





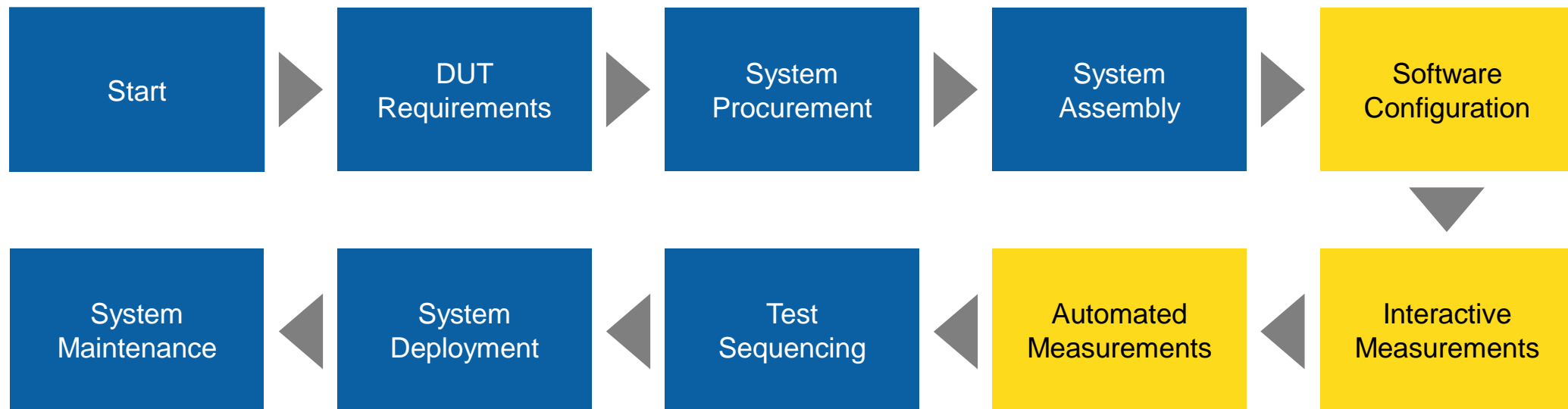
7 Essential Features of LabVIEW NXG 2.0

To Accelerate Automated Test System Development and Deployment

Andrea Nobile

National Instruments Italy
Automated Test System Engineer
andrea.nobile@ni.com

Building an Automated Test System Workflow



Roadmap

LabVIEW
NXG 2.0

NIWeek
2018

NIWeek
2019

User Interfaces

- Use and customize new controls

Custom Algorithm Design

- Abstract LabVIEW FPGA code with object-oriented programming

Manage Data

- Import and export from the data pane using DataPlugins
- Perform asynchronous writes to TDMS functionality

Interoperability

- Use additional file formats and transfer protocols

Software Engineering

- Debug LabVIEW-built binaries
- Profile desktop execution performance

Systems Management

- Deploy and control distributed systems using SystemDesigner and SystemLink

Web Technology

- Create complex, cross platform dashboard that adapt to desktops and mobile devices

Distributed Applications

- Implement deterministic applications with broad-based LabVIEW Real-Time support

Custom Algorithm Design

- Deploy LabVIEW FPGA code for embedded systems

Hardware Support

- Deploy to most embedded systems targets, including CompactRIO

Web Technology

- Customize dashboards with 3rd party widget import

Custom Algorithm Design

- Design custom filters and control algorithms
- Deploy LabVIEW FPGA code for test systems

Interoperability

- Call external code (DLL and .NET)
- ActiveX Automation

Data Management

- Capture and view nonstandard data types
- Export project data in batches
- Launch DAdem from data pane

Systems Management

- Track system configuration history
- Monitor calibration status
- Provide calibration reporting

Web Technology

- Connect data sources and dashboards across platforms using data binding

Hardware Support

- Deploy to most FlexRIO models

User Interfaces

- Manipulate front panels programmatically
- Configure and manage VIs to execute outside the editor
- Use new controls

Custom Algorithm Design

- Design custom machine vision algorithms

Distributed Applications

- Build and distribute EXEs, libraries, and installers

Interoperability

- Integrate LabVIEW NXG code with TestStand
- Call external DLLs

Data Management

- Publish tags and messages using simplified data communication VIs

Software Engineering

- Execute and control VIs dynamically
- Abstract code with object-oriented programming
- Compare VI source code with Diff Tool
- Use more event-driven programming options

Systems Management

- Connect, configure, and document hardware graphically with SystemDesigner
- Design hardware systems offline from a catalog of NI hardware

Web Technology

- Create simple browser-based HMIs using WebVIs for system configuration and operator interfaces
- Utilize Data Service APIs for Device to HMI communication

