NAG C Library Function Document

zgerc (f06snc)

1 Purpose

zgerc (f06snc) performs the rank-1 update operation

$$A \leftarrow \alpha x y^H + A,$$

where A is an m by n complex matrix, x is an m element complex vector, y is an n element complex vector, and α is a complex scalar.

2 Specification

```
#include <nag.h>
#include <nagf06.h>

void zgerc (Integer m, Integer n, Complex alpha, const Complex x[], Integer incx,
     const Complex y[], Integer incy, Complex a[], Integer tda)
```

3 Arguments

1: **m** – Integer *Input*

On entry: m, the number of rows of the matrix A.

Constraint: **m** ≥ 0.

2: **n** – Integer *Input*

On entry: n, the number of columns of the matrix A.

Constraint: **n** ≥ 0.

3: **alpha** – Complex *Input*

On entry: the scalar α.

4: **x**[**m**] – const Complex *Input*

On entry: the incremented array **x** must contain the m element vector x.

5: **incx** – Integer *Input*

On entry: the increment in the subscripts of **x** between successive elements of x.

Constraint: **incx** $\neq 0$.

6: **y**[**n**] – const Complex *Input*

On entry: the incremented array **y** must contain the n element vector y.

7: **incy** – Integer *Input*

On entry: the increment in the subscripts of **y** between successive elements of y.

Constraint: **incy** $\neq 0$.

8: **a**[**m** $\times$ **tda**] – Complex *Input/Output*

On entry: the m by n matrix A.

On exit: the updated matrix A.

9: **tda** – Integer *Input*

On entry: the second dimension of the array **a** as declared in the function from which zgerc (f06snc) is called.

Constraint: **tda** $\geq \max(1, \mathbf{n})$.

4 Error Indicators and Warnings

If a function is called with an invalid argument then an error message is output on stderr, giving the name of the function and the number of the first invalid argument, and execution is terminated.