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Date: 2/11/19
ID: jz5pt
File: floatingpoint.pdf

For userid 'jz5pt':

Your magic (32 bit) floating point number is 78

This is the number that needs to be converted to (little endian) binary, and expressed in hexadecimal.

$$78 = 2^6 + 2^3 + 2^2 + 2^1 = 100111_2$$

$$1.00111 \times 2^5$$

Mantissa: 00111

Exponent: $5 + 127 = 132 = 1000\ 0100$

Sign: 0

Binary(big-endian): 0|10000100|001110000000000000000000

Hexadecimal(big-endian): 0x421c0000

Hexadecimal(little-endian): 0x00001c42

Your other magic floating point number is, in hex, 0x00009ec3

This is the number that needs to be converted to a (32 bit) floating point number.

Note that the hexadecimal printed above is in little-endian format!

Hexadecimal(big-endian): 0xc39e0000

Binary(big-endian): 1100 0011 1001 1110 0000 0000 0000 0000

Sign: 1

Exponent: $1000\ 0111 = 135 - 127 = 8$

Mantissa: 001111

$$1.001111 \times 2^8 = 1\ 0011\ 1100 = 316$$

-316