

Integrated Design and Test Platform with NI Multisim, Ultiboard, and LabVIEW

NI Circuit Design Suite – Multisim and Ultiboard

Multisim Capture and Simulation

- Intuitive and easy-to-use capture environment
- Dynamic visualization of design behavior
- Interactive circuit simulation and industry-standard analysis capabilities
- Database of more than 16,000 components and models

Ultiboard Layout and Routing

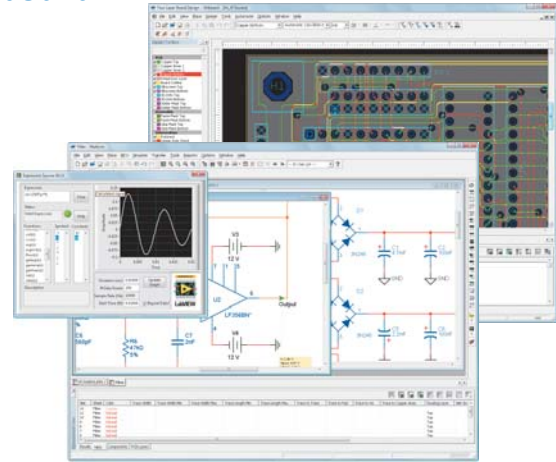
- Flexible design environment for intuitive layout
- Efficient control of parts and copper placement
- Ability to export to industry-standard formats (Gerber, DXF)

Integrated Design and Test

- Multisim design integrated with LabVIEW test
- Correlate simulated and real measurements
- Automate Multisim simulation in LabVIEW

System Requirements

- Pentium 4 microprocessor
- 512 MB of memory (256 MB minimum)
- Windows Vista (64-bit)/XP/2000 SP3



Overview

Combining the powerful design capabilities of NI Multisim capture and simulation software, the flexible routing of NI Ultiboard software, and the industry-leading graphical programming of NI LabVIEW software, the NI Circuit Design Suite provides an innovative platform that integrates the design and test of board-level circuits (Figure 1). You can improve productivity by using this completely streamlined design flow to quickly define and prototype your circuit designs. As engineering schedules shorten, and budgets tighten, you need to be able to use powerful design tools to quickly prototype error-free circuits. Integration throughout the design flow, from design simulation to prototype validation, can ensure your success.

Best Practices in Circuit Design

With this unique design platform, you can take advantage of advanced features within the easy-to-use and graphical Multisim environment. You can use design validation in the earliest stages of the design flow to reduce errors and prototype iterations.

Multisim integrates with National Instruments measurement technology within a single design platform, so you can effectively use simulation and real measurements to more accurately characterize performance. With such an advanced approach, you can proactively, rapidly, and cost-effectively improve your design and design productivity.

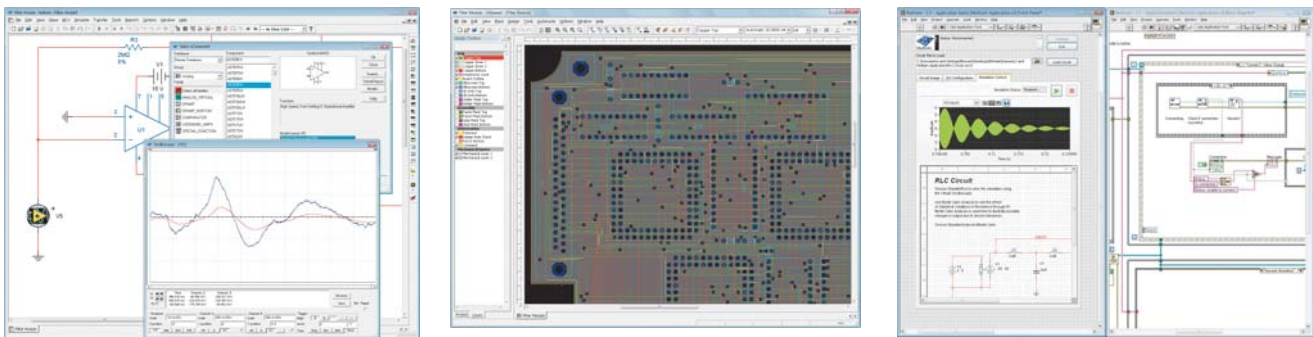


Figure 1. Take advantage of an integrated design and test platform, from Multisim capture and simulation, to Ultiboard layout and routing, to LabVIEW validation and verification.

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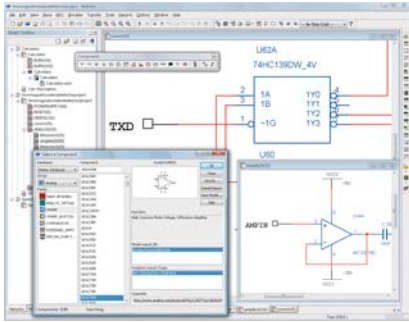


Figure 2. Quickly and easily define circuits in Multisim.

Multisim Capture

In the intuitive Multisim environment, you can access a comprehensive component library. In a modeless design environment, you can quickly define circuit topology and then take advantage of advanced simulation to investigate design behavior (Figure 2).

- Modeless wiring to quickly define circuits
- More than 16,000 device components
- Simulation of models from Analog Devices, Texas Instruments, and ON Semiconductor
- Easy-to-use and well-organized database

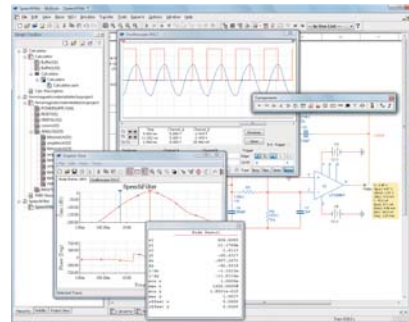


Figure 3. Use intuitive simulation instruments and analyses to validate design behavior without expertise in SPICE.

