NAME

sifdecoder − SIF-decoding script.

SYNOPSIS

sifdecoder [−A *arch*] [−sp] [−h] [−o *0|1*] [-m] [−f] [−b] [−a *1|2*] [−p *1|2|3*] [−s *0|1|2|3*] [−st *1|2|3*] [−show] [−param *name=value*[,*name=value...*]] [−force] *problem[.SIF]*

DESCRIPTION

sifdecoder applies the SIF decoder to the problem *problem.SIF* to produce the OUTSDIF.d file and the problem-dependant Fortan subroutines, ELFUN.f, GROUP.f, RANGE.f and possibly EXTER.f. It can be conveniently called from the command line with the −A, −h, −o, −m, −show and −param options. Other options are useful when *sifdecoder* is called by other interfaces which require the decoding of a SIF file, as for instance a CUTEst interface.

sifdecoder Options

You can start sifdecoder with the following options:

−A *arch*
: Run the decoder using the architecture *arch*; the architeture is a string of the form machine.system.compiler as specified in the directory $SIFDECODE/versions. If no −A option is given, a valid architecture given by the environment variable $MYARCH will be used, but if $MYARCH is invalid or empty the decoder will terminate.

−sp Run sifdecoder in single-precision mode, if available. Double precision is the default.

−h Print a short help message.

−o *0|1*
: Regulate the output level of *sifdecoder.* Verbose mode is **-o** 1, silent mode is **-o** 0. Silent mode is the default.

−m check for memory leaks when possible using valgrind(1).

−c check the derivatves that are provided in ELFUN.f and GROUP.f by comparing the values against finite-diffrence approximations; any significant differences will be reported.

−f Use automatic differentiation in Forward mode.

−b Use automatic differentiation in Backward mode.

−a *1|2*
: −a 1 uses the older HSL automatic differentiation package AD01 and −a 2 uses the newer HSL automatic differentiation package AD02. Using AD02 is the default.

−p *1|2|3*
: Specifies the package that the decoded problem is intended for. −p 1 is for LANCELOT, −p 2 is for BARIA and −p 3 is for CUTEst. The default is to decode for CUTEst.

−s *0|1|2|3*
: Specify the rough size of problem that will be decoded. This is used for array initialization and although not crucial, it may lead to efficiencies if set correctly. Set −s 0 is for debugging, −s 1 is for small problems of up to approximately 100 variables and constraints, −s 2 is for medium-sized problems of up to approximately 10000 variables and constraints, and −s 3 is for larger problems. Setting −s too large may cause memory allocation errors on modest computers. The default is for meedium-sized problems.

−st *1|2|3*
: Specifies the starting point vector to be used if there is more than one. Any value outside the actual number of starting vectors will be interpreted as 1, and this is the default.

−show
: displays possible parameter settings for problem[.SIF]. Other options are ignored.

−param
Cast problem[.SIF] against explicit parameter settings. Several parameter settings may be given as a comma-separated list following −param or using several −param flags. Use *sifdecoder -show problem* to view possible settings. If a setting is not allowed in the SIF file, no action is taken unless *−force* is present.

−force
Forces the setting of the parameters named using *−param* to the given values, even if those values are not predefined in the SIF file.

problem
problem.SIF is the name of the file containing the SIF information on the problem to be solved.

ENVIRONMENT

SIFDECODE
Directory containing SIFDecode.

MYARCH
The default architecture.

MASTSIF
A pointer to the directory containing the CUTEst/SIFDecode problems collection. If this variable is not set, the current directory is searched for *problem.SIF*. If it is set, the current directory is searched first, and if *problem.SIF* is not found there, $MASTSIF is searched.

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 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,
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