NAME

gamma – Single-precision Gamma(x)

SYNOPSIS

Fortran (77, 90, 95, HPF):

> **f77** *[flags] file(s) . . . -L/usr/local/lib -lgjl*
>
> > **REAL FUNCTION gamma(x)**
> > **REAL   x**

C (K&R, 89, 99), C++ (98):

> **cc** *[flags] -I/usr/local/include file(s) . . . -L/usr/local/lib -lgjl*
>
> Use
>
> > **#include <gampsi.h>**
>
> to get this prototype:
>
> > **fortran_real gamma(const fortran_real * x_);**

NB: The definition of C/C++ data types **fortran_** *xxx*, and the mapping of Fortran external names to C/C++ external names, is handled by the C/C++ header file. That way, the same function or subroutine name can be used in C, C++, and Fortran code, independent of compiler conventions for mangling of external names in these programming languages.

Last code modification: 04-Aug-2000

DESCRIPTION

Compute and return the value of the Gamma(**x**) function for single-precision **x**.

This code correctly handles the case where **x** is NaN, for which Gamma(NaN) is a NaN, and the case where **x** is sufficiently large and positive, or takes one of the integer values 0, -1, -2, -3, . . ., for which Gamma(**x**) = +Infinity, a special value in IEEE 754 arithmetic.

This code is derived from code given by

> W. J. Cody
>
> Algorithm 715: SPECFUN --- A Portable FORTRAN
> Package of Special Function Routines and Test Drivers
> ACM Trans. Math. Software 19(1) 22--32, March 1993.

but has been augmented for support of IEEE 754 arithmetic, and extended with a new rational Pade approximation for **x***Gamma(**x**) in [1,2], and new algorithms for argument reduction.

SEE ALSO

dgamma(3), **dpsi**(3), **dpsiln**(3), **psi**(3), **psiln**(3), **qgamma**(3), **qpsi**(3), **qpsiln**(3).

AUTHORS

The algorithms and code are described in detail in the paper

> *Algorithm xxx: Quadruple-Precision Gamma(x) and psi(x) Functions for Real Arguments*

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