

# 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   | <i>Input</i>  |
|    | <i>On entry:</i> $n$ , the number of elements in $x$ .  |               |
| 2: | X(*) – REAL (KIND=nag_wp) array   | <i>Input</i>  |
|    | <b>Note:</b> the dimension of the array X must be at least $\max(1, 1 + (N - 1) \times \text{INCX})$ .                                  |               |
|    | <i>On entry:</i> 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  | <i>Input</i>  |
|    | <i>On entry:</i> the increment in the subscripts of X between successive elements of $x$ .  |               |
|    | <i>Constraint:</i> $\text{INCX} > 0$ .  |               |
| 4: | XMAX – REAL (KIND=nag_wp)   | <i>Output</i> |
|    | <i>On exit:</i> the value $x_{\max} = \max_i  x_i $ .   |               |
| 5: | XMIN – REAL (KIND=nag_wp)   | <i>Output</i> |
|    | <i>On exit:</i> 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.

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