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Hélène Collavizza, Nguyen Le Vinh, Olivier Ponsini, Michel Rueher, Antoine Rollet

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The Flasher Manager Benchmarks

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Abstract

This technical report provides all the source code of the *Flasher Manager* as well as of the test programs. The *Flasher Manager* is an industrial application from a car manufacturer that is embedded as a C program in a car computer. The benchmarks are based on four safety properties specified by the *Flasher Manager* designers.

1 The Flasher Manager application

The Flasher Manager application [1] is a real time industrial application from a car manufacturer that was provided by Geensoft / Dassault Systems¹. The Flasher Manager application was designed and simulated using the Simulink platform. Its specification was given by Geensoft and consists of four main properties. The Flasher Manager is concretely embedded as a C program in a car computer. This application is challenging for software verification: its complexity comes from the size of the C function generated from the Simulink module and from the number of clock cycles required for verifying each property. These benchmarks have been used to compare the performances of different bounded model-checkers and solvers [1].

2 The Flasher Manager Benchmarks

The following files are provided:

- fl.c: C code of the Flasher Manager module (function fl)
- p1.c: C code for checking property 1
- p2.c: C code for checking property 2
- p3a.c: C code for checking property 3a
- p3b.c: C code for checking property 3b
- p4.c: C code for checking property 4

¹See http://www.geensoft.com/en

- simulink1.pdf: an overview of the Flasher Manager Simulink circuit
- simulink2.pdf: a detailed view of the Flasher Manager Simulink circuit

References

[1] H. Collavizza, L. V. Nguyen, O. Ponsini, M. Rueher and A. Rollet. Constraint-Based BMC: A Backjumping Strategy. To appear in International Journal on Software Tools for Technology Transfer (STTT). http://hal.archives-ouvertes.fr/hal-00635417