



NIWeek 2005

WORLDWIDE VIRTUAL INSTRUMENTATION CONFERENCE

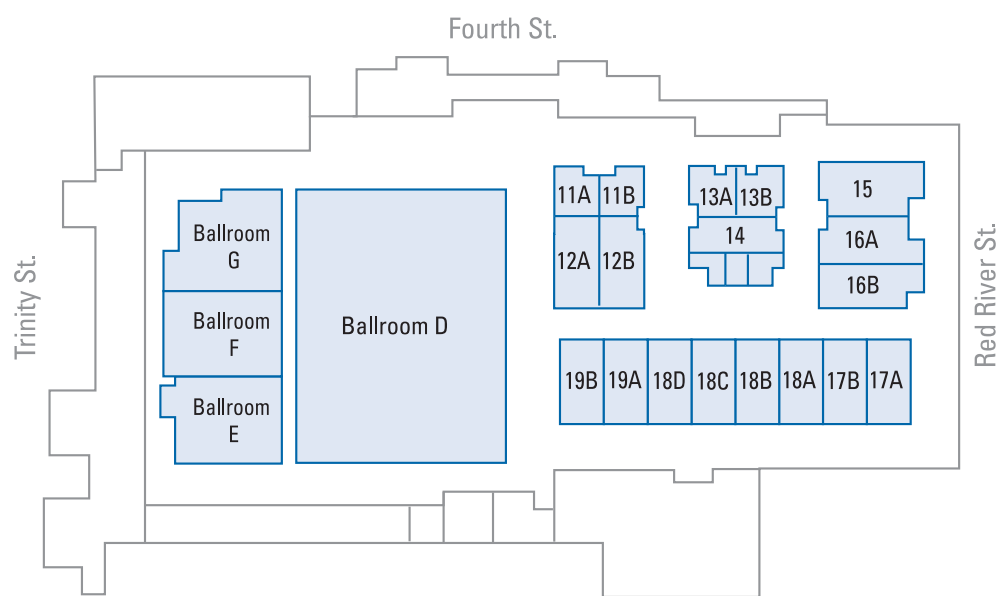
August 16-18, 2005

ni.com/niweek

SESSION SCHEDULE GUIDE



Session Room Map – Level 4 North



NIWeek Evening Events/Shuttle Schedule

Date	Event/Location	Shuttle Times	Route/Stops
Monday, August 15	NI Alliance Day Appreciation Party at Salt Lick 7:00-10:30 (Event Ticket Required)	6:00-11:00 p.m.	Austin Convention Center (ACC) to Salt Lick and Salt Lick to ACC (Continuous Loop)
Tuesday, August 16	NIWeek Annual Expo Party in the Expo Hall 5:00-7:00	N/A	N/A
	Sound and Vibration Summit Mixer at Maggie Mae's 7:00-9:00 (Event Ticket Required)	6:30-7:00 p.m.	ACC to Maggie Mae's
Wednesday, August 17	NIWeek Conference Party at Hula Hut 7:00-10:30 (Event Ticket Required)	6:15-11:15 p.m.	ACC to Hula Hut and Hula Hut to ACC (Continuous Loop)

Summit and Special Session Schedules – Entire session schedule by day on reverse

Sound and Vibration Summit Schedule – Tuesday and Wednesday

Sessions in Yellow Indicate External Presenters.

