

4.8.3 Real Number and Non-number Encodings

A variety of real numbers and special values can be encoded in the IEEE Standard 754 floating-point format. These numbers and values are generally divided into the following classes:

- Signed zeros
- Denormalized finite numbers
- Normalized finite numbers
- Signed infinities
- NaNs
- Indefinite numbers

(The term NaN stands for "Not a Number.")

Figure 4-12 shows how the encodings for these numbers and non-numbers fit into the real number continuum. The encodings shown here are for the IEEE single-precision floating-point format. The term "S" indicates the sign bit, "E" the biased exponent, and "Sig" the significand. The exponent values are given in decimal. The integer bit is shown for the significands, even though the integer bit is implied in single-precision floating-point format.

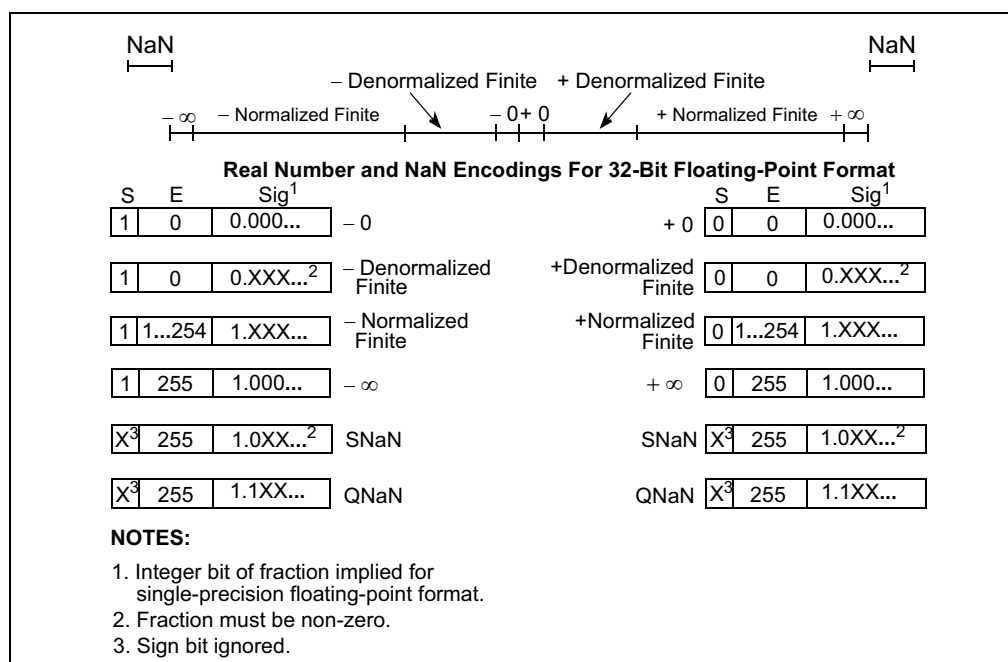


Figure 4-12. Real Numbers and NaNs