

# New High-Speed Digital Device Delivers Reliable Transfer Rates

National Instruments has expanded its line of high-speed digital products to include the NI 6534 on the PCI platform. The NI 6534 device offers faster transfer rates and greater transfer reliability, as well as six available handshaking modes and change detection. You can easily integrate the NI 6534 device with other components, such as digitizers, sources, and counter/timers, to develop complete measurement systems. The NI 6534 is built on the same architecture as the NI 6533, providing a seamless upgrade path for current NI 6533 users.

## Onboard Memory Delivers Faster, More Reliable Transfer Rates

The NI 6534 device features thirty-two 5 V/TTL digital input/output lines. You can group these lines together in software for 8, 16, or 32-bit transfers. The NI 6534 device features two independent data paths (groups) with 32 MB of onboard memory available per group. When using this onboard memory, the NI 6534 device transfers data across the

computer bus less frequently, decreasing the load on the bus and achieving faster transfer rates. Because the computer bus is not used as frequently, other bus activity is less disruptive to your digital I/O data transfer. This increase in transfer speed and reliability with the NI 6534 delivers a sustainable transfer rate of up to 80 MB/s in continuous pattern I/O.

## Use Handshaking Modes to Communicate with Peripheral Devices

When using handshaking I/O, the NI 6534 communicates with an external device through control lines to ensure both devices are ready for transfer. With the NI 6534 device, you can choose one of six available modes to perform reliable handshaking with your peripheral device. The NI 6534 can transfer data at 80 MB/s maximum using the burst mode handshaking protocol.

## Change Detection Avoids Polling

In digital monitoring applications, such as relay or valve monitoring, you can improve

efficiency by monitoring digital lines and acquiring data when one of those lines changes state. Change detection is ideal for these applications. By only acquiring data when one of the lines changes state, you avoid continuous polling and decrease the load on the computer bus. When one of the digital lines changes state, the NI 6534 device latches data and outputs a pulse on one of its control lines, so you can synchronize the acquisition with other operations. With the NI 6534, you can perform pattern I/O, handshaking I/O, and change detection on the same device. For transfer rates up to 80 MB/s, the NI 6534 provides a reliable solution for your digital I/O applications. ▶

*For more information on the NI 6534 family, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/daq](http://ni.com/daq)

# SCC Modules Offer You Vibration and Temperature Solutions

If you require a low-channel count or portable front-end signal conditioning system for use with National Instruments E Series data acquisition devices, the SCC platform measures a variety of I/O types, including vibration and temperature. The SCC Series is an easy-to-use signal conditioning system for applications requiring multiple signal/sensor types and connectivity options. You select the measurement type and connectivity options in a SCC system on a per-channel basis. NI recently introduced two new SCC modules for resistive temperature detectors (RTDs) and active accelerometers.

RTDs are a popular temperature-sensing device because of their stability and accuracy over a wide temperature range. The SCC-RTD01 is a dual-channel RTD input module designed for 2, 3, or 4-wire platinum RTDs and has a built-in 1 mA excitation source for powering the RTDs. In addition, the SCC-RTD01 has a fixed gain of 25 and a 30 Hz lowpass filter for higher accuracy.



SCC Series, Signal Conditioning Platform for Multiple Sensor Types

For applications in which you must understand how an object reacts to shock and vibration, accelerometers are a common solution. Active accelerometers have a built-in amplifier for greater output voltage and a better quality signal. The SCC-ICP01 accelerometer input module is a single-channel module offering all the

features necessary for shock and vibration measurements. The SCC-ICP01 has a built-in 4 mA current source to power active accelerometers and provides a 19 kHz lowpass anti-aliasing filter.

Adding SCC technology to your measurement system is easy. You can configure and test SCC systems in minutes with Measurement & Automation Explorer Software. System development is identical to creating a system with a DAQ device alone.

SCC modules offer signal conditioning for a variety of inputs, including thermocouples, strain gauges, filtering, analog inputs requiring isolation, high voltage inputs, current inputs, and optically isolated digital I/O. ▶

*For more information on SCC, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/sigcon](http://ni.com/sigcon)

# IVI Specifications Near Completion

For years, replacing instruments in your system required you to modify your test programs. The primary problem was the instrument drivers, which were not standard and differed greatly depending on the underlying hardware. Over the last two years in the *Instrumentation Newsletter*, we have reported on the IVI Foundation and its goal of defining a standard instrument programming model for instrument interchangeability. All the IVI specifications are nearing completion and many IVI drivers are now available.

## The State of the IVI Specifications

The IVI Foundation defines common APIs for classes of instruments such as function generators or DMMs. The original specifications released in 1998 also included oscilloscopes, DC power supplies, and switches. In early 2000, the foundation released Version 2.0 of these five class specifications based on user and instrument vendor feedback, resulting in more robust and stable specifications.

In addition to these class specifications, the IVI Foundation is defining two underlying architectures for instrument drivers – one

**With features such as simulation, state-caching, and multithreading, IVI instrument-specific drivers can greatly improve productivity.**

based on ANSI-C and the other on Microsoft COM technology. These specifications define the overall system architecture and the capabilities common to all IVI drivers. The specifications also define a mechanism for configuring an IVI system and a method for achieving interoperability between drivers from different vendors. The IVI Foundation is currently refining both of these specifications for completion later this year.

