NAME

CUTEST_ccifsg_threaded – CUTEst tool to evaluate a single constraint function value and possibly gradient in sparse format.

SYNOPSIS

CALL CUTEST_ccifsg_threaded(status, n, icon, X, ci, nnzgci, lgci, GCI_val, GCI_var, grad, thread)

For real rather than double precision arguments, instead

CALL CUTEST_ccifsg_threaded_s(...)

and for quadruple precision arguments, when available,

CALL CUTEST_ccifsg_threaded_q(...)

DESCRIPTION

The CUTEST_ccifsg_threaded subroutine evaluates the value of a particular constraint function of the problem decoded from a SIF file by the script *sifdecoder* at the point X, and possibly its gradient in the constrained minimization case. The gradient is stored in sparse 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 $c_i^l \le c_i(x) \le c_i^{u,}$ ($i \in m_E + 1, \dots, m$), and simple bounds $x^l \le x \le x^{u.}$ The objective function is group-partially separable and all constraint functions are partially separable.

ARGUMENTS

The arguments of CUTEST_ccifsg_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,

icon [in] - integer

the index of the constraint function to be evaluated,

X [in] - real/double precision

an array which gives the current estimate of the solution of the problem,

ci [out] - real/double precision

the value of constraint function ICON at X,

nnzgci [out] - integer

the number of nonzeros in GCI_val,

lgci [in] - integer

the declared length of GCI_val and GCI_var,

GCI_val [out] - real/double precision

an array which gives the nonzeros of the gradient of constraint function icon evaluated at X. The i-th entry of GCI_val gives the value of the derivative with respect to variable GCI_var(i) of function icon.

GCI_var [out] - integer

an array whose i-th component is the index of the variable with respect to which GCI_val(i) is the derivative,

grad [in] - logical

a logical variable which should be set .TRUE. if the gradient of the constraint functions are required and .FALSE. otherwise,

thread [in] - integer

thread chosen for the evaluation; threads are numbered from 1 to the value threads set when calling CUTEST_csetup_threaded.

AUTHORS

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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.

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