Saber Functional Safety

Verification of technical safety and reliability performance

Overview

Saber Functional Safety (FS) helps you reduce and eliminate field failures, product recalls, and safety liability. Saber FS adds fault modeling and simulation to Saber's verification capabilities so that you can quickly identify safety-related failure modes, design efficient and comprehensive safety mechanisms, and verify safety performance. Saber FS offers automotive engineers a comprehensive safety verification tool for ISO 26262 random hardware faults.

> "*Saber Functional Safety was used to test over 200 possible failure modes against a rigorous set of technical safety requirements. Using Saber FS, we reduced the job of five engineers working for five days to one engineer working for one hour.*"
>
> ~ Leading Tier-1 Automotive Supplier

Reduce Safety Lifecycle Time by Simulating Safety Concepts and Random Hardware Failures

- Identify safety related single-point (and multi-point) faults
- Develop and verify safety mechanisms
- Verify diagnostic coverage and eliminate residual faults
- Model and simulate Failure Mode and Effects Analysis (FMEA)

Only Saber Offers a Complete Functional Safety Flow

Develop System Models, Safety Mechanisms, and Virtual Testbenches in SaberRD

- Model high performing, safe, and reliable systems by connecting components from standard or user defined libraries
- Add faults to existing standard component models or user defined component models for critical components
- Add sources and loads that are particular to your safety verification virtual testbench

Quickly Select and Configure Faults

- Select components and nets from the schematic or by using the automatic fault selector
- Choose from supported fault types including: short, open, ground, stuck-at, and parameteric faults
- Configure faults to be timed, and/or concurrent

Implement Test Plans, Measurements, and Logical Tests for Repeatability

- Implement iterative and reusable test plans using Experiment Analyzer
- Choose critical signals and assign key safety-related measurements
- Create logical pass/fail tests to verify that the design meets technical safety requirements

Simulate, Analyze, and Export Data to Sign-Off Reports

- Simulate nominal performance and failure modes using the industry's most robust mixed signal, mixed domain system simulator
- Analyze plots, figures, and pass/fail tests using SaberRD results viewer
- Export pass/fail tests to standard tables for Sign-off

Quickly Identify Failure Modes that Violate Technical Safety Requirements

- Saber Functional Safety adds fault modeling and simulation capabilities to existing electrical and electronic system verification flows
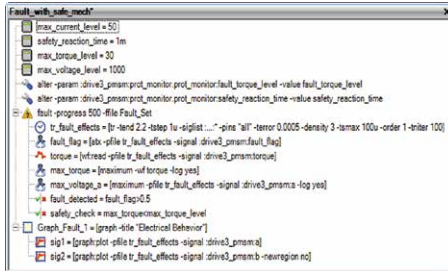- Quickly test one failure mode or 1000s
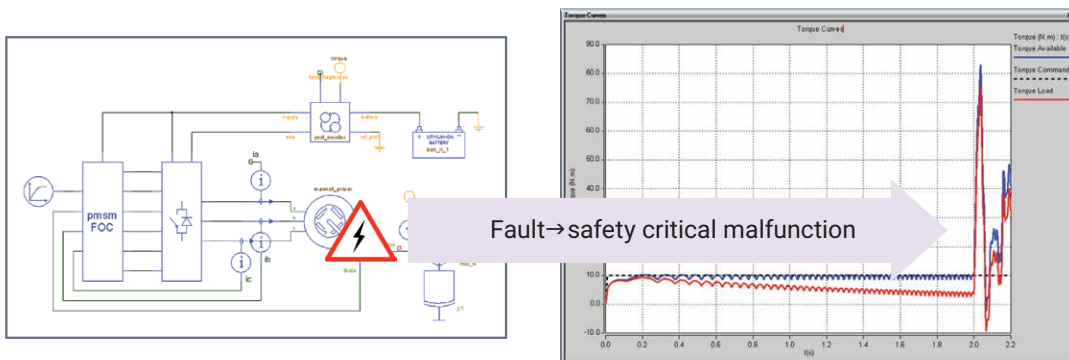
Implement Safety Mechanisms to Eliminate or Mitigate Effects of Failures

- Add hardware redundancy
- Design and verify software controlled safety mechanisms to avoid or mitigate malfunctions caused by random hardware failures
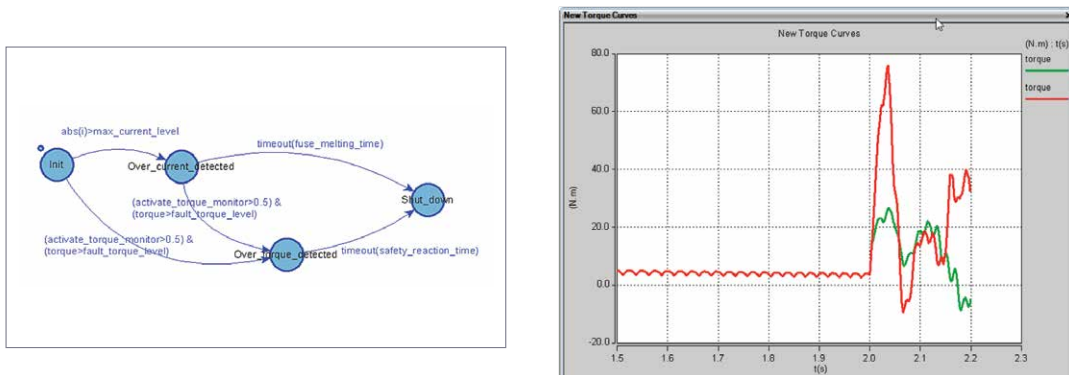
Use Experiment Analyzer to Automate and Reuse Functional Safety Tests

- Set-up and re-use verification experiments to improve verification throughput, coverage, and repeatability
- Alter design parameters and optimize the design for functional safety performance
- Capture key measurements that map directly or indirectly to technical safety requirements
- Apply logical tests to measurements to quickly isolate hardware faults that violate the technical safety requirements
- Export tables and figures to verification sign-off reports and other functional safety work products

Parallelize 1000's of Functional Safety Simulations Using Saber Runtime Licenses

Use Saber Runtime to improve throughput on multi-core work stations or distribute functional safety simulation jobs across your company's grid for maximum simulation efficiency.

For more information go to synopsys.com/saber

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