High-Precision Bounded Model Checking for Automotive Software

LBMC (the low-level bounded model checker) is a static software analysis tool for finding bugs in C (and, to some extent, in C++) programs. It is mainly intended for checking low-level system code and is based on the technique of Bounded Model Checking.

LLBMC is fully automatic and requires minimal preparation efforts and user interaction. It supports all C constructs, including not so common features such as bit-fields. LLBMC models memory accesses (heap, stack, global variables) with high precision and is thus able to find hard-to-detect memory access errors like heap or stack buffer overflows. LLBMC can also uncover errors due to uninitialized variables or other sources of undefined behavior. Due to its precise analysis, LLBMC produces almost no false alarms (false positives).

LLBMC is developed at Karlsruhe Institute of Technology (KIT), Germany, and will soon be commercially available via a university spin-off, QPR-Technologies.

REDUCE TIME-TO-MARKET
Reduce test- and development-cycles and secure short lead times.

IMPROVE SOFTWARE-QUALITY
Fewer software errors through innovative, verifying static code-analysis.

REDUCE RESIDUAL RISKS
Avoid manual justification of warnings and prevent dangerous misjudgments.

DEFINITE ASSESSMENT
Fewer false positives by marking all source locations as secure or insecure.
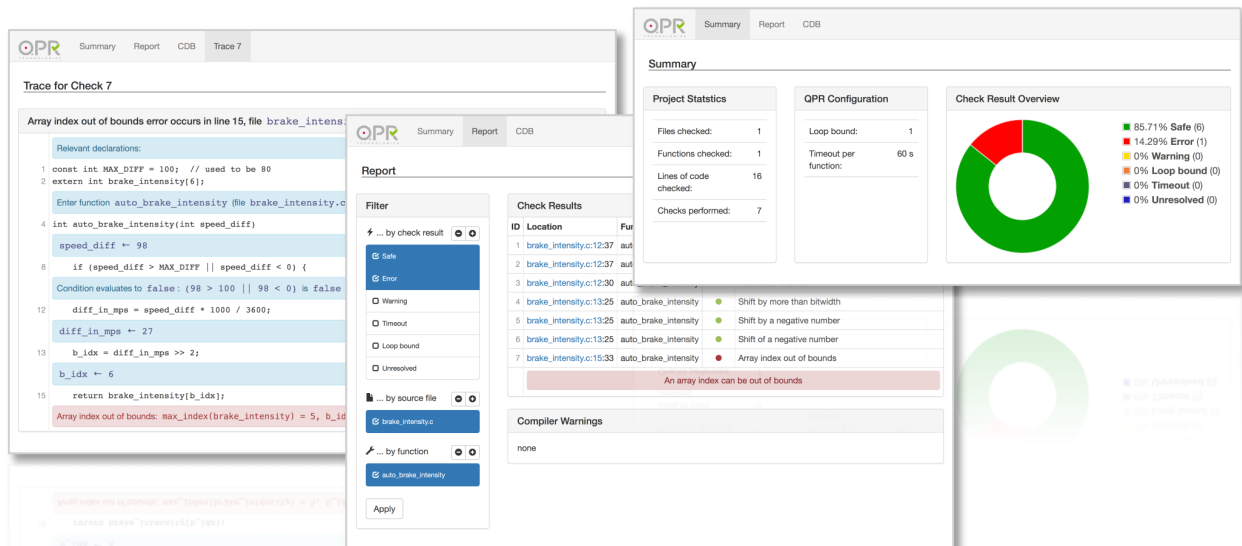
RAPID BUG FIXING
Fully automatic and bit-precise software analysis with exact error traces.

IMPROVE CODE COMPREHENSION
Innovative methods of error tracing and software visualization.

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Availability:

http://llbmc.org
http://qpr-technologies.de