Tuesday, August 16														
Room	10:30-11:00	11:00-11:30	11:30-11:45	11:45-12:15	12:15-12:45	12:45-1:30	1:30-2:00	2:00-2:30	2:30-2:45	2:45-3:15	3:15-3:45	3:45-4:00	4:00-4:30	4:30-5:00
11	Summit Keynote – New Technologies for Sound and Vibration	Break	Break	Sound and Vibration Measurement Challenges and Validation – Data Validation in Testing: Whose Responsibility is It?	Sound and Vibration Measurement Challenges and Validation – Practical Issues in Portable Acoustic Noise Measurements	Lunch	Acoustic Investigations – Characterization of Aerodynamic and Acoustic Properties of Cooling Fans	Acoustic Investigations – Case Studies: Pushing the Sound and Vibration Envelope	Break	Straight from the Developers – Tips and Techniques for Using the LabVIEW Sound and Vibration Toolkit	Break	Break	Audio and Electroacoustics – Higher-Order Harmonic Signature Analysis for Loudspeaker Defect Detection	Environmental Vibration Monitoring – Vibration Monitoring of Nanoscale Facilities
18B				Hands-On – Jump Start Your Sound and Vibration Application Development										
Wednesday, August 17														
Room	10:30-11:00	11:00-11:30	11:30-11:45	11:45-12:15	12:15-12:45	12:45-1:30	1:30-2:00	2:00-2:30	2:30-2:45	2:45-3:15	3:15-3:45	3:45-4:00	4:00-4:30	4:30-5:00
11	Summit Keynote – Real-World Noise and Vibration Case Studies with MTS	Break	Break	Automotive Noise and Vibration Solutions – In-Vehicle Vibration Analyzer for the Trucking Industry	Automotive Noise and Vibration Solutions – Gabor Order Extraction Techniques for Gear Mesh Quality Evaluation	Lunch	Industrial Vibration – High-Performance Torsional Vibration Testing	Industrial Vibration – The Effects of Tension and Misalignment on Vibration Signature of Belt Drives	Break	Machinery Condition Monitoring – Nuclear Reactor Coolant Pump Vibration Monitoring System	Machinery Condition Monitoring – Vibration Diagnostics and Monitoring	Break	Structural Test Model-Based and Multivariate Vibration Testing with LabVIEW	Hands-On – Jump Start Your Sound and Vibration Application Development
18B				Hands-On – Jump Start Your Sound and Vibration Application Development										

RF and Wireless Communications Summit Schedule – Wednesday

Sessions in Red Indicate External Presenters.

Wednesday, August 17														
Room	10:30-11:00	11:00-11:30	11:30-11:45	11:45-12:15	12:15-12:45	12:45-1:30	1:30-2:00	2:00-2:30	2:30-2:45	2:45-3:15	3:15-3:45	3:45-4:00	4:00-4:30	4:30-5:00
13	Summit Keynote RF and Wireless Summit Plenary	RFID Basics	Break	MIMO and Space-Time Communication for WiMAX	Multiprotocol RF Testing with PXI	Lunch	ZigBee Wireless Technology from A to Z	VLSI Architectures and Testbeds for Multiple Antenna Wireless Systems	Break	Low-Power Design Strategy in Wireless	National Instruments Software Platform for Communications Simulation and Design	Break	The Outlook for Wireless in Measurement and Control	RF and Wireless Summit Closing Plenary
				Hands-On – Jump Start Your Sound and Vibration Application Development										

Embedded Engineering and Control Design Summit Schedule – Tuesday and Wednesday

Sessions in Green Indicate External Presenters.

Tuesday, August 16														
Room	10:30-11:00	11:00-11:30	11:30-11:45	11:45-12:15	12:15-12:45	12:45-1:30	1:30-2:00	2:00-2:30	2:30-2:45	2:45-3:15	3:15-3:45	3:45-4:00	4:00-4:30	4:30-5:00
15	Summit Keynote – Control Design: A Perspective	Using LabVIEW for System Identification, Control Design, and Real-Time Simulation	Break	Automated Measurement-Based Model Generation and Control Design Using ICP for LabVIEW	Beyond PID – Here Comes MFA	Lunch	A Holistic Approach to Control Systems Laboratory Design	Motion Control and Metrology with LabVIEW Real-Time	Break	Designing a Control System for a Highly Dynamic Coupled Stage	Developing Haptics with LabVIEW	Break	Automotive Embedded Systems with National Instruments LabVIEW Real-Time	Self-Organizing Neural Network Estimator in Automotive Applications Using LabVIEW
				Hands-On – Jump Start Your Sound and Vibration Application Development										
Wednesday, August 17														
Room	10:30-11:00	11:00-11:30	11:30-11:45	11:45-12:15	12:15-12:45	12:45-1:30	1:30-2:00	2:00-2:30	2:30-2:45	2:45-3:15	3:15-3:45	3:45-4:00	4:00-4:30	4:30-5:00
15	Summit Keynote by Dr. Truchard – NI Vision for Design	Advanced Appliance Control and Data Acquisition on a PC Using LabVIEW and SIT	Break	Dynamic System Modeling and Control System Design Using Maple and LabVIEW	Test Automation of Embedded Control Systems	Lunch	Using a Suite of NI Tools to Help Develop Next-Generation Hybrid Electric Vehicles	A Workflow for Combining MSC ADAMS and LabVIEW to Design and Test Automotive Controllers	Break	Prototyping and HIL Using LabVIEW, Reconfigurable I/O, and The MathWorks, Inc. Simulink®	Techniques for Discretizing Controllers for Prototyping	Break	Model Predictive Control in LabVIEW	Performance Analysis for Brushless DC Motor Using NI Simulation Toolkits and NI Motion
				Hands-On – Jump Start Your Sound and Vibration Application Development										

