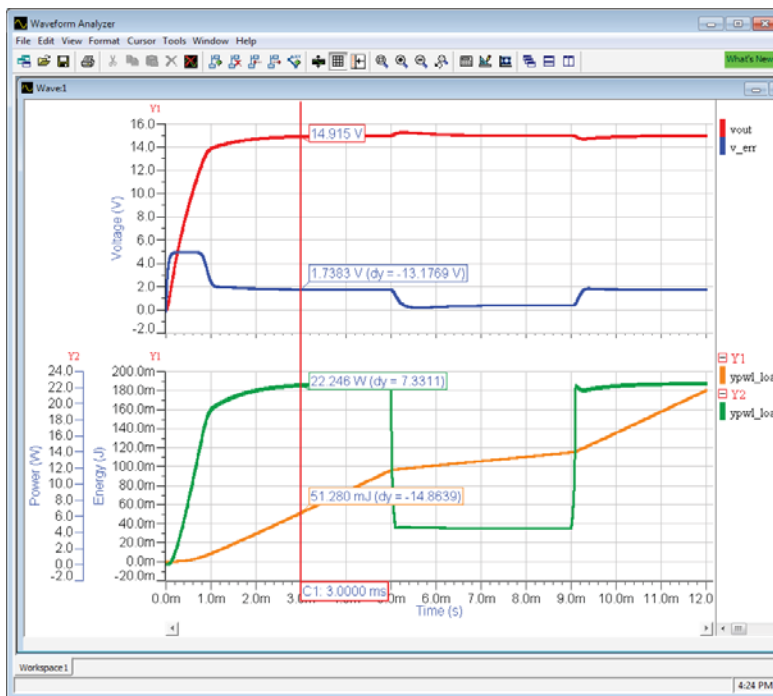




## PADS AMS Design Suite



*Model and simulate analog, mixed-signal, and mixed-technology circuits to ensure circuit requirements and performance goals.*

### MAJOR BENEFITS:

- Comprehensive circuit design and virtual prototyping environment ensures design intent, performance, and reliability
- Schematic design, simulation, and analysis in a single environment improves productivity and data integrity
- Intelligent automation helps determine which components affect circuit performance or values needed to improve signal quality
- Powerful data measurements, waveform viewers, and post-processing calculators speed review and analysis

### OVERVIEW

PADS AMS Design Suite is a complete design capture solution and analog, mixed-signal (AMS) virtual prototyping environment. It is powerful and effective, enabling today's mainstream engineers to produce electronic product designs faster and easier while ensuring their design's intent, performance, and reliability.

Whether your product designs are simple, one-page schematics or complex, hierarchical schematics, PADS AMS Design Suite has the technologies to address your circuit design challenges. With the AMS suite you can easily deal with the behavioral verification, scenario exploration, and component optimization of analog / mixed-signal and high-speed digital circuits. The suite also provides intelligent component selection and data management, definition of rules and constraints, circuit reuse, and variant creation and management during circuit creation, making your work as efficient as possible.

## Circuit / Schematic Design

PADS AMS Design Suite includes broad capabilities for system design capture and definition. Intuitive project and design navigation, complete hierarchical support, a starter library, and advanced design attribute and design rules management make it easy to capture and define your schematic. Achieve efficiency and productivity with full forward and backward annotation to layout and routing, along with a direct link to circuit simulation, topology exploration, and signal integrity analysis.

A central database includes all design rules and constraints with online DRC to avoid last-minute changes. The multi-level hierarchy guides you through the process of capturing rules in an easy-to-view spreadsheet, automatically updating the layout as you go. Default, class, net, group, pin pair, layer, conditional, and component rules are included. High-speed rules include differential pairs, matched lengths, maximum and minimum length, and support of DDR topology (virtual pins and associated nets).

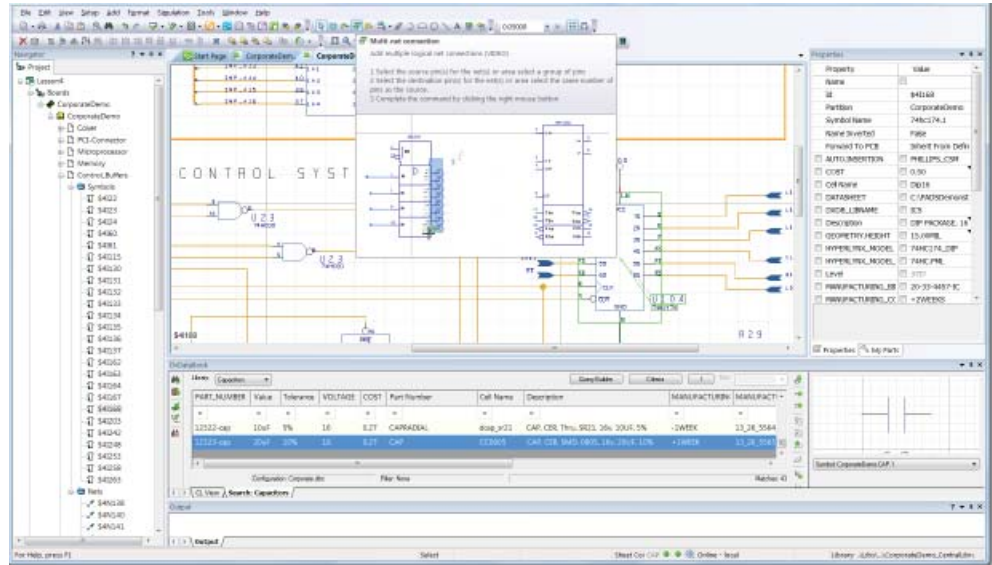
## Component Information Management

With component data management, you have access to all component information from a single spreadsheet, without concern for data redundancy, multiple libraries, or time-consuming tool overhead. Component databases – based on industry-standard ODBC-compliant databases Access®, Excel®, or SQL – can easily be integrated with corporate component and MRP databases or populated from online or engineering databases enabling local team members or geographically dispersed design teams access to a repository of centralized component information. With component management, databases are kept in sync and up-to-date, thus avoiding costly redesigns and quality problems that otherwise might be undetected until late in the design cycle.