## IVI-Compliant Products from NI

National Instruments has been heavily involved in the IVI Foundation since its formation. Consequently, all our IVI drivers and products comply with Version 2.0 of the class specifications. You can download IVI instrument-specific drivers for more than



NI IVI drivers are compatible with the new class API specifications.

150 instrument models from [ni.com/idnet](http://ni.com/idnet). With features such as simulation, state-caching, and multithreading, IVI instrument-specific drivers can greatly improve productivity.

If you want to take advantage of instrument interchangeability, you can also download our newly available basic IVI class drivers. You can build interchangeable programs with these drivers, but the drivers provide no additional features. For more advanced features, you can purchase our IVI Driver Toolset for LabVIEW and

Measurement Studio from the online store. This toolset contains a version of the IVI class drivers that has advanced simulation and debugging features and provides soft front panels for all five

instrument classes currently defined.

## Ensuring Backward Compatibility

The IVI drivers currently available from NI are compatible with the new class API specifications. Although these drivers are based on the original C architecture specifications, programs that you develop using these drivers do not have to be modified when the new architecture specifications are complete. This is possible because our IVI drivers use the NI IVI Engine, a library of tools and functions used for IVI driver development.

The NI IVI Engine provides services that relieve our IVI drivers from most of the implementation features, such as simulation and state-caching, and internal

driver features such as session and error handling. When the new architecture specifications are completed, we plan to update the NI IVI Engine to take changes into account. Because the engine is only used internally by drivers and not directly in user programs, we do not expect your programs to be affected. To update a system, you download and install the new IVI Engine from NI, and your programs continue to work without any modifications.

## Using IVI in National Instruments Development Environments

You can use IVI drivers from NI in all popular test development environments. Although the IVI Foundation is only defining specifications based on C and COM architectures, drivers from [ni.com](http://ni.com) have interfaces native to their environment. We provide our current C-based drivers as dynamic link libraries (DLLs) for use in environments such as Microsoft Visual Basic and Visual C++. We also add LabVIEW VIs and Measurement Studio LabWindows/CVI function panel (fp) files that call into the driver DLLs for use in these environments. Providing drivers with an environment native interface is crucial for their correct and productive use in program development. Following this same principal, we can provide future IVI drivers with interfaces for other popular development environments.

## Where Do You Go from Here?

To begin using or developing IVI drivers, visit the NI Developer Zone™ at [ni.com/zone](http://ni.com/zone). There you can find our full library of drivers, technical and application notes, and example programs available for download. As the IVI specifications continue to evolve, NI tools and drivers follow to ensure you continued success in using IVI. ▶

***For more information, check IVI brochure on the reply card or visit [ni.com/info](http://ni.com/info) and enter newsletter.***

[ni.com/idnet](http://ni.com/idnet)

# New PXI-8170 RT Delivers Better Real-Time Performance

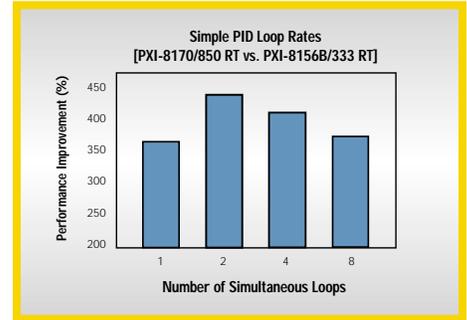
The new National Instruments PXI-8170 RT 850 MHz controller delivers better performance for real-time applications, such as higher loop rates and faster signal processing – up to 350 percent. Similar to the PXI-8156B RT, the PXI-8170 RT runs a real-time operating system on a dedicated processor and quickly integrates with existing NI hardware and software. Based on the PXI/CompactPCI specifications, the PXI-8170 RT includes an 850 MHz Intel Pentium III processor, 6 GB hard drive, floppy drive, and serial port. The controller package also includes the PXI-8211 board, which has an Ethernet port.

The 850 MHz Intel Pentium III processor features the “slot 1” packaging style to deliver maximum performance. When compared to the performance of the PXI-8156B RT, the loop rates achieved with the PXI-8170 RT were often three to four times better.

## Ready-to-Run Controller Reduces Set-Up Time

The PXI-8170 RT controller is preinstalled with LabVIEW Real-Time and the NI-DAQ embedded software engine to reduce set-up time. You connect the controller to a development computer via the Ethernet port on the PXI-8211. After establishing a proper IP address for the RT Series PXI controller, you can begin developing real-time applications.

The PXI-8170 RT controller works with the current version of LabVIEW Real-Time 5.1.2 and existing PXI products. You can write LabVIEW code on a Windows-based computer and then download it to a PXI-8170 RT system to develop real-time applications by simply using a pull-down menu. With the PXI platform, you can build custom real-time solutions with a variety of PXI plug-in boards. In an eight-slot PXI chassis, the PXI-8170 RT with the



Higher PID Loop Rates with PXI-8170 RT

PXI-8211 can control up to six other PXI DAQ modules. But with other PXI technologies, such as MXI™-3 and the PXI/SCXI combo chassis, you can expand past the limitation of one chassis. ▶

*For more information on the PXI-8170 RT, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/realtime](http://ni.com/realtime)

# New Ethernet and Instrument Control Options Expand PXI



New PXI-8211 and PXI-8212 modules expand instrument control and network connectivity options.

