



## DIGITAL INDUSTRIES SOFTWARE

# Eldo

Industry standard SPICE simulation for HV, RF and safety critical designs

### Features and Benefits

#### Comprehensive circuit analysis & diagnostics

- Optimized performance for BCD & high-voltage processes
- Comprehensive analog & RF analyses
- Accurate & fast device noise analysis
- Advanced user-defined static & dynamic SOA checks
- Advanced analog characterization
- Analog defect coverage for AMS ICs

#### Comprehensive circuit analysis & diagnostics

- Incremental, dynamically controlled Monte Carlo convergence
- Monte Carlo acceleration for normal & rare events

### Summary

Eldo™ is the industry-proven and most advanced circuit verification platform for analog-centric circuits, offering a differentiated solution for reliability verification and comprehensive circuit analysis and diagnostics for analog, RF and mixed-signal circuits.

Accurate, high performance, high scalability

Full-spectrum and multi-tone analyses

Advanced reliability and aging analyses

Support all custom IC SPICE flows

High-sigma variation, characterization, mixed signal, analog fault, EM/IR

# SIEMENS

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

## Eldo

### **Features and Benefits** *continued*

- Native multi-threading, distributed processing

### **Industry-Proven reliability verification Solution**

- User-defined aging solution with statistical aging & aging sensitivity
- Single-kernel electro-thermal analysis

### **Comprehensive mixed-signal verification with Symphony**

- Common verification for analog, digital, and mixed-signal flows
- Full HDL/HDL-AMS language, UVM, UPF, & Matlab® support
- Unified, coverage-driven mixed signal verification
- Flexible, easy-to-use design reconfiguration

### **Advanced analog characterization**

- Incremental, dynamically controlled Monte Carlo convergence
- Monte Carlo acceleration for normal & rare events
- Native multi-threading with distributed processing with dispatcher support
- Monte Carlo sensitivity analysis

### **A new generation of IC circuit simulation - Eldo**

Eldo® offers a complete solution for verifying analog, RF, and mixed-signal circuits for the automotive, industrial, medical, and other mission-critical markets. More than 200 companies rely on Eldo for safety, reliability, and quality verification of ICs used in application-specific and power management applications.

Eldo delivers the required SPICE accuracy and performance to design and verify complex automotive IC designs using the BCD technology and to address their design and verification challenges efficiently and in a timely manner.

Reliability verification is made possible with Eldo's industry-proven advanced aging simulations to predict reliability issues due to circuit degradation, electro-thermal simulation to analyze thermal impact due to power dissipation, and safe operating area simulation and analysis to detect dangerous operating-condition violations over the lifetime of the IC.

Certified by the major foundries, Eldo's extensive device model libraries and accuracy make it the simulator of choice for CPU-intensive applications such as digital cell characterization. For silicon-accurate characterization and better yield estimation, advanced statistical verification in Eldo provides smart, incremental analyses with acceleration techniques.

Eldo offers complete support for SPICE and all standard HDL and HDL-AMS languages to cover mixed-signal needs using Symphony™ Pro, technology of Symphony.

The solution also offers a common verification platform for analog, digital, and mixed-signal flows with unified coverage-driven, flexible, and easy-to-use design reconfiguration for mixed-signal verification. Eldo employs three engines:

- Eldo Classic offers proven sign-off accuracy to design complex automotive IC designs using the BCD technology with a comprehensive set of circuit analysis and debugging tools.
- Eldo Premier is an accelerated SPICE-accurate, analog-centric circuit simulator that offers improved performance for mission-critical applications using BCD technology.
- Eldo RF is a high-performance RF IC verification simulator.

## Eldo

### Eldo functionality

#### Comprehensive circuit analysis

#### & diagnostics

- Accurate, fast device noise analysis in time & frequency domains
- Transient, DC, AC and parametric sensitivity analyses
- Multi-tone harmonic balance & shooting analyses
- Real-time design tuning
- General-purpose optimizer
- Comprehensive post-processing
- Power consumption analysis
- Circuit & model profiling
- Comprehensive waveform analysis
- Advanced results browsing & filtering
- Stability analysis for DC-DC converters
- Accurate S-parameter handling
- Advanced power leakage estimation
- SoC functional verification modes

#### Advanced analog characterization

- Incremental, dynamically
- Controlled Monte Carlo convergence
- Monte Carlo acceleration for normal & rare events
- Native multi-threading with distributed processing with dispatcher support
- Monte Carlo sensitivity analysis

#### Industry-Proven reliability verification

- Customizable models for aging, statistical aging, & aging sensitivity simulations
- Single-kernel electro-thermal analysis solving the full electro-thermal system
- Advanced, user-defined static and dynamic SOA checks
- Analog defect coverage for AMS ICs with Tessent® DefectSim

### Eldo specifications input/output

- SPICE formats: Eldo, HSPICE, Spectre®
- Parasitics: DSPF, SPEF back annotation
- Digital inputs: VCD, data, vectors
- Output formats: WDB, FSDB, tr0, PSF, Touchstone/CITI

### Model support

- BSIM3, BSIM4, PSP, BSIMCMG, BSIMSOI, BSIMIMG, BSIM-BULK
- HiSIM, HiSIM/HV, EKV, HICUM, VBIC, MEXTRAM, HiSIM-SOI, HiSIM-LDMOS, HiSMI-IGBT
- MOS1/3/11, BJT, MESFET, JFET, diode
- L-UTSOI, MVSG, ASM-HEMT
- S/Y/Z-parameter, Microstrip, transmission lines, IBIS, Verilog-A

### Eldo support

#### Design flow integration

- Solido™ Design Environment
- Schematic and Tanner™ S-Edit
- Cadence® Virtuoso® ADE

#### Hardware requirements

- Single or multi-core systems with LSF/OGE/RTDA support, 64-Linux®
- Minimum 5 GB of disk space, 256 MB physical memory, 512 MB swap space

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