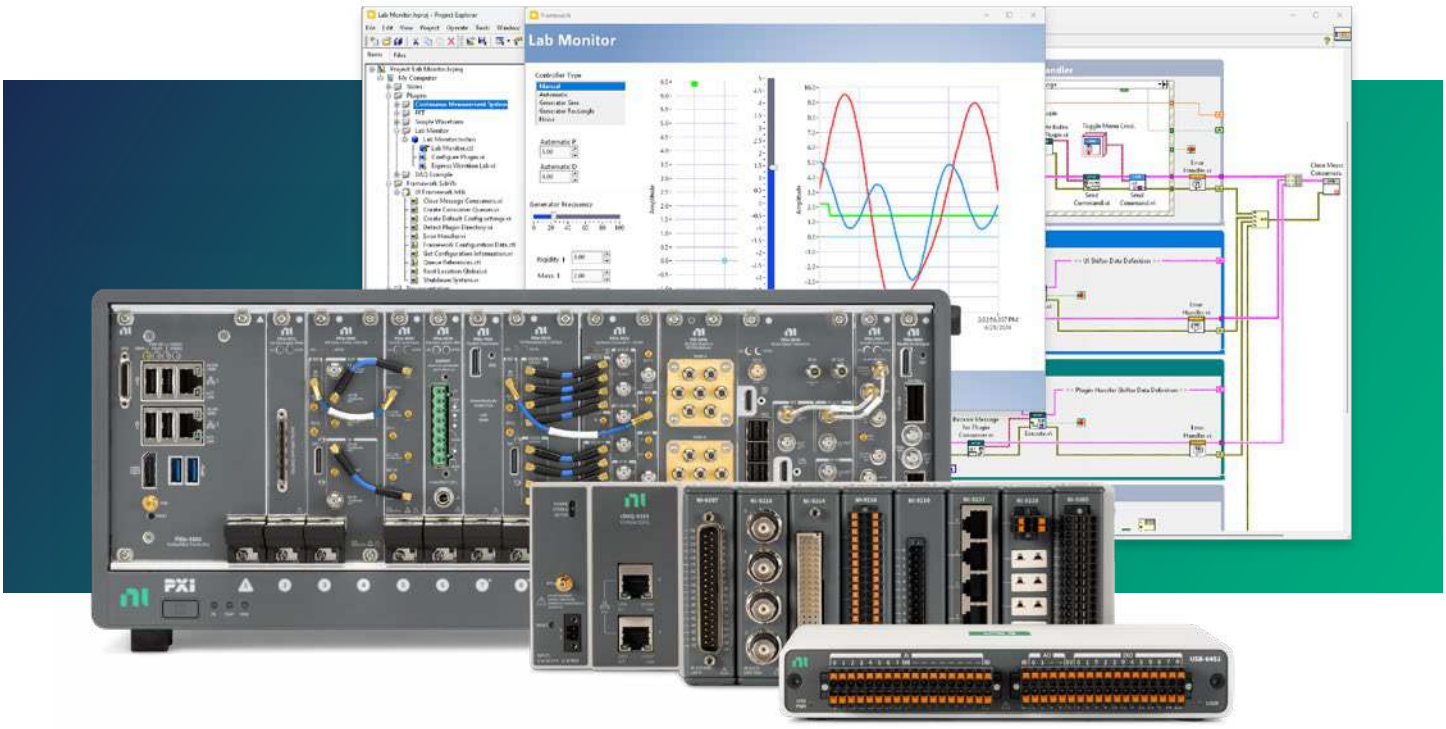
EMERSON

NI Product Catalog



October 2026

dataTec

Mess- und Prüftechnik. Die Experten.

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dataTec AG
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Authorized Distributor

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What Makes NI Different for Test and Measurement

At our core, we're passionate about test technology and improving product performance. We know your research or latest product design will move markets and improve the world we live in. We're here to help you.

We Are Software-Obsessed

NI products are designed for software. From simple USB devices to advanced RF testbeds, engineers working with NI systems see software as a defining element of test.

Our Hardware Is Modular

You may be used to purpose-built boxed instruments; when you need a new measurement or more channels, you buy a whole new box. With NI hardware, you change or add measurements by adding new modules. Just like you upgrade your PC with a new graphics card, you can upgrade your NI test system with a new oscilloscope module.

The NI Ecosystem Is Open

Test engineers benefit most when they combine NI software with NI hardware, but NI hardware works with other (non-LabVIEW) popular programming languages and NI software connects to non-NI hardware. Choose the tools that work for you.

Why NI for Test

Every company says they save you time and money. Here are the challenges NI solves to do it.



Flexibility

Changing designs, market needs, and supply chains challenge product development. Use NI tools to adapt and stay on schedule.



Standardization

Don't spend time and money repeating work. Lower your cost of test by sharing code libraries and hardware architectures amongst all of your test teams.



Quality

NI is known for data throughput, acquisition rates, synchronization, and measurement quality. Better products need better test.



Productivity

You are a critical part of test. NI improves your productivity, so you focus more on what matters to you, your team, and your business.

Find NI Anywhere There Is Test

NI works with more than 40,000 customers each year to deliver the test and measurement technology engineers use to create better products, on time, while driving down the cost of test. Find NI anywhere there is test, including:

Quick desktop measurements to test design assumptions



Mechanical and sensor-based tests to validate specifications



Automated software (HIL) test racks to cover the whole test envelope in less time



Manufacturing test systems to improve test quality and throughput



Industries Served

- Semiconductor
- Electronics (consumer and industrial)
- Electrical components (motors, switches)
- White goods and appliances
- Automotive
- Aerospace
- Military and defense
- Life sciences
- Academic (teaching and research)
- Heavy equipment, industrial, and off-highway
- Commercial and government research labs
- Energy: Smart grid
- Energy: Renewables research
- Energy: O&G mid/downstream and well-servicing

Companies and Engineers Seeing Success with NI Today

Qorvo

2x

test throughout and prepared for 5G

Hyundai

83%

lower development time for new test systems per variant

Honeywell

40%

reduction in cost of each test station

Philips

$2M+

reduction in OpEx per project

Philips Rethinks Functional Test, Shortening Time to Market

"The move to a COTS approach using PXI and LabVIEW was critical to this production-test success at Philips. The combination of best-in-class modular hardware along with industry-standard software was pivotal to millions of dollars and hundreds of hours saved in production test engineering."

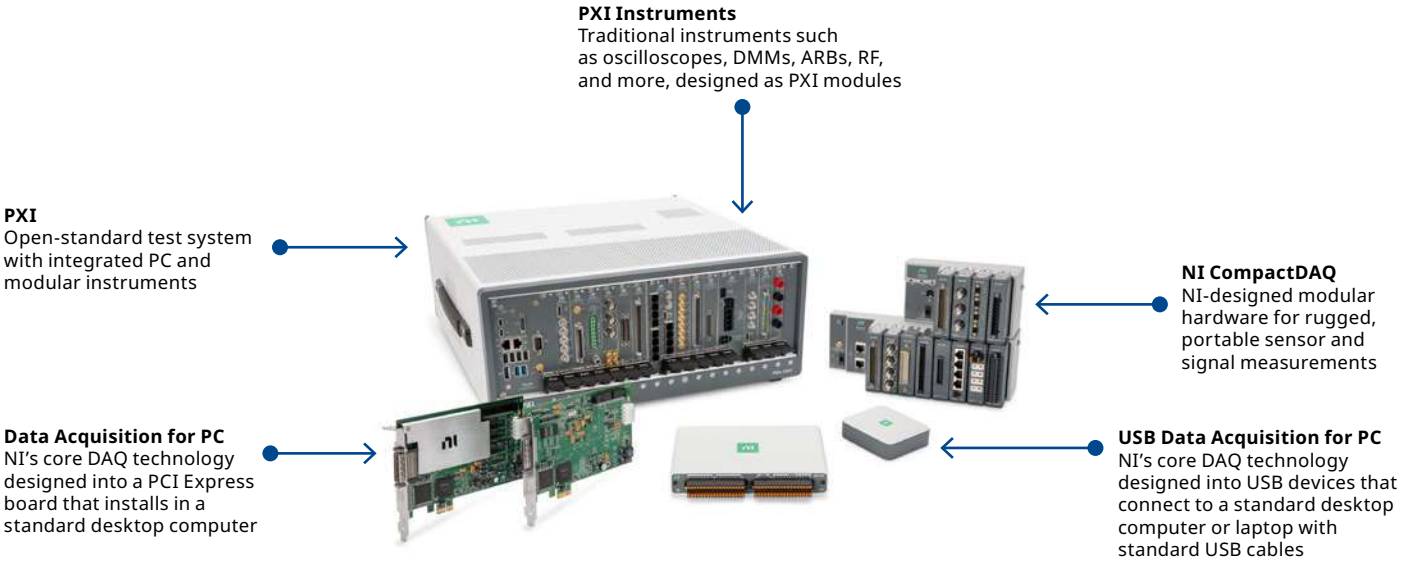
Neil Evans
Senior Manager, Philips

Productivity Boost in Postsilicon Validation

"It was never easier to configure the PXI instruments and run automated measurement without much coding in a few minutes of setup time. I believe the powerful combination between InstrumentStudio™ software and TestStand with the sweep loop is an incredible feature that (will) boost our productivity for debugging activities in postsilicon validation."

