OPTIMIZATION

www.gams.com

GAMS

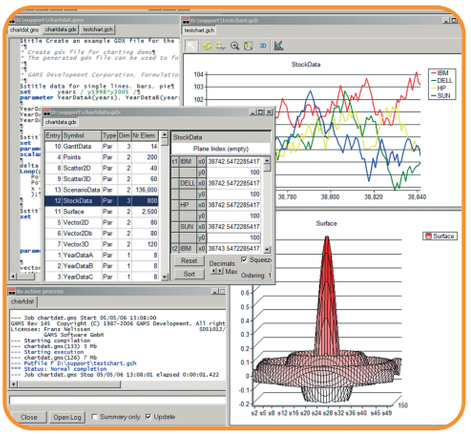
High-Level Modeling

The General Algebraic Modeling System (GAMS) is a high-level modeling system for mathematical programming problems. GAMS is tailored for complex, large-scale modeling applications, and allows you to build large maintainable models that can be adapted quickly to new situations. Models are fully portable from one computer platform to another.

Wide Range of Model Types

GAMS allows the formulation of models in **many different problem classes**, including

- Linear (LP) and Mixed Integer Linear (MIP)
- Quadratic Programming (QCP) and Mixed Integer QCP (MIQCP)
- Nonlinear (NLP) and Mixed Integer NLP (MINLP)
- Constrained Nonlinear Systems (CNS)
- Mixed Complementary (MCP)
- Programs with Equilibrium Constraints (MPEC)
- Conic Programming Problems
- Stochastic Linear Problems



GAMS Integrated Developer Environment for editing, debugging, solving models, and viewing data.

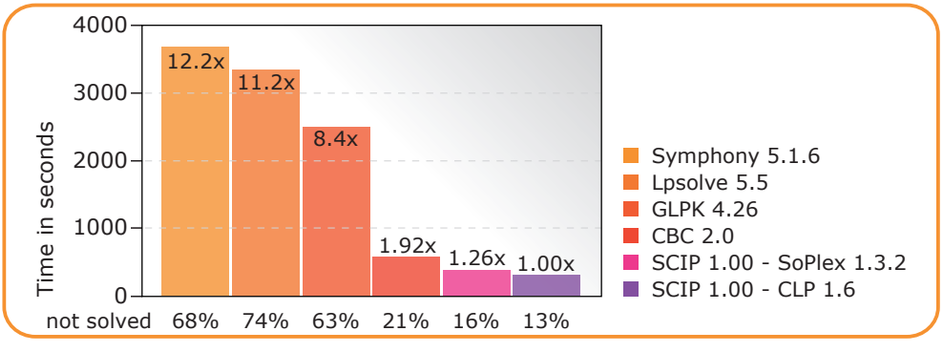
State-of-the-Art Solvers

GAMS incorporates all major commercial and academic state-of-the-art solution technologies for a broad range of problem types, including global nonlinear optimization solvers.

GAMS/SCIP (Solving Constraint Integer Programs)

SCIP is a branch-and-cut framework oriented towards the needs of mathematical programming experts who want to have total control of the solution process. GAMS/SCIP is a general purpose MIP solver using the GAMS/BCH facility to allow additional control of the solution process. The GAMS/BCH facility automates the steps necessary to define, execute and control the use of problem specific procedures within a MIP code.

- SCIP developed at Zuse Institute Berlin (ZIB) scip.zib.de
- General purpose MIP solver with excellent cut generation, presolving, conflict analysis, and heuristic facilities
- Advanced use of SCIP through GAMS/BCH facility www.gams.com/docs/bch.htm
- GAMS/SCIP uses COIN-OR LP solver CLP
- Free for academic users



Performance Benchmark of MIP codes free for academic use by Hans Mittelmann. Solution times are geometric means where unsolved instances were assigned a 2 hours solution time (time limit). Details at scip.zib.de

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