

NAG Library Routine Document

F06EUF (DGTHR)

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

F06EUF (DGTHR) gathers specified (usually nonzero) elements of a real vector y in full storage form into a sparse real vector x in compressed form.

2 Specification

```
SUBROUTINE F06EUF (NZ, Y, X, INDX)
  INTEGER          NZ, INDX(*)
  REAL (KIND=nag_wp) Y(*), X(*)
```

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

3 Description

F06EUF (DGTHR) gathers the specified elements of a vector, y , in full storage form, into x , the equivalent sparse vector compressed form.

4 References

Dodson D S, Grimes R G and Lewis J G (1991) Sparse extensions to the Fortran basic linear algebra subprograms *ACM Trans. Math. Software* **17** 253–263

5 Arguments

- | | | |
|----|---|---------------|
| 1: | NZ – INTEGER | <i>Input</i> |
| | <i>On entry:</i> the number of nonzeros in the compressed sparse vector x . | |
| 2: | Y(*) – REAL (KIND=nag_wp) array | <i>Input</i> |
| | Note: the dimension of the array Y must be at least $\max_k \{\text{INDX}(k)\}$. | |
| | <i>On entry:</i> the vector y . Only elements corresponding to indices in INDX are accessed. | |
| 3: | X(*) – REAL (KIND=nag_wp) array | <i>Output</i> |
| | Note: the dimension of the array X must be at least $\max(1, \text{NZ})$. | |
| | <i>On exit:</i> the compressed vector x . | |
| 4: | INDX(*) – INTEGER array | <i>Input</i> |
| | Note: the dimension of the array INDX must be at least $\max(1, \text{NZ})$. | |
| | <i>On entry:</i> $\text{INDX}(i)$ must contain the index $Y(i)$, for $i = 1, 2, \dots, \text{NZ}$, which is to be gathered into x . | |

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06EUF (DGTHR) is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.
