NAME

CUTEST_cohprodsp − CUTEst tool to detetrmine 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, lohp, IND)

For real rather than double precision arguments, instead

CALL CUTEST_cohprodsp_s(...)

and for quadruple precision arguments, when available,

CALL CUTEST_cohprodsp_q(...)

DESCRIPTION

The CUTEST_cohprodsp subroutine obtins 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 $c_i(x) = 0$, $(i \in 1, \ldots, m_E)$, general inequalities $c_i^l \leq c_i(x) \leq c_i^{u,}$ $(i \in m_E + 1, \ldots, m)$, 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 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,

nnzohp [out] - integer
the total number of nonzero entries required to store the product of the objective Hessian with a vector.

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

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N.I.M. Gould, D. Orban and Ph.L. Toint,
ACM TOMS, **29**:4, pp.373-394, 2003.

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I. Bongartz, A.R. Conn, N.I.M. Gould and Ph.L. Toint,
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cutest_cdimohp(3M), cutest_cohprods(3M), sifdecoder(1).