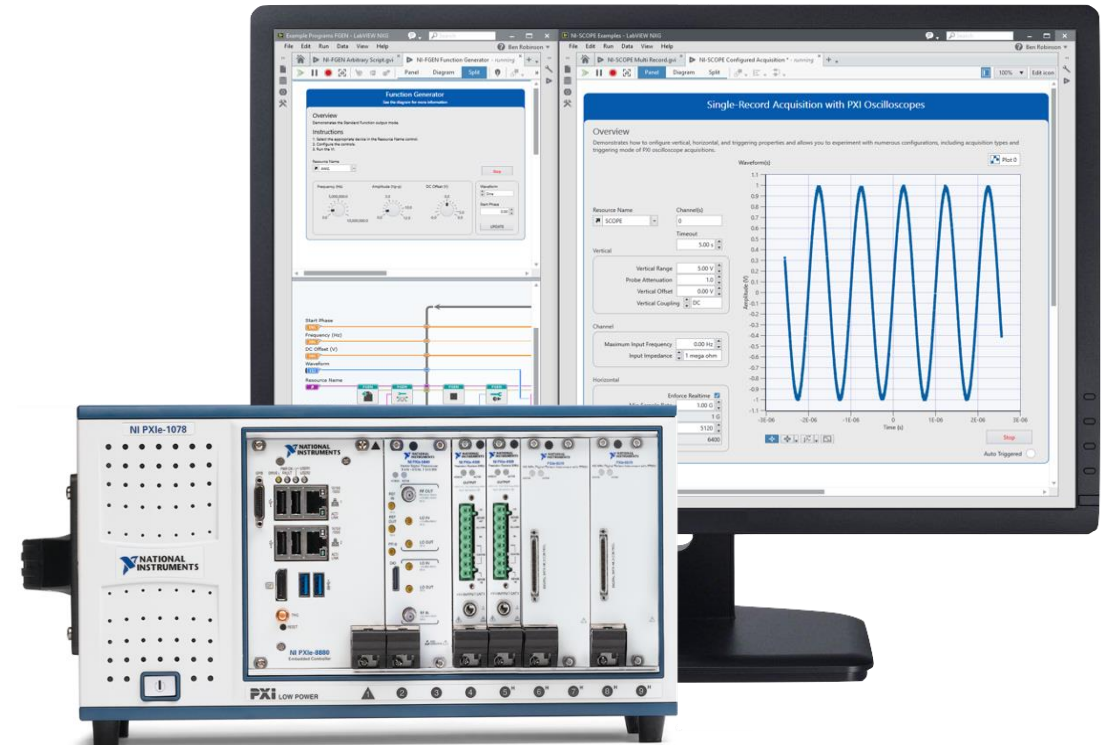
Hardware Support

- Control additional benchtop instruments
- Use additional electronic test and RF instrumentation
- Integrate machine vision hardware

LabVIEWTM NXG 2.0

Experience the next generation of configuring and automating measurements

1. Discover and Document Instrumentation
2. Start from Guided, Instrument-Specific Examples
3. Reuse Tests and Functions
4. Design User Interfaces
5. Explore Engineering Data
6. Build Scalable Libraries and Deployments
7. View Results from Anywhere



1. Discover and Document Instrumentation

Option to view as diagram (shown) or list

Live view for automatic discovery of hardware connected to system controller

Design view for offline or simulated system documentation and configuration

Launch soft front panel for interactive measurements

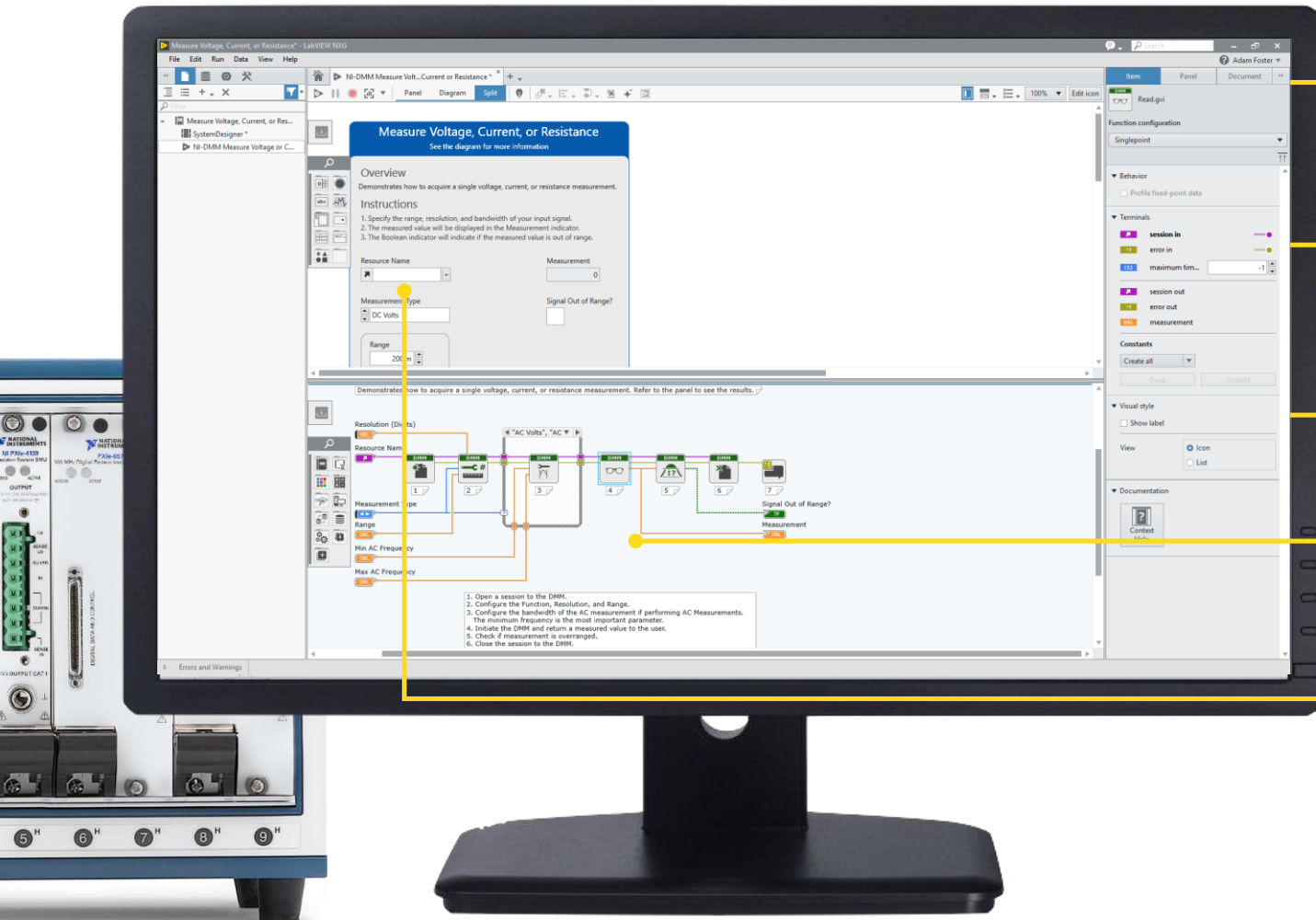
View installed drivers and direct link to available drivers if not installed on system controller

