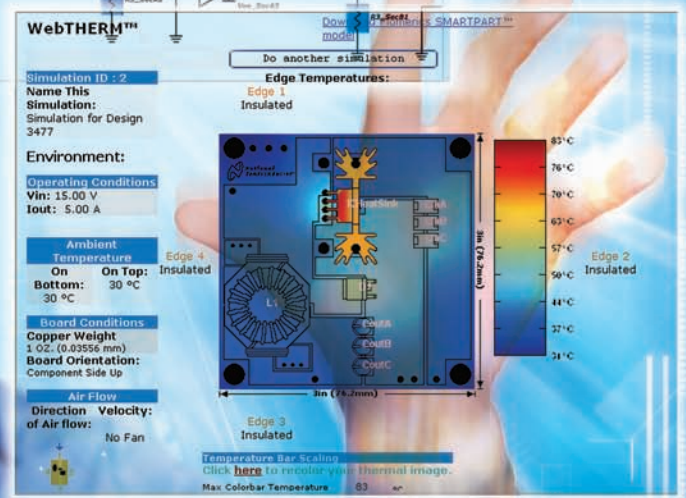
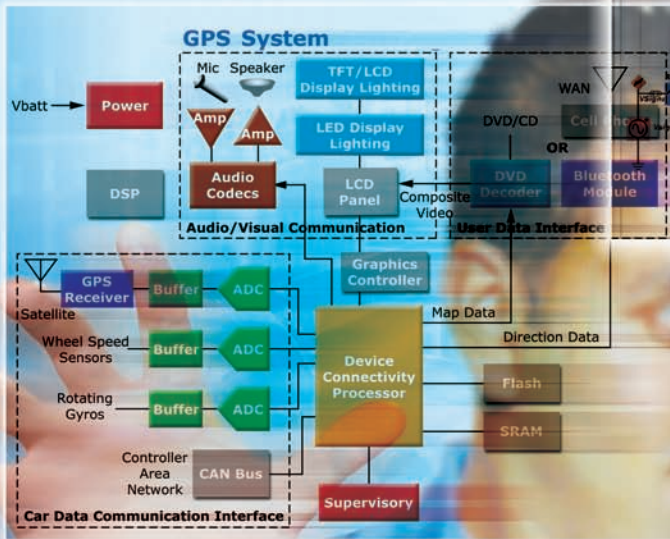
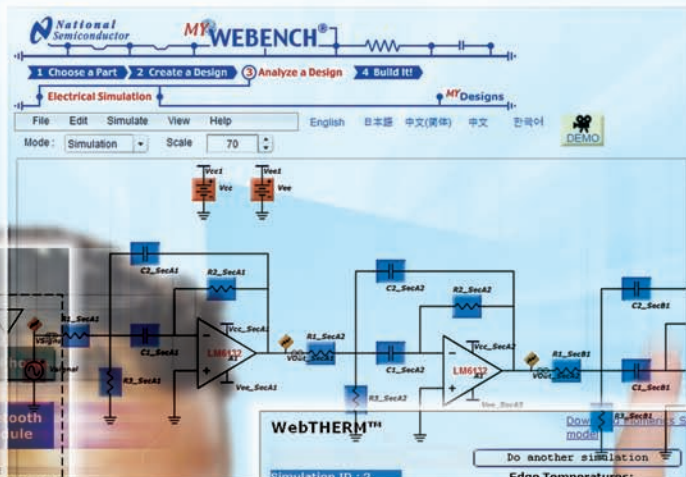


WEBENCH® Online Design Environment

Design Today, Prototype Tomorrow



WEBENCH® Online Design Environment

Save Development Time and Costs

WEBENCH online design and prototyping tools deliver results faster than ever. Now you have the world's most powerful and award-winning online design environment

right at your fingertips. Design, optimize, generate your prototype, and download your test vectors—all online. And do it all for free, anywhere, anytime.

1. Select It

- Input your design requirements
- Choose a recommended part from a customized list

