

NAG Library Routine Document

F06GDF (ZSCAL)

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

F06GDF (ZSCAL) scales a complex vector by a complex scalar.

2 Specification

```
SUBROUTINE F06GDF (N, ALPHA, X, INCX)
  INTEGER          N, INCX
  COMPLEX (KIND=nag_wp) ALPHA, X(*)
```

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

3 Description

F06GDF (ZSCAL) performs the operation

$$x \leftarrow \alpha x$$

where x is an n -element complex vector scattered with stride INCX, and α is a complex scalar.

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: ALPHA – COMPLEX (KIND=nag_wp) *Input*
On entry: the scalar α .
- 3: X(*) – COMPLEX (KIND=nag_wp) array *Input/Output*
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.
On exit: the vector αx stored in the array elements used to supply the original vector $x(y)$.
Intermediate elements of X are unchanged.
- 4: 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

F06GDF (ZSCAL) is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.
