NAME

CUTEST_usetup – CUTEst tool to set up the data structures for unconstrained or bound-constrained minimization.

SYNOPSIS

CALL CUTEST_usetup(status, input, out, io_buffer, n, X, X_l, X_u)

For real rather than double precision arguments, instead

CALL CUTEST_usetup_s(...)

and for quadruple precision arguments, when available,

CALL CUTEST_usetup_q(...)

DESCRIPTION

The CUTEST_usetup subroutine sets up the correct data structures for subsequent computations in the case where the only possible constraints are bound constraints.

The problem under consideration is to minimize or maximize an objective function $f(x)$ over all $x \in R^n$ subject to the simple bounds $x^l \leq x \leq x^u$. The objective function is group-partially separable.

ARGUMENTS

The arguments of CUTEST_usetup are as follows

status [out] - integer
the outputr status: 0 for a succesful call, 1 for an array allocation/deallocation error, 2 for an array bound error, 3 for an evaluation error,

input [in] - integer
the unit number for the decoded data; the unit from which OUTSDIF.d is read,

out [in] - integer
the unit number for any error messages,

io_buffer [in] - integer
the unit number for any internal input/output,

n [inout] - integer
on input, the declared dimesions of X, X_l and X_u (see argument n in CUTEST_udimen). On output, the number of variables for the problem,

X [out] - real/double precision
an array that gives the initial estimate of the solution of the problem,

X_l [out] - real/double precision
an array that gives lower bounds on the variables,

X_u [out] - real/double precision
an array that gives upper bounds on the variables.

APPLICATION USAGE

    A call to CUTEST_usetup must precede calls to other evaluation tools, except CUTEST_udimen, for unconstrained and bound constrained problems.

AUTHORS

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

SEE ALSO

    CUTEst: a Constrained and Unconstrained Testing Environment with safe threads,
      N.I.M. Gould, D. Orban and Ph.L. Toint,
      Computational Optimization and Applications **60**:3, pp.545-557, 2014.

    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.

    cutest_csetup(3M), cutest_udimen(3M), sifdecoder(1).