



DIGITAL INDUSTRIES SOFTWARE

Analog FastSPICE platform

Features and benefits

Fastest Nanometer-Accurate Circuit Simulation

- Certified to FinFET process by leading foundries
- > 5x faster than traditional SPICE
- > 2x faster than parallel SPICE
- Includes AFS eXTreme technology
- > 3x faster than post-layout SPICE
- > 300M-element capacity

Fastest Mixed-Signal Simulation

- Supports all leading digital solvers
- Best-in-class usability, allowing maximum reuse of verification infrastructure
- Advanced verification and debug capabilities to improve verification coverage

Nanometer-scale analog, RF, mixed-signal, and custom-digital circuit design is extraordinarily demanding. Designers must worry about a myriad of issues, from tight specifications to intensive physical effects. Successful design demands a fast, full-featured verification platform that never sacrifices accuracy. Siemens EDA's Analog FastSPICE platform uniquely delivers.



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[siemens.com/eda](https://www.siemens.com/eda)

Features and benefits *continued*

Fastest Full-Spectrum and Multi-tone Device Noise Analysis

- Includes all device noise sidebands/ harmonics
- Transient noise within 1 to 2 dB silicon data
- PSS and Pnoise with > 3M element capacity
- Harmonic Balance with > 6M element capacity

Fastest Variation-Aware Design and Verification

- Improved design quality and time-to-market
- SPICE accurate, high-sigma verification
- > 1,000x faster than brute force simulation
- Easy to use and deploy

With foundry-certified accuracy by the world's leading foundries, the AFS platform delivers nanometer SPICE accuracy > 5x faster than traditional SPICE and > 2x faster than parallel SPICE simulators. For large post-layout circuits, the new AFS eXTreme technology delivers over 300M-element capacity and >3x faster than post-layout simulators. The AFS Platform also offers the fastest mixed-signal simulation with the Symphony™ platform. For silicon-accurate characterization, the AFS platform includes the industry's only comprehensive full-spectrum device noise analysis and integrates with Solido™ Variation Designer delivering full variation-aware design coverage in orders-of-magnitude fewer simulations, but with the accuracy of brute force techniques.

Design teams at over 200 semiconductor companies worldwide rely on AFS to design their nm-scale ADCs, DACs, PLLs, high-speed I/O, high-speed clocking, CMOS image sensors, memories, and RFICs. AFS customers include the world's leading suppliers of consumer electronics, mobile communications platforms, application processors, server ICs, network processors, image sensors, and automotive ICs. As a single executable, AFS operates either standalone from the command line or integrated with industry leading analog design environments. It uses standard compute platforms from a single core up to 32 cores. AFS supports standard SPICE netlist formats, standard foundry models, and produces outputs in industry-standard formats. Design teams can choose the most appropriate license configuration for their needs. AFS platform features include: AFS Circuit Simulator, AFS Transient Noise Analysis, AFS RF Analyses, Symphony, AFS Mega, and Solido Variation Designer.

AFS platform Functionality**AFS Circuit Simulator**

Nanometer SPICE accuracy
 > 50M-element capacity
 > 150 dB transient dynamic range
 > 5x faster than traditional SPICE
 > 2x faster than parallel SPICE
 DC, transient, AC, and noise analyses
 Monte Carlo, alter, and sweep support

AFS eXTreme Technology

Nanometer SPICE accuracy
 >300M-element capacity
 >3x faster than post-layout SPICE
 Transient, transient noise, RF, and mixed-signal analyses

Solido Variation Designer

Full coverage PVT and Monte Carlo verification
 SPICE-accurate high-sigma verification
 1,000x faster than brute force simulation
 Full-chip memory and cell-level verification
 Comprehensive verification of full cell libraries
 Powerful design sensitivity, debugging, and optimization AFS Transient Noise Analysis

AFS Transient Noise Analysis

Full-spectrum accuracy to noise floor
 Device noise analysis for any circuit type
 Same element capacity as Transient
 Validated to within 1 to 2 dB of silicon

AFS RF Analyses

Shooting Newton (SN) and Harmonic
 Balance (HB) analyses

- PSS SN - pac/pxf/pnoise/pstb/psp

Full-Spectrum periodic noise and
 oscillator noise

Single-tone PSS, sampled and modu-
 lated pnoise, Sampled pac and pxf
 > 3M element PSS convergence, no
 maxsideband

- HB - hbac/hbxf/hbnoise/hbstb/hbsp
- Multi-Tone HB and Modulated hbnoise
 > 6M element HB convergence

Symphony Mixed-Signal Platform

Digital HDLs: Verilog, SystemVerilog,
 VHDL

SPICE and Verilog-A support
 Monte Carlo, alter and sweep support
 Hi-Z detection and Transient Noise
 analysis
 Checkpoint-Restore

EZwave™ Waveform Processor

Fast and intuitive waveform viewing
 Customizable waveform calculator
 Broad application-specific measurement
 tools

AFS Platform Specifications**Input/Output**

Leading SPICE netlist formats
 DSPF back-annotation
 VCD, .vec
 FSDB, tr0, PSF, Nutmeg, WDB

Model Support

BSIM3/4/6, BSIMSOI, BSIM-CMG, BSIM-
 IMG, MOS11, PSP, EKV, HiSIM2, HiSIM-
 SOI, HiSIM_HV

MOS1/3, MOSVAR, JFET, Diode, Juncap

UTSOI, L-UTSOI, MM20, VBIC, Simkit
 Interface, BJT, HICUM, Mextram,
 Gummel-Poon, S-parameter, W element,
 bsource, Verilog-A, Verilog-AMS

AFS Platform support

Leading EDA design environments
 Standalone command line
 Commercially available Cloud offerings

Hardware Requirements

Single-core or multi-core systems
 Minimum memory recommendation:
 For installation: 3 GB of disk space
 For simulation: 2 GB of physical memory
 (RAM) and 2 GB of swap space (virtual
 memory)
 Operating System: Linux® RHEL7+
 SLES12+

**Siemens Digital
 Industries Software**
[siemens.com/software](https://www.siemens.com/software)

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Europe
 00 800 70002222

Asia-Pacific
 001 800 03061910

For additional numbers,
 click [here](#).