NAG Library Routine Document

F06UMF

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

F06UMF returns, via the function name, the value of the 1-norm, the ∞-norm, the Frobenius norm, or the maximum absolute value of the elements of a complex n by n upper Hessenberg matrix.

2 Specification

```
double precision FUNCTION F06UMF(NORM, N, A, LDA, WORK)
INTEGER                       N, LDA
double precision              WORK(*)
complex*16                    A(LDA,*)
CHARACTER*1                   NORM
```

3 Description

None.

4 References

None.

5 Parameters

1: NORM – CHARACTER*1 *Input*

On entry: specifies the value to be returned.

NORM = '1' or 'O'
The 1-norm.

NORM = 'I'
The ∞-norm.

NORM = 'F' or 'E'
The Frobenius (or Euclidean) norm.

NORM = 'M'
The value $\max_{i,j}|a_{ij}|$ (not a norm).

Constraint: NORM = '1', 'O', 'I', 'F', 'E' or 'M'.

2: N – INTEGER *Input*

On entry: n, the order of the matrix A.

When N = 0, F06UMF is set to zero.

Constraint: N $\geq$ 0.

3: A(LDA,$*$) – ***complex*16*** array *Input*

Note: the second dimension of the array A must be at least N.

On entry: the n by n upper Hessenberg matrix A; elements of the array below the first subdiagonal are not referenced.

4: LDA – INTEGER *Input*

On entry: the first dimension of the array A as declared in the (sub)program from which F06UMF is called.

Constraint: LDA $\geq \max(1, \mathrm{N})$.

5: WORK($*$) – ***double precision*** array *Workspace*

Note: the dimension of the array WORK must be at least $\max(1, \mathrm{N})$ if NORM = 'I', and at least 1 otherwise.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

None.
