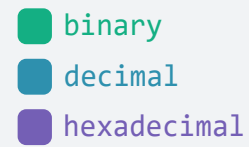


Binary System

cheatsheet



DEC - 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 ...
HEX - 0 1 2 3 4 5 6 7 8 9 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B ...

80 40 20 10 08 04 02 01
128 64 32 16 8 4 2 1

1010 0110

← Start

$$1*8 + 0*4 + 1*2 + 0*1$$

dec = 10 -> hex = A0

$$0*8 + 1*4 + 1*2 + 0*1$$

dec = 6 -> hex = 06

A0 and 06 = A6

$$10*16^1 + 6*16^0 = 166$$

For every n bits there are 2^n patterns

1 01
2 02
4 04
8 08

1 byte = 8 bits
0000 0000

16 10
32 20
64 40
128 80

2 bytes = 16 bits
0000 0000 0000 0000

256 10 0
512 20 0
1024 40 0
2048 80 0

4 bytes = 32 bits
0000 0000 0000 0000
0000 0000 0000 0000

4096 10 00
8192 20 00
16,384 40 00
32,768 80 00

8 bytes = 64 bits
0000 0000 0000 0000
0000 0000 0000 0000
0000 0000 0000 0000
0000 0000 0000 0000

65,536 10 00 0
131,072 20 00 0
262,144 40 00 0
524,288 80 00 0

1,048,576 10 00 00
2,097,152 20 00 00
4,194,304 40 00 00
8,388,608 80 00 00

16,777,216 10 00 00 0
33,554,432 20 00 00 0
67,108,864 40 00 00 0
134,217,728 80 00 00 0

268,435,456 10 00 00 00
536,870,912 20 00 00 00
1,073,741,824 40 00 00 00
2,147,483,648 80 00 00 00

4,294,967,296 10 00 00 00 0
8,589,934,592 20 00 00 00 0
17,179,869,184 40 00 00 00 0
34,359,738,368 80 00 00 00 0

68,719,476,736 10 00 00 00 00
137,438,953,472 20 00 00 00 00
274,877,906,944 40 00 00 00 00
549,755,813,888 80 00 00 00 00

1,099,511,627,776 10 00 00 00 00 0
2,199,023,255,552 20 00 00 00 00 0
4,398,046,511,104 40 00 00 00 00 0
8,796,093,022,208 80 00 00 00 00 0

17,592,186,044,416 10 00 00 00 00 00
35,184,372,088,832 20 00 00 00 00 00
70,368,744,177,664 40 00 00 00 00 00
140,737,488,355,328 80 00 00 00 00 00