NAG Library Routine Document

F06FLF

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

F06FLF returns the absolutely largest and absolutely smallest values from a real vector.

2 Specification

```
SUBROUTINE F06FLF (N, X, INCX, XMAX, XMIN)
INTEGER            N, INCX
REAL (KIND=nag_wp) X(*), XMAX, XMIN
```

3 Description

F06FLF returns the values $x_{\max}$ and $x_{\min}$ given by

$$x_{\max} = \max_i |x_i|, \quad x_{\min} = \min_i |x_i|,$$

where x is an n-element real vector scattered with stride INCX. If $n < 1$, then $x_{\max}$ and $x_{\min}$ are returned as zero.

4 References

None.

5 Arguments

1: N – INTEGER *Input*

On entry: n, the number of elements in x.

2: X($*$) – REAL (KIND=nag_wp) array *Input*

Note: the dimension of the array X must be at least $\max(1, 1 + (\text{N} - 1) \times \text{INCX})$.

On entry: the n-element vector x. x_i must be stored in $\text{X}(1 + (i-1) \times \text{INCX})$, for $i = 1, 2, \ldots, \text{N}$.

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: INCX > 0.

4: XMAX – REAL (KIND=nag_wp) *Output*

On exit: the value $x_{\max} = \max_i |x_i|$.

5: XMIN – REAL (KIND=nag_wp) *Output*

On exit: the value $x_{\min} = \min_i |x_i|$.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06FLF is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.