Simetrix

SIMetrix is a mixed-signal circuit simulator designed for ease and speed of use.

The core algorithms employed by the SIMetrix analog simulator are based on the SPICE program developed by the CAD/IC group at the department of Electrical Engineering and Computer Sciences, University of California at Berkeley. The digital event driven simulator is derived from XSPICE developed by the Computer Science and Information Technology Laboratory, Georgia Tech. Research Institute, Georgia Institute of Technology.

Although originally derived from these programs only a tiny fraction of the overall application code can be traced to them. Nearly all of the simulator code is either new or has been rewritten in order to provide new analysis features and to resolve convergence problems.

Features

- Closely coupled direct matrix analog and event driven digital simulator.
- Fully integrated hierarchical schematic editor, simulator and graphical post-processor.
- Superior convergence for both DC and transient analyses.
- Advanced swept analyses for AC, DC, Noise and transfer function. 6 different modes available.
- Real time noise analysis allowing noise simulation of oscillators and sampled data systems.
- Support for IC design models such as BSIM3/4, VBIC and Hicum.
- Cross probing of voltage, current and device power from schematic. Current and power available for sub-circuits.
- Monte Carlo analysis including comprehensive tolerance specification features.
- Full featured scripting language allowing customised waveform analysis and automated simulation
- Verilog-A Analog Hardware Description Language
- Mixed signal simulation using Verilog-HDL
- Functional modelling with arbitrary non-linear source and arbitrary linear s-domain transfer function.
- Arbitrary logic block for definition of any digital device using descriptive language. Supports synchronous, asynchronous and combinational logic as well as ROMS and RAMs.
- Models for saturable magnetic parts including support for air-gaps.
- User definable fixed and popup menus and key definitions.