

# IEEE 754 Conversions

## IEEE 128 Conversions



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Canine-Table

Github

POSIX Nexus serves as a comprehensive cross-language reference hub that explores the implementation and behavior of POSIX-compliant functionality across a diverse set of programming environments. Built atop the foundational IEEE Portable Operating System Interface (POSIX) standards, this project emphasizes compatibility, portability, and interoperability between operating systems.

## Abstract

## Contents

Mantissa . . . . .	II
3.1415 . . . . .	II



## Mantissa

3.1415

### Exponent

Bit	Power of 2	Value	Decimal
1	$2^7$	1	128
2	$2^6$	0	0
3	$2^5$	0	0
4	$2^4$	0	0
5	$2^3$	0	0
6	$2^2$	0	0
7	$2^1$	0	0
8	$2^0$	0	0



### Mantissa

Bit	Power of 2	Value	Decimal
1	$2^{-1}$	1	0.5
2	$2^{-2}$	0	0.0
3	$2^{-3}$	0	0.0
4	$2^{-4}$	1	0.0625
5	$2^{-5}$	0	0.0
6	$2^{-6}$	0	0.0
7	$2^{-7}$	1	0.0078125
8	$2^{-8}$	0	0.0
9	$2^{-9}$	0	0.0
10	$2^{-10}$	0	0.0
11	$2^{-11}$	1	0.00048828125
12	$2^{-12}$	1	0.000244140625
13	$2^{-13}$	1	0.0001220703125
14	$2^{-14}$	0	0.0
15	$2^{-15}$	1	0.000030517578125
16	$2^{-16}$	0	0.0
17	$2^{-17}$	1	0.00000762939453125
18	$2^{-18}$	0	0.0
19	$2^{-19}$	1	0.0000019073486328125
20	$2^{-20}$	0	0.0
21	$2^{-21}$	1	0.000000476837158203125
22	$2^{-22}$	0	0.0
23	$2^{-23}$	1	0.00000011920928955078125
24	$2^{-24}$	0	0.0
25	$2^{-25}$	0	0.0

**Final Value Reconstruction**

Operation	Result
Sign	+1
Mantissa	1.5707499980926513671875
Exponent	$2^1 = 2$
Final Value	$+1.5707499980926513671875 \times 2 = 3.141499996185302734375$