Author(s) : CDC
Submitter : H. Lipps (not CDC or Cray)
Language : Fortran or Assembler
Library: KERNLIB or Fortran intrinsic
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Random Number Generator

OBSOLETE

Please note that this routine has been obsoleted in CNL 215. Users are advised not to use it any longer and to replace it in older programs. No maintenance for it will take place and it will eventually disappear.

Suggested replacement:
`RANMAR` (V113) or `RANECU` (V114) or `RANLUX` (V115)

Function subprograms `RANF` and `DRANF` return pseudo-random values uniformly distributed in the interval (0,1), the end points excluded. The multiplicative congruential method is used.

Subroutine subprogram `RANGET` makes the current seed value of `RANF` and `DRANF` available to the user, and subroutine `RANSET` restores a seed value for further use by `RANF` and `DRANF`.

On CDC computers, the subprograms other than `DRANF` are part of Control Data's Fortran execution-time library.

The non-CDC versions of `RANF` and `DRANF` use the same multiplier (`2875 A2E7 B175`), the same initial seed value (`2BC6 8CFE 166D`), and the same modulus (`2**48`). They thus generate, within the limitations of machine accuracy, the same random sequence as the CDC versions.

`DRANF` is identical to `RANF` except that it returns a function value of type `DOUBLE PRECISION`.

Structure:

`SUBROUTINE` and `FUNCTION` subprograms
User Entry Names: `RANF`, `DRANF`, `RANGET`, `RANSET`

Usage:

In any arithmetic expression,

`RANF()` or `DRANF()`

is set to a value greater than zero and less than one. `RANF` is of type `REAL`, `DRANF` is of type `DOUBLE PRECISION`.

```
CALL RANGET(SEED)
CALL RANSET(SEED)
```

`SEED` (`REAL` for CDC, `DOUBLE PRECISION` otherwise). On exit from `RANGET`,`SEED` will be set to a value that determines the current position in the sequence of random numbers. This value may be used later as an actual argument in a call to `RANSET` in order to restart the random sequence at this point.

References:

1. Fortran Version 5 Reference Manual (Control Data Corporation, 1981).

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