With PXI-8211, a high-performance 10/100 Mb/s Ethernet controller, you can create tightly integrated instrumentation solutions by using the high-performance capabilities of PXI and the widespread availability of Ethernet. The PXI-8211 Ethernet interface works with all Windows 32-bit operating systems (Windows 2000/NT/Me/9x), as well as National Instruments real-time PXI embedded controllers.

The PXI-8212 adds a GPIB Controller to the PXI-8211 and creates a

one-slot Ethernet and GPIB combination Controller, bringing together the NI high-performance GPIB Controller with a 10/100 Mb/s Ethernet Controller. The

GPIB Controller is the TNT4882 ASIC included in our high-performance GPIB interfaces, such as the PXI-GPIB. The PXI-8212 can sustain data transfer rates above 1.5 Mbytes/s using the IEEE 488.1 3-wire handshake and can implement the high-speed HS488™ GPIB protocol for data transfers up to 8 Mbytes/s.

The PXI-8212 includes NI-488.2 and NI-VISA API software for Windows 2000/NT/Me/9x. The operating system recognizes the one-slot interface as two separate entities. Any programs previously written for any NI GPIB interface run unmodified on the PXI-8212 interface, preserving software investments. With the PXI-8212, you can save slots in your system while maintaining the high performance of individual components. ▶

*To download the PXI-8211 and PXI-8212 data sheets, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

The new PXI-8211 Ethernet module and PXI-8212 combination Ethernet/GPIB module expand the instrument control and network connectivity options for PXI.

[ni.com/pxi](http://ni.com/pxi)

# 18-Slot PXI Chassis Expands Applications for PXI in Manufacturing Test

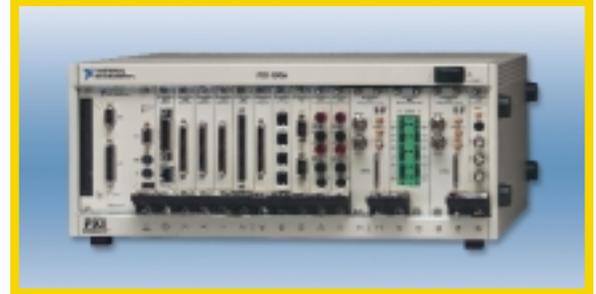
PXI has already made a significant impact on manufacturing test by reducing test time, development time, size, and cost for hundreds of test systems. Now with the PXI-1006 18-slot chassis, you can more easily apply these benefits to larger, more sophisticated systems.

The PXI-1006 incorporates an 18-slot PXI backplane, a 600 W power supply, and powerful cooling into a rugged chassis. With PXI-1006, you can integrate up to 17 PXI/CompactPCI instruments or devices into a compact rack-mountable, tightly synchronized system.

PXI combines CompactPCI with Windows operating systems and integrated timing and triggering. Rugged, modular packaging with CompactPCI makes PXI a good choice for industrial systems that require better reliability and more performance than desktop PCs. PXI modular instrumentation simplifies and speeds the development of sophisticated systems with built-in timing and triggering

and some of the industry's best software integration tools. Because PXI is an open standard used by more than 60 companies and completely compatible with CompactPCI, test engineers can choose from hundreds of available modules to solve their applications. Whether synchronizing a large number of PXI instruments, switching a large number of channels, or both, the PXI-1006 makes it possible without sacrificing system performance, test speed, or budget.

Two PXI-to-PXI bridges extend both the PCibus and the integrated PXI timing and triggering signals to 18 slots. It is now possible to take advantage of the tight synchronization of the star trigger bus across 14 instruments. Use the built-in 10 MHz clock to achieve synchronization across all 17 peripherals, or use the autosensing feature of the PXI-1006 to achieve even higher levels



Now apply benefits of the PXI-1006 18-slot chassis to larger, more sophisticated systems.

of synchronization. Use the PXI-1006 to take full advantage of PXI instrumentation to reduce test time, reduce time-to-market, and improve test flexibility. ▶

*For more information on the PXI-1006, visit [ni.com/info](http://ni.com/info) and enter newsletter. For more information about the PXI open standard, visit the PXI Systems Alliance at [pxisa.org](http://pxisa.org)*

[ni.com/pxi](http://ni.com/pxi)

# 16-Port RS-232 PXI/CompactPCI Compliments Serial Solutions Interface

Whether your PC-based measurement and automation application requires communication with stand-alone serial instruments, controllers, or subsystems such as the National Instruments FieldPoint distributed system, serial interface products give you the flexibility to complete your system by integrating serial communication into your application. Our PXI-8420/16 16-port RS-232 solution for PXI/CompactPCI compliments our existing serial interface solutions. With the addition of this interface board, NI now has a complete line of 2, 4, 8, and 16-port serial solutions for RS-232 on the PXI/CompactPCI platform.

In addition to this new product, we have a complete line of serial interface boards for both RS-232 and RS-485/422 that works with Ethernet, PCI, PCMCIA, PXI/CompactPCI, and AT-based



Serial interface products give you the flexibility to complete your system.

computers. Serial port count depends on the platform of choice. 2,000 V isolated interface cards are available on certain models.

