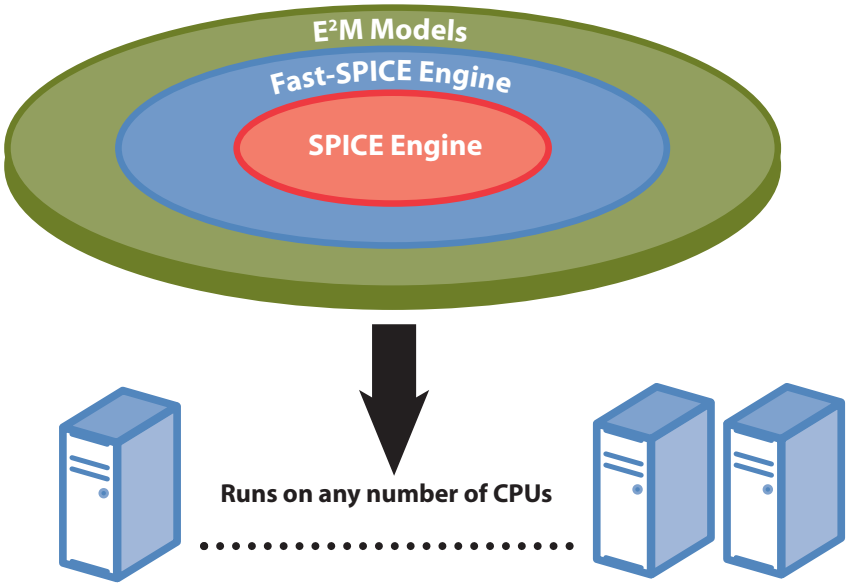
MAGMA DESIGN AUTOMATION

FineSim™ Pro

- Combination of accuracy and performance in a single executable allows large, mixed-signal designs to be simulated with very accurate SPICE and fast-SPICE solving techniques. This provides complete control of speed-versus-accuracy tradeoffs throughout the design.
- Multi-CPU simulation enabled through Magma's Native Parallel Technology™ delivers silicon-accurate results for very large complex systems (5M transistors and more) such as wireless SoCs and full-chip memory designs.
- Electrically Exact Models™ (E^2M) dramatically improve simulation performance by orders of magnitude with virtually no loss in accuracy compared to fast-SPICE.

FineSim Pro defines a new paradigm in full-chip circuit-level simulation, enabling simulation of the most challenging analog/mixed-signal SoCs with SPICE accuracy and unprecedented performance.



Typically, analog and digital blocks are verified independently with different simulation products that vary in accuracy. When analog and digital blocks are combined in one simulation, verifying them together usually requires some additional modeling techniques that only approximate circuit behavior. With this type of approach it is very common for engineers to spend a significant amount of time interpreting the results. In some cases engineers waste time chasing down false design errors; more often the result is that real design problems are missed.

As mixed-signal designs increase in size and grow more complex, the ability to achieve correct functional verification becomes very challenging. Verification becomes virtually impossible for current simulation solutions once fully-extracted parasitics are introduced.

FineSim Pro is the first product that allows designers to functionally verify mixed-signal systems on a chip (SoCs) seamlessly using a single engine and without the overhead of traditional solutions. In addition to enabling the designer to work with detailed parasitic information, FineSim Pro allows complete control of accuracy-versus-performance tradeoffs with a few simple control statements.

MAGMA

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FineSim Pro

Simulation Accuracy and Performance

FineSim Pro contains advanced fast-SPICE circuit solvers that are guaranteed to provide the most accurate results for very large and complex mixed-signal designs. As the industry's first single-executable circuit-level simulator, FineSim Pro allows the designer to take advantage of multiple circuit-solving techniques, such as hierarchical simulation recognition for memory structures, or multi-rate techniques for sensitive analog circuits. In addition, FineSim Pro includes FineSim SPICE, a full SPICE engine, for use during full-chip simulation when SPICE accuracy is required.

Native Parallel Technology

Included in FineSim Pro and FineSim SPICE, Magma's Native Parallel Technology enables SPICE-accurate analysis of very large complex digital designs such as memories and complex analog designs using multiple CPUs. Designers can quickly and easily apply appropriate accuracy settings to their designs without the unnecessary setup options required with conventional approaches. Leveraging multi-CPU architectures not only improves FineSim Pro's simulation throughput, but also enables FineSim Pro to handle very large designs.

Enhanced Transistor Modeling with E²M for Digital Blocks

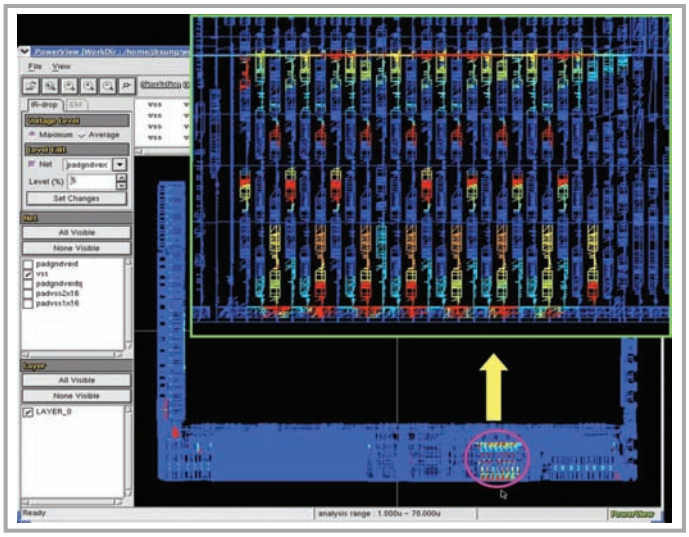
FineSim Pro provides a unique mechanism for improving the simulation of large digital blocks. Through Magma's revolutionary E²M technique, the simulation of large digital sections of a design have been shown to speed up significantly while maintaining SPICE-like accuracy. Performance improvements of 50X to 100X and more compared to normal fast-SPICE have been achieved on very large standard-cell blocks with minimal loss in accuracy.

Non-Ideal Power Simulation and EM Analysis Option

FineSim Pro has an optional package for dynamic power analysis as well as electromigration (EM) analysis. FineSim Pro accurately calculates peak, average and root-mean-square current values and graphically displays the results for a quick visual analysis.

Device Model Support

FineSim Pro supports standard SPICE models, such as BSIM3, BSIM4, BSIM-SOI, Phillips MM9, Gummel-Poon models, VBIC 1.2, Philips Mextram 503, Diode and RLC models and inverted inductance.



The FineSim Pro Analysis Option can identify functional failures caused by excessive IR drop on power nets.

TECHNOLOGY FEATURES:

- Native Parallel Technology increases performance and capacity
- Supports industry-standard netlist formats: HSPICE, Spectre and Eldo
- Standard output formats for data analysis (TR0, FSDB, WDF)
- Performs DC, transient, AC and Monte Carlo analysis
- Supports Verilog and VHDL co-simulation
- Supports DSPF back-annotation and accurate RC reduction
- Delivers most-accurate results with the best performance
- Integrated with SiliconSmart® library characterization products
- Integrated with Quartz™ Rail for more accurate cell-level power analysis

Applications

- Custom analog intellectual property
- Large complex mixed-signal designs
- Memory design and characterization

Platforms

- Linux 2.4 or above (32-bit and 64-bit)
- Solaris 2.6 or above (32-bit and 64-bit)

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