Multisim Simulation

Simulation improves the design flow. You can identify errors and quickly iterate design modifications to improve behavior prior to prototyping. By reducing prototype iterations, you save time and resources.

- Easy-to-use simulation in a highly graphical environment that requires no SPICE expertise
- Choice of 22 simulation instruments (Figure 3) to visualize design behavior
- 19 industry-standard analyses, such as AC analysis and Monte Carlo, for greater design insight
- Error identification at the earliest stages of the design flow to improve characteristic performance

Enhanced Simulation Capabilities

Multisim 10.1 provides new and enhanced SPICE parser technology, to improve circuit convergence and accuracy, as well as expanded PSpice compatibility. This along with the growing range of visualization techniques and advanced analyses gives you a complete set of tools to analyze circuit behavior.

Beyond Traditional Simulation

Go beyond conventional simulation by using LabVIEW to introduce real measurements as simulation stimuli. You can model and improve designs based on the effects of real-world inputs to tweak circuit behavior and identify design limitations and possible enhancements before prototyping a physical board.

To tailor the analysis for an application, you can take advantage of Multisim and LabVIEW integration to create custom LabVIEW instruments to meet domain-specific criteria.

- Virtually prototype circuits by injecting real measurements into Multisim simulation
- Download or build additional LabVIEW VIs to analyze simulated data with greater accuracy

Integrated Design and Test Platform with NI Multisim, Ultiboard, and LabVIEW

Flexible Layout and Routing in Ultiboard

Multisim provides integration with Ultiboard and the ability to forward annotate to Mentor Graphics PADS. With Ultiboard, the layout process is completely integrated with features such as cross-probing and annotation of design. From part placement to routing, Ultiboard offers a flexible platform to design your printed circuit boards (PCBs). The flexible Ultiboard design environment delivers automated functionality for speed and manual techniques for precise control. This flexibility, along with Multisim integration, optimizes the PCB design process so you can easily take a design from schematic to production (Figure 4).

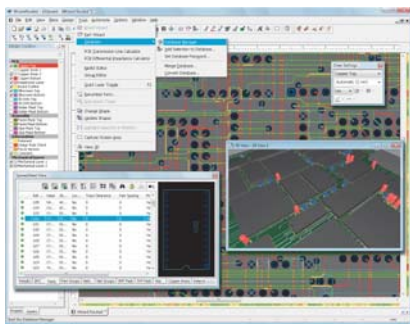


Figure 4. Lay out and route PCBs in Ultiboard.

Streamline the Design Flow with Unparalleled Integration to LabVIEW

The NI circuit design platform delivers the unique and unparalleled ability to transition a design to not only layout but also the prototype validation and test stages.

LabVIEW (Figure 5) is a graphical programming language you can use to easily, rapidly, and cost-effectively interface with measurement hardware, analyze data, and share results. Using virtual instrumentation, you can connect to NI measurement hardware – such as GPIB or PXI modular instrumentation – and with LabVIEW interrogate physical prototypes from your PC.

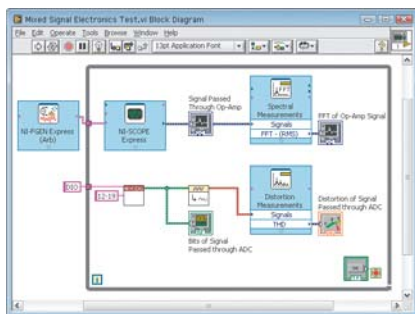


Figure 5. Rapidly and cost-effectively program in LabVIEW.

Multisim and LabVIEW

By integrating Multisim and LabVIEW, you can transfer simulated measurements to LabVIEW to compare with real prototype data. You can immediately benchmark and correlate design measurements to validate circuit behavior.

With the Multisim Automation API, you can use any COM-aware programming language (such as LabVIEW) to access simulated data. You also can automate simulation to run from LabVIEW as well as correlate it to real measurements in a single interface. To learn more about how you can access the Multisim Automation API in LabVIEW (Figure 6) using unique toolkits, view ni.com/multisim.

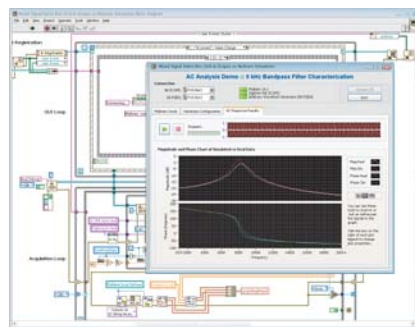


Figure 6. Automate Multisim simulation with LabVIEW.

Ordering Information

NI Circuit Design Suite

NI Circuit Design Suite Base	779930-09
Multisim Base and Ultiboard Full	
NI Circuit Design Suite Full	779928-09
Multisim Full and Ultiboard Full	
NI Circuit Design Suite Power Pro	779827-09
Multisim Power Pro and Ultiboard Power Pro	

NI Multisim

Multisim Base	779820-09
Multisim Full	779821-09
Multisim Power Pro	779822-09

NI Ultiboard

Ultiboard Full	779825-09
Ultiboard Power Pro	779826-09

BUY NOW!

For complete product specifications, pricing, and accessory information, call 800 263 5552 (U.S.) or go to ni.com/multisim.

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