NAME

trnma – CUTEr TRON test driver

SYNOPSIS

trnma

DESCRIPTION

The *trnma* main program test drives TRON on SIF problems from the CUTEr distribution.

The TRON package is a trust-region truncated-Newton method for large-scale unconstrained or bound-constrained minimization designed by Chih-Jen Lin and Jorge More' (Argonne National Labs.).

USAGE

All of the TRON .f files conmtained in src/tron, src/coloring and src/icf should be compiled and the resulting files inserted into a random library libtron_cuter.a. For example, with appropriate fortran 77 compiler $F77 and compiler flags $FFLAGS, move into the directory in which you have unpacked the TRON codes and issue the commands

```
( cd src/tron; make FC=$F77 FFLAGS=$FFLAGS LIB_NAME=../../libtron_cuter.a )
( cd src/coloring; make FC=$F77 FFLAGS=$FFLAGS LIB_NAME=../../libtron_cuter.a )
( cd src/icf; make FC=$F77 FFLAGS=$FFLAGS LIB_NAME=../../libtron_cuter.a )
```

The resulting double precision object file libtron_cuter.a should be placed in (or symbolically linked to) the directory $MYCUTER/double/lib.

There is no single-precision version.

NOTE

If no TRON.SPC file is present in the current directory, the default version is copied from $CUTER/common/src/pkg/tron/. Default specifications are as follows:

```
    5     P       the number of vectors to hold factorization fill-in
 1000     MAXIT   the maximum number of iterations,
 0.0D+0   FATOL   the absolute error desired in the function
 1.0D-12  FRTOL   the relative error desired in the function
-1.0D+20  FMIN    a lower bound for the function
 1.0D-1   CGTOL   the relative CG decrease required per iteration
 1.0D-5   GTOL    the norm of the projected gradient required
```

The reader is referred to the paper quoted below and the code itself if he or she wishes to modify these parameters.

ENVIRONMENT

CUTER

Parent directory for CUTEr

MYCUTER

Home directory of the installed CUTEr distribution.

AUTHORS

I. Bongartz, A.R. Conn, N.I.M. Gould, D. Orban and Ph.L. Toint

SEE ALSO

CUTEr (and SifDec): A Constrained and Unconstrained Testing Environment, revisited, N.I.M. Gould, D. Orban and Ph.L. Toint, ACM TOMS, **29**:4, pp.373-394, 2003.

CUTE: Constrained and Unconstrained Testing Environment, I. Bongartz, A.R. Conn, N.I.M. Gould and Ph.L. Toint, ACM TOMS, **21**:1, pp.123-160, 1995.

Newton's method for large bound-constrained optimization problems, C. Lin and J. J. More', SIAM Journal on Optimization, **9**:4, pp 1100-1127, 1999.

sdtrn(1), trn(1).