Wolfgang Rominger
NXP

NI Hardware Is Modular



Mix and match NI's modular hardware with a PC to build a custom test and measurement solution for the desktop, lab bench, or production floor.

NI Software



Our comprehensive software portfolio scales from the instrument to the enterprise, allowing us to serve a complete range of needs, from performing a simple measurement to managing test systems across the globe.

Why Choose NI Software?

Test and measurement applications are different. While general-purpose tools are great, they aren't built for test and measurement engineers, like NI software is. At NI, we recognize that the needs of test and measurement applications are unique because they must measure and interact with the real world. This presents challenges that a developer in other application areas will never encounter. Using an NI solution, you can:

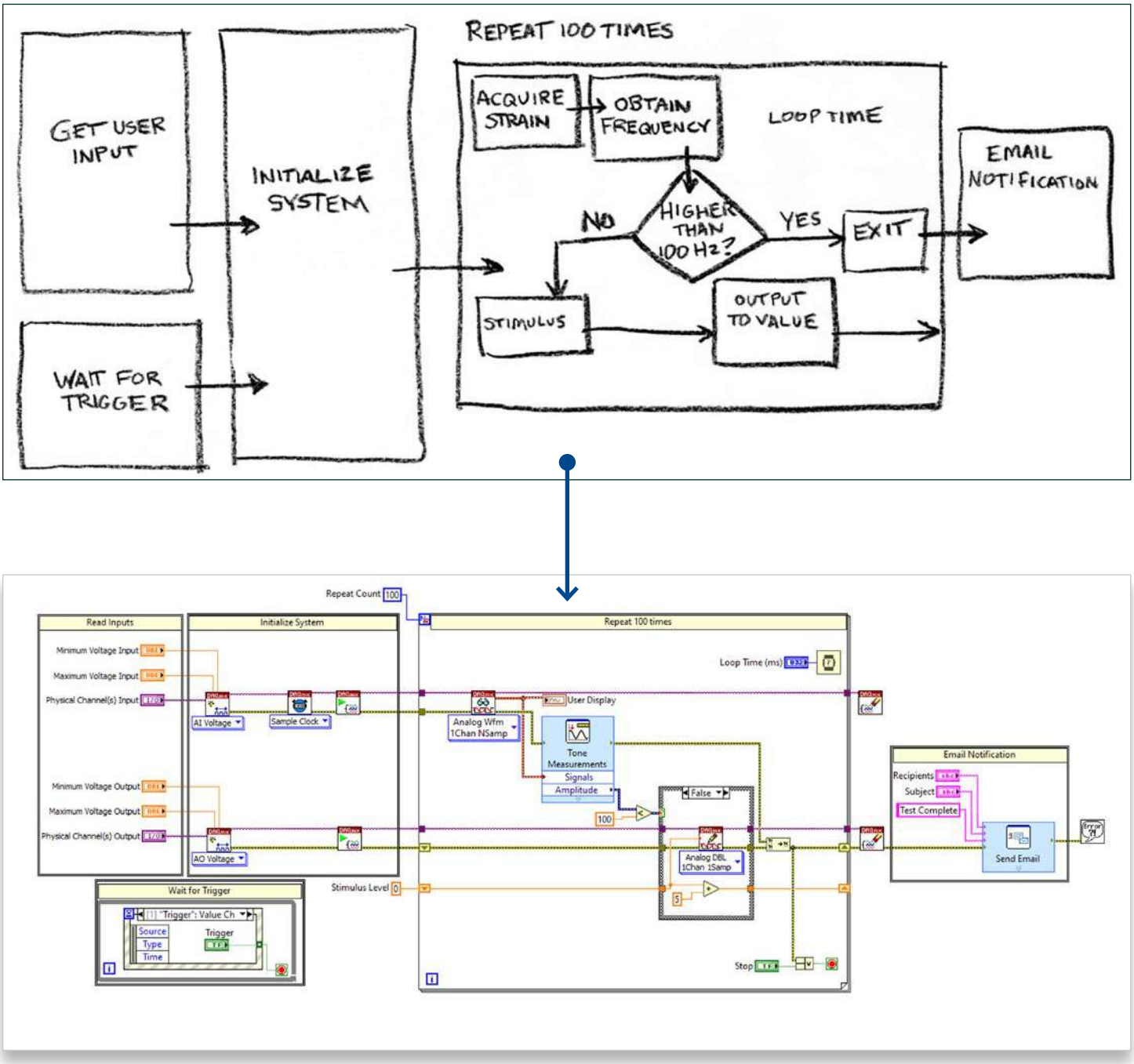
- **Work with Speed and Efficiency**—With a tightly connected toolchain of specialized tools, you can work in the most productive environment for any given task, with minimal time lost when switching between them.
- **Engineer with Confidence in an Evolving World**—You need software that harnesses the latest commercial technologies such as AI, GPUs, and IT security standards in a way that allows you to leverage them without distraction.
- **Work as Part of a Community**—Gain insight from an active, global test-and-measurement-specific community with forums, user groups, and events.

Why Choose LabVIEW for Test

In 1986, we released LabVIEW, and have been the leaders in automated test since. From performing a simple voltage measurement to advancing space missions, LabVIEW has been engineers' tool of choice. Let's take a look at why engineers choose LabVIEW:

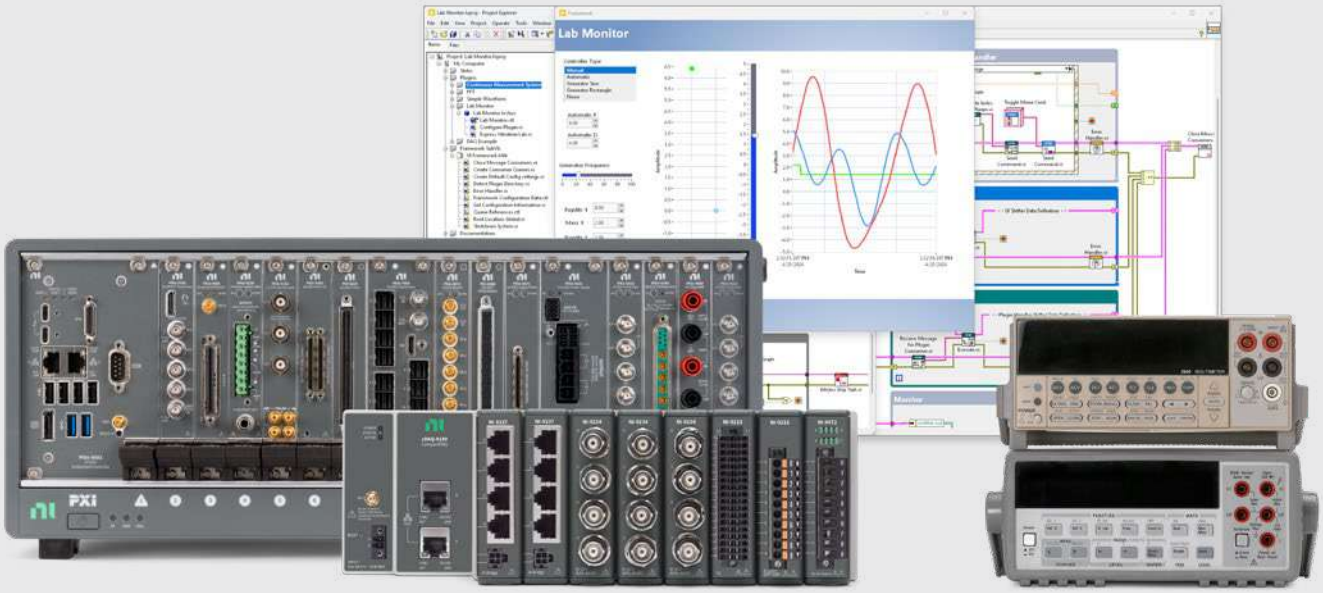
Program Like You Think

Graphical data flow in LabVIEW (bottom) is like flowchart logic (top) and considered easier by many to interpret and debug.



