

# 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 Parameters

- |    |   |               |
|----|---|---------------|
| 1: | A – COMPLEX (KIND=nag_wp)<br><i>On entry:</i> the value $a$ .   | <i>Input</i>  |
| 2: | B – COMPLEX (KIND=nag_wp)<br><i>On entry:</i> the value $b$ .   | <i>Input</i>  |
| 3: | FAIL – LOGICAL<br><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.. | <i>Output</i> |

### 6 Error Indicators and Warnings

None.

### 7 Accuracy

Not applicable.

## **8 Further Comments**

None.

## **9 Example**

None.

---