

ctrcon.f(3)

LAPACK

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**NAME**

ctrcon.f –

**SYNOPSIS****Functions/Subroutines**subroutine **ctrcon** (NORM, UPLO, DIAG, N, A, LDA, RCOND, WORK, RWORK, INFO)**CTRCON****Function/Subroutine Documentation**

subroutine **ctrcon** (character**NORM**, character**UPLO**, character**DIAG**, integer**N**, complex, dimension(**lda**, \* )**A**, integer**LDA**, real**RCOND**, complex, dimension( \* )**WORK**, real, dimension( \* )**RWORK**, integer**INFO**)

**CTRCON****Purpose:**

CTRCON estimates the reciprocal of the condition number of a triangular matrix A, in either the 1-norm or the infinity-norm.

The norm of A is computed and an estimate is obtained for  $\text{norm}(\text{inv}(A))$ , then the reciprocal of the condition number is computed as

$$RCOND = 1 / ( \text{norm}(A) * \text{norm}(\text{inv}(A)) ).$$

**Parameters:****NORM**

NORM is CHARACTER\*1

Specifies whether the 1-norm condition number or the infinity-norm condition number is required:

= '1' or 'O': 1-norm;

= 'I': Infinity-norm.

**UPLO**

UPLO is CHARACTER\*1

= 'U': A is upper triangular;

= 'L': A is lower triangular.

**DIAG**

DIAG is CHARACTER\*1

= 'N': A is non-unit triangular;

= 'U': A is unit triangular.

**N**

N is INTEGER

The order of the matrix A.  $N \geq 0$ .

**A**

A is COMPLEX array, dimension (LDA,N)

The triangular matrix A. If UPLO = 'U', the leading N-by-N upper triangular part of the array A contains the upper triangular matrix, and the strictly lower triangular part of A is not referenced. If UPLO = 'L', the leading N-by-N lower triangular part of the array A contains the lower triangular matrix, and the strictly upper triangular part of A is not referenced. If DIAG = 'U', the diagonal elements of A are also not referenced and are assumed to be 1.

**LDA**

LDA is INTEGER

The leading dimension of the array A.  $LDA \geq \max(1, N)$ .

**RCOND**

**RCOND** is REAL

The reciprocal of the condition number of the matrix A, computed as  $RCOND = 1/(\text{norm}(A) * \text{norm}(\text{inv}(A)))$ .

**WORK**

WORK is COMPLEX array, dimension (2\*N)

**RWORK**

RWORK is REAL array, dimension (N)

**INFO**

INFO is INTEGER

= 0: successful exit

< 0: if INFO = -i, the i-th argument had an illegal value

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Definition at line 137 of file ctrcon.f.

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