Link to specifications and pinouts

Calibrate instrument and view calibration information

Annotate with labels, wires, images, and shapes

2. Start from Guided, Instrument-Specific Examples



Dedicated learning portal for tutorials and example programs

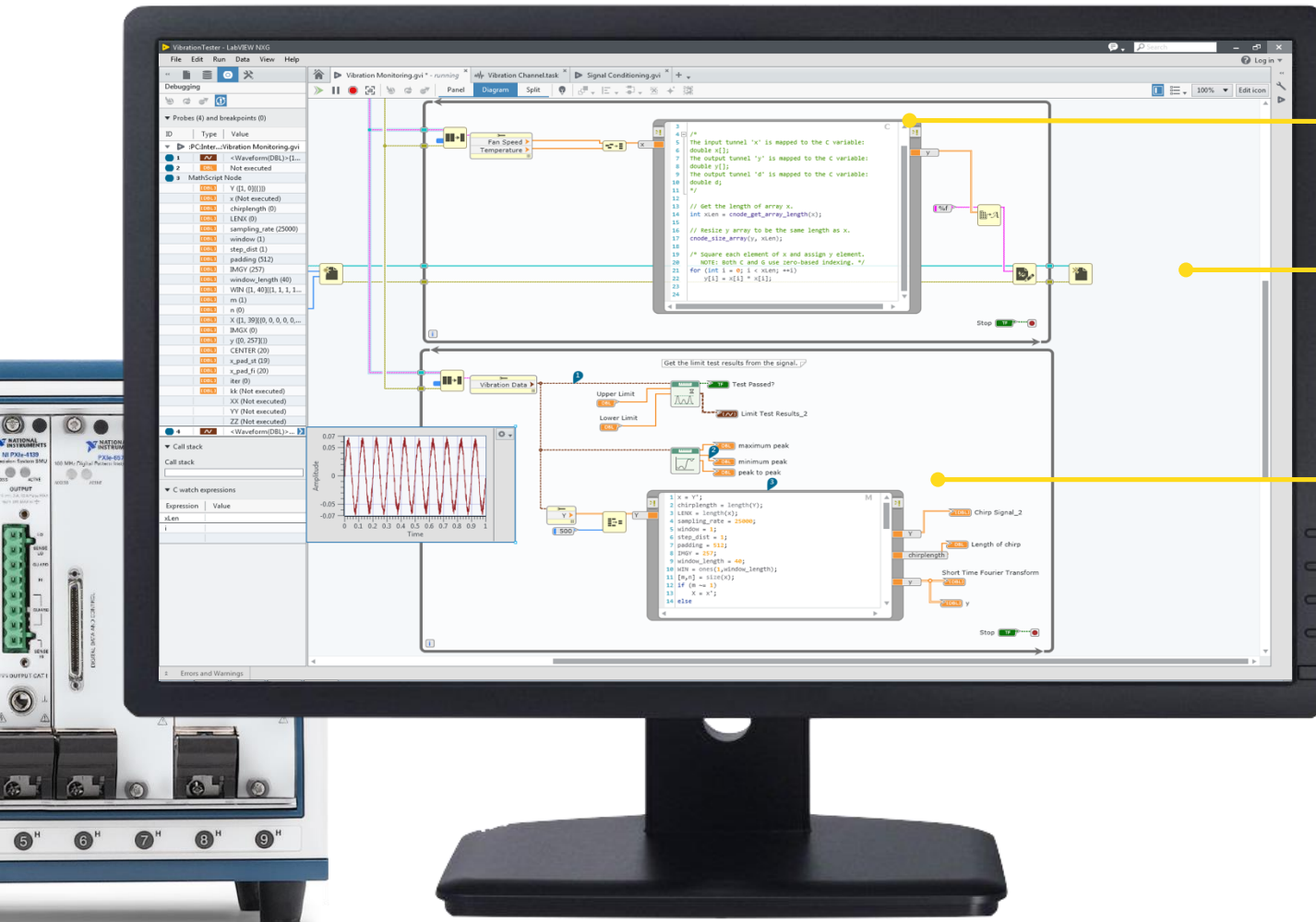
Browse to specific example programs by task or by instrument type

