

NAG Fortran Library Routine Document

F06RAF

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

F06RAF 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 real m by n matrix.

2 Specification

```
double precision FUNCTION F06RAF (NORM, M, N, A, LDA, WORK)
INTEGER                                M, N, LDA
double precision                    A(LDA,*), WORK(*)
CHARACTER*1                            NORM
```

3 Description

None.

4 References

None.

5 Parameters

- 1: NORM – CHARACTER*1 *Input*
On entry: specifies the value to be returned:
 if NORM = '1' or 'O', the 1-norm;
 if NORM = 'I', the ∞ -norm;
 if NORM = 'F' or 'E', the Frobenius (or Euclidean) norm;
 if NORM = 'M', the value $\max_{i,j} |a_{ij}|$ (not a norm).
Constraint: NORM = '1', 'O', 'I', 'F', 'E' or 'M'.
- 2: M – INTEGER *Input*
On entry: m , the number of rows of the matrix A .
Constraint: $M \geq 0$.
- 3: N – INTEGER *Input*
On entry: n , the number of columns of the matrix A .
Constraint: $N \geq 0$.
- 4: A(LDA,*) – **double precision** array *Input*
Note: the second dimension of the array A must be at least $\max(1, N)$.
On entry: the m by n matrix A .

- 5: LDA – INTEGER *Input*
On entry: the first dimension of the array A as declared in the (sub)program from which F06RAF is called.
Constraint: $LDA \geq \max(1, M)$.
- 6: WORK(*) – *double precision* array *Workspace*
Note: the dimension of the array WORK must be at least $\max(1, M)$ if NORM = 'I' and at least 1 otherwise.

6 Error Indicators and Warnings

None.