Partners in Design Session Schedule – Tuesday and Wednesday

Sessions in Blue Indicate External Presenters.

Tuesday, August 16							
Room	10:30-11:15	11:15-12:00	12:00-12:45	12:45-1:30	1:30-2:15	2:15-3:00	3:00-3:45
16B	Mechanical Design – Integrating Physical Test with Mechanical Design and Simulation	Mechanical Design – Calibrating FEA Models with Physical Testing	Mechanical Design – An Automotive Example of Combining Virtual and Physical Testing throughout the Design Process	Lunch	Mathematics – LabVIEW Math: Graphical Algorithm Development	Mathematics – Combine Calculation and Testing in an Integrated Design Environment	Mathematics – Advanced Mathematical Analysis Using the Maple Professional Math Toolbox for LabVIEW
Wednesday, August 17							
Room	10:30-11:15	11:15-12:00	12:00-12:45	12:45-1:30	1:30-2:15	2:15-3:00	3:00-3:45
16B	Embedded Design – Graphical System Design Dramatically Speeds Embedded Design	Embedded Design – Rapid Prototyping and Measurement for Design of Embedded Systems Using LabVIEW Embedded Technology	Embedded Design – In-Circuit and On-Chip Emulation/Debug Meets LabVIEW: Virtual Instrumentation for Embedded Product Test	Lunch	Electronic Design – Accelerating Part Evaluation and Design Verification	Electronic Design – Closing the Loop on Board-Level Design and Test	Electronic Design – Improving Measurement Productivity in Design Verification

TUESDAY, AUGUST 16

Sessions in Darker Blue Indicate External Presenters.

