4Simp

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4Simp is a simple bit-vector solver that applies four simplfications before solving with the Glucose 2.0 SAT Solver. The simplifications are: size-preserving bit-vector theory term rewrites, variable elimination of equalities, and Precosat's implementation of SatELite pre-processing.

4Simp shares some code with STP2, another bit-vector.

4Simp shows that simple solvers can have good performance.

4Simp handles arbitrary precision integers using Steffen Beyers library. 4Simp encodes into CNF via the and-inverter graph package ABC of Alan Mishchenko et al. [BM10]. 4Simp uses Glucose 2.0 [AS09] as its SAT solver. We found many defects using Robert Brummayer and Armin Bieres fuzzing and delta debugging tools [BB09].

References

[AS09]   Gilles Audemard and Laurent Simon. Predicting learnt clauses quality in modern SAT solvers. In *Proceedings of the 21st International Joint Conference on Artificial Intelligence*, IJCAI'09, pages 399–404, San Francisco, CA, USA, 2009. Morgan Kaufmann Publishers Inc.

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[BM10]   Robert K. Brayton and Alan Mishchenko. ABC: An academic industrial-strength verification tool. In *CAV*, pages 24–40, 2010.