## Windows 2000 Driver Released

We have also released our Windows 2000 driver for all plug-in interface boards. Enhanced high-performance drivers are now available for Windows 2000/NT/Me/9x operating systems with full Windows 2000/9x Plug and Play compatibility. All NI serial interfaces are 100 percent compatible with software packages that use a standard serial driver such as LabVIEW and Measurements Studio, as well as general-purpose products such as Microsoft Visual Basic, Visual C++, and Excel. ▶

*For more information on RS-232/PXI/CompactPCI, and our serial solutions visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/serial](http://ni.com/serial)

## National Instruments New DataSocket™ JavaBean Offers Live Measurement Data to Infinite Locations

You often need to view or control applications over the Internet. National Instruments DataSocket technology makes sharing live measurements and controlling measurement systems across the Internet easy with a simplified publish and subscribe architecture.

With the new DataSocket JavaBean, you can now subscribe to your live measurement data in any Java-enabled programming environment. You can easily publish measurement data from a

LabVIEW or Measurement Studio-created test, measurement, or automation application to any Java-enabled operating system. You can also create Web pages that control your live measurement system using the DataSocket JavaBean with any Java-compatible browser, including Netscape Navigator and Microsoft Internet Explorer.

With this new data-sharing technology, you can create a single Java Web page that monitors and controls your live

measurements or automation system anywhere and on any platform. ▶

*For more information on DataSocket, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/datasocket](http://ni.com/datasocket)

## Develop Both Remote Measurement Systems and Data Servers with Measurement Studio



With Measurement Studio, Visual Basic and Visual C++ tools, you can create front-end ActiveX control clients that you can embed in Web pages. With Microsoft Internet Explorer, these measurement application clients monitor and control your back-end measurement server through interactive Web pages that you can access from anywhere in the world, without loading the measurement software on the client machine. Interactive Web pages present interesting opportunities, such as eliminating the need for distribution and maintenance of your application and giving you the ability to create Web measurement services.

The Measurement Studio package includes the tools necessary to create your measurement or automation server system, from acquiring data to creating user interface presentation Internet clients. To complete your Web-enabled measurement development solution, you can now directly order Microsoft Visual Studio with your Measurement Studio package from the National Instruments online store. ▶

*For more information on Measurement Studio, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/mstudio](http://ni.com/mstudio)

National Instruments Measurement Studio provides all the tools necessary to create your automated measurement server. With DataSocket technology, you can easily monitor and control your hardware over a network, because it provides a publish and

subscribe architecture that reduces the complexity of low-level TCP and UDP programming. DataSocket architecture also minimizes network traffic and distributes large quantities of time-critical information quickly.

## New Two-Day LabVIEW Networked Measurements

LabVIEW Networked Measurements is a new two-day course developed by National Instruments that focuses on the basics of making your applications Internet ready. This course teaches you how to take remote measurements, share measurement data across the network, and remotely control LabVIEW VIs. This course is intended for LabVIEW users who want to take advantage of Internet technology using the readily available LabVIEW and NI software features.

When you need to take remote measurements, you need a basic understanding of how networks are built, how TCP/IP works, and how to set up and establish a live connection to a remote computer. The LabVIEW Networked Measurements course covers these topics specifically from a measurement and automation perspective.

Modern applications may also require remote data publishing. You can publish

data on the network statically and dynamically. This course teaches how to publish static data through Web pages and e-mail. You publish dynamically when you share it with other applications across the network during run-time. By the end of this course, you learn how to publish data from your application using both techniques so other computers on the network can view or receive the data.

VI Server provides a powerful way to load, launch, and control LabVIEW VIs that are not local. So an application on one computer can control a LabVIEW application on another computer connected to the network. This powerful concept is the final topic covered in the LabVIEW Networked Measurements course. This two-day course saves valuable time learning how your application can leverage the network. ✎



New course focuses on basics of making applications Internet ready.

*To find the next LabVIEW Networked Measurements course in your area, visit [ni.com/custed](http://ni.com/custed)*

[ni.com/custed](http://ni.com/custed)

## National Instruments Dynamic Signal Analyzers "Zoom In" on Spectral Details

The Fast Fourier Transform (FFT) is a class of algorithms that examines the spectrum or frequency-domain information associated with a signal. The Zoom FFT is well suited to the examination of spectral details in a band-limited section of the spectrum and is a feature of the National Instruments NI-45xx Series dynamic signal analyzer (DSA) plug-in instruments for the PCI bus.

The practical difference between the Zoom and non-Zoom FFT is in the frequency span of their results. With a standard FFT, the usable frequency span ranges from DC (0 Hz) to the Nyquist frequency, which is half the sampling rate of the original time-domain signal. With a Zoom FFT, your frequency span must reside between DC and the Nyquist frequency, but you can "zoom in" on a particular frequency span of interest.