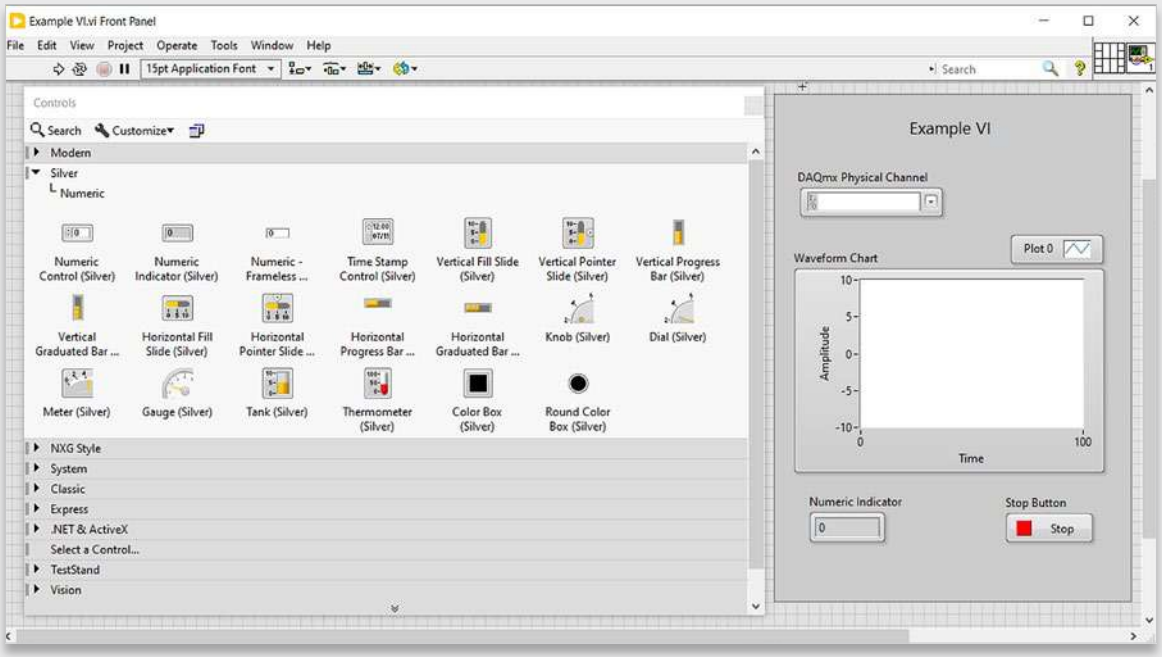
LabVIEW Connects to Everything in Your Test System

Get unparalleled instrument connectivity with LabVIEW—automate NI and non-NI hardware. Any device is accessible and programmable with thousands of available instrument drivers.



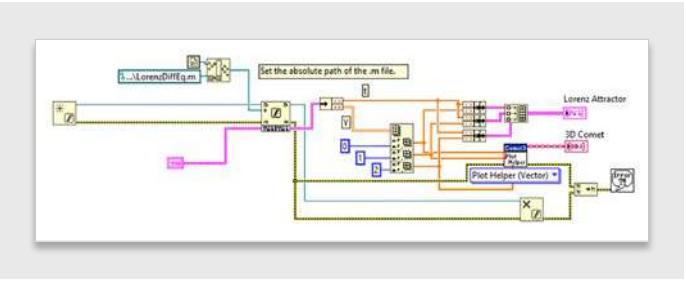
Build a Custom User Interface in Minutes

Use drag-and-drop UI elements to build a custom professional test panel. The UI elements in LabVIEW are designed specifically for engineers building test and measurement systems.

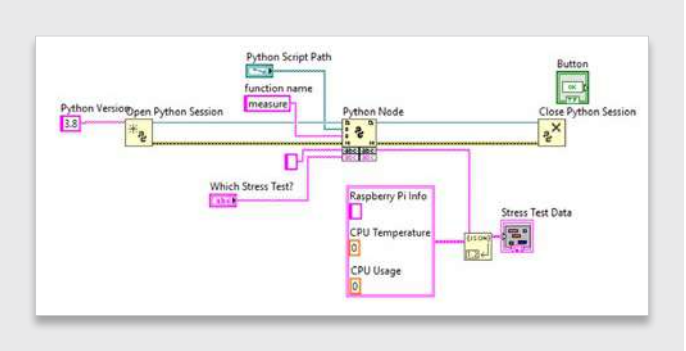


Integrate Code from Other Programming Languages

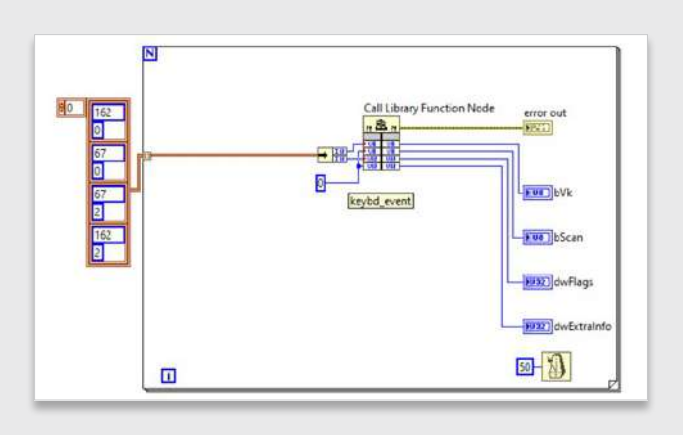
Add new algorithms and data analysis routines and connect to other systems with code written in Python, C, and .NET. Language flexibility and integration save time.



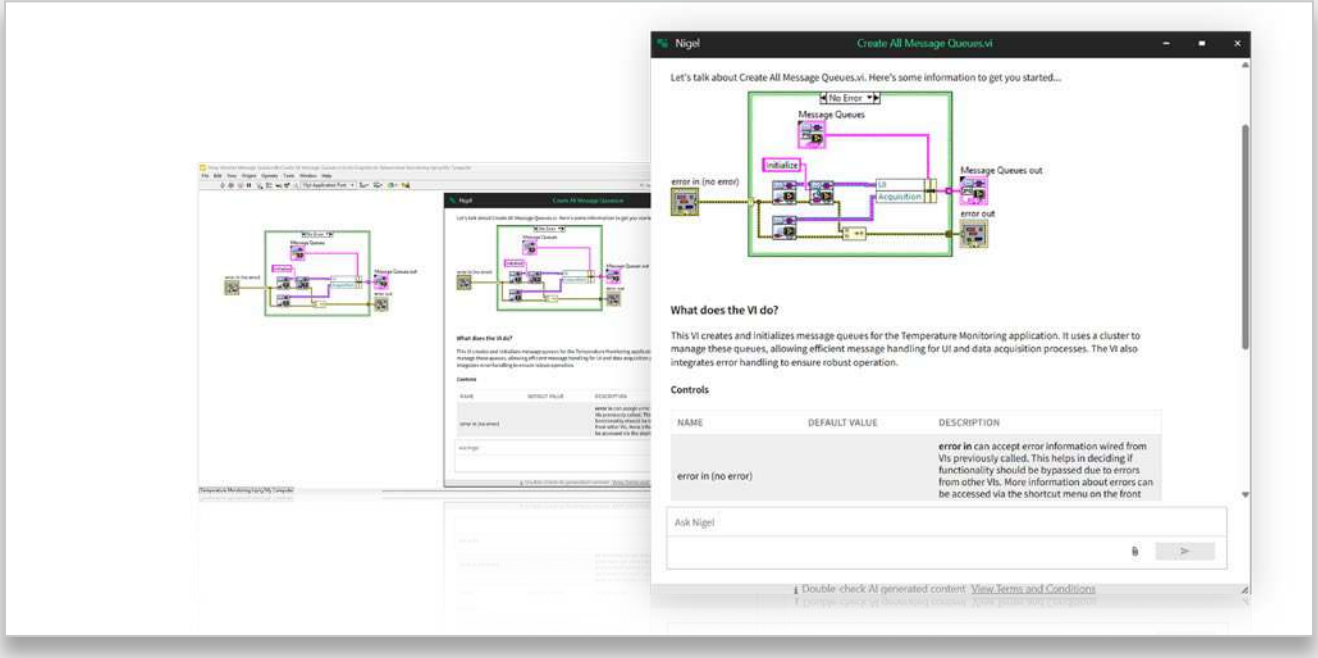
MATLAB® Software



Python



C/C++, C#



NI Nigel™ AI

Your Trusted Test and Measurement Companion

Nigel is unlike any other AI. It's specifically built for test and measurement applications with advanced test expertise and integration into NI software.

