

NAG Library Routine Document

F06CLF

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

F06CLF computes the quotient of two complex scalars.

2 Specification

```
FUNCTION F06CLF (A, B, FAIL)
COMPLEX (KIND=nag_wp) F06CLF
COMPLEX (KIND=nag_wp) A, B
LOGICAL                FAIL
```

3 Description

F06CLF returns the value q via the function name, where

$$q = \begin{cases} a/b, & \text{if } a/b \text{ does not overflow,} \\ 0, & \text{if } a = 0, \\ cflmax, & \text{if } a \neq 0 \text{ and } a/b \text{ would overflow.} \end{cases}$$

Here $cflmax$ is a large complex value, given by

$$cflmax = (flmax \times \text{sign}(\text{Re}(a)/b), flmax \times \text{sign}(\text{Im}(a)/b));$$

$flmax$ is the real value given by $1/(X02AMF)$, and for real x , $\text{sign}(x/0)$ is taken as $\text{sign } x$.

4 References

None.

5 Arguments

- | | | |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1: | A – COMPLEX (KIND=nag_wp) | <i>Input</i> |
| | <i>On entry:</i> the value a . | |
| 2: | B – COMPLEX (KIND=nag_wp) | <i>Input</i> |
| | <i>On entry:</i> the value b . | |
| 3: | FAIL – LOGICAL | <i>Output</i> |
| | <i>On exit:</i> .TRUE. if a/b would overflow (in which case $ \text{Re}(q) = \text{Im}(q) = flmax$) or $a = b = 0$ (in which case $q = 0$); otherwise .FALSE.. | |

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06CLF is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.
