

$$\pm M \times 2^{\pm E}$$

1 bit for  $\pm$

$k$  bits for  $\pm E$

$n$  bits for  $M$

$k = 8$  or  $11$

$n = 23$  or  $52$



**Normalized:**  $\pm E$  is not its maximum or minimum value

$$1 \leq M < 2$$



$$\pm E = e + 1 - 2^{k-1}$$

$$M = 1 + f/2^n$$



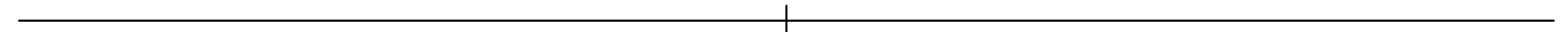
**Denormalized:**  $\pm E$  is its minimum value (which is negative)

$$0 \leq M < 1$$



$$\pm E = 2 - 2^{k-1}$$

$$M = f/2^n$$



**Infinity:**  $\pm E$  is its maximum value



**Not-a-Number:**  $\pm E$  is its maximum value (many representations!)