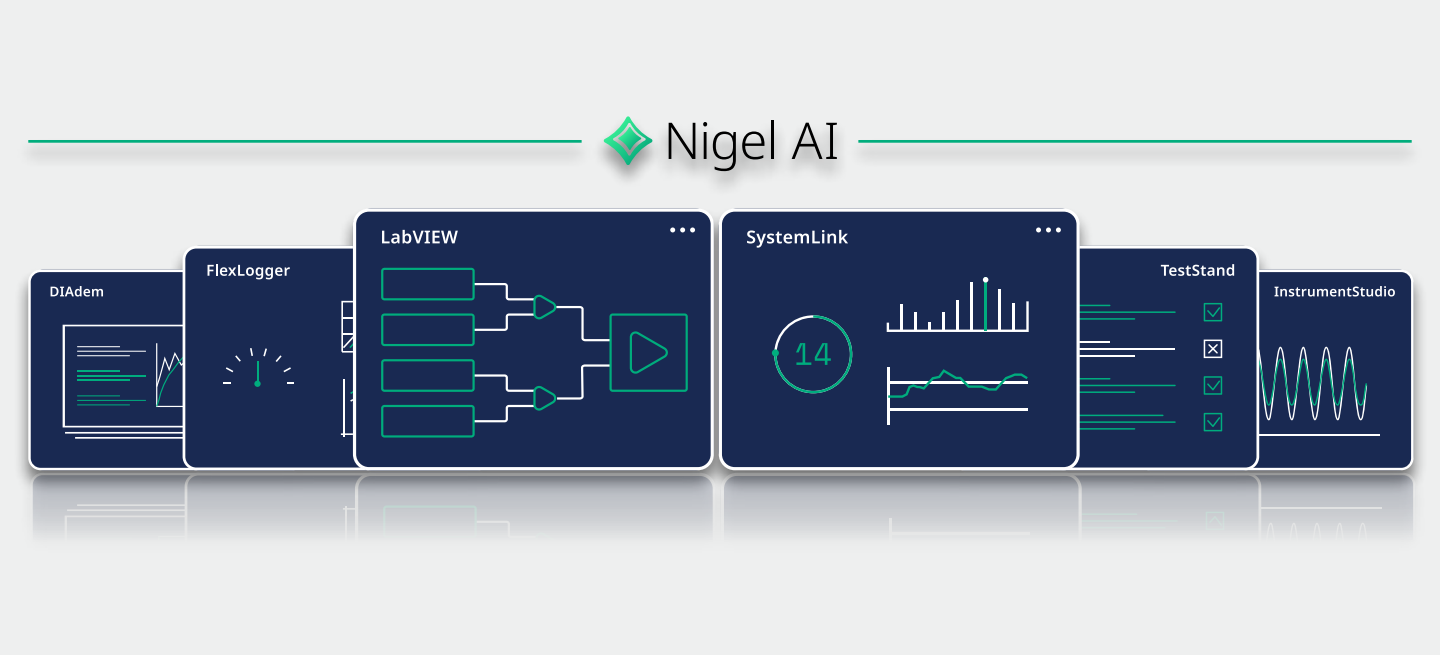
Nigel Is Optimized for Test

Nigel AI is built on the latest industry models and enhanced with our 50 years of test and measurement expertise. Nigel leverages the leading industry models to take advantage of the rapid evolving technology, so you don't have to compromise between solutions. Nigel has been taught test methodologies, test system design, and data analysis, so you get trusted information to help you advance your project. Unlike other AIs, Nigel will give you highly relevant technical answers for test application questions, because it was custom-built for that purpose.

Nigel Is Integrated in NI Software

Nigel is built into our software so that you can get help as you work. With Nigel, you can generate code and sequences from a prompt, debug your applications with an expert at your side, review projects faster, and much more. Nigel has direct access to product documentation and receives the context of your project, making answers more reliable and better helping you as you develop. Answers are not generic; they're specific for you. Nigel will provide you with clearer, more applicable guidance than other AIs because it understands your work. Nigel is an AI purpose-built for test and measurement workflows. Nigel's contextual guidance, automation, and insights work with NI software to help eliminate time-consuming tasks, boosting your productivity and impact.

Get Access to All the Software You Need in the LabVIEW+ Suite



788509-35

It's LabVIEW, plus a whole lot more. The LabVIEW+ Suite brings together the best of NI test software that saves engineers time by optimizing every part of their workflow. Each software includes features and capabilities designed to accelerate test:

- NI LabVIEW is the industry-leading environment for automated test system development.
- NI TestStand is used in validation labs and on manufacturing floors across the world to automate and sequence tests.
- NI DIAdem saves engineers hundreds of hours of manual data analysis and report creation with automation.
- NI FlexLogger™ software and NI InstrumentStudio™ software make measurement and instrument configuration a quicker and interactive process.

Adding to LabVIEW to Support You Across Your Workflow

See how LabVIEW+ can help you with validation, production, and physical test:

Electronics Validation Test

- With the LabVIEW+ Suite, you can configure, visualize, and automate measurements, analyze your data, and share reports more quickly.
- LabVIEW+ allows you to adapt to changing requirements with tools to efficiently develop new measurements, integrate them into existing programs, and evaluate the results.

Powered by: LabVIEW TestStand InstrumentStudio DIAdem Nigel AI

Electronics Production Test

- The LabVIEW+ Suite helps you build measurements and test steps into comprehensive test sequences so products are fully tested before they leave manufacturing.
- LabVIEW+ also has tools to increase throughput with parallel test that aid in deploying your test program to your manufacturing floor.

Powered by: LabVIEW TestStand InstrumentStudio Nigel AI

Electronics Validation Test

- The LabVIEW+ Suite helps you take all the measurements you need and analyze the data to report back to your team.
- With LabVIEW+, you can set up comprehensive data logging systems with custom functionality and automate reports to share the data you produce.

Powered by: LabVIEW FlexLogger DIAdem Nigel AI

NI Test Software Overview

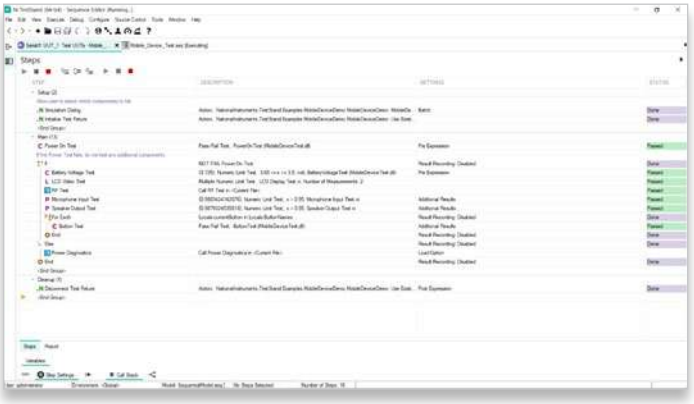
NI software can be purchased individually or as part of LabVIEW+ Suite; short descriptions of the software follow. Find more information on applications and key features in this section.



NI LabVIEW

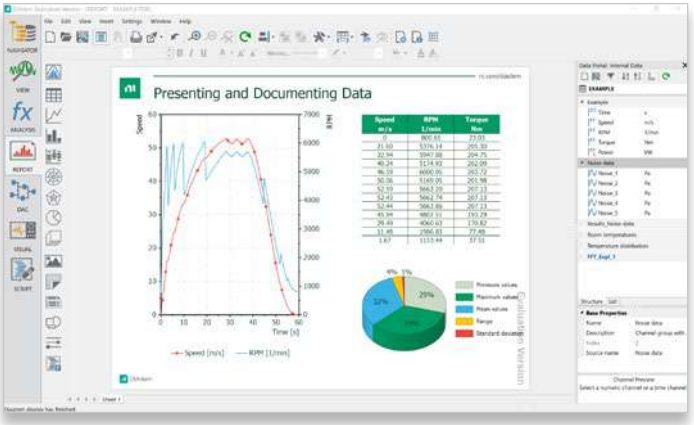
LabVIEW is a graphical programming environment that provides unique productivity accelerators for test system development, such as an intuitive approach to programming, connectivity to any instrument, fully integrated user interfaces, and the test-optimized NI Nigel AI

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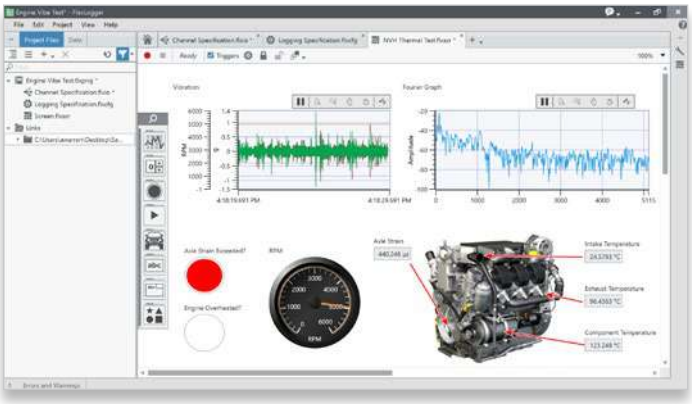
NI TestStand

This test management software for validation and production test eliminates the need for time-intensive in-house sequencer development and maintenance. TestStand is equipped with Nigel for accelerated development.



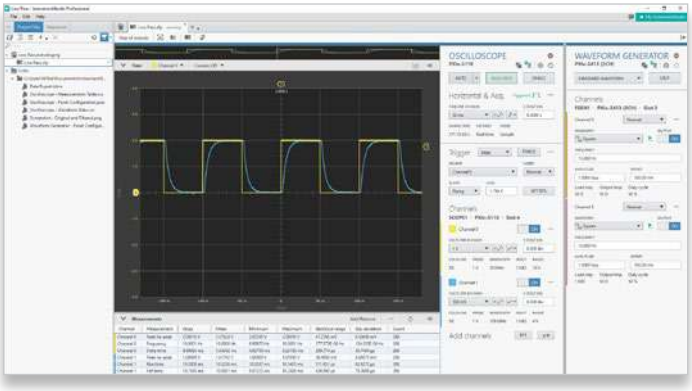
NI DIAdem

DIAdem is data-analytics software for measurement data search, inspection, analysis, and automated reporting.



