DATASHEET

VIRTUOSO SPECIFICATION-DRIVEN ENVIRONMENT

The Cadence® Virtuoso® Specification-Driven Environment is the advanced design and simulation environment for the Virtuoso custom design platform. By supporting extensive exploration of multiple designs against their objective specifications, Virtuoso Specification-Driven Environment sets the standard for fast, accurate design verification.

THE VIRTUOSO CUSTOM DESIGN PLATFORM

When design objectives dictate manipulating precise analog quantities—voltages, currents, charges, and continuous ratios of parameter values such as resistance and capacitance—companies turn to custom design. Full-custom design maximizes performance while minimizing area and power. However, it requires significant handcrafting by a select set of engineers with very high skill levels. In addition, custom analog circuits are more sensitive to physical effects, which are exacerbated at new, nanometer process nodes.

The Virtuoso custom design platform accelerates the design of custom ICs across various process nodes. By selectively automating aspects of custom analog design and providing advanced technologies integrated on a common database, it allows engineers to focus on precision crafting their designs—without sacrificing creativity to repetitive manual tasks.

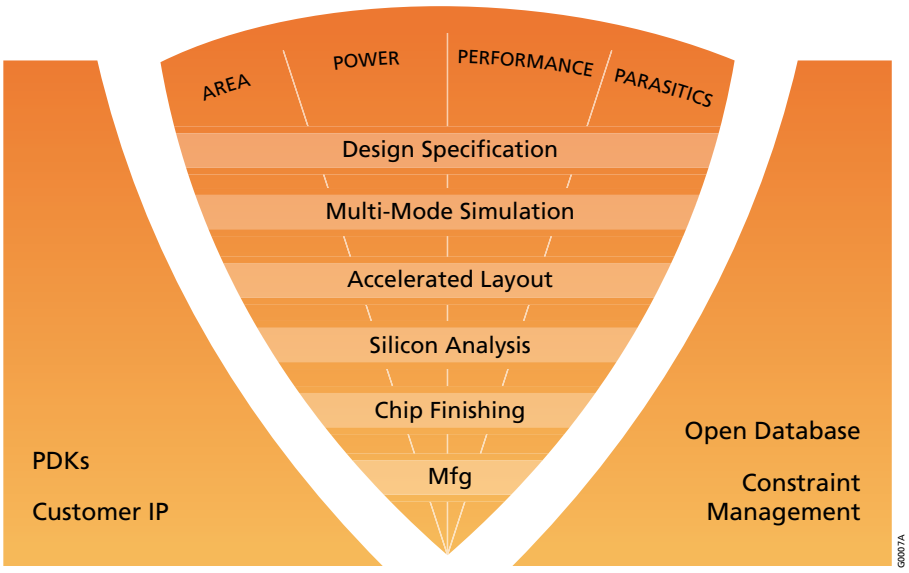

Figure 1: All components of the Virtuoso platform work together to support fast, silicon-accurate differentiated custom silicon

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VITUOSO SPECIFICATION-DRIVEN ENVIRONMENT

Virtuoso Specification-driven Environment manages the exploration and verification of multiple designs in one easy-to-use tool. Throughout the design and verification process any circuit can be monitored against its objective specifications with fast pass/fail feedback. In addition, all the sweeps, corners, Monte Carlo statistics, and measurements are managed in one location for fast and accurate verification of a design.

