

The GCC Quad-Precision Math Library

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2 Math Library Routines

The following mathematical functions are available:

`acosq`: arc cosine function
`acoshq`: inverse hyperbolic cosine function
`asinq`: arc sine function
`asinhq`: inverse hyperbolic sine function
`atanq`: arc tangent function
`atanhq`: inverse hyperbolic tangent function
`atan2q`: arc tangent function
`cbrtq`: cube root function
`ceilq`: ceiling value function
`copysignq`: copy sign of a number
`coshq`: hyperbolic cosine function
`cosq`: cosine function
`erfq`: error function
`erfcq`: complementary error function
`exp2q`: base 2 exponential function
`expq`: exponential function
`expm1q`: exponential minus 1 function

`fabsq`: absolute value function
`fdimq`: positive difference function
`finiteq`: check finiteness of value
`floorq`: floor value function
`fmaq`: fused multiply and add
`fmaxq`: determine maximum of two values
`fminq`: determine minimum of two values
`fmodq`: remainder value function
`frexpq`: extract mantissa and exponent
`hypotq`: Euclidian distance function
`ilogbq`: get exponent of the value
`isinfq`: check for infinity
`isnanq`: check for not a number
`issignalingq`: check for signaling not a number
`j0q`: Bessel function of the first kind, first order
`j1q`: Bessel function of the first kind, second order
`jnq`: Bessel function of the first kind, n -th order
`ldexpq`: load exponent of the value
`lgammaq`: logarithmic gamma function
`llrintq`: round to nearest integer value
`llroundq`: round to nearest integer value away from zero
`logbq`: get exponent of the value
`logq`: natural logarithm function
`log10q`: base 10 logarithm function
`log1pq`: compute natural logarithm of the value plus one
`log2q`: base 2 logarithm function


```

int width = 46;
char buf[128];

r = 2.0q;
r = sqrtq (r);
int n = quadmath_snprintf (buf, sizeof buf, "%+-.#*.20Qe", width, r);
if ((size_t) n < sizeof buf)
    printf ("%s\n", buf);
    /* Prints: +1.41421356237309504880e+00 */
quadmath_snprintf (buf, sizeof buf, "%Qa", r);
if ((size_t) n < sizeof buf)
    printf ("%s\n", buf);
    /* Prints: 0x1.6a09e667f3bcc908b2fb1366ea96p+0 */
n = quadmath_snprintf (NULL, 0, "%+-.#46.*Qe", prec, r);
if (n > -1)
{
    char *str = malloc (n + 1);
    if (str)
    {
        quadmath_snprintf (str, n + 1, "%+-.#46.*Qe", prec, r);
        printf ("%s\n", str);
        /* Prints: +1.41421356237309504880e+00 */
    }
    free (str);
}
return 0;
}

```


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4 Reporting Bugs

Bugs in the GCC Quad-Precision Math Library implementation should be reported via <https://gcc.gnu.org/bugs/>.