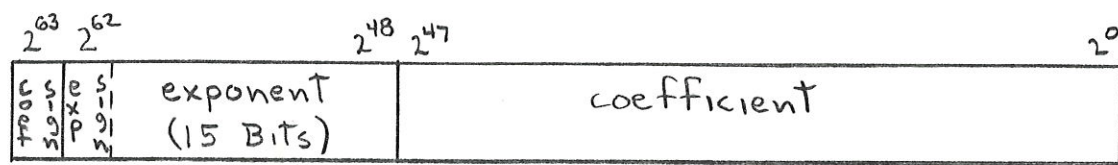


Floating Point Data Format

bias

overflow or
underflow

sign of coefficient

1 = negative

0 = positive

binary point (doesn't really exist in machine)

$$\text{numerical value} = \text{coefficient} \times 2^{\text{signed exponent}}$$

Coefficient

48 Bit Binary Number

Highest Order Bit is Normally a 1 and if this is True, the binary number is said to be normalized.
 Range, in Decimal, of Normalized coefficient equals
 $.5_{10} (.48) \rightarrow 1.0_{10} (.777...777_8)$

Exponent

15 Bit Binary Number

40000₈ represents a zero exponent
 $\text{coefficient} \times 2^0$ is represented in machine by $\text{coefficient} \times 2^{40000}$

exponent > 40000 represents positive exponent
 exponent < 40000 represents negative exponent

$.1 \times 2^0$ is represented in machine as $.1 \times 2^{40000}$
 $.1 \times 2^1$ " " " $.1 \times 2^{40001}$
 $.1 \times 2^{-1}$ " " " $.1 \times 2^{37777}$