

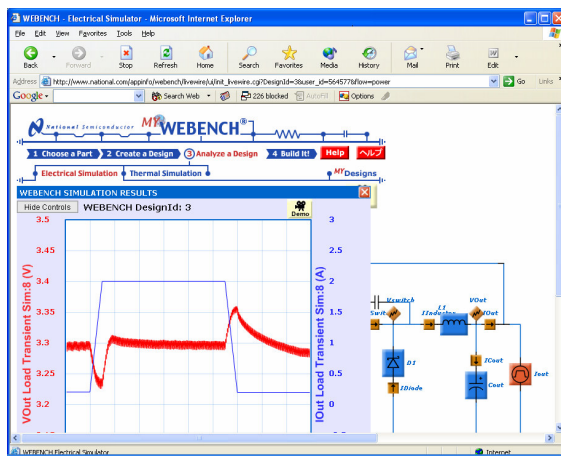
National Semiconductor Defines Measurement Platform for Part Evaluation

“With SignalExpress, our customers can integrate their simulation results directly with measurement data from their prototypes to get a better understanding of how the part can suit their needs,” said Phil Gibson, vice president of Web marketing and sales operations at National Semiconductor.

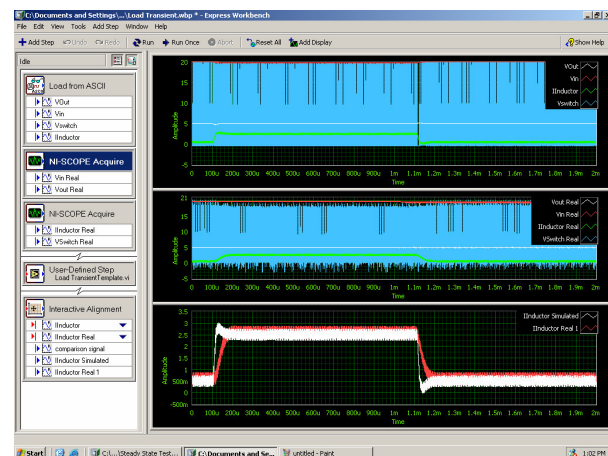
Using the National Semiconductor WEBENCH online design and simulation environment, design engineers can accelerate the design process for new products. With WEBENCH, design engineers who evaluate parts for a new design can find a part, use it in a basic design, simulate the design, and buy a custom prototype kit on the Web site. In a matter of days, design engineers can assemble custom kits on their lab benches based on the designs they specify online. National Semiconductor is extending the WEBENCH environment to include tools for making common physical measurements on these prototypes based on National Instruments SignalExpress and PXI modular instruments.

“The new National Instruments SignalExpress measurement software offers some unique opportunities to streamline the design process for our customers,” said Phil Gibson, vice president of Web marketing and sales operations. “SignalExpress is not only an interactive tool for making measurements, but it enables designers to combine the simulation data from WEBENCH directly with the physical measurements they make on their prototypes. By doing this, they can quickly see how the part will operate in specific scenarios on the prototype boards and quickly iterate through the design process.”

Many times, the measurements required to evaluate the prototype performance involve more than simply probing different nodes on the circuit. In some cases, the measurement can get more complicated, requiring the design engineer to generate a stimulus signal or supply voltage with varying frequencies or levels while capturing the circuit response. Using the SignalExpress swept measurement feature, design engineers can easily automate these measurements and save time by not having to set up and program on their own. With SignalExpress, they can quickly explore the circuit and define their own repeatable measurement procedures without any complex programming.



National Semiconductor WEBENCH



National Instruments SignalExpress

How it Works

Design engineers can go through the following five steps in the WEBENCH online environment as they investigate a specific part from National Semiconductor:

1. Select a part – design engineers can choose a specific part or input system specifications to find devices that fit.
2. Create a design – they create a design, including any necessary passive components and important calculated operating values.
3. Analyze a design – design engineers can use WebSim, the online power simulator, to validate their designs electrically, and WebTHERM, the online thermal simulator, to visualize the thermal behavior of their designs.
4. Build it – they buy a part, a kit of parts, or an evaluation board.
5. Test it – design engineers can download common measurement procedures based on SignalExpress and PXI modular instruments for making physical measurements on the prototype evaluation board.

“By integrating SignalExpress into our online WEBENCH evaluation and simulation environment, we can provide a streamlined user experience for the design engineer that covers part discovery, basic design, simulation, and prototype measurement,” Jeff Perry, Web marketing engineer at National Semiconductor.

Power supply designs based on National Semiconductor power management ICs are the first supported area. When design engineers create their designs in WEBENCH and purchase the custom prototype boards, they can download test software developed from the Test It tab. For example, for power supply designs, the design engineer can download measurement procedures for BODE plot, steady state, input transient, load transient, and startup standard measurements.

Design engineers can follow simple instructions for making connections from their PXI measurement equipment to the connectors on the custom prototype board, loading the projects into SignalExpress, and pressing Run to begin looking at measurement values. In addition to downloading the measurement projects, design engineers also can download simulation results for the custom design they specified on WEBENCH. These simulation waveforms automatically load and overlay on the live SignalExpress measurement signals so design engineers can easily compare their expected results with actual measurements.

The suggested measurement system for the power supply designs uses the following measurement hardware: one NI PXI-5122 100 MHz high-speed digitizers, one NI PXI-5421 100 MHz arbitrary waveform generator, one Agilent 6128A programmable power supply, one Agilent N3307A programmable electronic load, and one PXI controller and chassis.

Design engineers can purchase an exact copy of this measurement system setup and use the software directly from the WEBENCH Test It Web site, or they can substitute some of the equipment. Substituting any of the equipment requires changes to the software before running it.

To learn more about WEBENCH, visit www.nsc.com/webench.

To learn more about SignalExpress, visit www.ni.com/signalexpress.



11500 N Mopac • Austin, TX 78759-3504 USA
Tel: 1.800.258.7022 • Fax: 1.800.683.9300

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