NAME

nitsma – CUTEr NITSOL test driver

SYNOPSIS

nitsma

DESCRIPTION

The *nitsma* main program test drives NITSOL on SIF problems from the CUTEr distribution.

NITSOL is a package for the solution of nonlinear systems of equations in which key linear systems are approximately solved using a variety of Krylov-based methods.

NITSOL has been written and is distributed by

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USAGE

NITSOL is available from

ftp://ephraim.wpi.edu/pub/nitsol/nitsol.tar.gz

Use the provided Makefile to obtain the library libnitsol.a, and move this into your directory $MYCUTER/*precision*/lib/. If you are unable to provide machine-tuned BLAS and/or LAPACK routines, use the same Makefile to obtain libblas.a and/or liblapack.a, and move these into $MYCUTER/*precision*/lib/.

NOTE

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

```
  200   NNIMAX max number of nonlinear iterations
    1   IJACV  method for J*v eval. (0 => finite diffs, 1 => analytic)
    0   IKRYSL Krylov solver: (0 => GMRES 1 => BiCGSTAB, 2 => TFQMR)
   20   KDMAX  max Krylov subspace dimension when GMRES is used
    0   IRPRE  right preconditioning: (0 => no, 1 => yes)
 1000   IKSMAX max allowable number iterations per call to Krylov solver
    0   IRESUP residual update for GMRES (0 => combination, 1 => direct)
    2   IFDORD order of the finite-difference formula (sometimes) used
   10   IBTMAX maximum allowable number of backtracks per linesearch
    0   IETA   flag determining the forcing term eta (0,1,2,3)
    1   IPLVL  printlevel (0 => nome, => 1 it+f, => 2+ increasing detail)
    6   IPUNIT printout unit number
    0   IPSOL  print solution to output unit (0 => no, 1 => yes)
 1.0D-6 FTOL   stopping tolerance on the f-norm
 1.0D-6 STPTOL stopping tolerance on the steplength
```

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, TOMS, **21**:1, pp.123-160, 1995.

NITSOL: a Newton iterative solver for nonlinear systems, M. Pernice and H. F. Walker, Special Issue on Iterative Methods, SIAM J. Sci. Comput., 19 (1998), 302--318.

sdnits(1), nits(1).