Keynote 8:30-10:00 a.m. Ballroom D							
Room	10:30-11:30	11:45-12:45	12:45-1:30	1:30-2:30	2:45-3:45	4:00-5:00	
Track: Software Development Techniques							
Ballroom G		LabVIEW Development Tips and Tricks Revealed	Lunch		Refactoring LabVIEW Applications – Techniques for Improving Existing Code	Advanced Techniques for Designing Reusable, Maintainable LabVIEW Code	
12A	Using NI Vision for Quality Inspection	Engineering Information Management		Using Unified Modeling Language Tools to Model Graphical Systems in LabVIEW	Advanced Techniques for Building and Deploying LabVIEW Executables	Creating Flexible, User-Configurable LabVIEW User Interfaces	
12B	Thousands of Distributed I/O Points, Five Industrial Communication Protocols, and Just One LabVIEW			Using LabVIEW within a Software Engineering Process	Software Licensing Trends and Technologies	Technologies for Graphical Configuration of Timing and Triggering in LabVIEW	
13		Mastering NI Certification Exams			Designing Plug-In User Interface Modules in LabVIEW		
14						10 Things I Hate about LabVIEW – A Love Letter to NI	
18D (Hands-On)	Hands-On - LabVIEW 101				Writing Effective High-Speed Vision Applications		
18C (Hands-On)	Hands-On - Developing a Complete Automated Test System from Scratch Using ... Part I (2-Hour Session)	Hands-On - Developing a Complete Automated Test System from Scratch Using ... Part II (2-Hour Session)					
19		Validating Biomedical Functional Tests					
Track: Real-Time Control and Embedded							
Ballroom G				Lunch	Introduction to LabVIEW Embedded Development Module		
13	Microsecond Software Timing and Beyond with the LabVIEW Timed Loop		Strategies for LabVIEW Data Storage and Retrieval				
14			Implementing Digital Protocols Using LabVIEW FPGA				
16A	Introduction to LabVIEW FPGA and Reconfigurable I/O (RIO) Hardware	FPGA Based Control – Millions of Transistors at Your Command	Through 1,131 Eyes – LabVIEW for Industrial Control and PLC Users		Using Graphical System Design Tools (LabVIEW FPGA, Real-Time) for Developing Machine Control Systems	Advanced DAQ Programming with LabVIEW Real-Time	
18A (Hands-On)			Hands-On – Introduction to CompactRIO, LabVIEW Real-Time and FPGA, Part I (2-Hour Session)		Hands-On – Introduction to CompactRIO and LabVIEW Real-Time and FPGA, Part II (2-Hour Session)	On-Wing Aircraft Engine Diagnostic System Using CompactRIO	
18B (Hands-On)		Hands-On – LabVIEW Real-Time	Hands-On – LabVIEW Real-Time		New NI Control Design and Signal Processing Tools that Can Be Used in Academia	Hands-On – Jump-Start Your Sound and Vibration Application Development	
Track: DAQ, Instrumentation, and Analysis							
17A	Introduction to SignalExpress 1.1	Tips and Techniques for Accurate and Reliable Measurements in SignalExpress	Lunch	Accelerate Your CAN Communication Development	Detecting Defects in Complex Images	Overcoming the Challenges of Industrial Machine Vision	
17B	Case Study – Using LabVIEW and TestStand to Build an Automated Calibration Framework	Optimized Lighting – Matching LED Wavelengths to Surface Interactions and Camera Response Characteristics		Fundamentals of Random Numbers and Noise with LabVIEW	Creating Autonomous Custom Instruments with PXI and LabVIEW Real-Time	Going Deep into DAQ Technologies to Develop Control Applications	
18C (Hands-On)					Hands-On – Data Mining Techniques for LabVIEW Users	Hands-On – Data Mining Techniques for LabVIEW Users	
18D (Hands-On)		Hands-On – NI-DAQmx Crash Course				Maximizing System Longevity and Flexibility through Hybrid ATE Systems	
Track: Hot Technologies							
13			Lunch			Using XML and NI TestStand to Dynamically Generate and Execute Test Plans	
19A	An In-Depth Look at USB 2.0	Deterministic Communications Techniques for Distributed Control and Simulation		Paper Contest Finalists – Automotive Applications	Connect to Any Industrial Network, Device, or Actuator with LabVIEW	Paper Contest Finalists – Aerospace/Defense Applications	
19B	.NET Tutorial for LabVIEW Programmers	Open-Source LabVIEW Development through the Web		Introduction to .NET and Measurement Studio – Tools for Test and Control	Analog and Digital Video Applications	Teaching with LabVIEW DSP	
18D (Hands-On)					Hands-On - LabVIEW PDA Module and CompactFlash DAQ		
15	Embedded Engineering and Control Design Summit (See schedule on reverse.)						
11 and 18B	Sound and Vibration Summit (See schedule on reverse.)						
16B	Partners in Design Sessions (See schedule on reverse.)						

