

STP in the SMTCOMP 2021

Various

1 Background

STP[1] is an open-source solver for QF_BV and arrays without extensionality. STP recursively simplifies bit-vector constraints, solves linear bit-vector equations, and then eagerly encodes them to CNF for solving. Array axioms are added as needed during an abstraction-refinement phase.

STP was originally developed by Vijay Ganesh under the supervision of Professor David Dill. Later releases were developed by Trevor Hansen under the supervision of Peter Schachte and Harald Søndergaard. STP handles arbitrary precision integers using Steffen Beyer's library. STP encodes into CNF via the and-inverter graph package ABC of Alan Mishchenko [2]. By default STP uses CryptoMiniSat [3], but also uses MiniSat [4] and Riss [5].

2 Recent Developments to STP

In the last year:

Andrew V. Jones and Mate Soos have considerably improved the build system. Mate Soos and Norbert Manthey have got the distributed and parallel versions of STP working. Trevor Hansen has sped up some simplifications.

Acknowledgements

Vijay Ganesh, Dan Liew, Mate Soos and Ryan Govostes contributed substantially to the STP code base.

References

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- [2] Brayton, R., Mishchenko, A.: Abc: An academic industrial-strength verification tool. In: Proceedings of the 22Nd International Conference on Computer Aided Verification. CAV'10, Berlin, Heidelberg, Springer-Verlag (2010) 24–40
- [3] Soos, M.: GitHub repository for CryptoMiniSat (may 2019) <https://github.com/msoos/cryptominisat>.
- [4] Niklas Sörensson, N.E.: GitHub repository for MiniSat (may 2019) <https://github.com/niklasso/minisat>.
- [5] Manthey, N.: GitHub repository for Riss (may 2019) <https://github.com/conp-solutions/riss>.