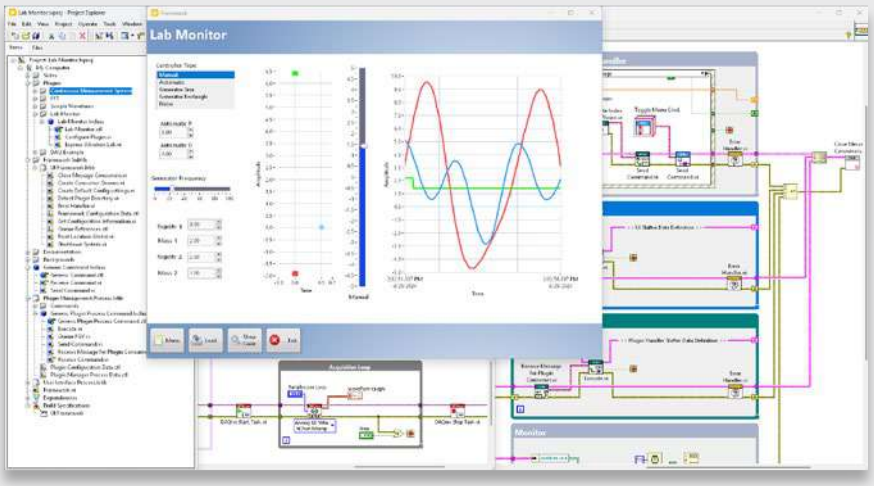
NI FlexLogger Software

This is no-code software that accelerates measurement configuration and logging with NI DAQ hardware.



NI InstrumentStudio Software

This is instrument-configuration software for automating and sequencing measurements.



LabVIEW Base
784503-35
Recommended for simple test and measurement applications.

LabVIEW Full
784522-35
Recommended for applications needing advanced analysis or signal processing.

LabVIEW Professional
784584-35
Recommended for engineers who need tools for software engineering, code deployment, distribution, and reporting.

NI LabVIEW

LabVIEW is a graphical programming environment that provides unique productivity accelerators for test system development, such as an intuitive approach to programming, connectivity to any instrument, fully integrated user interfaces, and the test-optimized NI Nigel AI Advisor.

Engineers use LabVIEW to:

- Accelerate the development of flexible test systems
- Automate and control any instrument
- Perform data acquisition, analysis, and report generation

Key Features

Maximize Productivity

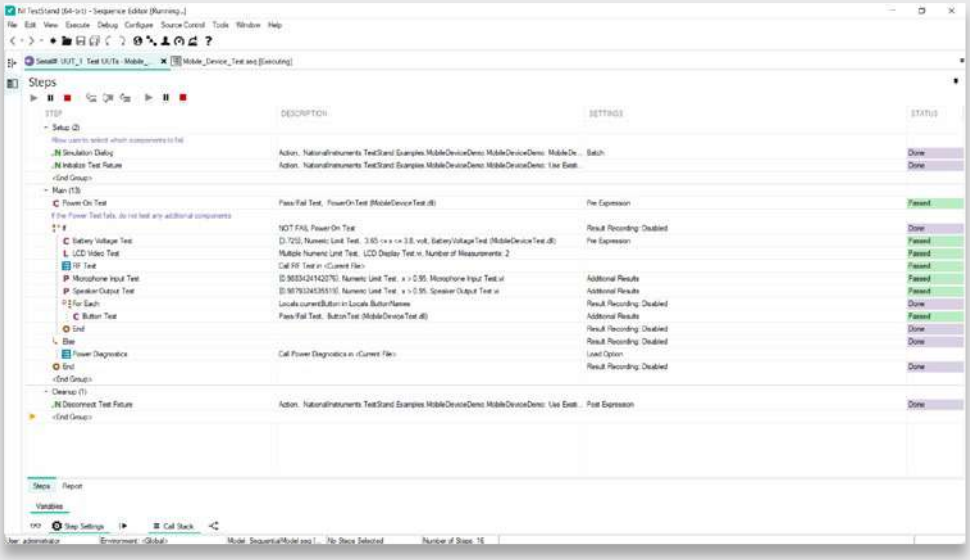
- **Customizable User Interfaces**—Create custom, interactive UIs with prebuilt objects for real-time data display and user input.
- **Active Debugging**—LabVIEW recompiles code after every action. Identify and resolve issues with no last-minute surprises.
- **Graphical Programming**—Visualize your test system with a natural flowchart-like data flow.
- **Nigel AI**—Get expert help while developing in LabVIEW—from onboarding, to programming advice, and beyond!

Integrate Everything

- **Hardware Access**—Connect to any device with thousands of drivers for third-party instrumentation.
- **Code Reuse**—Call Python, C, MathWorks® MATLAB® software, and .NET code.
- **Protocol Support**—Exchange data between applications using TCP/IP, UDP, serial, IrDA, Bluetooth®, Modbus, SMTP, and many more.

Increase Capabilities

- **Real-Time and FPGA Modules**—Use add-ons for applications that require embedded hardware and FPGA systems.
- **Automated Reporting**—Share test results by generating reports for Microsoft Office or writing to a database, such as MongoDB.
- **Application Builder**—Create and deploy your code as stand-alone applications for others to use in just a few clicks.



TestStand Development

788372-35

Recommended for engineers developing test sequences.

TestStand Deployment Engine

777774-35

Required for deploying test sequences to additional test systems.

NI TestStand

TestStand is off-the-shelf test management software for validation and production test that eliminates the need for time-intensive in-house sequencer development and maintenance. TestStand is equipped with NI Nigel AI for accelerated development.

Engineers use TestStand to:

- Rapidly develop, deploy, and manage automated test systems
- Test products in parallel to optimize instrument use and test times with built-in autoscheduling intelligence
- Integrate and sequence tests written in various programming languages
- Log and share test results to local and network databases

Key Features

Develop Systems Faster

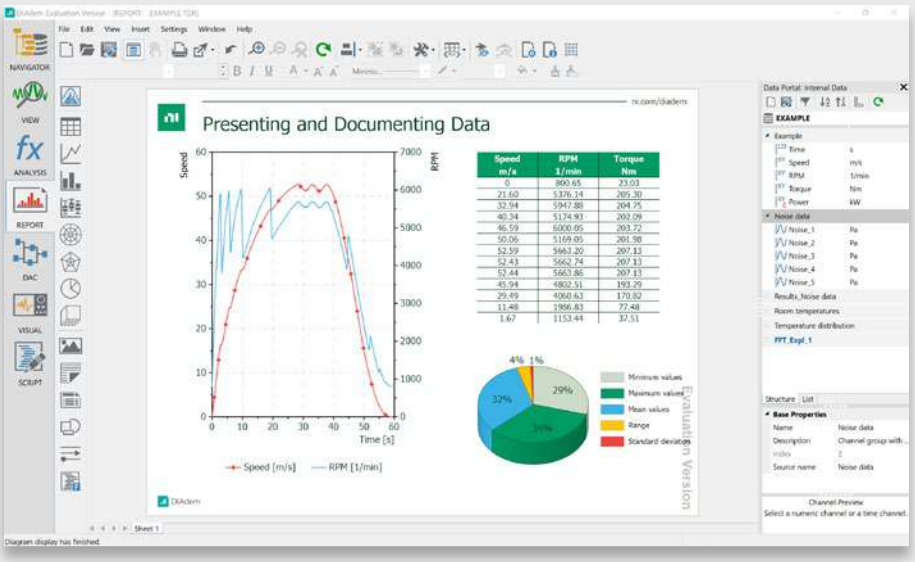
- **Code Adapters**—Take advantage of investment in existing code by integrating LabVIEW, C#, C++, Microsoft Visual Basic .NET, and more. Use multiple languages in the same sequence.
- **Drag-and-Drop Development Environment**—Use the TestStand Sequence Editor to quickly sequence, configure, and execute test code modules.
- **TestStand Deployment Utility**—Easily package all required DLLs, source code, drivers, and configuration information into a single installer.
- **Nigel AI Advisor**—Get expert help while developing in TestStand, including onboarding, configuring settings, and automation.

Increase Test Throughput

- **Parallel Test**—Scale from single-unit test to multiunit parallel tests. Save hundreds of development hours with this built-in architecture.
- **Autoschedule Hardware Resources**—Maximize utilization by sharing hardware among multiple execution threads.

Record and Publish Test Results

- **Enterprise Connectivity**—Log test results using standard database connectivity or plug-ins for specialized data management systems, such as NI SystemLink™ software.
- **Built-In Reporting**—Log critical results to several industry-standard report formats, such as ATML, XML, HTML, and ASCII.



DIAdem Base
784270-35
Recommended for standard analysis and reporting.

DIAdem Advanced
784271-35
Recommended for advanced analysis and calculation requirements.

DIAdem Professional
784272-35
Recommended for comprehensive and complex analysis and reporting task.

NI DIAdem

DIAdem is data-analytics software for measurement data search, inspection, analysis, and automated reporting.

