SYNOPSYS®

Mechatronics System Design, Analysis, and Verification

Saber® is the industry standard for Robust Design methods for mixed-signal, mixed-domain Mechatronic systems. Saber's highly acclaimed design modeling and powerful simulation tools provide designers the ability to simulate, analyze and verify interactions between multiple physical domains (electrical, magnetic, mechanical, thermal, hydraulic, etc.). With its advanced analysis and modeling capabilities – waveform analyzer, comprehensive model libraries, and multi-language model creation tools – designers can perform optimization, Robust Design, and FMEA on virtual prototypes of any system. Production proven with hundreds of successful designs in multiple industries, Saber continues to be the preferred solution for minimizing costs, reducing design iterations and increasing reliability.

- Select devices from the industry's largest library (>30,000) of behavioral and characterized simulation models
- Model complete Mechatronic systems using industry standard hardware description languages MAST® and VHDL-AMS
- Analyze and verify at the system, circuit, device, or component level across domains
- Choose from over 60 performance measurements to quickly analyze simulation results
- Improve design reliability with advanced stress, sensitivity, and statistical analyses
- Automate simulation and results analysis tasks
- Increase analysis throughput with distributed simulations across multiple CPUs

Saber®

Automotive Design and Simulation

Saber®

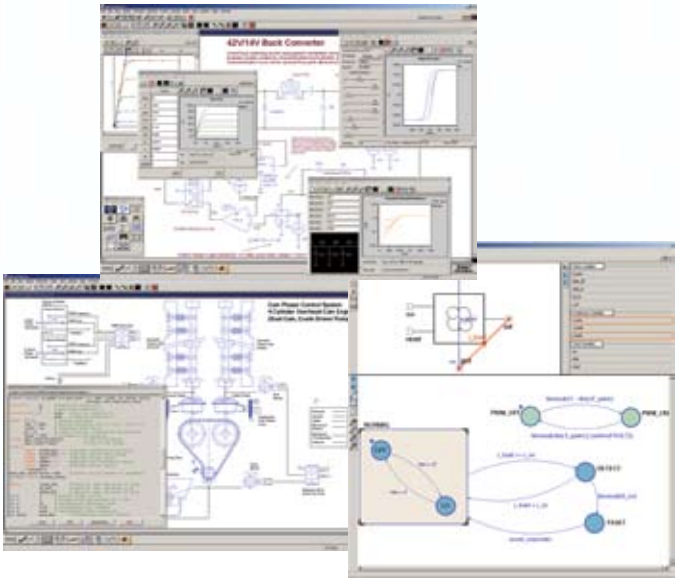
Automotive Design and Simulation

De-facto standard for multi-domain modeling

Flexible Modeling Options

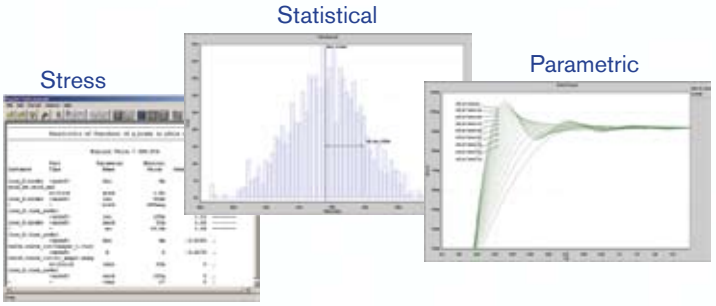
Saber supports complete model coverage with an extensive range of modeling capabilities.

- Industry-Standard Modeling Languages
  - MAST, VHDL-AMS, C, FORTRAN
- Model Creation Tools
  -StateAMS, Table Lookup
- Model Characterization Tools
  -Diode, MOSFET, Magnetic, Battery, Fuse, Motor, Thermal, etc.
- Model Import
  -SPICE, Simulink, etc.