Each example focuses on specific measurement type or function

Complete, well documented diagram

Clean, elegant user interface

3. Reuse Tests and Functions

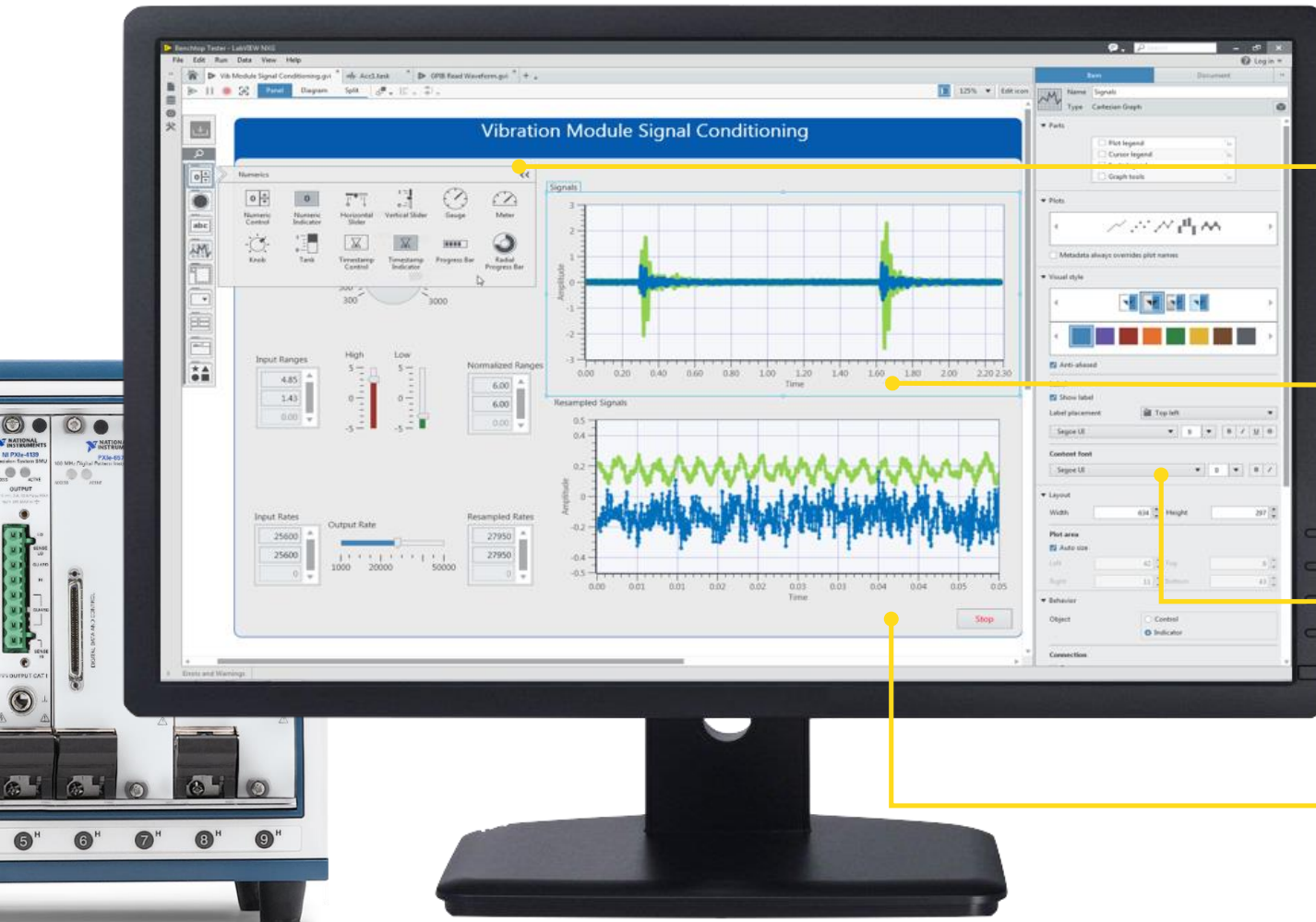


Reuse functions written in the C programming language with C Node

- Call Dynamic Link Libraries (DLLs)

- Reuse functions written in MathScript programming language with MathScript node

