NAG Fortran Library Routine Document

F06BCF

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

F06BCF reconstructs the parameters c and s of a real plane rotation, from the value of the tangent t, as returned by F06BAF:

$$c = \frac{1}{\sqrt{1+t^2}}, \quad s = ct,$$

so that $c \geq 0$ and s has the same sign as t.

If $|t| < \sqrt{\epsilon}$, where ϵ is the ***machine precision***, the routine sets $c = 1$ and $s = t$; if $|t| > 1/\sqrt{\epsilon}$, the routine sets $c = \dfrac{1}{|t|}$ and $s = \operatorname{sign} t$.

2 Specification

```
SUBROUTINE F06BCF (T, C, S)
double precision       T, C, S
```

3 Description

None.

4 References

None.

5 Parameters

1: T – ***double precision*** *Input*

On entry: the value t, the tangent of the rotation.

2: C – ***double precision*** *Output*

On exit: the value c, the cosine of the rotation.

3: S – ***double precision*** *Output*

On exit: the value s, the sine of the rotation.

6 Error Indicators and Warnings

None.