

**NAME**

CUTEST\_cdimchp – CUTEst tool to determine the number of nonzeros needed to store the products of the Hessian matrices of the constraint functions with a specified vector for the problem decoded from a SIF file by the script *sifdecoder*.

**SYNOPSIS**

CALL CUTEST\_cdimchp( status, nnzchp )

For real rather than double precision arguments, instead

CALL CUTEST\_cdimchp\_s( ... )

and for quadruple precision arguments, when available,

CALL CUTEST\_cdimchp\_q( ... )

**DESCRIPTION**

The CUTEST\_cdimchp subroutine determines the number of nonzero elements required to store the products of the Hessian matrices of the constraint functions with a specified vector for the problem decoded into OUTSDIF.d in the constrained minimization case.

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\_cdimchp 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,

**nnzchp** [out] - integer

the total number of nonzero entries required to store the products of the constraint Hessians with a vector.

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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,

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.

sifdecoder(1).