

NAME

CUTEST_cohprodsp – CUTEst tool to determine the sparsity structure used when forming the matrix-vector product of a vector with the Hessian matrix of the objective function.

SYNOPSIS

CALL CUTEST_cohprodsp(status, nnzohp, loh, IND)

For real rather than double precision arguments, instead

CALL CUTEST_cohprodsp_s(...)

DESCRIPTION

The CUTEST_cohprodsp subroutine obtains the sparsity structure used when forming the product of a vector with the Hessian matrix of the objective function $f(x)$ corresponding to the problem decoded from a SIF file by the script *sifdecoder* at the point $x = X$.

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_cohprodsp 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,

nnzohp [out] - integer

the total number of nonzero entries required to store the product of the objective Hessian with a vector.

loh [in] - integer

a variable that specifies the declared length of IND. The precise length required may be found by calling *CUTEST_cdimohp* prior to *CUTEST_cohprodsp*,

IND [inout] - integer

an array that gives the indices of the nonzeros in the result obtained by multiplying the objective Hessian by VECTOR. The indices are stored in IND(1:nnzohp), and will match the values stored in RESULT from a cutest_cohprods(3M) call.

AUTHORS

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SEE ALSO

CUTEst: a Constrained and Unconstrained Testing Environment with safe threads for mathematical optimization,

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

N.I.M. Gould, D. Orban and Ph.L. Toint,

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cutest_cdimohp(3M), cutest_cohprods(3M), sifdecoder(1).