NAME

CUTEST_cofg – CUTEst tool to evaluate function value and possibly gradient.

SYNOPSIS

CALL CUTEST_cofg(data, status, n, X, f, G, grad)

DESCRIPTION

The CUTEST_cofg subroutine evaluates the value of the objective function of the problem decoded from a SIF file by the script *sifdecode* at the point X, and possibly its gradient.

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 $c_i^l(x) \le c_i(x) \le c_i^u(x)$, $(i \in m_E + 1, \dots, m)$, 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_cofg are as follows

data [inout] - CUTEST_data_type derived type
problem-specific private data,

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,

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,

f [out] - real/double precision
the value of the objective function evaluated at X,

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

grad [in] - logical
a logical variable which should be set to .TRUE. if the gradient of the objective function is required and .FALSE. otherwise.

NOTE

A call to CUTEST_cofg is more efficient than two separate calls to CUTEST_cfn and CUTEST_cgr.

AUTHORS

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

SEE ALSO

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, TOMS, **21**:1, pp.123-160, 1995.

cutest_uofg(3M), sifdecode(1).

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