Engineers use DIAdem to:

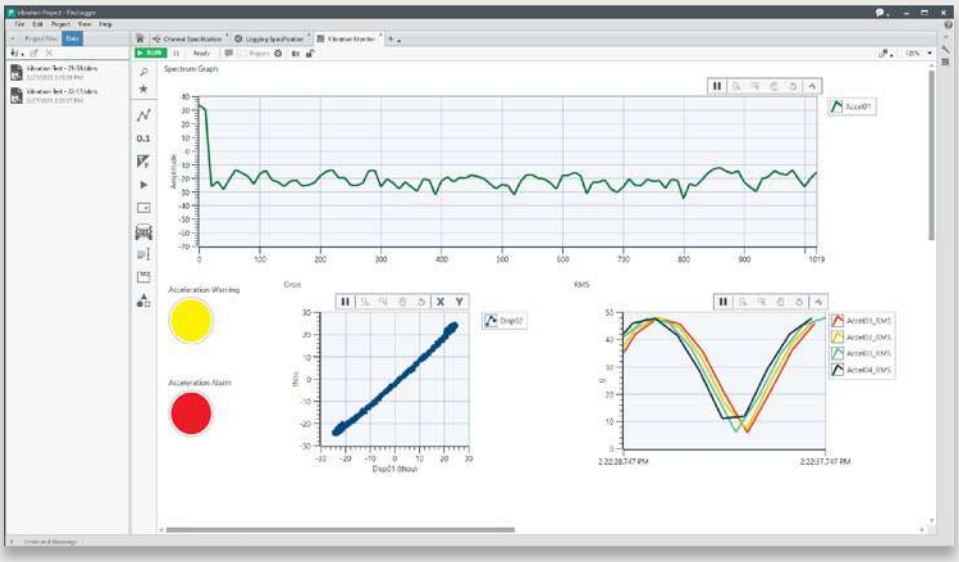
- Search for and find specific data
- Visualize multiple types of test data
- Save time by automating analysis routines and report generation

Key Features

- **DataPlugins**—DIAdem can import more than 1,000 file types through a technology called DataPlugins. Utilize the 200+ existing DataPlugins or create your own using an interactive Wizard or API.
- **Data Display**—Instantly display data in multiple 2D-axis systems and tables; play audio and video data; and view map data. Use a paneled display to view multiple datasets with different layouts in one window.
- **Built-In Functions**—Transform your data with a simple point-and-click interface to perform analysis.
- **Script**—Automate your measurement data analysis workflow, from import to analysis to report, by writing scripts in Python and VBS.

"We have reduced our reporting and analysis time by 95 percent and achieved our goal of replacing the current multistep process with a one-button DIAdem solution."

Jim Knuff
Raytheon Missile Systems



FlexLogger
785748-3501

NI FlexLogger™ Software

FlexLogger is out-of-the-box data acquisition software that lets you quickly configure hardware, visualize signals, and log sensor data–no coding required. FlexLogger is equipped with NI Nigel AI for accelerated development.

Engineers use FlexLogger software to:

- Acquire and log data quickly to validate designs and drive confident, data-informed decisions.
- Visualize live measurements with customizable dashboards to monitor system behavior and detect issues in real time.
- Automate test execution using triggers, alarms, and plug-ins to streamline workflows and increase test coverage.

Key Features

Simplified Hardware and Channel Configuration—Set up NI hardware and define measurement channels effortlessly through a no-code interface, enabling rapid deployment and real-time visibility into system performance.

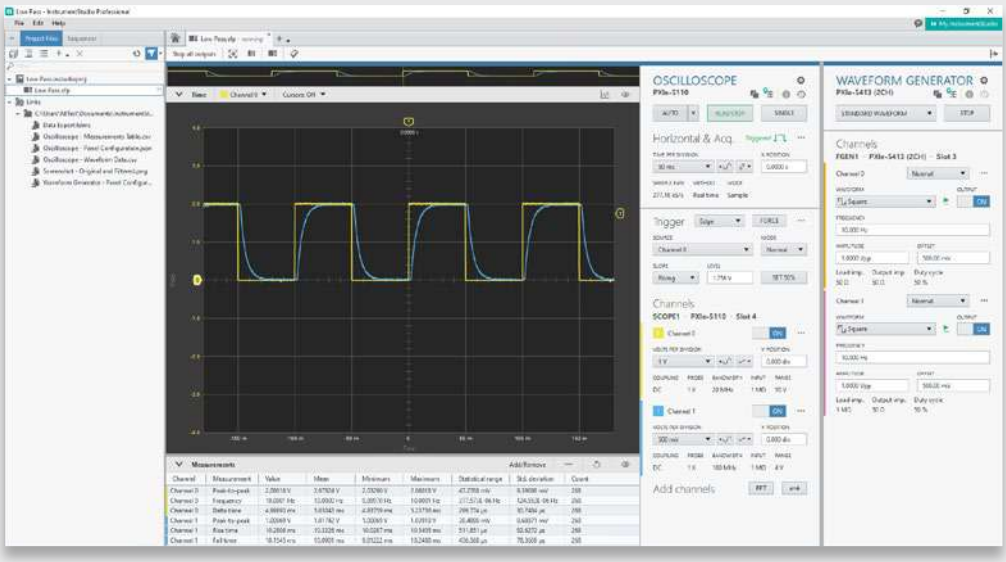
Reliable Data Management and Storage—Store test data in TDMS or CSV formats with support for metadata tagging, file segmentation, and multilocation saving—**ideal for long-duration tests and data integrity.**

Automated and Scalable Test Execution—Automate test sequences using alarms, triggers, events, and APIs to reduce manual effort, improve consistency, and support scalable test operations.

Customizable and Intelligent System Behavior—Perform real-time calculations, configure advanced alarms, and integrate plug-ins to extend functionality and adapt to complex or evolving test requirements.

FlexLogger Lite

FlexLogger Lite comes free with NI DAQ hardware! It includes standard capabilities such as configuring measurements and saving data. For additional automation and custom measurement integration, choose the complete version of FlexLogger.



InstrumentStudio Professional
789987-35

NI InstrumentStudio™ Software

InstrumentStudio is an interactive, configuration-based software for engineers to control and configure instruments, run measurements, and develop and debug test sequences within a single environment. InstrumentStudio is equipped with NI Nigel AI for accelerated development.

Engineers use InstrumentStudio software to:

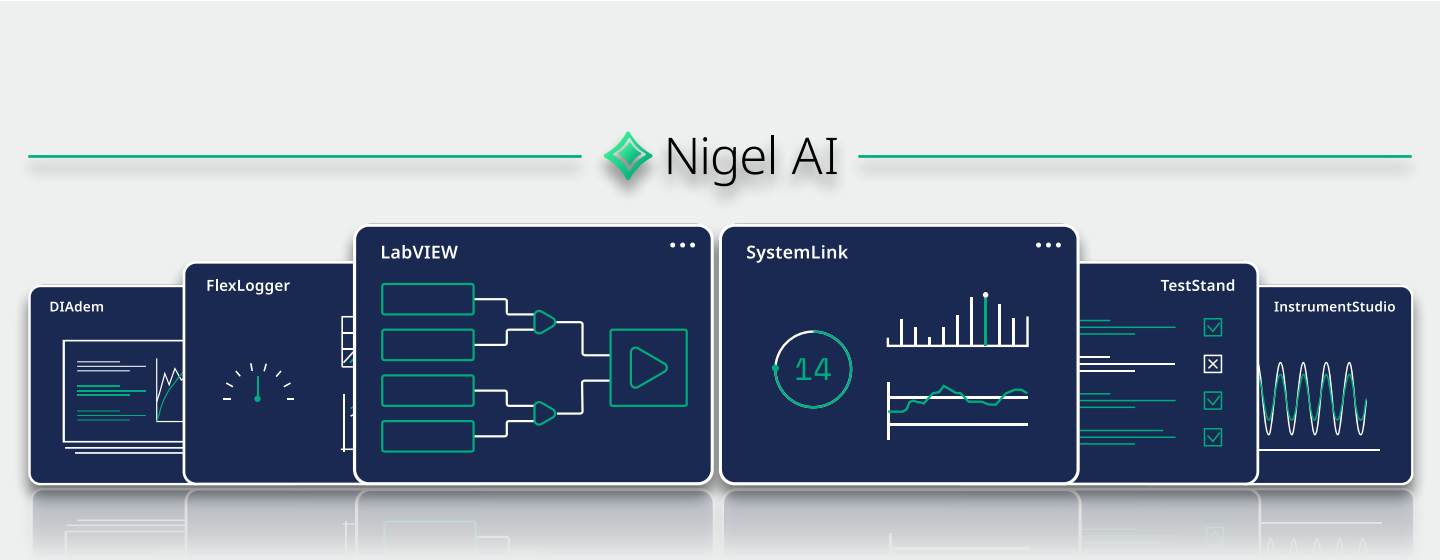
- Validate hardware functionality through instrument bring-up, measurement automation, and debugging
- Simultaneously interact with multiple instruments, non-NI hardware, and custom measurement logic
- Integrate measurements developed in various programming languages with a common user interface

Key Features

- **Interactive, Multi-Instrument Environment**—Start getting work done immediately with out-of-the-box interfaces for PXI modular instruments and interfaces for third-party instruments. Automate in seconds—after interactively configuring your instruments in InstrumentStudio, export the configuration to LabVIEW or TestStand for automating.
- **Test-System Debugging**—Keep your automated workflows up and running with full visibility into instrument configurations and measurements in InstrumentStudio. Pause the execution of any software (TestStand, LabVIEW, Python, or other) that is using the instrument to change settings, then resume without restarting.
- **Open and Extensible**—InstrumentStudio grows with your needs, enabling you to control your DUT or build a library of custom measurements using plug-ins built in the programming language of your choice (LabVIEW, Python, .NET).