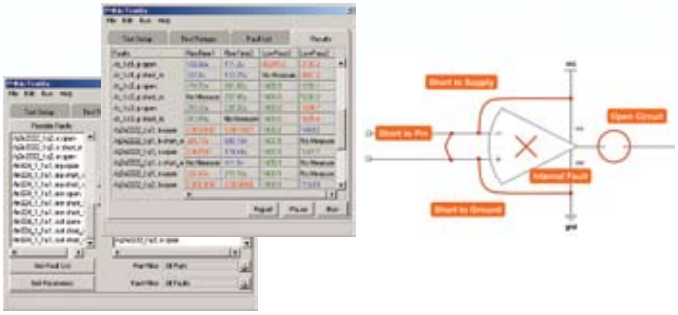
Design for Manufacturing and Robust Design

Saber's InSpecs package enables comprehensive system design using Statistical, Parametric, Sensitivity, and Stress analyses. Use Statistical analysis to predict how component tolerance variations affect system performance, allowing designs to achieve Six Sigma goals, Parametric analysis to fine-tune key parameters in a design, Sensitivity analysis for determining which parameters most affect system performance, and Stress analysis to evaluate the degree of component stress in a system during operation.



FMEA (Failure Mode Effects Analysis)

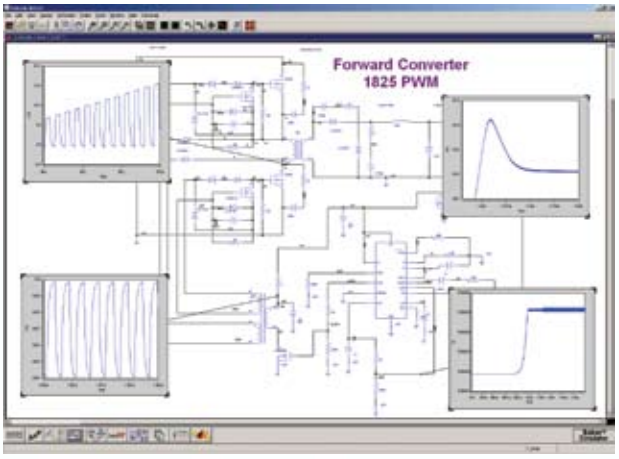
Simulate and analyze systems under various fault conditions. A matrix of faults representing device failures can be easily set up to evaluate system performance during each fault condition. Automatically generated reports help designers quickly assess the reliability of the complete system design.



Production **proven** multi-domain simulation

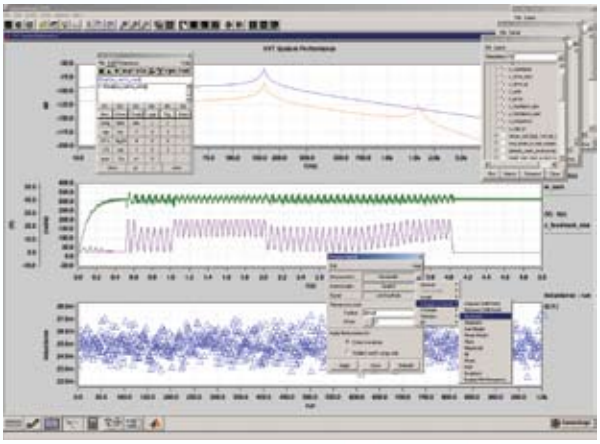
Schematic Capture and Simulation

Saber Sketch is an easy-to-use schematic capture tool providing users with an intuitive graphical interface to quickly search for desired components, create design schematics, and run simulations with Saber. Users easily set up simulation and plotting, back annotation, and display of simulation results directly on the schematic. Saber Sketch seamlessly supports multi-sheet designs and multiple levels of hierarchy, as well as mixed-domain (electrical, mechanical, thermal, etc.) and mixed-signal (digital and analog) components. Users can quickly export graphics from Saber Sketch to standard formats (jpg, tiff, bmp, etc.) for complete design documentation.



