

# MiniZinc Challenge 2011



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

NICTA Members



Department of State and  
Regional Development



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# MiniZinc Challenge 2011



- 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](http://www.g12.csse.unimelb.edu.au/minizinc/challenge2011/results2011.html)