InstrumentStudio

InstrumentStudio is included with NI PXI instruments, including oscilloscopes, digital multimeters, waveform generators, VSTs, and more. It includes standard capabilities such as configuring instruments, saving data, and exporting instrument configurations. For third-party hardware integration, additional automation capabilities, and integration of custom measurements, choose InstrumentStudio Professional (included in the LabVIEW+ Suite).



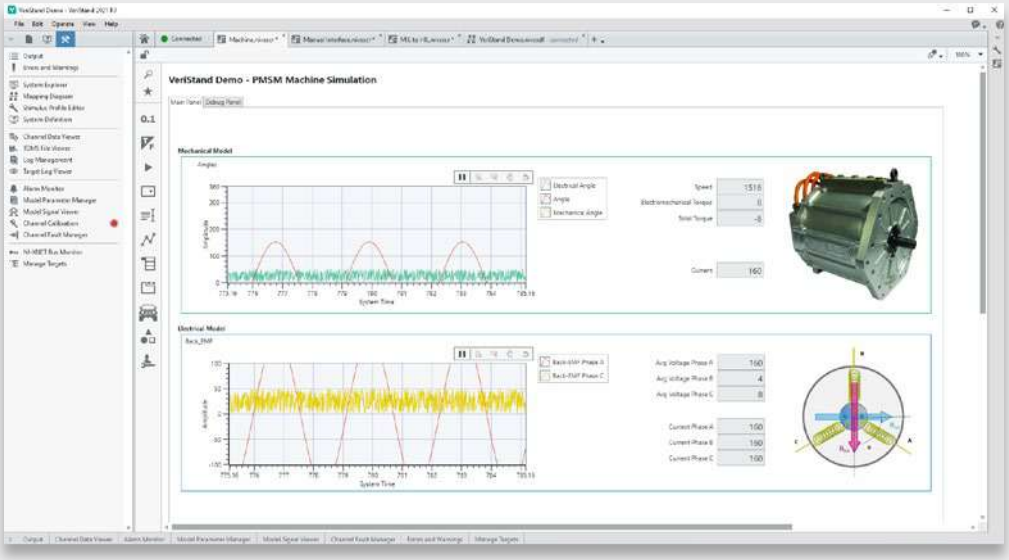
LabVIEW+ for HIL 790387-35

LabVIEW+ Suite for HIL

The LabVIEW+ Suite for HIL combines NI VeriStand with LabVIEW plus additional NI software. The collection provides a complete suite for embedded software development, and the software works together to get your product to market quicker.

LabVIEW+ for HIL integrates NI's software portfolio to accelerate embedded software development:

- NI VeriStand validates hardware and performs embedded software tests for HIL applications, offering model integration, real-time stimulus generation, and extensibility.
- NI LabVIEW is the industry-leading environment for automated test system development.
- The LabVIEW Real-Time Module is a software add-on for LabVIEW that you can use to create and deploy real-time, distributed system applications for test, monitoring, and control.
- The LabVIEW FPGA Module simplifies complex system design with integrated tools, IP libraries, and custom FPGA logic for HIL simulation and rapid prototyping.
- NI TestStand automates and sequences tests in labs and manufacturing.
- NI DIAdem automates data analysis and report creation.



VeriStand Full Development

788367-35

Recommended for configuring test systems.

VeriStand Operator

781067-35

Required for deployments.

NI VeriStand

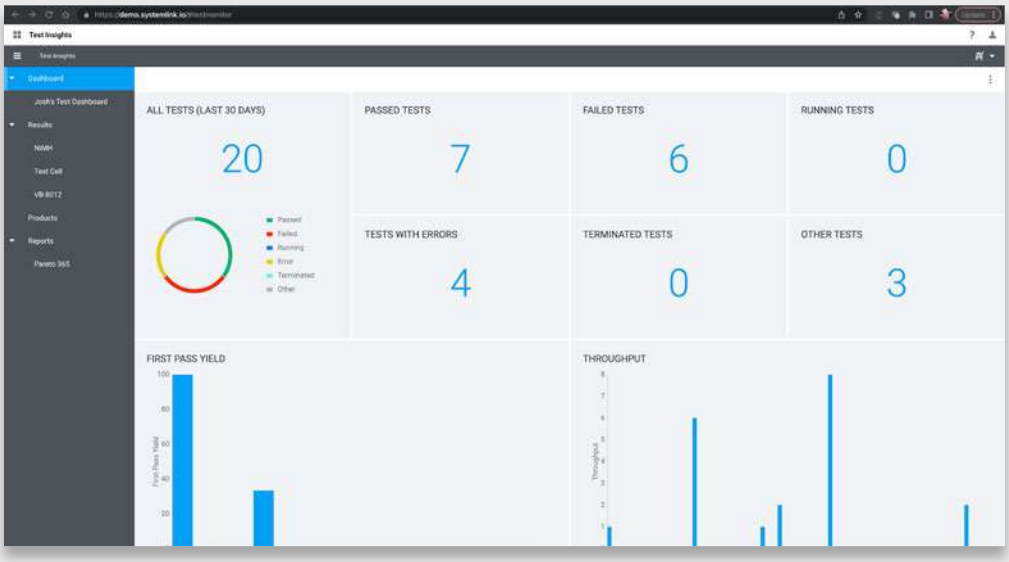
VeriStand is ready-to-run software with which you can create, deploy, and leverage closed-loop control on an NI Linux Real-Time target. Develop hardware-in-the-loop applications that accelerate the product development lifecycle with model integration, real-time stimulus generation, and an extensible software environment.

Use VeriStand to:

- Configure real-time I/O interfaces for high-speed data acquisition, vehicle networks, and FPGA-based reconfigurable I/O
- Configure alarms, respond to events, and automate your testing
- Gain full sight of your HIL system with graphical elements that allow you to control configurations and display runtime results

Key Features

- **Quick System Configuration—**Set up I/O channels, alarming, data logging, stimulus generation, fault insertion, user interfaces and bus communications
- **Model Integration—**Integrate plant and controller models from MathWorks® Simulink® software and other third-party modeling environments adhering to the Functional Mock-up Interface standard
- **Customizability—**Adapt to changing requirements with an extensible software environment. Build plug-ins for third-party hardware and additional measurement types
- **Test Automation—**Use test sequences and scripting to configure, orchestrate systems through .NET APIs, Python, and ASAM XIL, and integrate with CI/CD workflows



SystemLink Small
790508-35

Connect 2-10 systems, with a maximum of five users

SystemLink Medium
790509-35

Connect 11-25 systems, with a maximum of 10 users

For large-scale and enterprise deployments, find more information online or through your distributor.

NI SystemLink™ Software

SystemLink software is a trusted, centralized platform for engineering and test teams of all sizes to plan, manage, and optimize tests.

Use SystemLink to:

- Manage software deployments, configurations, and test assets
- Automate data analysis and reporting
- Reduce downtime through real-time monitoring

Key Features

- **Remotely Manage Test Systems**—Monitor and control NI PXI, NI CompactRIO, and Windows PCs from anywhere. Maximize uptime and ensure system health across distributed labs.
- **Deploy Software with Confidence**—Push updates, drivers, and configurations to multiple systems—centrally and consistently. Save time and reduce deployment errors.
- **Track and Optimize Test Machines**—Stay on top of usage, calibration, and location for NI and third-party instruments. Maintain compliance and improve test asset utilization.
- **Centralize Test Data**—Store and analyze TDMS files in one place. Ensure traceability and streamline data access across teams.
- **Meet IT Standards with Simple, Secure Deployment**—Deploy SystemLink in the cloud or on premises quickly and securely, no external services required. Fast and secure setup fits your IT policies.

Per-System Deployment Time

"Using SystemLink and NI package pre/postactions to achieve a graceful shutdown, install, and restart process, we were able to reduce deployment time from 30 minutes per system to three minutes for an entire production line."

Chase Fearing, Senior Lead Engineer
Sub-Zero

Part Number Extended Edition

Software	Edition	Subscription Part Number	Perpetual Part Number
LabVIEW	Base	784503-35	776671-35
	Base, with media	784503-35WM	776671-35WM
	Full	784522-35	776670-35
	Full, with media	784522-35WM	776670-35WM
	Professional	784584-35	776678-35
	Professional, with media	784584-35WM	776678-35WM
LabVIEW+ Suite	LabVIEW+ Suite	788509-35	790058-35
	LabVIEW+ Suite, with media	788509-35WM	790058-35WM
DIAdem	Base	784270-35	778806-35
	Advanced	784271-35	778807-35
	Professional	784272-35	778810-35
FlexLogger	Professional	785748-3501	785748-35
InstrumentStudio	Professional	789987-35	789988-35
TestStand	TestStand Development System	788372-35	777777-35
	TestStand Debug Deployment	—	779851-35
	TestStand Deployment Engine	—	777774-35
VeriStand	Full Development	788367-35	780590-35
	PC	788373-35	781066-35
	Operator	—	781067-35
LabVIEW+ for HIL Suite	LabVIEW+ for HIL Suite	790387-35	790386-35
SystemLink	For 2-10 systems	790508-35	—
	For 11-25 systems	790509-35	—

PC-Based DAQ and Reconfigurable I/O (USB/PCI/PCIe)







Develop With:
NI LabVIEW, LabWindows™/CVI, Python, C/C++, C#, VB.NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite

USB Multifunction I/O Devices

Up to 32 analog input channels, 20-bit resolution, up to 2 MS/s

Up to 4 analog outputs; up to 48 digital I/O lines at 10 MHz

Four 32-bit counter/timers with a 100 MHz timebase

Simultaneous-sampling options, with a dedicated ADC per channel

Key Features

All-in-One Devices

USB multifunction I/O devices are simple, portable, and flexible. They combine ±10 V input/output, digital input/output, and counters on the same device.

