NAME

lmbma – CUTEr L-BFGS-B test driver

SYNOPSIS

lmbma

DESCRIPTION

The *lmbma* main program test drives L-BFGS-B on SIF problems from the CUTEr distribution.

L-BFGS-B is a nonlinear programming code for unconstrained or bound constrained problems, using the limited memory BFGS quasi-Newton update.

L-BFGS-B was written by C. Zhu, R.H. Byrd, P. Lu and J. Nocedal. It is available from J. Nocedal, Department of Electrical Engineering and Computer Sciences, Nothwestern University, Evanston IL 60201, USA (email: nocedal@venus.eecs.nwu.edu).

The object module *lmbma.o* is stored in $MYCUTER/*precision*/bin, where *precision* is either "single" or "double", according to your local installation.

USAGE

To avoid multiply defined subroutines when LBFGS is linked with the CUTEr tools, the duplicate BLAS subroutines daxpy, dcopy, ddot and dscal must be removed from the file routines.f in the LBFGS distribution.

Compile (but do not link) the resulting L-BFGS-B source code and copy the resulting object file lbfgsb.o in the directory $MYCUTER/*precision*/bin. Launch using lmb(1) or sdlmb(1).

NOTE

If no LBFGSB.SPC file is present in the current directory, the default version is copied from $CUTER/common/src/pkg/lbfgsb/. The default specifications are

5	M	maximum number of variable metric corrections
0.0	FACTR	factor in built-in stopping test
0.00001	GTOL	termination criterion on infinity norm of the gradient
0	IPRINT	output specifier
1	ISBMIN	minimization method in the subspace
10000	MAXIT	maximum number of iterations
10000	MAXCLL	maximum number of function calls

The reader is referred to the papers quoted below if they wishe 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.

A limited memory algorithm for bound constrained optimization, R. H. Byrd, P. Lu, J. Nocedal and C. Zhu, SIAM J. Scientifi c Computing **16** (1995), no. 5.

L-BFGS-B: a limited memory FORTRAN code for solving bound constrained optimization problems, C. Zhu, R.H. Byrd, P. Lu, J. Nocedal, Tech. Report, EECS Department, Northwestern University, 1994.