WEDNESDAY, AUGUST 17

Keynote 8:30-10:00 a.m. Ballroom D							
Room	10:30-11:30	11:45-12:45	12:45-1:30	1:30-2:30	2:45-3:45	4:00-5:00	
Track: Software Development Techniques							
Ballroom G			Lunch	Designing Multilingual Applications in LabVIEW		Industry Experts Panel	
12A	VIs – The Good, The Bad, and the Ugly	LabVIEW User Interfaces – Beyond the Good, the Bad, and the Ugly		Customize Vision Builder AI with LabVIEW			NI-DAQmx in ANSI C – The Basics
12B				Secrets of the LabVIEW State Machine	Create Your Own Express VIs	Designing Test Systems Featuring Flexible Data Mining and Reporting	
14	Techniques for Collecting and Managing Test Data in a Distributed Network Environment	LabWindows/CVI at 200 MS/s with Modular Instruments		Tools and Techniques for Large Application Project Management and Accurate Estimating in LabVIEW	Managing Multigigabyte-Sized Data in LabVIEW	LabVIEW Component Oriented Design – A Modular Approach to LabVIEW Programming	
16A	The Technology Behind PCI Express – Evolution of the PCI Bus That Delivers Up to 2.5 Gb/s						
18D (Hands-On)	Hands-On – LabVIEW 101				High-Speed Serial Interfacing with LabVIEW FPGA		
19B						NI-DAQmx and .NET – The Basics	
Track: Real-Time Control and Embedded							
12B	Advanced LabVIEW FPGA Programming Techniques		Lunch	The Use of Control Scripts in Message-Based Architecture of LabVIEW Applications	Advanced Communication Protocols for Distributed Systems		
16A		Introduction to Developing Distributed Real-Time Applications with LabVIEW		Behind the Scenes – Rapid Control and Prototyping a Yamaha R6 Motorcycle Engine Controller	PCI Express Applications and Industry Roadmap	FPGA-Based Control – Millions of Transistors at Your Command	
17A		Using Execution Tracing to Improve LabVIEW Real-Time Programming		Hands-On – Intermediate CompactRIO and LabVIEW Real-Time and FPGA, Part I (2-Hour Session)	Hands-On – Intermediate CompactRIO and LabVIEW Real-Time and FPGA, Part II (2-Hour Session)		
18A (Hands-On)							
Track: DAQ, Instrumentation, and Analysis							
16A			Lunch			Improving Machine Vision Accuracy with Optics	
16B						Mixed-Signal Converter Measurement Techniques Using SignalExpress, LabVIEW, and PXI	
17B	Avoiding Radio Frequency Interference in Your Installation	The Value of High-Speed and High-Resolution Measurements for Process Diagnostics and Control		Linux? Yes!	Camera Technologies for Life Sciences and Microscopy	Using NI CompactRIO Technology to Meet Future Automotive Measurement Demands	
18B (Hands-On)	Infrared Thermography in Machine Vision Inspection	Hands-On – Compact Vision System		Driving Down Measurement Times – Optimizing GPIB, Ethernet, and USB in Windows	Hands-On – Compact Vision System	Hands-On – Jump-Start Your Sound and Vibration Application Development	
18C (Hands-On)	Plug-and-Play Pressure Measurements – Featuring USB and IEEE 1451.4 (TEDS)			Hands-On – Data Mining Techniques for LabVIEW Users	Choosing the Right Synchronization Scheme	High-Speed Data Streaming with NI Instruments	
18D (Hands-On)					Hands-On – NI-DAQmx Crash Course		
Track: Hot Technologies							
Ballroom G	Extreme Home Automation – NI Edition	PCI Express and FPGAs Increase Measurement Bandwidth by 65% While Cutting System Design Costs	Lunch		Design a Remote Monitoring System Using ASP.NET and LabVIEW		
12A							
19A	Paper Contest Finalists – Control Applications	Making the Most of LabVIEW on Mac OS X Tiger		Paper Contest Finalists: Biotechnology/Life Science Applications	Taking Advantage of XML Power and Flexibility and ATML Reporting Standardization for Test System Interfacing	Implications of RF/Microwave Switching in Communications Test	
19B	Case Study – Benchmark Electronics Develops Next Generation Functional Tester Based On NI TestStand...	Test Express – Leveraging Express VI Technology for Measurement Applications at Texas Instruments		Embedded Processors and FPGAs as a Target Platform for LabVIEW Embedded	Create Custom Motion Controllers Using LabVIEW and NI SoftMotion Technology		
18D (Hands-On)		Hands-On – LabVIEW PDA Module and CompactFlash DAQ		Hands-On – Using LabVIEW Embedded Technology with Blackfin Processors			
15	Embedded Engineering and Control Design Summit (See schedule on reverse.)						
11 and 18B	Sound and Vibration Summit (See schedule on reverse.)						
13	RF and Wireless Communications Summit (See schedule on reverse.)						
16B	Partners in Design Sessions (See schedule on reverse.)						

