ME-Pro

PRIMARIUS
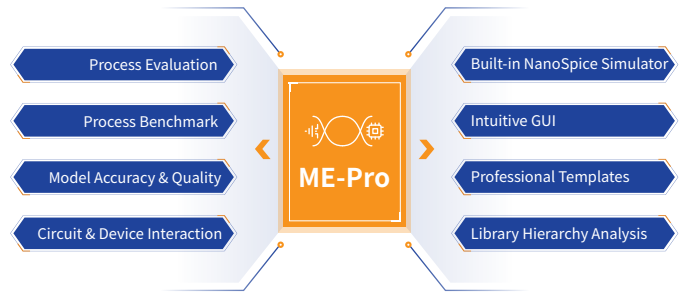
Process and Design Verification Platform

Introduction

ME-Pro is an innovative design verification platform that bridges IC design and semiconductor manufacturing process development, serving as a common verification platform for designers, process developers, modeling engineers and PDK engineers.

ME-Pro supports simulation analysis for semiconductor device model verification and evaluation, providing the technology platform that enables interactive development in the process, device and circuit areas. ME-Pro helps designers uncover the full potential of manufacturing process technology, effectively raises quality and competitiveness of circuit and product design, and provides feedback for process improvement. Leveraging decades of Primarius' industrial experiences, ME-Pro offers pre-configured templates with hundreds of verification data entries and includes the built-in parallel simulator NanoSpice to greatly improve efficiency. ME-Pro provides an easy configuration setup leading to a short learning curve, as well as the most complete and systematic capabilities for device, circuit, process evaluation and benchmarking for use by modeling engineers, CAD engineers, and circuit designers.

ME-Pro

- Process Evaluation
- Process Benchmark
- Model Accuracy & Quality
- Circuit & Device Interaction
- Built-in NanoSpice Simulator
- Intuitive GUI
- Professional Templates
- Library Hierarchy Analysis

Key Advantages

- **Efficient**
  Rapidly analyze and validate SPICE model to ensure quality and accuracy
- **Professional**
  Professional know-how and built-in pre-configured templates ensuring quick to build validation & evaluation process
- **Easy-to-use**
  Intuitive GUI with efficient configuration of evaluation projects for batch generation of verification/evaluation reports
- **Systematic**
  Systematic evaluation of device/circuit targets to improve IC design & process interaction efficiency
- **Fast Simulation**
  Build-in NanoSpice engine supporting parallel simulation analysis & verification to improve evaluation & analysis efficiency
- **DTCO**
  Common verification platform for IC designers, CAD engineers, process developers, SPICE modeling engineers, and PDK engineers
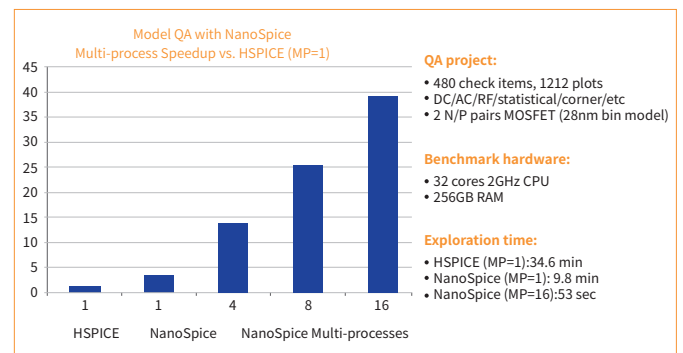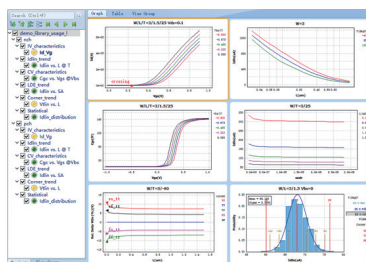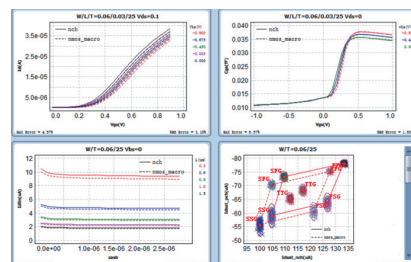
Specifications

- Library browser for hierarchy display and review
- Model exploration for all device/circuit targets
- Device characteristics and trend evaluation and analysis
- Device and circuit correlation analysis
- Corner, statistical, LDE and aging model behavior evaluation
- Platform benchmarking for multi-foundries, nodes, platforms, or different process revisions
- Design assistant for user-specified designs
- Pre-configured template includes 200+ check items and settings
- Automatically and rapidly generate verification documents in various formats

Applications

- Modeling QA validation
- Model evaluation & benchmark
- Process evaluation & benchmark
- Critical circuit performance evaluation

Model QA with NanoSpice
Multi-process Speedup vs. HSPICE (MP=1)

HSPICE | NanoSpice | NanoSpice Multi-processes

QA project:
- 480 check items, 1212 plots
- DC/AC/RF/statistical/corner/etc
- 2 N/P pairs MOSFET (28nm bin model)

Benchmark hardware:
- 32 cores 2GHz CPU
- 256GB RAM

Exploration time:
- HSPICE (MP=1):34.6 min
- NanoSpice (MP=1): 9.8 min
- NanoSpice (MP=16):53 sec

Application Examples

SPICE Model Validation

Technology Platform Evaluation

Circuit Behaviour Evaluation