NAME

CUTEST_ugrdh_threaded − CUTEst tool to evaluate the gradient and Hessian matrix.

SYNOPSIS

CALL CUTEST_ugrdh_threaded(status, n, X, G, lh1, H_val, thread)

DESCRIPTION

The CUTEST_ugrdh_threaded subroutine evaluates the gradient and Hessian matrix of the objective function of the problem decoded from a SIF file by the script *sifdecoder* at the point X. This Hessian matrix is stored as a dense matrix.

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_ugrdh_threaded 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, 4 for an out-of-range thread,

n [in] - integer
the number of variables for the problem,

X [in] - real/double precision
an array which gives the current estimate of the solution of the problem,

G [out] - real/double precision
an array which gives the value of the gradient of the objective function evaluated at X,

lh1 [in] - integer
the actual declared size of the leading dimension of H_val (with lh1 no smaller than N),

H_val [out] - real/double precision
a two-dimensional array which gives the value of the Hessian matrix of the objective function evaluated at X,

thread [inout] - integer
thread chosen for the evaluation; threads are numbered from 1 to the value threads set when calling CUTEST_usetup_threaded.

NOTE

Calling this routine is more efficient than separate calls to CUTEST_ugr_threaded and CUTEST_udh_threaded.

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,
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CUTEr (and SifDec): A Constrained and Unconstrained Testing Environment, revisited,
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CUTE: Constrained and Unconstrained Testing Environment,
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