## Rules and Constraints

The PADS AMS Design Suite schematic environment has a built-in constraint entry and management system. This

constraint management system allows you to easily capture multi-level design rules, ensuring that your PCB meets critical design rules for electrical and manufacturing requirements. Bidirectional cross-probing ensures design intent is accurately and efficiently captured and adhered.



*Intuitive project and design navigation, complete hierarchical support, a starter library, and advanced design attribute and design rules management make it easy to capture and define your schematic.*

The constraint manager supports definition and verification of electrical and physical constraints within one environment, eliminating the need for separate databases and simplifying a complex constraint-entry process while improving design accuracy.

## Variant Management

Variant creation and management helps manage PCB subassemblies from the schematic level. The bill of materials is typically generated here and can represent the entire schematic or any variant defined in the variant management dialog. Variant modifications can include Populated Components, Substituted Components, and Depopulated Components. Multiple variants can exist in a single design with the ability to automatically generate schematics and BOMs representing each listed variant.

## Design Review and Documentation

Throughout the design process there may be a need for multiple individuals to reference or review schematics for validation and sign-off. An intelligent PDF output is an easy way to share schematic designs and the information they contain. All of the component and net information is intelligently contained within the PDF document. Users

can search for parts and nets throughout the design, and once the schematic is converted to PDF format, it cannot be changed, allowing shared designs to be safeguarded.

## Analog / Mixed-Signal Simulation and Analysis

Integrated analog / mixed-signal simulation and analysis in the PADS AMS Design Suite enables powerful virtual prototyping that seamlessly and accurately represents both a circuit's electronic and electromechanical elements.

Advanced technologies help solve the behavioral verification, scenario exploration, and component optimization challenges associated with design and validation of mixed-signal and mixed-technology circuits. With these technologies, you can meet your circuit requirements and performance goals, optimize costs, and improve yield to achieve first-time success.

## Advanced, Flexible Simulation

The circuit simulation technology leverages the power and flexibility of VHDL-AMS, an IEEE standard, along with a powerful SPICE-based simulation engine and modeling. This combination of engine and modeling technologies enables you to simulate and validate mixed-signal and mixed-technology PCB circuits comprised of analog, mixed-signal, and/or electromechanical devices.

In addition to standard simulation analysis – DC Bias, time-domain, and frequency-domain simulations – AMS also includes multi-run parametric sweeps, sensitivity, Monte Carlo, and Worst Case analysis.

## Improve Circuit Quality, Optimization, and Yield

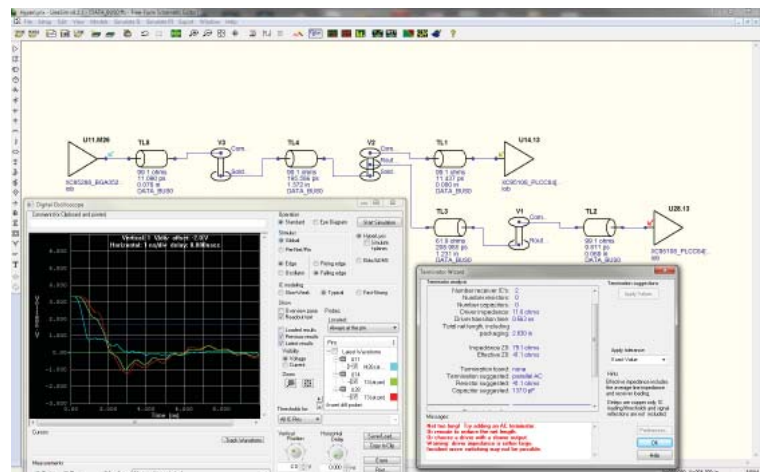
Advanced analysis capabilities – parametric sweeps, sensitivity, statistical, and worst case analyses – can reveal which design parameters most affect system performance, and how component tolerances influence design quality and manufacturing yields. You can also see what happens if extremes in

component tolerances combine in a worst-case scenario and balance component costs with tight tolerances against their impact on circuit and manufacturing performance.

## Pre-Layout Topology Exploration and Signal Analysis

Tight integration between high-speed simulation technology and the schematic design environment lets you perform pre-layout topology exploration and signal analysis during the circuit creation process. You can identify optimal interconnect topologies and simulate critical nets to maximize signal quality, optimize termination components and values, define layout constraints, and board stack-up requirements.

This simulation technology utilizes industry-standard IBIS component models to predict signal behaviors along with sophisticated internal algorithms and proprietary technologies. It features wizards that can suggest possible modifications to your signal or topology to correct signal integrity and performance issues. The wizard also offers suggested values for termination components that you can use to determine which manufacturer's part number will meet the required specifications for the design.



*Pre-layout simulation allows you to eliminate signal integrity problems and optimize of critical signal topologies and terminations.*

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