11*16^0$

Decimal Value = 0 + 1280 + 160 + 11 = 1451

BINARY TO HEX CONVERTER

It's easy to switch back and forth hexadecimal and binary numbers. Since the base 16 is 24, there is a one-to-one relationship between 1 hex digit and 4 binary digits. To convert the numbers, you can use the following table as the reference.

Binary Digits

Hexadecimal Digit

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0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	Α
1011	В
1100	C
1101	D
1110	Е
1111	F

Type in a maximum 16-digit binary. Then click "convert" to see the corresponding hexadecimal number.

0000010110101011 Convert

Binary number = 0000010110101011

Hexadecimal Number = 0x05AB

HEX TO BINARY CONVERTER

Similarly, type in a maximum 4-digit hex number. Do not delete '0x' as the number prefix. Click "convert" to see the corresponding binary number.

0x4945 Convert

Hexadecimal number = 0x4945

Binary Number = 0100100101000101

CHECKPOINT 2.2

What is the numerical value of the 8-bit hexadecimal number 0xFF?

Hide Answer

15*16+15 = 255

CHECKPOINT 2.3

Convert the binary number 010001012 to hexadecimal.

Hide Answer

First, divide the binary into 4-bit nibbles, then convert the two 4-bit nibbles

0100₂=0x4 and 0101₂=0x5. Third, combine the two hex digits into one number 0x45.

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Help

UT.6.01x Courseware CHECKPOINT 2.4

Convert the binary number 1100101010112 to hexadecimal.

Hide Answer

First, divide the binary into 4-bit nibbles, then convert the three 4-bit nibbles $1100_2=0$ xC, $1010_2=0$ xA and $1011_2=0$ xB. Third, combine the three hex digits into one number 0xCAB

CHECKPOINT 2.5

Convert the hex number 0x40 to binary.

Hide Answer

First, convert the two 4-bit nibbles

0x4=01002 and 0x0=00002. Second, combine the 8 binary bits into one binary number 010000002

CHECKPOINT 2.6

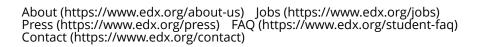
Convert the hex number 0x63F to binary.

Hide Answer

First, convert the three 4-bit nibbles

0x6=01102, 0x3=00112 and 0xF=11112. Second, combine the 12 binary bits into one binary number 01100011111112







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