Verum's Analytical Software Design Suite is a design automation tool enabling companies to build complex embedded firmware with zero defects.

Key Benefits of ASD:
- Defect free asynchronous, concurrent, event driven, multi-core software programs
- Increases predictability of development schedules
- Eliminates the risk of costly recalls due to defective behavior of software
- Facilitates concurrent hardware/software engineering

Typical Applications:
- Device drivers for integrated circuits
- Control protocols for deeply embedded microprocessors or microcontrollers
- Middleware communications stacks
- Automotive Electronic Control Units (ECUs)

Create Defect Free Embedded Electronics Software
Verum's ASD:Suite is a patented software design automation tool changing the way embedded firmware and software is designed, developed, and tested. The ASD:Suite turns the art of software programming and development into a formal rigorous engineering science backed by mathematical proofs. For the first time, using the ASD:Suite, embedded software development teams can now mathematically verify and prove the correctness, completeness, and conformance to specifications of their designs before any code is created. Thus the ASD:Suite puts embedded software engineering on par with other math based engineering disciplines such as structural, mechanical, electrical, and civil engineering, where products are first fully modeled and tested and proven to be correct before any building starts.

How ASD Improves Software Development Cycles
First, the ASD:Suite aligns all stakeholder's interests at the earliest stages of product development. The ASD:Suite identifies all possible behaviour of embedded firmware and software facilitating the understanding of desired and undesirable modes of operation. This results in the completeness of the requirements specification and the optimal alignment of customer requirements with individual software specifications that address system, architecture, and module designs before software is written.

Second, the ASD:Suite guarantees to identify all behavioural software defects early in design cycles as shown here in the figure. Removing such defects early is the key to improving productivity, reducing rework, improving integration of software components, and reducing costs.
ASD:Suite Uniquely Positioned For Maximum Benefit
There are numerous well established informal and formal methodologies and tools for helping software development teams produce high quality code as shown in the figure here on the right. However, the ASD:Suite is the only formal methods tool that scales to large code bases (hundreds of thousands of lines of code), is accessible for average engineers, and economically affordable for large projects.

Who Benefits from ASD:
- Business Unit Managers - reduced business risk, increased margins
- Engineering Managers Embedded Software - better use of technical resources
- Product Development / Management - shorter time to market
- Integration, Test, & Verification Managers - focuses testing on requirements not defects
- Embedded System Software Architects - complete, correct, precise designs
- Senior Embedded Software Design Engineers - first time right software

Why Should Your Company Use The ASD:Suite
Post production testing and verification of software are well recognized practices in the Embedded Firmware and Software industries. Testing is necessary but insufficient to achieve the benefits that the ASD:Suite provides. First, testing is an exercise in sampling - many programs result in hundreds of millions of combinations of possible behavior which cannot all be tested. Second, inadvertent designs leading to nondeterministic software codes are untestable.

- Testing causes unwanted rework -
- Testing is the most expensive way to remove defects -
- Testing has the maximum impact on time to market delays -

By combining the ASD:Suite with conventional testing programs, testing becomes more effective, focusing on true product quality, rather than proving minimal functionality. In fact the ASD:Suite is compatible with existing embedded firmware and software development environments.

The Economics of Verum’s ASD:Suite
The ASD:Suite is sold as a Software as a Service (SaaS) product.

All descriptions herein are subject to change, Verum is not liable for changes, omissions, or errors to the product descriptions of the ASD:Suite herein. Customers are advised to contact Verum for the latest product details.