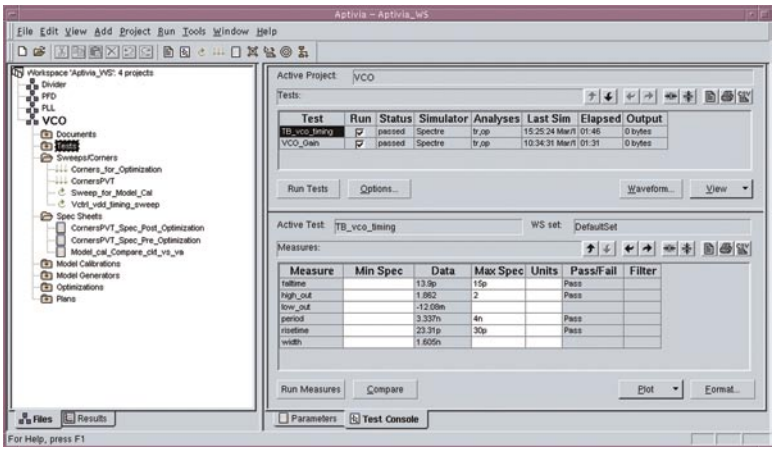

Figure 2: Project and test console view of a VCO

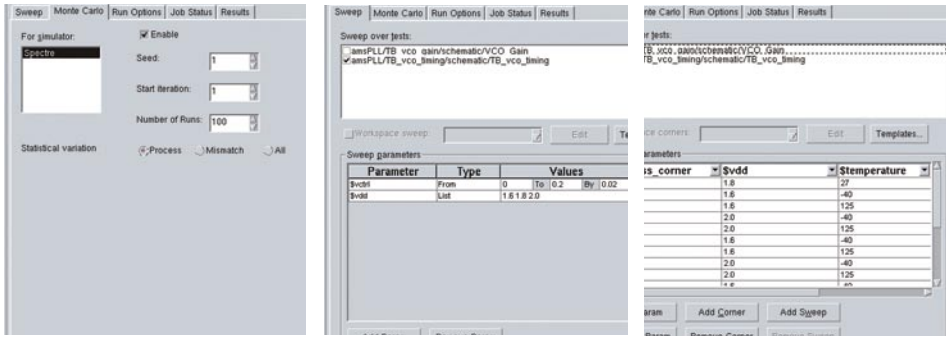

Figure 3: Monte Carlo, sweeps, and corners

BENEFITS

- Maintains specification/design agreement with constant monitoring of objectives status
- Facilitates design reuse by capturing the design process as IP
- Improves verification speed with simulation distribution and multi-test management
- Improves quality through the standardization of design methodologies
- Manages multiple designs and all associated test requirements in one environment
- Provides visibility into the design status of multiple projects across multiple sites
- Enables easier design reviews with integral documentation, specifications, measurement results, and waveforms

FEATURES

SPECIFICATION-DRIVEN DESIGN

The Virtuoso Specification-driven Environment combines specification entry and design management into a single unified cockpit to accelerate design verification. A specification is made up of multiple tests, which are formed by combining test harnesses with specific measurements. The Virtuoso Specification-Driven Environment enables multiple tests to be developed and exercised over multiple conditions to validate design performance against the design specification. Once created, the tests and the complete specifications can be shared and managed across multiple design groups which can be used to set standards of testing for specific types of designs. Two additional levels of design management are provided over a single test configuration. The project level provides access to all the tests, sweeps, corners, scripts, and documentation needed to completely validate a design against the required specification. The workspace level manages all the projects a designer may be responsible for along with templates to speed up the test development process.

VISUAL COCKPIT EASES DESIGN VERIFICATION

A quick overview of all the tests within a project is available through the test console. The status of all tests is presented, along with easy access to all the waveforms, measurements, and simulation files. All tests can be run individually or together from the console for a complete design investigation and verification *(see Figure 2)*. You can use the Virtuoso parallel analysis option for efficient simulation license management. In addition to standard SPICE simulation analyses, the Virtuoso Specification-Driven Environment supports sweeps, corners, and Monte Carlo analysis over one or more of the available tests *(see Figure 3)*. All results are automatically stored for validation against the objective specifications.

INTEGRAL PART OF THE VIRTUOSO CUSTOM DESIGN PLATFORM

Virtuoso Specification-Driven Environment uses many of the features of the Virtuoso Analog Design Environment. Users can continue to use the waveform display for visualization and the waveform calculator for developing measurements. All tests are linked to the Virtuoso Schematic Editor for design changes, cross probing, and backannotation of operating points.

SPECIFICATIONS

INTERACTIVE SIMULATION ENVIRONMENT

- Easy to learn and enter data
- Simulation set-ups can be reused
- Quick analysis of multiple simulation data
- Cross probing support for both schematics and layouts
- Multiple measurement syntaxes supported
- Clear tabular displays of test set-ups
- Testbench management built-in
- Support multisite workspaces
- Easy creation of design specification sheets *(see Figure 4)*
- Batch scripting

WAVEFORM DISPLAY

- Supports multiple Y-axes, strip plots, and Smith Charts
- Built-in waveform calculator
- Independent subwindow displays
- Horizontal and vertical measurement markers
- Independent pan and zoom capability
- User-defined labels and titles
- Color and line style controls
- Signal browser

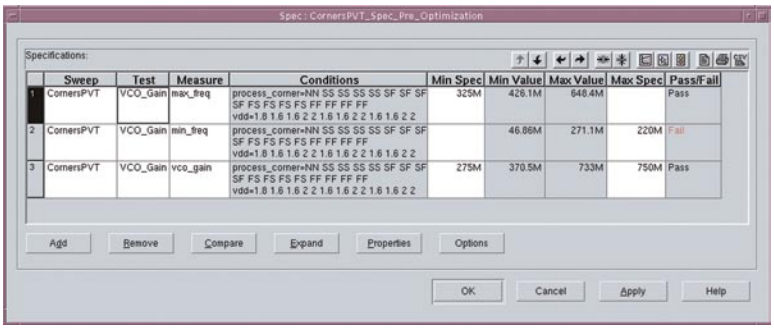

Figure 4: Specification sheet analysis

DISTRIBUTED PROCESSING

- Parallel analysis option
- Efficient use of existing computer farms
- Built-in basic load balancing or interface to other LSF load-balancing tools
- Job monitoring and controlling functions
- Graphical user interfaces for set-up and viewing status

DESIGN INPUTS

- OpenAccess data objects
- Cadence CDBA data objects
- SPICE

DESIGN OUTPUTS

- SPICE
- PSF Waveform format
- Perl language
- HTML

PLATFORM/OS

- Sun/Solaris
- HP-UX
- Linux

CADENCE SERVICES AND SUPPORT

- Customer-focused solutions that increase ROI, reduce risk, and achieve your design goals faster
  - – Collaborative approach and design infrastructure—virtual teaming
  - – Proven methodology and flow tuned to your design environment
  - – Design and EDA implementation expertise
- Product and flow training to fit your needs and preferred learning style
  - – Over 80 instructor-led courses— certified instructors, real world experience
  - – More than 25 Internet Learning Series (iLS) online courses
- Cadence customer support that keeps your design team productive
  - – Cadence applications engineers provide technical assistance
  - – SourceLink® online support gives you access to software updates, technical documentation, and more—24 hours a day, seven days a week

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