

NAME

CUTEST_cfn_threaded – CUTEst tool to evaluate function and constraints values.

SYNOPSIS

CALL CUTEST_cfn_threaded(status, n, m, X, f, C, thread)

For real rather than double precision arguments, instead

CALL CUTEST_cfn_threaded_s(...)

and for quadruple precision arguments, when available,

CALL CUTEST_cfn_threaded_q(...)

DESCRIPTION

The CUTEST_cfn_threaded subroutine evaluates the value of the objective function and general constraint functions of the problem decoded from a SIF file by the script *sifdecoder* at the point X.

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 $c_i^l \leq c_i(x) \leq c_i^u$ ($i \in m_E + 1, \dots, m$), 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_cfn_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,

n [in] - integer

the number of variables for the problem,

m [in] - integer

the total number of general constraints,

X [in] - real/double precision

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

f [out] - real/double precision

the value of the objective function evaluated at X,

C [out] - real/double precision

an array which gives the values of the general constraint functions evaluated at X. The i-th component of C will contain the value of $c_i(x)$,

thread [in] - integer

thread chosen for the evaluation; threads are numbered from 1 to the value threads set when calling CUTEST_csetup_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,
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_setup_threaded(3M), cutest_ufn_threaded(3M), sifdecoder(1).