Unsigned binary numbers

- Each bit represents a power of 2
- For unsigned numbers in a fixed width field
  - » the minimum value is 0
  - » the maximum value is 2^n-1, where n is the number of bits in the field
- Fixed field widths determine many limits
  - » 5 bits = 32 possible values ($2^5 = 32$)
  - » 10 bits = 1024 possible values ($2^{10} = 1024$)

Binary, Hex, and Decimal

2^8=256$_{10}$	2^7=128$_{10}$	2^6=64$_{10}$	2^5=32$_{10}$	2^4=16$_{10}$	2^3=8$_{10}$	2^2=4$_{10}$	2^1=2$_{10}$	2^0=1$_{10}$	Hex_{16}	$Decimal_{10}$
							1	1	0x3	3
					1	0	0	1	0x9	9
					1	0	1	0	0xA	10
					1	1	1	1	0xF	15
				1	0	0	0	0	0x10	16
				1	1	1	1	1	0x1F	31
		1	1	1	1	1	1	1	0x7F	127
	1	1	1	1	1	1	1	1	0xFF	255

Binary, Hex, and Decimal

$Binary_2$	16^4=65536$_{10}$	16^3=4096$_{10}$	16^2=256$_{10}$	16^1=16$_{10}$	16^0=1$_{10}$	$Decimal_{10}$
11					3	3
1001					9	9
1010					A	10
1111					F	15
1 0000				1	0	16
1 1111				1	F	31
111 1111				7	F	127
1111 1111				F	F	255

Binary, Hex, and Decimal

$Binary_2$	Hex_{16}	10^3=1000$_{10}$	10^2=100$_{10}$	10^1=10$_{10}$	10^0=1$_{10}$
11	0x3				3
1001	0x9				9
1010	0xA			1	0
1111	0xF			1	5
1 0000	0x10			1	6
1 1111	0x1F			3	1
111 1111	0x7F		1	2	7
1111 1111	0xFF		2	5	5