Choose from only those parts that meet your specifications

2. Design It

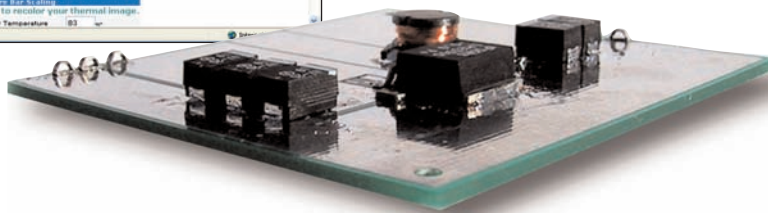
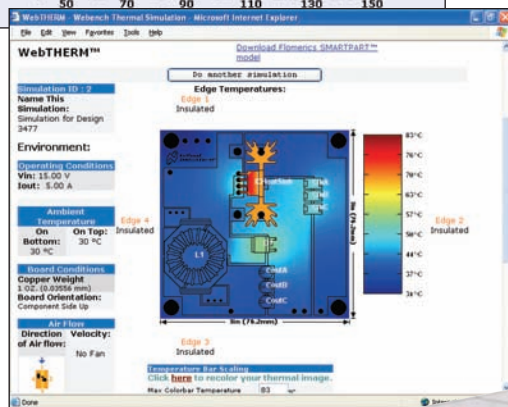
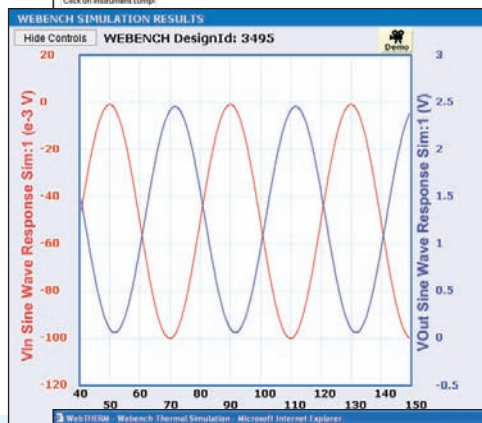
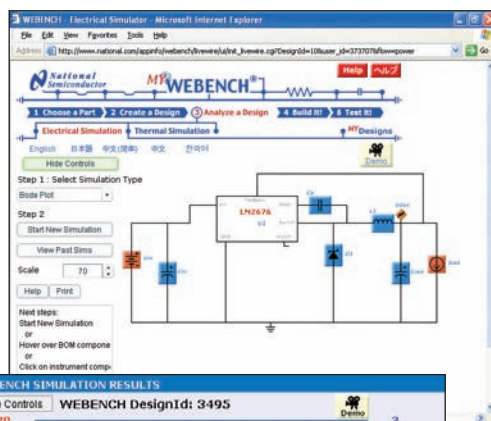
- Adjust components and exercise operating values such as power dissipation, current flow, offset voltage, drift, and frequency response
- Exchange parts to compare performance, size, and cost
- Use recommended components or create a custom BOM

Create your custom BOM using readily available parts

3. Analyze It

- Stimulate your circuit and evaluate performance using electrical and thermal simulations
- Overlay alternate circuits and compare results to get optimal performance

Solve your design problems before you prototype



4. Build It

- Request samples and purchase parts or demo boards
- Receive your custom prototyping kit the next business day
- Download your automatically generated CAD files, assembly details, test instructions, and complete performance characteristics—*instantly!*

Save weeks getting your final design into production

24 HOUR DELIVERY!

5. Test It

- Download your custom test vectors to verify your real board versus virtual results
- Perform board-level tests using National Instruments' SignalExpress™ software

Quickly verify your physical prototype

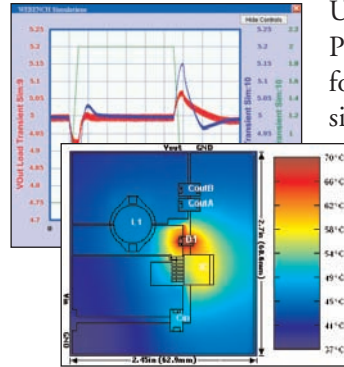


The WEBENCH advanced proprietary algorithms help you complete your designs quickly.



POWER SUPPLY DESIGN TOOL

The WEBENCH environment provides the end-to-end design and prototyping tools you need to create power supplies that meet your design's requirements. WEBENCH tools let designers solve design problems *before* prototyping—alleviating the time and trouble associated with traditional design methods.



WEBENCH Electrical Simulator

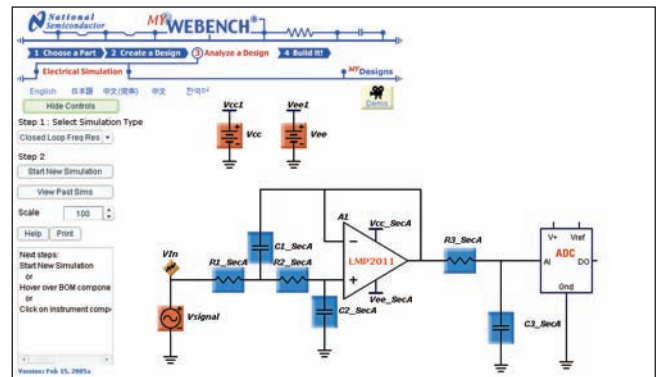
Use this tool to simulate your power supply circuit. Probe points on a schematic display to examine waveforms, change component values, and view a history of simulation results to fine-tune your design.

