NAG Library Routine Document

X05BAF

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

X05BAF returns the amount of processor time used since an unspecified previous time, via the routine name.

2 Specification

```
FUNCTION X05BAF ()
REAL (KIND=nag_wp) X05BAF
```

3 Description

X05BAF returns the number of seconds of processor time used since some previous time. The previous time is system dependent, but may be, for example, the time the current job or the current program started running.

If the system clock of the host machine is inaccessible for any reason, X05BAF returns the value zero.

4 References

None.

5 Parameters

None.

6 Error Indicators and Warnings

None.

7 Accuracy

The accuracy of the value returned depends on the accuracy of the system clock on the host machine.

8 Parallelism and Performance

Not applicable.

9 Further Comments

Since the value returned by X05BAF is the amount of processor time since some unspecified earlier time, no significance should be placed on the value other than as a marker to be compared with some later figure returned by X05BAF. The amount of processor time that has elapsed between two calls of X05BAF can be simply calculated as the earlier value subtracted from the later value.

10 Example

This example makes a call to X05BAF, performs some computations, makes another call to X05BAF, and gives the time used by the computations as the difference between the two returned values.

10.1 Program Text

```
    Program x05bafe

!     X05BAF Example Program Text

!     Mark 25 Release. NAG Copyright 2014.

!     .. Use Statements ..
      Use nag_library, Only: nag_wp, x05baf
!     .. Implicit None Statement ..
      Implicit None
!     .. Parameters ..
      Integer, Parameter               :: nout = 6
      Integer, Parameter               :: nterms = 10**7
!     .. Local Scalars ..
      Real (Kind=nag_wp)               :: cptime, h, s1, s2
      Integer                          :: n
!     .. Intrinsic Procedures ..
      Intrinsic                        :: real
!     .. Executable Statements ..
      Write (nout,*) 'X05BAF Example Program Results'

      s1 = x05baf()

!     Do a non-trivial amount of intermediate work.

      h = 0.0_nag_wp

      Do n = nterms, 1, -1
        h = h + 1.0_nag_wp/real(n,kind=nag_wp)
      End Do

      s2 = x05baf()

      cptime = s2 - s1
      Write (nout,99999) 'It took', cptime, ' seconds to compute', nterms, &
        ' terms of the harmonic series.', 'Value of partial sum =', h, '.'

99999 Format (1X,A,1P,E10.2,A/1X,I8,A/1X,A,E13.5,A)
    End Program x05bafe
```

10.2 Program Data

None.

10.3 Program Results

```
 X05BAF Example Program Results
 It took  2.82E-01 seconds to compute
 10000000 terms of the harmonic series.
 Value of partial sum =  1.66953E+01.
```