

NAME

CUTEST_creport_threaded – CUTEst tool to obtain statistics concerning function evaluation and CPU time used.

SYNOPSIS

CALL CUTEST_creport_threaded(status, CALLS, TIME, thread)

DESCRIPTION

The CUTEST_creport_threaded subroutine obtains statistics concerning function evaluation and CPU time used for constrained optimization in a standardized format.

The problem under consideration is to minimize or maximize an objective function $f(x)$ over all $x \in R^n$ subject to general equations $c_i(x) = 0$, ($i \in 1, \dots, m_E$), general inequalities $c_i^l(x) \leq c_i(x) \leq c_i^u(x)$, ($i \in m_E + 1, \dots, m$), and simple bounds $x^l \leq x \leq x^u$. The objective function is group-partially separable and all constraint functions are partially separable.

ARGUMENTS

The arguments of CUTEST_creport_threaded are as follows

status [out] - integer

the output status: 0 for a successful 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,

CALLS [out] - real array of length 7

gives the number of calls to the problem functions:

CALLS(1): number of calls to the objective function

CALLS(2): number of calls to the objective gradient

CALLS(3): number of calls to the objective Hessian

CALLS(4): number of Hessian times vector products

CALLS(5): number of calls to the constraint functions

CALLS(6): number of calls to the constraint gradients

CALLS(7): number of calls to the constraint Hessians,

TIME [out] - real array of length 2:

TIME(1): CPU time (in seconds) for CUTEST_csetup_threaded

TIME(2): CPU time (in seconds) since the end of CUTEST_csetup_threaded,

thread [in] - integer

statistics are for the specified thread; threads are numbered from 1 to the value threads set when calling CUTEST_usetup_threaded.

NOTE

Note that CALLS(4), CALLS(5) and CALLS(6) may account for codes which allow the evaluation of a selection of constraints only and may thus be much smaller than the number of constraints times the number of iterations.

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,
Technical Report, Rutherford Appleton Laboratory, 2013.

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.

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