

NAME

dran – Double-precision pseudo-random number

SYNOPSIS

Fortran (77, 90, 95, HPF):

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

DOUBLE PRECISION FUNCTION dran()

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_double_precision dran(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 double-precision pseudo-random number from the interval (0.0, 1.0). The significand of the returned value should have about 58 pseudo-random bits. This is sufficient for most arithmetic systems: in IEEE 754 arithmetic, the fractional part of the double-precision significand has only 52 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

ran(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

in ACM Transactions on Mathematical Software, Volume ??, Number ??, Pages ???--??? and ???--???, 2001, by

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