MathWorks
Accelerating the pace of engineering and science

Simulink Quality Statement

Simulink® is a popular tool for multi-domain simulation and Model-Based Design, with a community of more than 150,000 users spread throughout industry, government, and academia. The community uses the Simulink family of products in a wide variety of application areas, including control design, signal processing and communications, and image processing. Stateflow® extends Simulink with a design environment for creating state machines and flow charts. Coder products (MATLAB Coder®, Simulink Coder™, Embedded Coder™[1], and HDL Coder) allow users to generate reliable and accurate C[2], C++, and HDL code for the algorithms and systems modeled in MATLAB, Simulink, and Stateflow.

The Simulink family of products ships with a wide variety of core blocks and additional application-specific blocksets developed by domain experts. With multiple diagnostic tools, API libraries, and full access to all the features of MATLAB®, the Simulink family of products gives users a wealth of available functionality to get their applications implemented quickly.

The MathWorks is committed to delivering quality products to our customers. “Improve product quality, development processes, and tools” has been a Corporate Absolute Priority since 2005. MathWorks follows a development process that incorporates industry best practices, with influences from SEI CMM, ISO 9000, TQM/QA, Six Sigma, lean manufacturing, JIT, Toyota Production System, The Toyota Way, Kaizen, Deming, and Theory of Constraints (TOC). MathWorks has distilled what we found to be the most valuable parts of these methods into an approach for improving our software development process.

Based on our research studies and pilot projects, MathWorks selected the following key tools for use within our development culture. These tools have provided significant value in improving our development process:

- Root Cause Analysis-driven process improvement
- Fix-as-you-go operating principle (do not pass defects forward to the next stage)
- Waste-reduction initiatives

All Simulink and code generation features and blocksets are tested using an extensive suite of over 35,000 automated tests. MathWorks also maintains a suite of customer-supplied industry models used for performance and compatibility testing. Quality and Software Engineers continually test the products throughout each release cycle, with a focus on numerical correctness, code generation accuracy, standards compliance, performance factors, and compatibility. The MathWorks continues to invest in our development processes and tools to improve our comprehensive quality process.

[1] “Embedded Coder™ is suitable to be used in the development of safety-related software for all SILs according to IEC 61508: 2010; see product documentation for details
[2] ANSI® C compliant

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