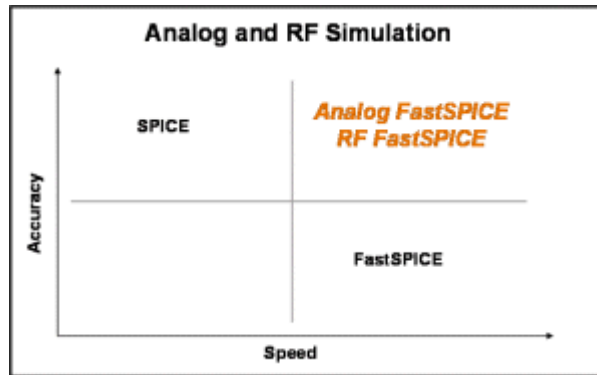


# RF FastSPICE™



***True SPICE Accuracy, 5X-10X Faster, 5x-10x Higher Capacity for Analog/RF***

## Overview

*RF FastSPICE™* uses Berkeley Design Automation's proprietary *Precision Circuit Analysis™* technology to deliver unmatched performance, accuracy and periodic steady-state (PSS) convergence. Unlike traditional RF analysis tools, *RF FastSPICE* does not use linear approximations for the nonlinear behavior of nanometer scale circuits. BDA's proprietary Stochastic Nonlinear Engine™ enables *RF FastSPICE* to quickly and accurately analyze highly nonlinear circuits such as VCOs and crystal oscillators. *RF FastSPICE* has been proven on a wide range of production circuits including multi-GHz, 65nm CMOS ring oscillator-based voltage controlled oscillators (VCOs).

## Key Features

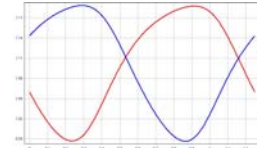
- Robust periodic steady-state (PSS) analysis with unmatched convergence
- Periodic noise (PNOISE)
- Fast, accurate nonlinear oscillator phase noise analysis (OSCNoise, VCONoise) based on proprietary Stochastic Nonlinear Engine
- Periodic small signal analysis (PAC, PXF)
- Comprehensive noise contributor and sensitivity data to drive design optimization
- Supports standard netlist and model formats
- Integrated into the ADE environment

## Target Applications

- >1 GHz, nanometer-scale, analog and RF CMOS circuits
- >1 GHz, nanometer-scale, CMOS circuits
- Complex, highly nonlinear ring-oscillator and LC-tank VCOs, including bias and amplifier circuits
- High Q crystal oscillators (XOs), including those with limiters
- Complex LNA + mixer circuits, including switching mixers
- Power amplifiers (PAs), including digitally modulated and distributed PAs
- Frequency dividers with up to 12 bits

## Technology

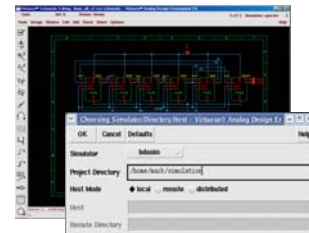
*RF FastSPICE* is based on Berkeley Design Automation's proprietary *Precision Circuit Analysis*<sup>™</sup> technology which delivers superior periodic steady-state (PSS) convergence and fast and accurate RF periodic analysis. The tool includes the company's Stochastic Nonlinear Engine<sup>™</sup>, which enables fast and accurate analysis of the nonlinear, time-varying behavior of complex VCOs and crystal oscillators. The result is unmatched PSS convergence and noise analysis accuracy. *RF FastSPICE* also provides comprehensive noise contributor and sensitivity data, which designers use to confidently optimize their designs for low noise.



## Fits Your Existing Flow

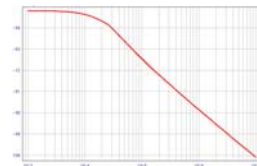
*RF FastSPICE* easily fits into existing HSPICE and Spectre-based verification flows. It reads standard HSPICE and Spectre-format netlists and supports popular device model formats, including BSIM3, BSIM4, Gummel-Poon, MOS11, and Mextram.

*RF FastSPICE* runs in both batch mode and interactive mode using the Cadence Virtuoso Analog Design Environment. Results can be viewed with BDA's waveform viewer, WaveCrave, or third party waveform viewers from Sandwork, Cadence, and Synopsys.



## Feature Summary

- Analyses: PSS, OSCPSS, VCOPSS, PNOISE, OSCNOISE, VCONOISE, PAC, PXF
- Netlist: HSPICE and Spectre formats
- Models: BSIM3, BSIM4, Verilog-A, Gummel-Poon, MOS11, Mextram, s-parameter
- Outputs: PSF ASCII, PSF binary, Nutmeg ASCII, Nutbin, Nutbinf
- Integrated into the Cadence Virtuoso Analog Design Environment (ADE)
- Advanced waveform viewing with BDA's WaveCrave viewer



## Platform Support

*RF FastSPICE* is available for SUN and Linux operating systems.

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