

Telecoms Test Suite Generation for TTPCom

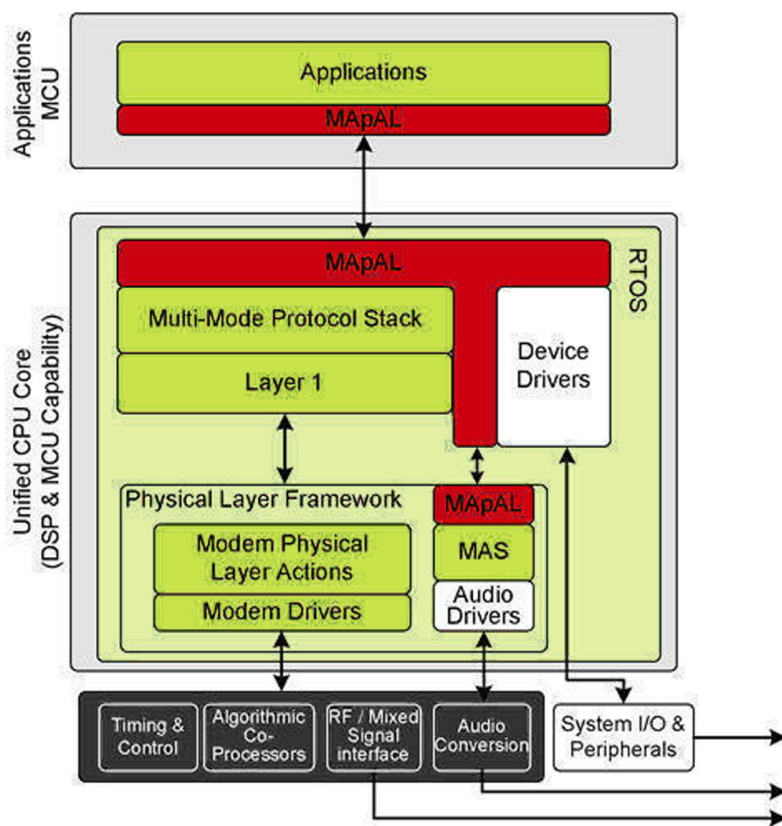


The simple way to build complex software systems

Model Based Testing Increases Coverage, Reduces Cost

With the competitive pressures of the fast-moving world of wireless telecommunications, test organizations and handset manufacturers are called upon to test new software releases faster than ever before. More models are being offered with more functionality which results in a significant increase in software & product test load. Increasingly test organizations are being driven to look for alternatives to traditional manual testing to meet these demands.

TTPCom MAPAL API



The Project

To address these needs Verum has developed Model Based Testing as an extension to its ASD Technology. Model Based Testing makes use of a model of the software from which test cases may be generated automatically, incorporating data aspects of the software under test. Models are derived from natural language specifications supplied by the client and are constructed using Verum's ASD technology. The models serve the additional purpose of providing a formal interface specification for application developers. Documentation of the test cases in the form of message sequence charts (MSC) may also be generated automatically from the model.

In conjunction with TTPCom, Verum developed a suite of tests for Call Control, a subset of TTPCom's MAPAL API, along with rigorously defined interface specifications as part of a pilot project whose purpose was to demonstrate the applicability of technologies and methodologies used by Verum in an industrial setting.

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Results and Conclusion

The results of the project show that the development of formal models for the sole purpose of test generation is feasible and highly economical in an industrial setting. Models constructed for this purpose can also be used to generate unambiguous interface specifications which application programmers can use. The moderate amount of time needed to model an application for testing is more than compensated by the following benefits:

- ▶ Models can generate large numbers of test sequences at low incremental cost
- ▶ Models allow more testing to be accomplished in a shorter amount of time
- ▶ Models are easy to modify, so model based tests are economical to maintain over the lifetime of a project
- ▶ The models can also be used to generate test documentation in the form of message sequence charts.
- ▶ Although the formal models have a mathematical basis they require no specialist knowledge of mathematics to understand
- ▶ Models can be incorporated into an organisation's existing development process

Overall the application of Model Based Testing can result in large improvements in software quality by increasing test coverage whilst reducing testing cost.

See www.verum.com for the full case report.

For more information see: www.verum.com

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