When considering the Zoom FFT, you should not confuse frequency span flexibility with frequency resolution. Both the Zoom and Baseband FFT share the same frequency resolution limitations; the frequency resolution for either is equal to the inverse of

the time duration of the input signal. A benefit of the Zoom FFT is efficiency. The National Instruments NI-45xx Series DSAs apply a destructive type of Zoom FFT, which runs in real-time on an onboard digital signal processor (DSP). With this type of Zoom, the DSP efficiently uses memory by applying an FFT to a filtered subset of the original data. The computation is truly real-time because all the computations associated with the Zoom FFT are completed in less time than it takes to acquire the data, so the NI DSA instrument processes every input sample in measuring the signal spectrum. ✎

*Zoom FFT capability is one feature of the NI-45xx, a line of PC-based dynamic signal analyzers. For more information about the Zoom FFT and other capabilities of these boards, please visit [ni.com/info](http://ni.com/info) and enter newsletter.*

[ni.com/instruments](http://ni.com/instruments)

### LabVIEW 6i Now Available in French, German, and Japanese

National Instruments LabVIEW 6i is now shipping in French, German, and Japanese. With localized versions, you can take advantage of all the benefits of the latest versions of LabVIEW while developing in the French, German, and Japanese environments.

With LabVIEW 6i built-in Internet capabilities, you can quickly publish data to the Web and share data throughout your enterprise. In addition to the new Internet capabilities, you can take advantage of new measurement functionality to build measurement applications in fewer steps than in previous LabVIEW versions. With these localized versions, you can increase productivity with the new Internet and measurement capabilities of LabVIEW 6i. ✎

*For more information, check LabVIEW Brochure on the reply card or visit [ni.com/info](http://ni.com/info) and enter newsletter.*

# Developing a Low-Cost Engine Testing System Using LabVIEW and FieldPoint

**The Challenge:** Developing a low-cost, easy-to-use automated test system for studying the long-standing behavior of SCANIA diesel engines.

**The Solution:** Creating a flexible and simple test system using National Instruments LabVIEW together with FieldPoint hardware for distributed I/O.

SCANIA is one of the world's leading manufacturers of trucks that weigh more than 16 tons and buses for more than 30 passengers. SCANIA is an international specialist in customized engines for boats, electrical generators, earth-moving machines, and harvesters. We developed a test system for SCANIA using National Instruments LabVIEW and FieldPoint to optimize speed, control, and ease in testing and training.

**We began this project without prior experience using FieldPoint with LabVIEW, but found ease of use, thanks to the software tools included.**

## Developing a System for Measurement and Control

Our system controls and measures a variety of parameters, from the engine to surrounding functions, such as the fuel system, cooling, ventilation in the test



Development time to develop software and train operators to use the system was minimal with LabVIEW.

room, thrust, and temperatures. We also include monitoring and calibration capability. We developed our program so operators can configure their own tests, without changing the source code. Operators can save this configuration in a file, to use it later.

## Rapid Development Using LabVIEW

We used graphical object-oriented programming as a development model to make the system software easy to maintain and modify. With this type of programming, the development process was also easier because we could use the same terminology used by the customer, SCANIA. First, we simulated the control of the FieldPoint modules in the program to verify that the flow and logic of the program was functioning correctly, which saved time during the implementation. For this purpose, we developed a special LabVIEW application for manipulating the I/O signals and to test the functionality of the program.

Our development time was minimal with LabVIEW, taking only three months to develop the software and train operators to feel comfortable with the system and use it effectively.

## Creating a Multilayer Solution

We split the system software into several layers, which simplifies the process of developing new graphical user interfaces (GUIs). The simulation (SIM) layer contains the application-specific parts, such as the engine and cooling system. We called the layer that handles the hardware the abstraction layer (HAL), which is not related to HAL in Windows NT. HAL contains objects such as analog I/O, digital I/O, and thermocouple.

## Easy-to-Use Software Tools Led to Success

We began this project without prior experience using FieldPoint with LabVIEW, but found ease of use thanks to the software tools.



We developed a test system for SCANIA using NI LabVIEW and FieldPoint.

SCANIA is very satisfied and happy with this system because the application has essentially simplified the work for the operators, who can run the tests without extensive experience and training. Also the time for developing and implementing the system was minimal, which made the total cost of the project reasonably low. ✎

*For more information, contact Michael Gunnarsson, HITest AB, Haga Parkgata 21A, 723 36 Västerås, Sweden, tel +46 70 20 89 965, e-mail michael.gunnarsson@hitest.se*

[ni.com/success](http://ni.com/success)

# New Developer Exchange Provides an Interactive Forum for Scientists and Engineers



Share ideas and questions on development tips and techniques.

National Instruments announces Developer Exchange, an interactive forum for scientists and engineers to solve technical issues. Use Developer Exchange to compose a technical question and receive answers from a community of engineering minds through this news group. In addition, to save you time Developer Exchange automatically searches the archive for all probable answers. You can receive an answer to your question in minutes.

## Subscribe to Questions

Through Developer Exchange, you can subscribe to questions, keywords, or areas of interest, and receive automatic notifications when a community member posts a related topic or answer. You can choose to receive notifications immediately or daily or weekly summaries.

## Rate the Best Responses

Use Developer Exchange to rate answers community members have posted. On a one to four scale, see how other engineers value possible

answers. These ratings quickly indicate the quality of each answer in the forum. Experts, who are designated with a red star, can also rate answers with higher weighting.

## Search Questions and Answers

NI Developer Exchange also features a search engine to explore categories, such as LabVIEW, Measurement Studio, TestStand, and Lookout for answers to your questions about NI products. You can browse categories

and subcategories to view and respond to questions that need answers.

