

# Boolector Entering the SMT Competition 2012

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This note serves as *machine description* for Boolector [1] entering the SMT Competition 2012. Boolector has been originally developed by Robert Brummayer and Armin Biere at the FMV institute. Since 2009 is maintained and extended by Armin Biere.

Boolector supports the SMT-Lib input format version 1 and 2 for the logics QF\_BV and QF\_ABV. The current version has been further simplified, compared to last year, by removing for instance domain abstraction. The SAT solver Lingeling continues to be the default back-end. Boolector still supports PicoSAT and now also MiniSAT. Support for PrecoSAT has been removed.

New features include usage of the “clone” functionality of Lingeling and a top-level boolean skeleton simplifier. Boolector is expected to perform substantially better than last year, particularly in the plain bit-vector category QF\_BV, due to better integration with Lingeling. It also has new incremental features, but those have not been integrated with the SMT-Lib 2 parser yet. Boolector has also been improved for very large instances.

The submitted competition version of Boolector is currently only available as binary. We will publish the source code of an updated version after the competition, which as before will use a GPL license.

## References

1. Robert Brummayer and Armin Biere. Boolector: An efficient smt solver for bit-vectors and arrays. In Stefan Kowalewski and Anna Philippou, editors, *TACAS*, volume 5505 of *Lecture Notes in Computer Science*, pages 174–177. Springer, 2009.