

# NAG Fortran Library Routine Document

## F06HPF

**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

F06HPF applies a complex plane rotation to two  $n$  element complex vectors  $x$  and  $y$ :

$$\begin{pmatrix} x^T \\ y^T \end{pmatrix} \leftarrow \begin{pmatrix} c & s \\ -\bar{s} & \bar{c} \end{pmatrix} \begin{pmatrix} x^T \\ y^T \end{pmatrix}.$$

### 2 Specification

```
SUBROUTINE F06HPF (N, X, INCX, Y, INCY, C, S)
  INTEGER          N, INCX, INCY
  complex*16     X(*), Y(*), C, S
```

### 3 Description

None.

### 4 References

None.

### 5 Parameters

- |    |  |                     |
|----|--|---------------------|
| 1: | N – INTEGER<br><i>On entry:</i> $n$ , the number of elements in $x$ and $y$ .  | <i>Input</i>        |
| 2: | X(*) – <b>complex*16</b> array<br><i>On entry:</i> the original vector $x$ .<br><i>On exit:</i> the transformed vector $x$ . | <i>Input/Output</i> |
| 3: | INCX – INTEGER<br><i>On entry:</i> the increment in the subscripts of X between successive elements of $x$ .                 | <i>Input</i>        |
| 4: | Y(*) – <b>complex*16</b> array<br><i>On entry:</i> the original vector $y$ .<br><i>On exit:</i> the transformed vector $y$ . | <i>Input/Output</i> |
| 5: | INCY – INTEGER<br><i>On entry:</i> the increment in the subscripts of Y between successive elements of $y$ .                 | <i>Input</i>        |
| 6: | C – <b>complex*16</b><br><i>On entry:</i> the value $c$ , the cosine of the rotation.  | <i>Input</i>        |
| 7: | S – <b>complex*16</b><br><i>On entry:</i> the value $s$ , the sine of the rotation.  | <i>Input</i>        |

## **6 Error Indicators and Warnings**

None.

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