

Seminar

Assertion-based Verification of Embedded Software through Model-driven Design

Assertion-based verification (ABV) is becoming an increasingly popular approach for the verification of embedded systems. Following this approach, functional properties, which the design is required to comply with, are specified in so called assertions. These assertions are then checked against the actual design - either during simulation of the design (dynamic ABV) or by using formal analysis tools (static ABV). Due to the poor scalability of static ABV, dynamic ABV is often considered as the more suitable solution, especially for larger designs.

While ABV is well established in the context of hardware verification, it is still not fully adapted to the verification of embedded software. This is in particular the case for dynamic ABV.

One proposed solution for this problem is through model-driven design (MDD). MDD uses graphical-modeling languages to specify abstract models of software components. These abstract models are then synthesized into the final implementation of the embedded software.

During this project, the proposed approach of using MDD to enable dynamic ABV for embedded software shall be investigated.

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