

Floating-point Representation

Precision	Bits	Sign	Exp	Data	Maximum error		Maximum magnitude		Minimum normal	
Half	16	1	5	10	2^{-10}	9.7656×10^{-4}	$(2 - 2^{-10}) \times 2^{15}$	6.5504×10^4	2^{-14}	6.1035×10^{-5}
Single	32	1	8	23	2^{-23}	1.1921×10^{-7}	$(2 - 2^{-23}) \times 2^{127}$	3.4028×10^{38}	2^{-126}	1.1755×10^{-38}
Double	64	1	11	52	2^{-52}	2.2204×10^{-16}	$(2 - 2^{-52}) \times 2^{1023}$	1.7977×10^{308}	2^{-1022}	2.2251×10^{-308}
Extended	80	1	15	64	2^{-63}	1.0842×10^{-19}	$(2 - 2^{-63}) \times 2^{16383}$	1.1897×10^{4932}	2^{-16382}	3.3621×10^{-4932}
Quadruple	128	1	15	112	2^{-112}	1.9259×10^{-34}	$(2 - 2^{-112}) \times 2^{16383}$	1.1897×10^{4932}	2^{-16382}	3.3621×10^{-4932}

Decimal values approximate

Integer Representation

Name	Bits	Signed Minimum		Signed Maximum		Unsigned Maximum	
Nibble	4	-2^3	-8.0000×10^0	$2^3 - 1$	7.0000×10^0	$2^4 - 1$	1.5000×10^1
Byte	8	-2^7	-1.2800×10^2	$2^7 - 1$	1.2700×10^2	$2^8 - 1$	2.5500×10^2
Halfword	16	-2^{15}	-3.2768×10^4	$2^{15} - 1$	3.2767×10^4	$2^{16} - 1$	6.5535×10^4
Word	32	-2^{31}	-2.1475×10^9	$2^{31} - 1$	2.1475×10^9	$2^{32} - 1$	4.2950×10^9
Doubleword	64	-2^{63}	-9.2234×10^{18}	$2^{63} - 1$	9.2234×10^{18}	$2^{64} - 1$	1.8447×10^{19}
Quadword	128	-2^{127}	-1.7014×10^{38}	$2^{127} - 1$	1.7014×10^{38}	$2^{128} - 1$	3.4028×10^{38}

Decimal values approximate