4. Design User Interfaces



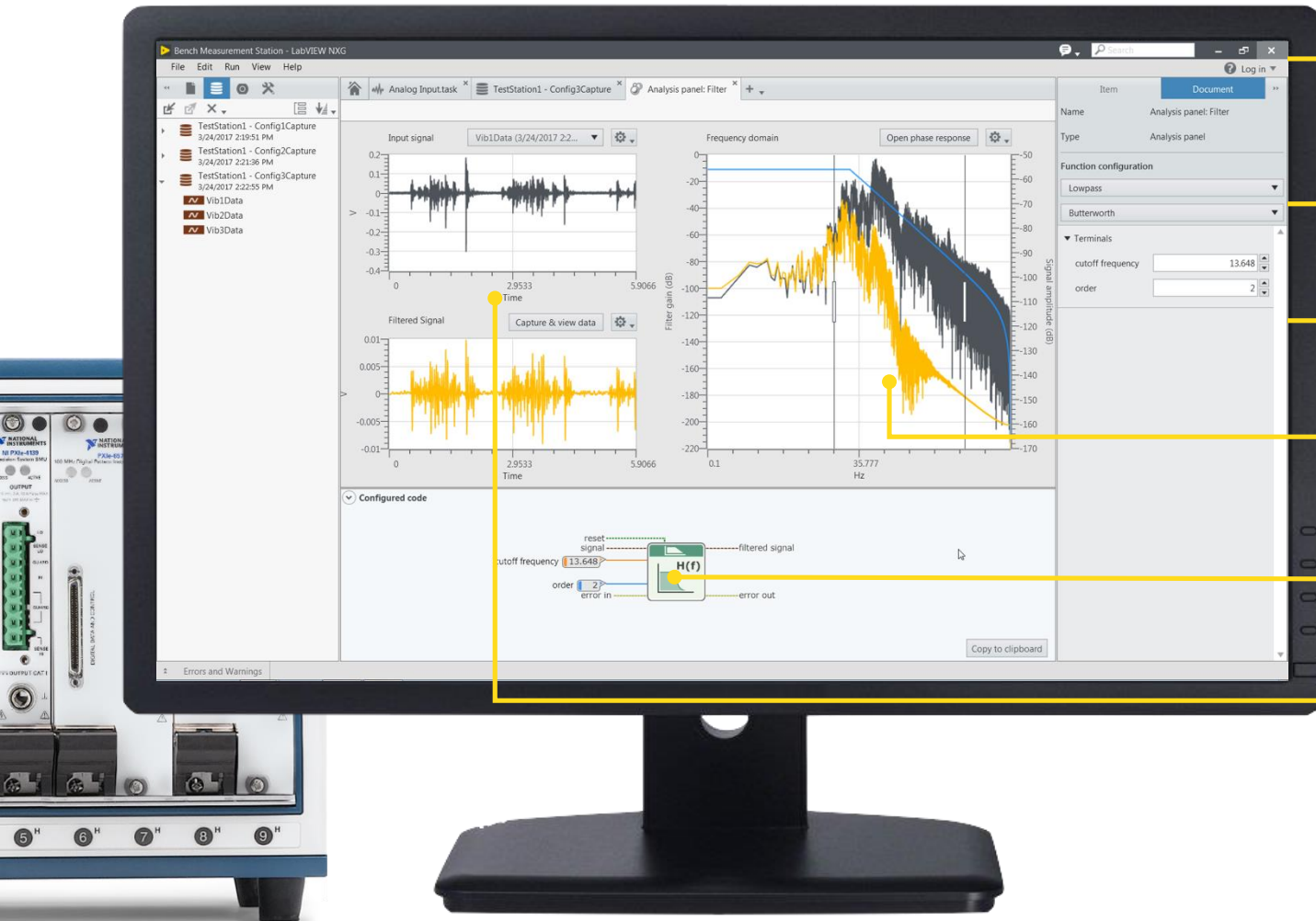
Drag and drop from hundreds of engineering-specific user interface objects

Dynamic guides, snap to grid, distribute, reorder, and alignment

Modify visual style: theme, font, size, colors, labels, and more

Containers and decorations for organization and instructions

5. Explore Engineering Data



Right-click to capture and save data to project files and then open in data viewer

Zoom and pan to focus on particular areas of interest for a signal

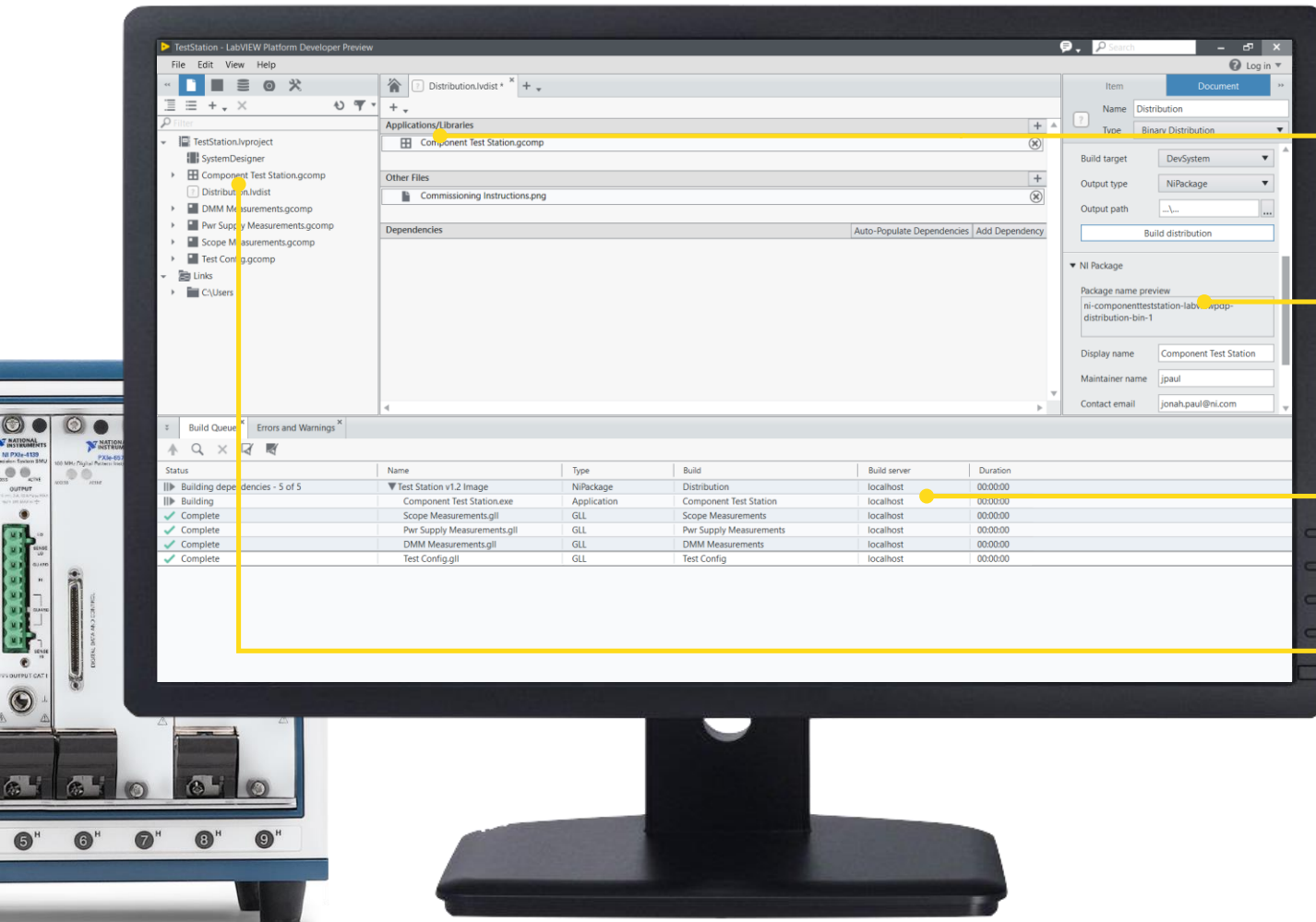
Apply various signal processing algorithms

