

NAG Library Routine Document

F06EVF (DGTHRZ)

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

F06EVF (DGTHRZ) gathers specified (usually nonzero) elements of a real vector y in full storage form into a sparse real vector x in compressed form. The specified elements of y are set to zero.

2 Specification

```
SUBROUTINE F06EVF (NZ, Y, X, INDX)
```

```
  INTEGER                NZ, INDX(*)
```

```
  REAL (KIND=nag_wp) Y(*), X(*)
```

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

3 Description

F06EVF (DGTHRZ) gathers the specified elements of a vector, y , in full storage form, into the equivalent sparse vector compressed form. The gathered elements of y are set to zero.

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

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06EVF (DGTHRZ) is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.