## Track Activity

To track your activity on Developer Exchange, you have a personalized My Activity link that includes your profile, statistics, and notifications.

Developer Exchange is part of NI Developer Zone™, a technical resource to help you build measurement and automation systems with input from an online community of engineers. This online community is a place where scientists and engineers from NI and around the world can share ideas and questions on development tips and techniques for NI products. ▶

*To join an online community of engineers and scientists, visit [ni.com/exchange](http://ni.com/exchange). For more information about Developer Exchange, visit [ni.com/info](http://ni.com/info) and enter newsletter.*

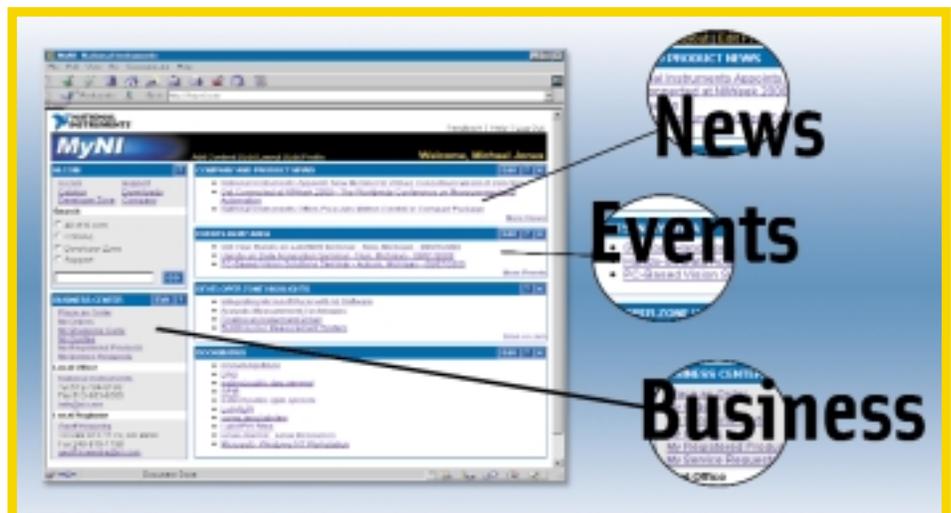
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# Create Your Personalized Page at ni.com

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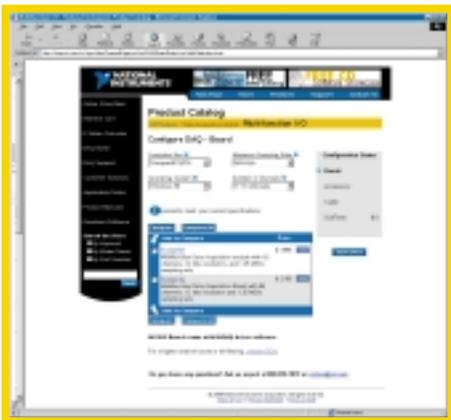
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[my.ni.com](http://my.ni.com)



Display news, business services, and product information tailored to your needs.

## Use Interactive Online Configurator for Fast DAQ Product Selection



Use the new interactive configuration tool in the NI online catalog to select and purchase multifunction DAQ solutions.

You can now easily configure NI multifunction DAQ systems using a new, interactive feature of our online catalog. The interactive online catalog offers a better, easier way to select and purchase these measurement devices from National Instruments. The interactive online catalog suggests products based on user input and then suggests the appropriate cables and accessories for those products. This new

automated tool helps eliminate ordering mistakes and product compatibility errors.

To take advantage of the online catalog for multifunction DAQ devices, visit [ni.com/catalog](http://ni.com/catalog). From the Products and Services menu, select Measurement Hardware, and then select E Series Multifunction Data Acquisition. The online catalog prompts you with a series of questions regarding preferences for operating system, computer bus, number of channels, and maximum sampling rate. The online catalog then recommends several appropriate DAQ devices. You can review specifications on each device and select the preferred product. Next, the catalog suggests the preferred accessory and cable solution designed to work with the selected DAQ device. You have the option of choosing the preferred configuration or choosing from a separate list of accessories and cables that also work with the selected DAQ device. ▶

*For information on the interactive online configurator, visit [ni.com](http://ni.com) and enter newsletter.*

[ni.com/catalog](http://ni.com/catalog)

## NI Now Provides Installation Services for Localized Operating Systems

With installation services for PXI systems, NI provides you with the option to receive a ready-to-use system with all the individual pieces of your system installed and configured. You can now install localized operating systems, such as Microsoft Windows, in English, French, German, Italian, Japanese, or Spanish, on PXI embedded controllers. In addition, you can request the embedded controllers preinstalled with National Instruments award winning software, LabVIEW 6*i*, in English, French, German, or Japanese. With the PXI Configurator™ at [ni.com/pxiconfig](http://ni.com/pxiconfig), you can select, configure, and purchase your PXI system in one online visit.

Engineers and scientists around the world can quickly build customized

applications by using localized versions of the Windows operating system and LabVIEW 6*i* software. The availability of a localized operating system for the embedded controllers further upholds the PXI standard as a global platform with worldwide support. With offices in more than 35 countries, NI is committed to supporting global standards, such as PXI, and giving special attention to local needs with our worldwide support in local languages.

