NAME

cgpma – CUTEr CG+ test driver

SYNOPSIS

cgpma

DESCRIPTION

The *cgpma* main program test drives CG+ on SIF problems from the CUTEr distribution.

The CG+ package is a nonlinear conjugate-gradient algorithm designed for unconstrained minimization by G. Liu, Jorge Nocedal and Richard Waltz (Northwestern U.). A choice of three conjugate-gradient strategies, Fletcher-Reeves, Polak-Ribiere, and positive Polak-Ribiere, are available.

USAGE

The CG+ files cgfam.f cgsearch.f timer.f blas.f fcn.f should be compiled and placed together into a random library libcgplus.a. For example, with appropriate fortran 77 compiler $F77 and compiler flags $FFLAGS, move into the directory in which you have unpacked the CG+ codes and issue the commands:

```
$F77 $FFLAGS cgfam.f cgsearch.f
ar ru libcgplus.a cgfam.o cgsearch.o
```

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

There is no single-precision version.

NOTE

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

```
   -1   IPRINT(1) specifies the frequency of output (<0: no output)
    0   IPRINT(2) specifies content of output (0: minimal)
    3   METHOD    method used (1=Fletcher-Reeves,2=Polak-Ribiere,3=P-R+)
    0   IREST     no restart (0) or restart every n iterations (1)
10000   MAXIT     specifies the maximum number of iterations
0.00001 EPS       specifies the required gradient accuracy
```

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.

Global Convergence Properties of Conjugate Gradient Methods, J.-Ch. Gilbert and J. Nocedal, SIAM Journal on Optimization, **2**, pp 21-42, 1992.

sdcgp(1), cgp(1).