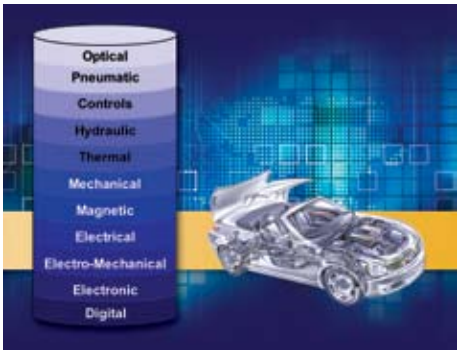
Data Visualization and Analysis

Saber includes CosmosScope, a full featured waveform analyzer with advanced features for viewing and analyzing simulation data. These features include more than 60 standard measurements for evaluating critical aspects of mixed-domain simulation results, a patented Waveform Calculator for performing mathematical operations on signals, a macro recorder for creating scripts to automate waveform analysis operations, and simple graphics export for ease in documenting simulation results.



Comprehensive Model Libraries

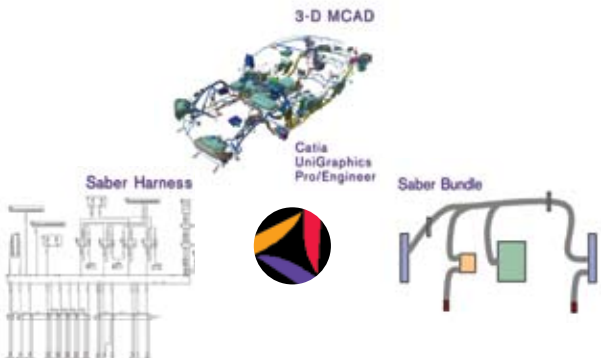
Saber has the largest multi-domain library in the industry to speed the development of virtual Mechatronic systems. The library provides comprehensive support for the critical design needs of the Automotive, Aerospace, and Power industries. These characterized libraries provide various levels of abstraction, from high-level idealized models to the detailed, specific device level. Written in MAST and VHDL-AMS, these models reflect real-world behavior and allow easy exchange between OEMs and suppliers.



Wire Harness Design

Saber Harness provides industry-leading capability for wire harness design, layout, and analysis. Saber Harness analyzes the complete system to determine optimal wire size, fuse load, voltage drops, power distribution, and connectivity. Saber Harness provides:

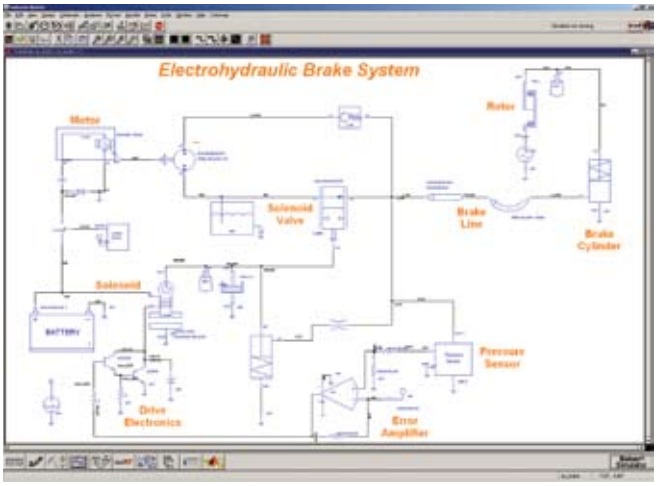
- Complete data flow for electrical system design from concept to manufacture
- Single database architecture–no data re-entry, supports design re-use, DRCs, etc.
- Advanced design variant/option handling
- Utilities to streamline design processes (connector management, automatic parts selection, DRCs, etc.)
- Full simulation and analyses – DC, Transient, Statistical, Parametric, and FMEA
- Automatic generation of 2-D harness layout drawings and manufacturing information (e.g. DSI)
- Integration with leading MCAD tools (UGS®, CATIA V5®, Pro/E®)



Saber Harness incorporates functional, electrical, and physical design with full system verification in a single tool. With its comprehensive simulation and analysis capabilities, Saber Harness is the preferred solution for advanced wire harness design.

Summary

Saber provides the industry leading, proven solution for Mechatronic design and verification supporting Robust Design methodologies. State-of-the-art schematic capture, leading-edge simulation and analysis, extensive model libraries, industry standard language support, and powerful modeling capabilities make Saber the most powerful mixed-domain simulation solution available, and is the top choice among Automotive and Aerospace engineers worldwide.



For product information, call 1.800.388.9125
or visit www.synopsys.com/saber

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