[ni.com/pxiconfig](http://ni.com/pxiconfig)

## Save Time Finding Your Motor or Stage Using New Motor Advisor at ni.com

Deciding which motor or stage to use for your motion application can be difficult and time consuming. To help save time and find the motors and stages you need for your motion system, NI offers Motor Advisor at [ni.com/motion](http://ni.com/motion). Motor Advisor contains lists of several selected stages, as well as hundreds of stepper and servo motors.

To verify compatibility with other parts of the system, such as the controller or drive, Motor Advisor greatly simplifies the process of locating the right motor or stage by only listing those compatible with NI motion control products.

Motor Advisor offers specifications for each motor and stage series to help you quickly compare the different motors and stages. Along with stepper and DC servo motors, it also contains a number of brushless motor drives compatible with NI motion controllers for those applications requiring brushless technology.

To help you save time, the list also includes connection diagrams to help you understand exactly how to connect your stage to the NI 7344 Series high-performance motion controllers. Also, for stages that have power requirements outside the range of NI motor drives, Motor Advisor lists NI-compatible third-party drivers to work with those stages. ▶

*For more information, check Motion Control Brochure on the reply card or visit [ni.com/info](http://ni.com/info) and enter the code newsletter.*



Search for motor and stages for your system at [ni.com/motion](http://ni.com/motion)

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## Customize Your Reports from TestStand with DocFlex

With DocFlex from eModular Solutions, you can generate presentation quality reports



Generate quality reports with DocFlex.

from National Instruments TestStand without advanced TestStand knowledge.

With DocFlex, you can create and save report templates to the Template Gallery. With a built-in TestStand data browser, you can insert data objects directly onto the report template. Both the template and the actual report are Microsoft Word documents that you can import directly into master documents or convert to HTML for publishing on the Internet.

DocFlex for TestStand runs on the Windows platform and requires 32 MB RAM and 100 MB of HD. ▶

To purchase DocFlex or to download a 30-day evaluation version, visit [emodularsolutions.com](http://emodularsolutions.com) or contact Eimear Costigan, eModular Solutions, The Innovation Centre, National Technological Park, Limerick, Ireland, tel +33 492048770, e-mail [Eimear.Costigan@worldonline.fr](mailto:Eimear.Costigan@worldonline.fr)

[ni.com/alliance](http://ni.com/alliance)

## New MicroCraft SCC Modules for High Voltage Applications

MicroCraft Corp., a Select Integrator, introduces three powerful SCC switch modules that extend the functionality of National Instruments SCC platform. Able to provide switching capacity and optical isolation between the computer and the external device, each module is available in a 24 V, 2 amp or 48 V, 8 amp configuration.

You can use the dual-function timer I/O module in either of the timer/counter slots in the NI SCC chassis. In the output mode, these modules can provide pulse width modulated control of DC power in numerous applications.



Switch 48 V and up to 8 amps.

Functioning as an open, single-pole switch, you can use the digital output modules in any of the six SCC digital output slots in

the NI SCC chassis. Other possible applications include electronic power steering, electric braking, and any application that requires switching of approximately 400 W of DC power. ▶

For additional information, contact Shane Trent, MicroCraft, 3209-154 Gresham Lake Rd., Raleigh, NC 27615, tel (919) 872-2272 x33, fax (919) 872-5822, e-mail [sales@microcraftcorp.com](mailto:sales@microcraftcorp.com), Web [microcraftcorp.com](http://microcraftcorp.com)

[ni.com/alliance](http://ni.com/alliance)

## Soliton Automation Introduces New NI-Based System

### GaugeVIEW Automates Gauge Calibration

Soliton Automation, has developed GaugeVIEW, a robust machine vision software that can read any type of gauge. Developed in LabVIEW using IMAQ machine vision technology, GaugeVIEW is used in the automotive industry for the automated calibration of speedometers and the inspection of dashboard instrument clusters. When used with a camera and an image acquisition board such as National Instruments PCI-1407 or PCI-1408, any manufacturer of gauges can use this general-purpose software for automated calibration and inspection application.

GaugeVIEW acquires online images of the gauge using a camera and outputs the gauge reading in appropriate engineering units. With the user-friendly configuration steps in GaugeVIEW, in minutes you can configure the software to read any type of gauge. The algorithms built into the software automatically correct for shifts and rotations in the image during run time. GaugeVIEW correctly processes the image even if the meter is imaged upside-down. You can also adapt the software for in-vehicle recording of instrument cluster gauges.

GaugeVIEW is available as a ready-to-run application or as a toolkit. Soliton also

provides customized solutions to meet specific user requirements. ▶

For more information, contact Soliton Automation Pvt. Ltd., Classic Towers, Trichy Rd., Coimbatore 641018 India, tel +91 (422) 302374, fax +91 (422) 302375, Web [solitonautomation.com](http://solitonautomation.com)

[ni.com/alliance](http://ni.com/alliance)

## Going Beyond the Basics with LabVIEW

National Instruments Customer Education and three Alliance Program members introduce new LabVIEW classes to teach you how to more effectively develop advanced LabVIEW applications.

