



The simple way to build
complex software
systems

Verum ASD:Suite

Verum has invented a new software design product that for the first time provides Software Architects and Designers with a simple, general purpose way to build mathematically verified software for complex embedded & technical systems.

The Verum ASD:Suite is based on Analytical Software Design, a component-based technology for constructing industrial scale systems from mathematically verified components. The Verum ASD:Suite lets you create defect free software components. In ASD a component is a common unit of Specification, Design, and Verification and Runtime execution.

By making an ASD model you are ensured to have:

Completeness of Software Requirements & Design

- Extraction of complete requirements from specifications
- Guarantee that a design implements all required behaviour

Software Design strictly satisfies Software Requirements

- Required behaviour is present & implemented correctly
- Optional behaviour is implemented correctly

Correctness of the Design's Dynamic Behaviour

- Elimination of illegal behaviour
- Elimination of all race conditions, deadlocks, etc
- Conformance to safety cases & behavioural laws

The Verum ASD:Suite is the toolset for:

- constructing correct industrial scale systems from verified components
- automated compliance testing based on statistical principles

The Verum ASD:Suite provides:

- Easy integration into existing software development teams
- Fully automated formal specification and design verification
- Automatic code generation (C++, C# and Java)
- Automatic test case generation and test result analysis

ASD guarantees:

- equivalence between specifications, designs, formal models and runtime behaviour of generated code
- consistency between generated compliance tests and specifications

Verum ASD:ModelBuilder

The Verum ASD:ModelBuilder provides you with an easy to use tool to make your interface, design, usage or general models.

The ASD:ModelBuilder enables you to easily build:

Interface and Design Models for software verification and construction

- Hierarchical state machines for structuring complex parameter passing and synchronous return values;

Usage Models for interface compliance testing of hand-written (3rd party) components

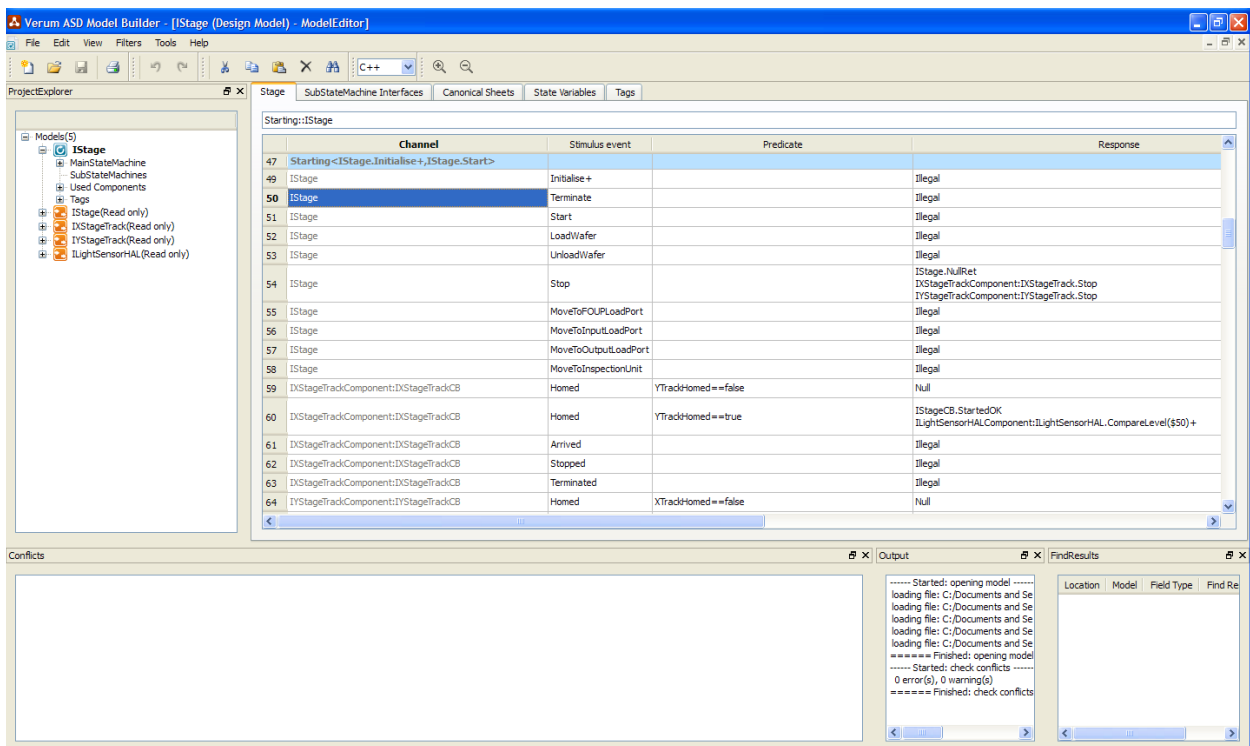
- Uses established statistical for estimating test sufficiency, software reliability and confidence measures;

Making ASD models is now easier than ever.

The ASD:ModelBuilder is a Windows application that resides on the software designer's desktop PC.

The model builder is the place where the user creates, edits and verifies ASD models. The model builder is also the gateway to the ASD:CodeGenerator and ASD:ModelChecker. It sends ASD models to the model checker for verification and to the code generator to turn them into source code.

All models are stored in XML files, allowing you to use your own storage and version control mechanisms.



Verum ASD:CodeGenerator

The ASD:CodeGenerator is a centralized server application that converts ASD models into either mathematical source code for model checking or high level language source code for compilation into an executable program.

The code generation delivers a complete complete that is ready to compile, link and execute, and does not require anymore manual work.

The Verum:CodeGenerator provides among others the following advanced code generation features:

- Fully supports both concurrent and synchronous designs;
- Components fully self constructing – no “hand wiring”;
- ‘lazy’ thread switching for runtime efficiency;
- Infrastructure for asynchronous notifications;
- DPC server threads automatically generated only when needed;
- Timers and time-cancel guarantee;
- Currently supported languages are C++, C#, Java. Other languages on request available;
- Runtime platforms include VxWorks, R/T Linux, Windows NT/XP/Vista, .Net;
- Handwritten code fully separated from generated code in separate source files;
- Optionally includes debugging and trace statements;
- Generates both singleton and non-singleton components;
- Parameter passing;

The Verum ASD:CodeGenerator generates defect free software. To ensure the integrity of the code generated Verum provides the code generator as a hosted service.

See www.verum.com for further information or contact us at info@verum.com