Real-time editing of analysis parameters

Dynamically created analysis VI for in-line signal processing on LabVIEW NXG diagram

Original and filtered signals

6. Build Scalable Libraries and System Deployments



Remove editable source code to protect intellectual property and prevent changes

Efficiently build and share modular applications and libraries to simplify application management

Build and deploy web client applications

Create stand-alone applications and libraries for distribution and deployment

7. View Results from Anywhere



Intuitively develop (just like authoring a VI) Web-Based HMIs that can run in any Web Browser without plugins, downloads or installs

Create Desktop and Mobile UIs for configuration, control and monitoring of remote Test systems

Extend HMIs/UIs with HTML content (PDFs, videos) for documentation.

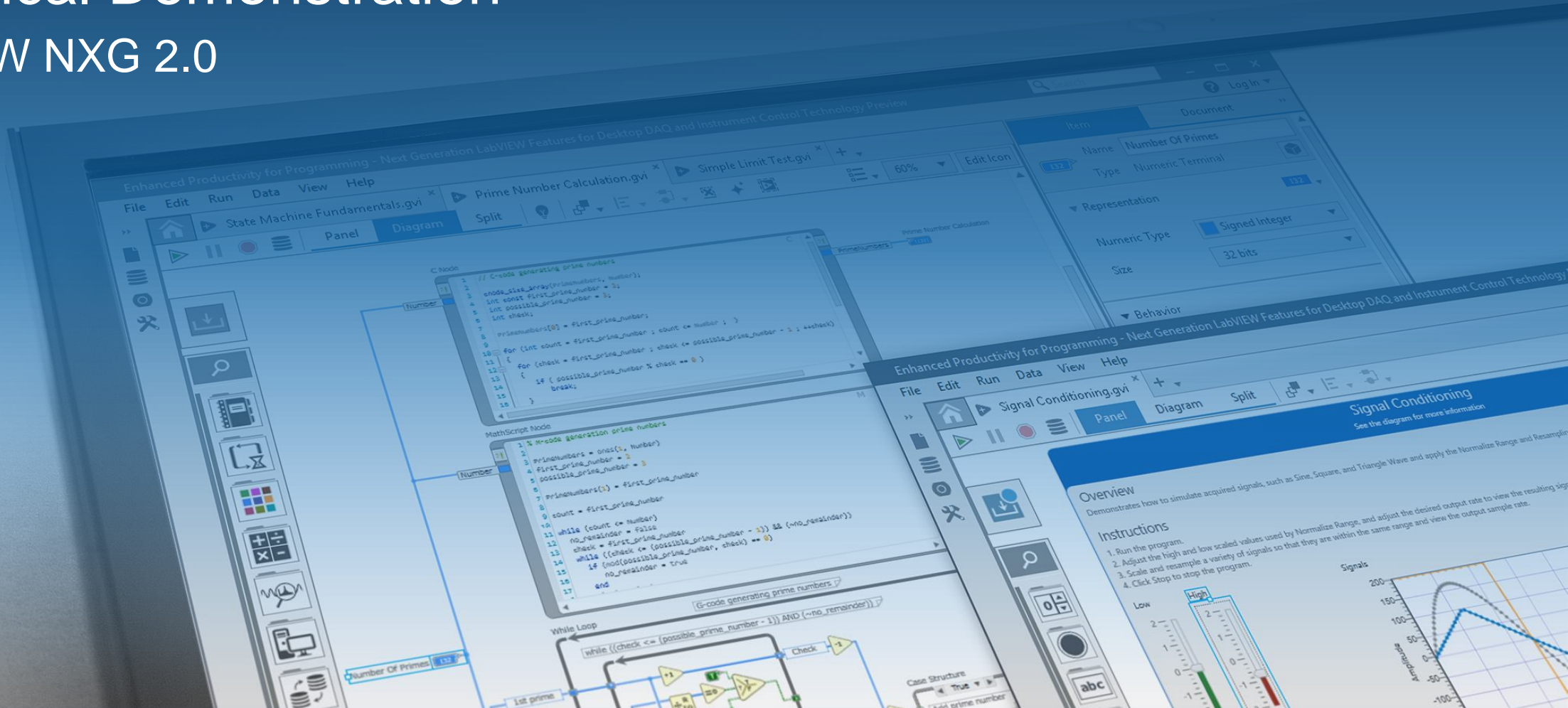
Aggregate and present test results, parameters, measurement data with powerful data visualizations (Data Grids, Charts, support for large data sets, high precision data etc.)

