Variation Designer

Variation-Aware *Custom IC Design*

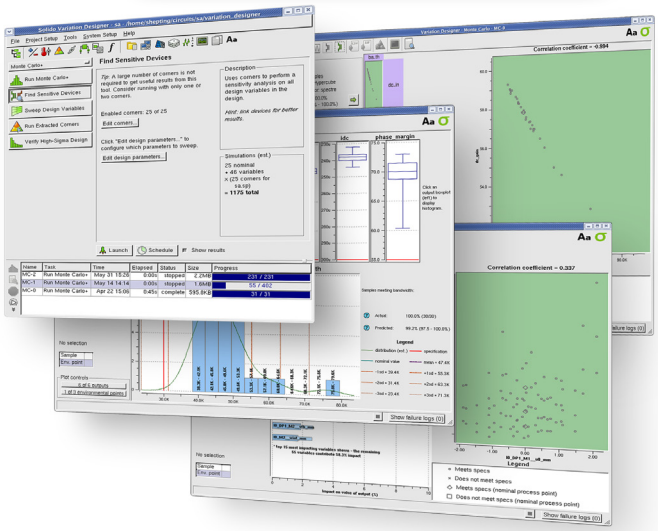
Fast - Accurate - High Capacity

solido DESIGN AUTOMATION

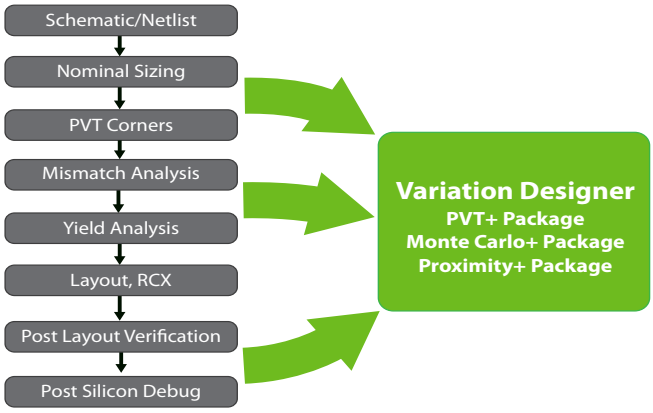
- Better performance, power, area
- Higher parametric yield
- Save designer time

Process variation in custom semiconductor designs causes yield loss and re-spins, which in turn cause delays in delivering products to market and financial losses. To counter the effects of variation, foundries release models that describe variation for each manufacturing process. This model information is then used by designers to estimate the effects of variation during the design cycle, and to improve the design to make it robust to manufacturing variation effects. This is variation-aware custom IC design.

The ***Variation Designer*** platform is the world's most advanced solution to variation challenges affecting analog, mixed-signal, and custom digital designs. It includes a comprehensive suite of variation-aware design apps that can be used pre- and post-layout to address PVT, statistical, and proximity variation. Variation Designer integrates seamlessly with leading simulators, design environments, and foundry models to provide 20-100% better area, power, performance, and yield, as well as a reduction in variation design time of over 50%.

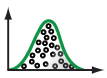


Variation-Aware Custom IC Design Platform and Apps



Variation-Aware Design Flow

Analyze



Process variation
Local & global random variation, process corners

Environmental variation
Supplies, loads, temperature

Proximity variation
Well proximity effects

Identify

Find design sensitivities to variation

Identify cause of failures

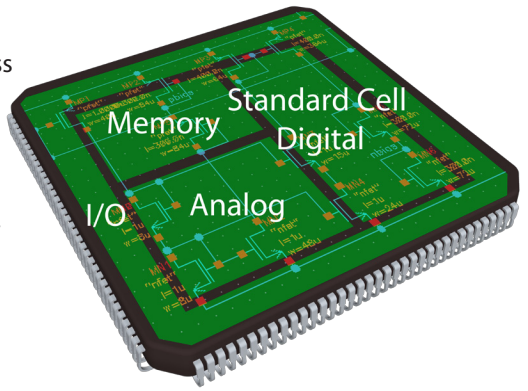
Find opportunities to improve the design

Fix

Reduce time to address variation

Improve parametric yield

Improve performance, power, and area



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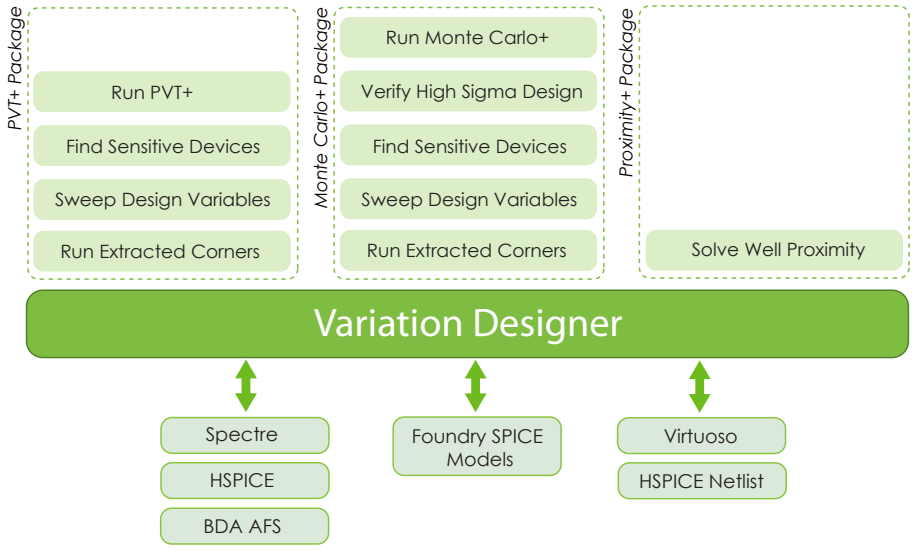
Platform Overview

Features	Benefits
Extensible platform and app architecture	Fast time-to-market for apps dealing with new variation problems; first to deliver bleeding edge variation-aware design technologies
Efficient simulation engine	Low overhead; shorter runtimes; high LSF and SGE cluster throughput
Effective GUI	Less time setting up configuration files and scripts; catches and corrects setup errors; fast and easy to learn
Simulator agnostic	All features and benefits are available with any recent versions of leading SPICE simulators
Seamless CAD integration	Less time debugging tools and more time designing
Extensively tested and outstanding support	Reliable; dependable; excellent training; effective live support; fast turn-around on requests



Package Overview

PVT+

- Up to 50x faster PVT analysis with design of experiments and prediction
- Accurate sensitivities for temperature, bias, voltage, etc. helps understand and fix problems
- Run 1,000s of corners with no performance degradation

Monte Carlo+

- 2x-10x faster Monte Carlo runtimes
- 100x-10,000x faster >4 sigma verification
- Fast design iteration using extracted statistical corners at target yield
- Accuracy-aware verification
- Pinpoint causes of variation problems

Proximity+

- Prevents catastrophic failure due to well proximity effects
- Reduces area up to 30% by shrinking well distances
- Solves well proximity problems proactively, before layout
- Reduces costly design iterations between design and layout

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