

NAG Library Routine Document

F06JMF (IZAMAX)

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

F06JMF (IZAMAX) computes the index of the absolutely largest component of a complex vector.

2 Specification

```
FUNCTION F06JMF (N, X, INCX)
INTEGER F06JMF
INTEGER N, INCX
COMPLEX (KIND=nag_wp) X(*)
```

The routine may be called by its BLAS name *izamax*.

3 Description

F06JMF (IZAMAX) returns, via the function name, the smallest index i such that

$$|\operatorname{Re}(x_i)| + |\operatorname{Im}(x_i)| = \max_j (|\operatorname{Re}(x_j)| + |\operatorname{Im}(x_j)|)$$

where x is an n -element complex vector scattered with stride INCX.

4 References

Lawson C L, Hanson R J, Kincaid D R and Krogh F T (1979) Basic linear algebra subprograms for Fortran usage *ACM Trans. Math. Software* **5** 308–325

5 Arguments

- 1: N – INTEGER *Input*
On entry: n , the number of elements in x .
- 2: X(*) – COMPLEX (KIND=nag_wp) array *Input*
Note: the dimension of the array X must be at least $\max(1, 1 + (N - 1) \times \text{INCX})$.
On entry: the n -element vector x . x_i must be stored in $X(1 + (i - 1) \times \text{INCX})$, for $i = 1, 2, \dots, N$.
Intermediate elements of X are not referenced.
- 3: INCX – INTEGER *Input*
On entry: the increment in the subscripts of X between successive elements of x .
Constraint: $\text{INCX} > 0$.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06JMF (IZAMAX) is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.