Seamlessly integrate with SystemLink to provide secure, managed remote access to multiple Test/Measurement systems

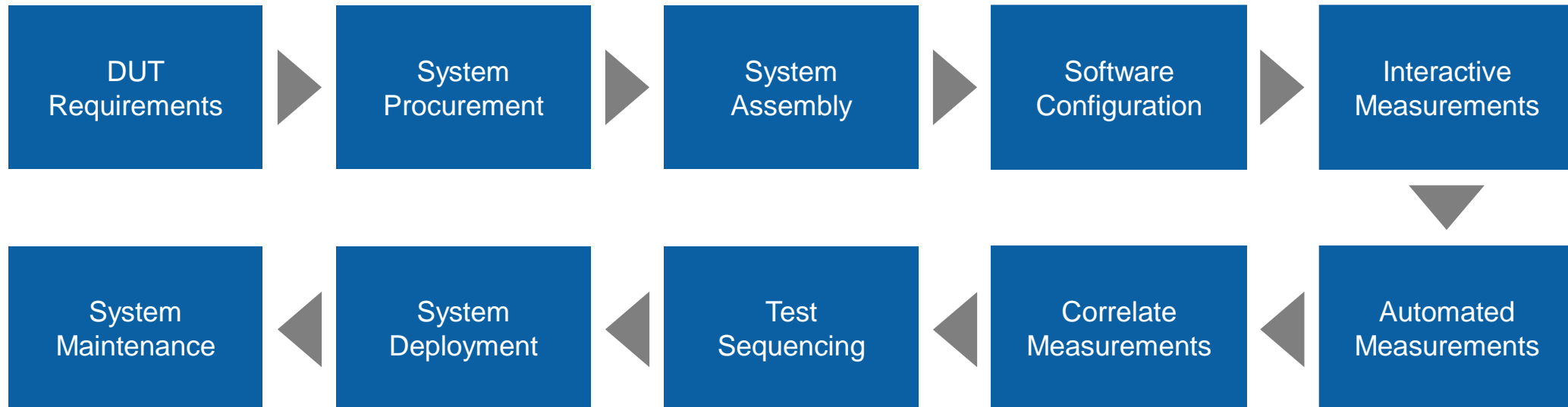
Create engineering views that can be embedded into professionally-made, customer/stakeholder facing dashboards

Technical Demonstration

LabVIEW NXG 2.0

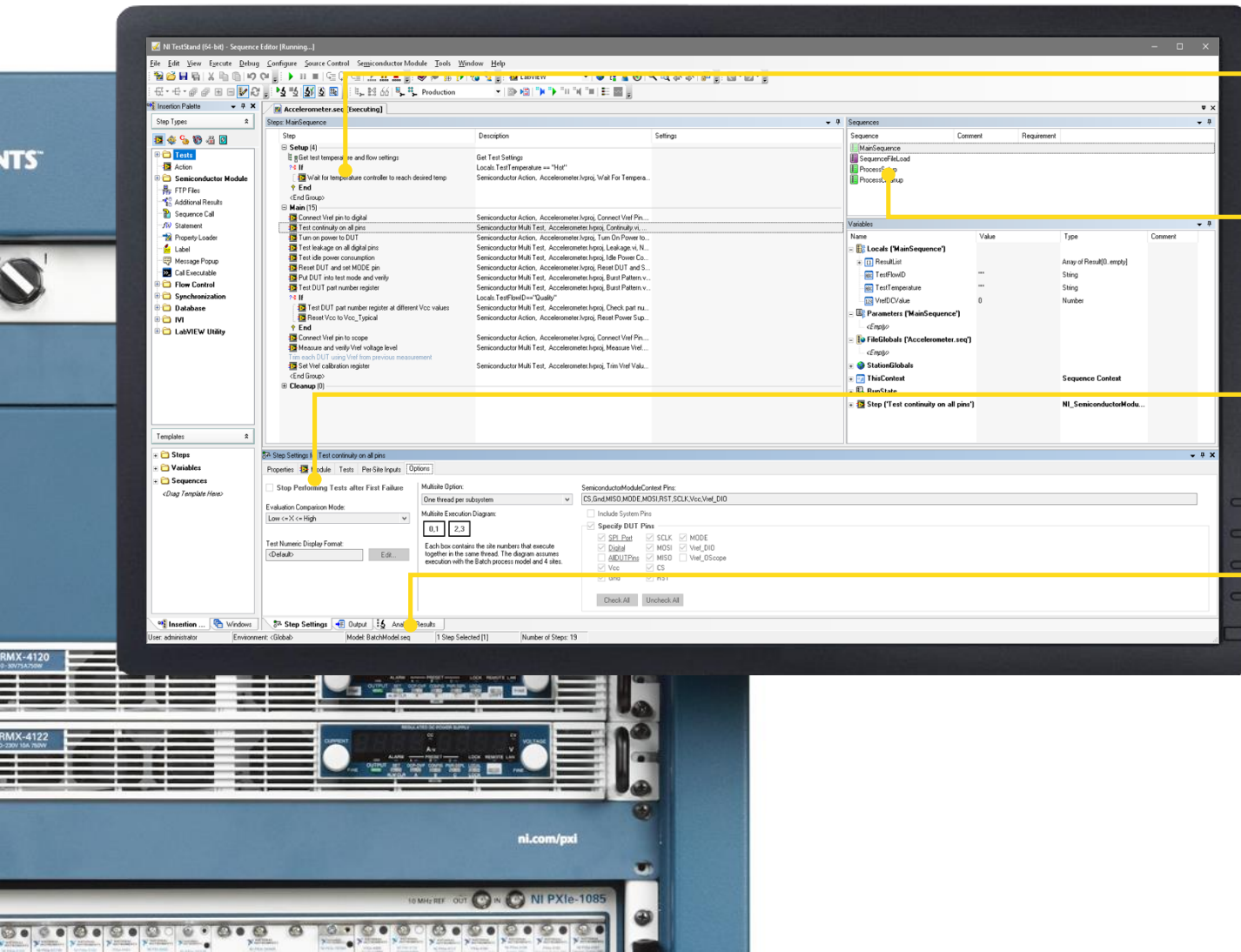


Trusted Advisor for Building Automated Test Systems



TestStand

Industry-Standard Test Management Software



Create test sequences that automate the execution of code modules written in any programming language

