

# NAG Fortran Library Routine Document

## F06FKF

**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

F06FKF returns, via the function name, the weighted Euclidean norm

$$\sqrt{x^T W x}$$

of the  $n$  element real vector  $x$ , where  $W = \text{diag}(w)$  and  $w$  is a vector of weights.

### 2 Specification

```
double precision FUNCTION F06FKF (N, W, INCW, X, INCX)
  INTEGER          N, INCW, INCX
double precision W(*), X(*)
```

### 3 Description

None.

### 4 References

None.

### 5 Parameters

- |    |                                                                                                                                                                 |              |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1: | N – INTEGER<br><i>On entry:</i> $n$ , the number of elements in $x$ .                                                                                           | <i>Input</i> |
| 2: | $W(*)$ – <b><i>double precision</i></b> array<br><i>On entry:</i> $w$ , the vector of weights.<br><i>Constraint:</i> $W(i) \geq 0$ , for $i = 1, 2, \dots, N$ . | <i>Input</i> |
| 3: | INCW – INTEGER<br><i>On entry:</i> the increment in the subscripts of $W$ between successive elements of $w$ .                                                  | <i>Input</i> |
| 4: | $X(*)$ – <b><i>double precision</i></b> array<br><i>On entry:</i> the vector $x$ .                                                                              | <i>Input</i> |
| 5: | INCX – INTEGER<br><i>On entry:</i> the increment in the subscripts of $X$ between successive elements of $x$ .                                                  | <i>Input</i> |

### 6 Error Indicators and Warnings

None.