NAME

cunmql.f –

SYNOPSIS

Functions/Subroutines

subroutine **cunmql** (SIDE, TRANS, M, N, K, A, LDA, TAU, C, LDC, WORK, LWORK, INFO)
CUNMQL

Function/Subroutine Documentation

subroutine cunmql (characterSIDE, characterTRANS, integerM, integerN, integerK, complex, dimension(lda, *)A, integerLDA, complex, dimension(*)TAU, complex, dimension(ldc, *)C, integerLDC, complex, dimension(*)WORK, integerLWORK, integerINFO)

CUNMQL

Purpose:

CUNMQL overwrites the general complex M-by-N matrix C with

```
              SIDE = 'L'     SIDE = 'R'
TRANS = 'N':    Q * C          C * Q
TRANS = 'C':    Q**H * C       C * Q**H
```

where Q is a complex unitary matrix defined as the product of k
elementary reflectors

$$Q = H(k) \ldots H(2) H(1)$$

as returned by CGEQLF. Q is of order M if SIDE = 'L' and of order N
if SIDE = 'R'.

Parameters:

SIDE

SIDE is CHARACTER*1
= 'L': apply Q or Q**H from the Left;
= 'R': apply Q or Q**H from the Right.

TRANS

TRANS is CHARACTER*1
= 'N': No transpose, apply Q;
= 'C': Transpose, apply Q**H.

M

M is INTEGER
The number of rows of the matrix C. M >= 0.

N

N is INTEGER
The number of columns of the matrix C. N >= 0.

K

K is INTEGER
The number of elementary reflectors whose product defines
the matrix Q.
If SIDE = 'L', M >= K >= 0;
if SIDE = 'R', N >= K >= 0.

A

A is COMPLEX array, dimension (LDA,K)
The i-th column must contain the vector which defines the
elementary reflector H(i), for i = 1,2,...,k, as returned by
CGEQLF in the last k columns of its array argument A.

LDA

LDA is INTEGER
The leading dimension of the array A.
If SIDE = 'L', LDA >= max(1,M);
if SIDE = 'R', LDA >= max(1,N).

TAU

TAU is COMPLEX array, dimension (K)
TAU(i) must contain the scalar factor of the elementary
reflector H(i), as returned by CGEQLF.

C

C is COMPLEX array, dimension (LDC,N)
On entry, the M-by-N matrix C.
On exit, C is overwritten by Q*C or Q**H*C or C*Q**H or C*Q.

LDC

LDC is INTEGER
The leading dimension of the array C. LDC >= max(1,M).

WORK

WORK is COMPLEX array, dimension (MAX(1,LWORK))
On exit, if INFO = 0, WORK(1) returns the optimal LWORK.

LWORK

LWORK is INTEGER
The dimension of the array WORK.
If SIDE = 'L', LWORK >= max(1,N);
if SIDE = 'R', LWORK >= max(1,M).
For optimum performance LWORK >= N*NB if SIDE = 'L', and
LWORK >= M*NB if SIDE = 'R', where NB is the optimal
blocksize.

If LWORK = -1, then a workspace query is assumed; the routine
only calculates the optimal size of the WORK array, returns
this value as the first entry of the WORK array, and no error
message related to LWORK is issued by XERBLA.

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 170 of file cunmql.f.

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