Reduce test time with parallel test and dynamic resource management

Each code module executes a test on the device under test and returns measurement information to TestStand

Log test result information in a report or database automatically

SystemLink

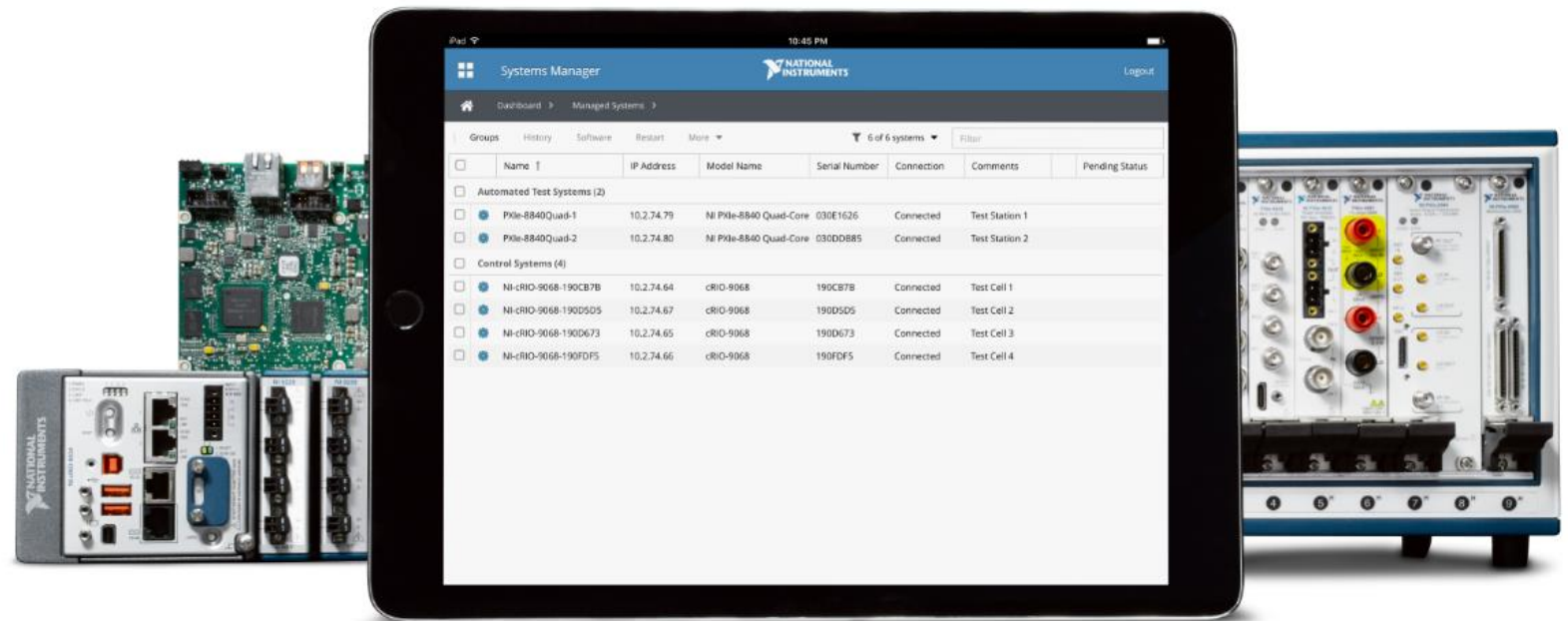
Systems Management Software

Features at a glance

- Device Management—track connection state, system settings, calibration data, and system diagnostics
- Software Deployment—mass deploy software with component-level updates, dependency awareness, and version history
- Data Services—use LabVIEW APIs to automate data communications from remote hardware to a central database

Application areas

- Automated Device Validation
- Physical Systems Test
- Semiconductor Device Test
- HIL Testing
- Embedded Control
- Monitoring





▶ LabVIEW™ NXG

DOWNLOAD TODAY
ni.com/techpreview

Desideri essere ricontattato dal personale NI?
Compila la contact card e inseriscila in una delle apposite teche oppure consegnala al personale presente in reception.

Please add your name, check your request and give it to the event staff:

Company: Full Name:

Mobile Phone: Email:

Need a call, visit, quote or solution?

☐ Call ☐ Visit ☐ Quote ☐ Solution

Notes: Please leave your comments or specific requirements here, thanks!

If filled out by the customer: I have been informed about and I agree to the processing (including transfer to the US) of my data by National Instruments for the purposes and under the circumstances detailed in NI's Privacy Statement (that I consulted or the content of which I was informed about). I understand that upon submitting my data I will receive periodic emails about products, events and trainings and that I can change my e-mail settings at ni.com/myni at any time.

©2017 National Instruments. All rights reserved. National Instruments, NI, ni.com, and NIDays are trademarks of National Instruments.
Other product and company names listed are trademarks or trade names of their respective companies. 29279



Stay Connected During and After NIDays



ni.com/niweekcommunity



facebook.com/NationalInstruments



twitter.com/niglobal



youtube.com/nationalinstruments