WebTHERM™ Thermal Simulator

Use this tool to simulate thermal behavior of an electronic PCB. Define the environment, solve thermal problems and output a color plot of the PCB under user specified load and environmental conditions.

INTRODUCING... SIGNAL-PATH DESIGN TOOL

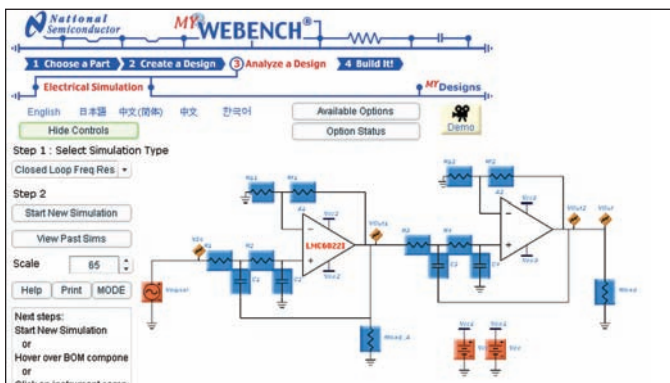
National's newest online innovation is the Signal-Path Designer toolset on the WEBENCH platform. This unique analog design tool allows you to synthesize an anti-aliasing filter, amplifier selection, and analog-to-digital converter combination that is precisely tailored to your needs. You can optimize this combination to fit your requirements for SNR, SFDR, supply voltage, and more. It even allows you to make tradeoffs between filter type and ADC type to save money in your design. This tool allows you to select from a variety of multiple-order active filters based on requirements such as frequency response, phase, group delay, and step response. Once you select a filter, it allows you to choose a matching ADC. Or, you can select an ADC first, then have the tool



guide you to selecting the optimal filter to fit the ADC. This fast and easy tool allows you to select the best combination of components that are designed to work together and achieve your system goals for cost and performance.

AMPLIFIER & ACTIVE FILTER DESIGN TOOL

These robust WEBENCH tools meet the design challenges of all of your front-end needs. Step-by-step instructions simplify the design process for amplifier circuits.



WEBENCH Amplifier Online Design Environment

Use this tool to save time selecting and verifying your op amp circuit. Utilize National's library of amplifier circuits, select the best op amp for your specification, and verify/optimize your design using Spice simulation.

WEBENCH Active Filter Designer

Use this tool to select a filter type (low pass, high pass, band pass or band stop). Compare filter approximations including Bessel, Butterworth, Chebyshev, and other specialized transfer functions. Achieve your desired behavior for frequency response, group delays, and more. Automatically generate your circuit, BOM, and chosen topology in just seconds. Let simulations optimize your design versus the theoretical transfer function.

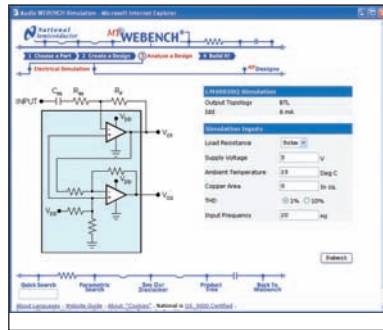


Online Design Tools

AUDIO & WIRELESS DESIGN

WEBENCH Audio Online Design Environment

Use this tool to find the right audio amplifier and perform frequency response and thermal simulation. Analyze your circuit under target audio constraints and change load, THD, copper area, ambient temperature, and input frequency. Compare several product options and the effects of different package types.



WEBENCH Wireless Online Design Environment

Use this tool to simulate and optimize Phase-Locked Loop (PLL) designs. Choose the appropriate PLL and VCO and construct a loop filter to meet your design specifications and provide a complete solution. Create single/dual/fractional-N and active and passive PLL designs. Conduct simulations and view waveforms of phase noise, lock time, Bode plot/filter analysis, and spur estimation.

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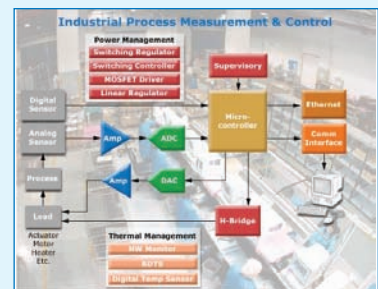
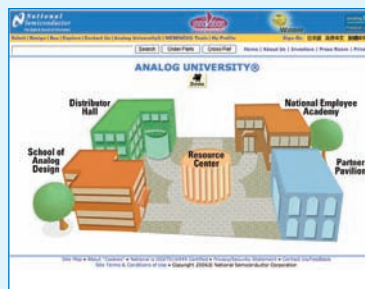
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Access nearly 100 dynamic diagrams for medical systems, consumer electronics, communications, and many more applications.

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