

MiniZinc Challenge 2011



Australian Government
Department of Communications,
Information Technology and the Arts
Australian Research Council

NICTA Members



Department of State and
Regional Development



NICTA Partners

- 20 benchmarks * 5 instances = 100 instances
- 15 minutes time limit
- Borda count scoring:
 - each instance ranks the solvers (with equivalences)
 - 2 points for every solver you beat
 - 1 point for every solver you draw with
- Three categories:
 - fixed search: must follow given search strategy
 - free search: search however you want
 - parallel search: free search on 4 CPUs with hyper threading (8 threads)

The official contestants



- **gecode**: C++ based copying FD solver
- **jacop**: Java based trailing FD solver
- **scip**: C++ based MIP solver with propagation and learning
- **fzn2smt**: translator to SMT-LIB format and execution of SMT solver
- **bprolog**: trailing CLP(FD) solver
- **bumblebee**: FD preprocessing and conversion to SAT solver

The unofficial contestants



- **g12-fd**: Mercury and C based trailing FD solver
- **g12-lazyfd**: Mercury and C based trailing lazy clause generation solver
- **cbc**: C++ based freely available MIP solver
- **cplex**: commercial C++ based MIP solver
- **gurobi**: commercial C++ based MIP solver
- **chuffed**: C++ based trailing lazy clause generation solver
- **cpx**: C++ based trailing lazy clause generation solver

Fixed search category



- **chuffed-fd: 870**
- **cpx-fd: 716**
- **gecode-fd: 667** **GOLD Medal**
- **g12_lazyfd-fd: 440**
- **jacop-fd: 414** SILVER Medal
- **g12_fd-fd: 411**
- **bprolog-fd: 278** **BRONZE Medal**

Free search category



- **chuffed-free**: 1908
- **cpx-free**: 1425
- **gecode-free**: 1382 **GOLD Medal**
- **g12_lazyfd-free**: 1362
- **fzn2smt-free**: 1328 **SILVER Medal**
- **jacop-free**: 1120 **BRONZE Medal**
- **gurobi-free**: 981
- **g12_fd-free**: 953
- **scip-free**: 875
- **bumblebee-free**: 748
- **bprolog-free**: 723
- **cplex-free**: 652
- **cbc-free**: 79

Parallel search category



- **chuffed-free**: 1882
- **cpx-par**: 1651
- **gecode-par**: 1534 **GOLD Medal**
- **g12_lazyfd-free**: 1313
- **fzn2smt-free**: 1281 **SILVER Medal**
- **jacop-free**: 1083 **BRONZE Medal**
- **gurobi-par**: 972
- **g12_fd-free**: 934
- **scip-free**: 853
- **bumblebee-free**: 726
- **bprolog-free**: 693
- **cplex-par**: 678
- **cbc-par**: 76

Conclusions



- Congratulations to the winners

	Fixed	Free	Parallel
GOLD	Gecode	Gecode	Gecode
SILVER	JaCoP	fzn2smt	fzn2smt
BRONZE	B-Prolog	JaCoP	JaCoP

- Many thanks to our judges for helping pick the instances
 - Jimmy Lee, Barry O'Sullivan, Roland Yap
- Enter [your solver](#) next year, send us some [problem instances](#)!
- www.g12.csse.unimelb.edu.au/minizinc/challenge2011/results2011.html