NAG Fortran Library Routine Document

G05CBF

Note: before using this routine, please read the Users' Note for your implementation to check the interpretation of **bold italicised** terms and other implementation-dependent details.

1   Purpose

G05CBF sets the seeds used by the generator mechanism (see the G05 Chapter Introduction) to a repeatable initial value. G05CBF is for use only with the group of routines G05CAF–G05HDF.

2   Specification

```
SUBROUTINE G05CBF(I)
INTEGER         I
```

3   Description

This routine sets the internal seeds used by the generator mechanism (see the G05 Chapter Introduction) to values calculated from the parameter i.

This routine will yield different subsequent sequences of random numbers if called with different values of i, but the sequences, if calculated sequentially, will be repeatable in different runs of the calling program. It should be noted that there is no guarantee of statistical properties between sequences, only within sequences.

4   References

None.

5   Parameters

1:    I – INTEGER   *Input*

   On entry: a number from which the new seeds are to be calculated.

6   Error Indicators and Warnings

None.

7   Accuracy

Not applicable.

8   Further Comments

None.

9   Example

The example program prints the first five pseudo-random real numbers from a uniform distribution between 0 and 1, generated by G05CAF after initialisation by G05CBF.

The generator mechanism used is selected by an initial call to G05ZAF.

9.1   Program Text

Note: the listing of the example program presented below uses ***bold italicised*** terms to denote precision-dependent details. Please read the Users' Note for your implementation to check the interpretation of these terms. As explained in the Essential Introduction to this manual, the results produced may not be identical for all implementations.

```
*      G05CBF Example Program Text
*      Mark 20 Revised. NAG Copyright 2001.
*      .. Parameters ..
       INTEGER          NOUT
       PARAMETER        (NOUT=6)
*      .. Local Scalars ..
       real             X
       INTEGER          I
*      .. External Functions ..
       real             G05CAF
       EXTERNAL         G05CAF
*      .. External Subroutines ..
       EXTERNAL         G05CBF, G05ZAF
*      .. Executable Statements ..
       CALL G05ZAF('O')
       WRITE (NOUT,*) 'G05CBF Example Program Results'
       WRITE (NOUT,*)
*
       CALL G05CBF(0)
*
       DO 20 I = 1, 5
          X = G05CAF(X)
          WRITE (NOUT,99999) X
   20  CONTINUE
       STOP
*
99999 FORMAT (1X,F10.4)
       END
```

9.2   Program Data

None.

9.3   Program Results

```
 G05CBF Example Program Results

     0.7951
     0.2257
     0.3713
     0.2250
     0.8787
```