NAME

ran − Single-precision pseudo-random number

SYNOPSIS

Fortran (77, 90, 95, HPF):

f77 *[flags] file(s) . . . -L/usr/local/lib -lgjl*

REAL FUNCTION ran()

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 ran(void);

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: 14-Jul-2000

DESCRIPTION

Generate and return a single-precision pseudo-random number from the interval (0.0, 1.0). The significand of the returned value should have about 29 pseudo-random bits. This is sufficient for most arithmetic systems: in IEEE 754 arithmetic, the fractional part of the single-precision significand has only 23 bits.

The initial generator seed is the same on the first call to this function after every program startup, so that the sequence of pseudo-random number is reproducible. This routine has no provision for the user to alter the initial seed.

The algorithm is based on ‘‘ACM Algorithm 266: Pseudo-Random Numbers’’, by M. C. Pike and I. D. Hill, Communications of the ACM, Vol. 8, No. 10, 605--606, October 1965, modified by Hansson, and later used in the book ‘‘Software Manual for the Elementary Functions’’, by W. J. Cody, Jr. and W. Waite, Prentice-Hall (1980), ISBN 0-13-822064-6.

SEE ALSO

dran(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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