

IEEE 754 Range of Values for Normalized Numbers (Single Precision)

Recall that the range of values which can be encoded by F for normalized numbers is:

1.0 to 1.99999988

True Exponent	Range of Values Encoded (Single Precision)
-126	$1.0 / 2^{126}$ to $1.99999988 / 2^{126}$
.....
-5	0.03125 to 0.0624999
-4	0.0625 to 0.1249999
-3	0.125 to 0.2499999
-2	0.25 to 0.4999999
-1	0.5 to 0.9999999
0	1.0 to 1.9999999
1	2.0 to 3.9999998
2	4.0 to 7.9999996
3	8.0 to 15.9999990
4	16.0 to 31.9999981
5	32.0 to 63.9999962
6	64.0 to 127.9999924
7	128.0 to 255.9999847
8	256.0 to 511.9999695
9	512.0 to 1023.9999390
10	1024 to 2047.9998779
.....
127	$1.0 * 2^{127}$ to $1.99999988 * 2^{127}$