### LabVIEW Applications Development

Developed by Select Integrator Viewpoint Systems, the LabVIEW Applications Development class takes you through the detailed steps involved in building a complete measurement and automation application from the initial specification and design stages to a complete and deployable application. You can take the LabVIEW Applications Development class if you have completed LabVIEW Basics I and II or LabVIEW Data Acquisition.

### LabVIEW Advanced Application Development

Select Integrator VI Engineering introduces LabVIEW Advanced Application Development, developed under the VISTA paradigm, a class to help experienced

LabVIEW programmers learn how to develop architectures for large applications. Focusing on development enhancement concepts and a variety of programming techniques to support architectures for extensible and maintainable applications, VISTA teaches programming techniques such as object-oriented programming, documentation templates, and state machine concepts and examples. Formerly known as LabVIEW Advanced Programming Techniques, the class assumes you have already taken LabVIEW Basics I and II or LabVIEW Data Acquisition.

### LabVIEW Internet Applications

If you need to develop large Internet applications, the LabVIEW Internet Applications course developed by Alliance Program member Compuware can help you master advanced Web technologies such as CGI scripting, JavaScript, ActiveX, and



Learn how to develop advanced LabVIEW applications with new classes.

HTML. Especially helpful if you plan to run your entire application from the Web, LabVIEW Internet Applications is designed for students who have already completed the LabVIEW Basics sequence. ❧

Visit [ni.com/custed](http://ni.com/custed) to learn more about course offerings in your area.

[ni.com/custed](http://ni.com/custed)

## Four Alliance Program Members Named to Fastest Growing Company List

**Inc. magazine named B&B Technologies, a Select Integrator, number 201 on the magazine's annual list of the 500 fastest-growing private companies in America.** To become eligible for the Inc. 500, B&B

Technologies needed an increase in annual sales from 1999 to 2000. ❧

*For more information, call B&B Technologies sales department at (505) 345-9499, e-mail [sales@bbtechno.com](mailto:sales@bbtechno.com), or Web [bbtechno.com](http://bbtechno.com)*

**The Pittsburgh Business Times named Data Science Automation (DSA), a Select Integrator, number 17 of the 100 fastest growing companies in Pittsburgh.** DSA also ranked as the ninth fastest growing technology

company in Pittsburgh. Now in its fourth year, this year's Pittsburgh 100 Award is a comprehensive ranking by percentage increase in sales and employment over a three-year period, 1997-1999. ❧

*For more information, call Karl Szymanski at (724) 745-8400, e-mail [DSA@DSAautomation.com](mailto:DSA@DSAautomation.com), or Web [DSAautomation.com](http://DSAautomation.com)*

**As published in Forbes Magazine, Deloitte and Touche named Computer Solutions Integrators & Products (CSI&P) of Woodbury, MN number 221 of the 500 fastest growing companies in the United States.** CSI&P also ranked as the seventh fastest growing technology company in Minnesota in the Deloitte and Touche MN Fast 50 awards. ❧

*For more information, call Greg Schaeppi at (952) 926-9940, or e-mail [gschaeppi@computersolutions.com](mailto:gschaeppi@computersolutions.com), or Web [computersolutions.com](http://computersolutions.com)*

**The Greater Rochester Chamber of Commerce named Select Integrator Viewpoint Systems number 73 in the Top 100 companies in Rochester, New York.**

To be considered for the 2000 Rochester Top 100, Viewpoint Systems had to be privately owned and maintain revenue growth over the last three years. ❧

*For more information, call Viewpoint Systems at (716) 475-9555, e-mail [info@ViewpointUSA.com](mailto:info@ViewpointUSA.com), or Web [viewpointusa.com](http://viewpointusa.com)*



## Join NIWeek™ – The Measurement Network August 15-17, 2001

Learn about the latest technologies in networked measurement and automation that help you test products faster, reduce development time, shorten time-to-market, and improve the bottom line at NIWeek 2001. Visit [ni.com/niweek](http://ni.com/niweek) to learn about session tracks, registration, and more.

### Call for Papers

Share your innovative applications of measurement and automation with colleagues around the world. We invite you to submit a paper to the NIWeek 2001 Best Applications of Measurement and Automation Contest. Share your experience with your colleagues and get a discount on your registration fee. All abstracts are due April 16, 2001. Papers are due May 11, 2001. Download an author's packet at [ni.com/niweek](http://ni.com/niweek), send an e-mail to [paper.contest@ni.com](mailto:paper.contest@ni.com), or fax (512) 683-5759. ✈

Learn more about and register for NIWeek 2001 at [ni.com/niweek](http://ni.com/niweek)

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### Look for the National Instruments booth at these upcoming trade shows:

National Manufacturing Week – Chicago, IL	Mar 5-8	Intertronic – Paris, France	Apr 3-6
Pittcon – New Orleans, LA	Mar 5-8	Endiel – Lisbon, Portugal	Apr 3-6
SAE – Detroit, MI	Mar 5-8	MicroEL 2001 – Milan, Italy	Apr 5-7
American Physical – Ghent, Belgium	Mar 15-16	TEQ – Montreal, Canada	Apr 11-12
Telexpo – Sao Paulo, Brazil	Mar 20-23	Hannover Industrie – Hannover, Germany	Apr 23-28
High Technology T&M – Toronto, Canada	Mar 28-29	Computer-expo 2001 – Lausanne, Switzerland	Apr 24-27



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