NAME

uncma – CUTEr UNCMIN test driver

SYNOPSIS

uncma

DESCRIPTION

The *uncma* main program test drives UNCMIN on SIF problems from the CUTEr distribution.

The UNCMIN package is designed for unconstrained minimization and has options that include both line search and trust region approaches. The provided options include analytic gradients or difference approximations with analytic Hessians or finite difference Hessians (from analytic or finite difference gradients) or secant methods (BFGS).

USAGE

For correct performance, IEEE flags should be set for the compiler, wherever appropriate. (Otherwise, the machine precision EPSM may not be calculated correctly by UNCMIN.) On an RS/6000, for example, the UNCMIN source should be compiled with at least the following flags:

xlf -qrndsngl -c uncmins.f

where uncmins.f is the file containing the single precision UNCMIN source. Of course, you may wish to use additional flags for optimization, debugging, etc.

The resulting object file uncmins.o should be placed in your directory $MYCUTER/*precision*/bin/.

NOTE

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

1.0	TYPX	typical size for each component of X
1.0	FSCALE	estimate of scale of minimization function
1	METHOD	algorithm to use to solve minimization problem
0	IEXP	=0 if minimization function not expensive to evaluate (0/1)
8	MSG	message to inhibit certain automatic checks + output
-1	NDIGIT	number of good digits in minimization function (-1 = all)
1000	ITNLIM	maximum number of allowable iterations
1	IAGFLG	=0 if analytic gradient not supplied
1	IAHFLG	=0 if analytic hessian not supplied
-1.0	DLT	initial trust region radius (-1 = uncmin chooses)
0.00001	GRADTL	gradient tolerance for convergence
0.00001	STEPL	minimum 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

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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.

A modular system of algorithms for unconstrained minimization, J.E. Koontz, R.B. Schnabel, and B.E. Weiss, ACM Transactions on Mathematical Software, vol. 11, pp. 419-440, 1985.

sdunc(1), unc(1).