THURSDAY, AUGUST 18

Keynote 8:30-10:00 a.m. Ballroom D							
Room	10:30-11:30	11:45-12:45	12:45-1:30	1:30-2:30	2:45-3:45	See You Next Year	
Track: Software Development Techniques							
Ballroom G	Increasing Throughput and Lowering Test Costs – Architecting Test Systems to Handle Concurrent Testing...	Don't Just Do the Math – Use It for Innovation and Profit From It	Lunch				
12A	Lessons Learned during High-Channel-Count Long-Duration Measurement System Design	Machine Vision in the Frequency Domain		Wireless Sensor Network Technologies			
12B	Easy-to-Use USB Instrumentation and Mechanics for Academic Teaching Applications	Reducing the Cost of ATE Development – NI TestStand Custom Step Types					
14	Performing Integer Math and Digital Signal Processing with the LabVIEW FPGA Module	LabVIEW for Embedded Design					
18D (Hands-On)		Creating SignalExpress Plug-Ins with LabVIEW		Advanced ANSI C Debugging Using LabWindows/CVI			
18C (Hands-On)	Hands-On – Developing a Complete LabVIEW Automated Test System from Scratch... Part I (2-Hour Session)	Hands-On – Developing a Complete LabVIEW Automated Test System from Scratch... Part II (2-Hour Session)					
Track: Real-Time Control and Embedded							
11				Lunch	Synchronizing Comm. Between LabVIEW Real-Time and LabVIEW FPGA		
16A	Creating Advanced Diagnostics for Pneumatic Systems by Combining LabVIEW and Festo Hardware	Compact FieldPoint – Closed-Loop Control Basics	PCI Express Applications and Industry Roadmap				
16B	Architecting an Image Acquisition System	Methods for Benchmarking and Optimizing Real-Time Applications	Thinking Inside the Chip – Embedded and FPGA Technologies		Enhance CompactRIO with CAN Connectivity		
18A (Hands-On)	Hands-On – Introduction to CompactRIO with LabVIEW Real-Time and FPGA, Part I (2-Hour Session)	Hands-On – Introduction to CompactRIO with LabVIEW Real-Time and FPGA, Part II (2-Hour Session)	Hands-On – Intermediate CompactRIO with LabVIEW Real-Time and FPGA, Part I (2-Hour Session)		Hands-On – Intermediate CompactRIO with LabVIEW Real-Time and FPGA, Part II (2-Hour Session)		
Track: DAQ, Instrumentation, and Analysis							
11	Isolation – Separating Fact From Fiction		Lunch		Understanding Digital Technologies – LVDS, JTAG & Others		
15	New Calibration and Development Tools for NI CAN Interfaces	Build PC-Based Nondestructive Test Systems Using NI Tools		Designing a Test System to Address the Top Challenges in Automated Test – Flexibility, Reusability, Maintainability	Panel Discussion – Resolving Data Management Challenges in Test and Measurement		
17A	The Power of Combining Boundary-Scan with Functional Testing	Calibrating Your DAQ System		Using Data Acquisition to Optimize Control Loops in Industrial Applications	What's the IQ of Your Sensors? TEDS and Smart Sensor Technologies		
17B	Advanced DAQ System Development Using NI-DAQmx	FightDAQ – Making the Most of Your M Series DAQ Device		FFT Applications – Beyond the Power Spectrum	Transient and Short-Time Signal Analysis Techniques		
18B (Hands-On)				New Tools for Developing Certified LabVIEW Instrument Drivers and Effective Testing Techniques			
Track: Hot Technologies							
11		Choosing the Right Relay for Each Application	Lunch				
13	PXI Platform for Test, Control, and Design Applications			Advanced Matching with NI Vision Tools			
19A	Paper Contest Finalists – Manufacturing/Functional Test Applications	Paper Contest Finalists – Communications/Signal Processing Applications		Paper Contest Finalists – R&D/Lab Automation Applications			
19B		LabVIEW in the Design Cycle – From Model to Chip		Implementing a Bus-Based Architecture for Interfacing Heterogeneous Software and Hardware Systems			
18D (Hands-On)	Hands-On – Using LabVIEW Embedded Technology with Blackfin Processors						