Advanced I/O Timing and Triggering

Onboard counters handle encoder position, frequency, PWM, and event counting without add-on hardware. NI-STC3 synchronization tightly aligns analog, digital, and counter subsystems on a device and across multiple devices for correlated measurements.

Measure with Confidence

Advanced self-calibration technology uses third-order polynomial correction to compensate for offset, gain, and ADC nonlinearity errors, helping maintain high measurement accuracy.

USB Multifunction I/O Devices

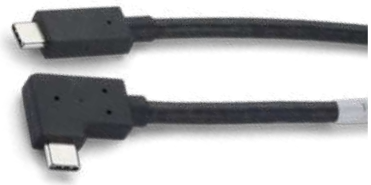
Category	Model	Part Number	Connector Type	DI/SE	AI Sample Rate	AI Resolution	AO and DIO Channels	AO Update Rate	USB Type	AI Absolute Accuracy
Entry-Level	**USB-6000**	782602-01	Screw Terminal	0/8	10 kS/s	16-bit	AO: 0 DIO: —	—	USB 2.0	26 mV
	USB-6001	782604-01	Screw Terminal	4/8	20 kS/s	16-bit	AO: 2 DIO: 13	5 kS/s	USB 2.0	26 mV
	USB-6002	782606-01	Screw Terminal	4/8	50 kS/s	16-bit	AO: 2 DIO: 13	5 kS/s	USB 2.0	26 mV
	USB-6003	782608-01	Screw Terminal	4/8	100 kS/s	16-bit	AO: 2 DIO: 13	5 kS/s	USB 2.0	26 mV
General-Purpose	**USB-6421**	789887-01	Spring Terminal	8/16	250 kS/s	16-bit	AO: 2 DIO: 16	250 kS/s/ch	USB Type-C	2.61 mV
	USB-6421	789885-01	50-pin (OEM)	8/16	250 kS/s	16-bit	AO: 2 DIO: 16	250 kS/s/ch	USB Type-C	2.61 mV
	USB-6423	789882-01	Spring Terminal	16/32	250 kS/s	16-bit	AO: 4 DIO: 16	250 kS/s/ch	USB Type-C	2.61 mV
	USB-6423	789886-01	50-pin (OEM)	16/32	250 kS/s	16-bit	AO: 4 DIO: 16	250 kS/s/ch	USB Type-C	2.61 mV
	USB-6341	781438-01	Screw Terminal	8/16	500 kS/s	16-bit	AO: 2 DIO: 24	900 kS/s	USB 2.0	2190 µV
	USB-6341	782250-01	50-pin (OEM)	8/16	500 kS/s	16-bit	AO: 2 DIO: 24	900 kS/s	USB 2.0	2190 µV
	USB-6341	782251-01	BNC	8/16	500 kS/s	16-bit	AO: 2 DIO: 24	900 kS/s	USB 2.0	2190 µV
	USB-6343	781439-01	Screw Terminal	16/32	500 kS/s	16-bit	AO: 4 DIO: 48	900 kS/s	USB 2.0	2190 µV
	USB-6343	782252-01	50-pin (OEM)	16/32	500 kS/s	16-bit	AO: 4 DIO: 48	900 kS/s	USB 2.0	2190 µV
	USB-6343	782253-01	BNC	16/32	500 kS/s	16-bit	AO: 4 DIO: 48	900 kS/s	USB 2.0	2190 µV
	USB-6351	781440-01	Screw Terminal	8/16	1.25 MS/s	16-bit	AO: 2 DIO: 24	2.86 MS/s	USB 2.0	1520 µV
	USB-6353	781441-01	Screw Terminal	16/32	1.25 MS/s	16-bit	AO: 4 DIO: 48	2.86 MS/s	USB 2.0	1520 µV
	USB-6361	781442-01	Screw Terminal	8/16	2 MS/s	16-bit	AO: 2 DIO: 24	2.86 MS/s	USB 2.0	1660 µV
	USB-6361	782254-01	50-pin (OEM)	8/16	2 MS/s	16-bit	AO: 2 DIO: 24	2.86 MS/s	USB 2.0	1660 µV
	USB-6361	782255-01	BNC	8/16	2 MS/s	16-bit	AO: 2 DIO: 24	2.86 MS/s	USB 2.0	1660 µV
	USB-6361	782256-01	VHDCI	8/16	2 MS/s	16-bit	AO: 2 DIO: 24	2.86 MS/s	USB 2.0	1660 µV
	USB-6363	781443-01	Screw Terminal	16/32	2 MS/s	16-bit	AO: 4 DIO: 48	2.86 MS/s	USB 2.0	1660 µV
	USB-6363	782257-01	50-pin (OEM)	16/32	2 MS/s	16-bit	AO: 4 DIO: 48	2.86 MS/s	USB 2.0	1660 µV
	USB-6363	782258-01	BNC	16/32	2 MS/s	16-bit	AO: 4 DIO: 48	2.86 MS/s	USB 2.0	1660 µV
	USB-6363	782259-01	VHDCI	16/32	2 MS/s	16-bit	AO: 4 DIO: 48	2.86 MS/s	USB 2.0	1660 µV

USB Multifunction I/O Devices (continued)

Category	Model	Part Number	Connector Type	DI/SE	AI Sample Rate	AI Resolution	AO and DIO Channels	AO Update Rate	USB Type	AI Absolute Accuracy
Simultaneous-Sampling	**USB-6451**	789888-01	Spring Terminal	8/16	1 MS/s/ch	20-bit	AO: 2 DIO: 16	250 kS/s/ch	USB Type-C	1.3 mV
	USB-6451	789889-01	50-pin (OEM)	8/16	1 MS/s/ch	20-bit	AO: 2 DIO: 16	250 kS/s/ch	USB Type-C	1.3 mV
	USB-6453	789884-01	Spring Terminal	16/32	1 MS/s/ch	20-bit	AO: 4 DIO: 16	250 kS/s/ch	USB Type-C	1.3 mV
	USB-6453	789883-01	50-pin (OEM)	16/32	1 MS/s/ch	20-bit	AO: 4 DIO: 16	250 kS/s/ch	USB Type-C	1.3 mV
	USB-6346	785814-01	Screw Terminal	16-Aug	500 kS/s/ch	16-bit	AO: 2 DIO: 24	900 kS/s	USB 2.0	3.2 mV
	USB-6346	785815-01	BNC	8/0	500 kS/s/ch	16-bit	AO: 2 DIO: 24	900 kS/s	USB 2.0	3.2 mV
	USB-6349	785816-01	Screw Terminal	32/0	500 kS/s/ch	16-bit	AO: 2 DIO: 24	900 kS/s	USB 2.0	3.2 mV
	USB-6356	781444-01	Screw Terminal	8/0	1.25 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6356	781444-02	Screw Terminal	8/0	1.25 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6356	782260-01	50-pin (OEM)	8/0	1.25 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6356	782261-01	BNC	8/0	1.25 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6366	781445-01	Screw Terminal	8/0	2 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6366	781445-02	Screw Terminal	8/0	2 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6366	782262-01	50-pin (OEM)	8/0	2 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6366	782263-01	BNC	8/0	2 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV
	USB-6366	782264-01	VHDCI	8/0	2 MS/s/ch	16-bit	AO: 2 DIO: 24	3.33 MS/s/ch	USB 2.0	2.7 mV

USB mioDAQ Accessories

NI mioDAQ devices (models USB-6421, -6423, -6451, and -6453) ship with a USB-C-to-USB-C cable and all connector accessories needed to connect a signal wire and begin taking measurements. This section is for extra or replacement parts and mounting accessories specific to mioDAQ.

Description	Part Number	
USB-C to USB-C with top screw lock, 2 m Included with mioDAQ. Purchase as spare/ replacement.	789956-02	
USB-C to USB-C right-angle, 2 m (optional accessory)	789957-02	
Screwdriver sized for spring terminals (quantity: 15)	781015-01	
Backshell for 36-position spring terminal connector with mioDAQ. Purchase as spare/ replacement. (quantity: 1)	785080-01	
Mounting kit: DIN only for horizontal DIN mount	789986-01	

Description	Part Number	
Mounting kit: vertical DIN, panel, or keyhole Includes USB-C cable with right-angle connector (PN 789957-02).	789955-01	
Mounting kit for 19” rack (1U) (mount up to two mioDAQ devices) Includes two USB-C cables with right-angle connector (PN 789957-02).	789953-01	
36-position front mount spring terminal connector with mioDAQ. Purchase as spare/ replacement (0.13 mm^2 to 1.5 mm^2) (26 AWG to 16 AWG) (quantity: 1)	785502-01	



Develop With:
NI LabVIEW, LabWindows™/CVI, Python, C/C++, C#, VB.NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite Software

PCI Express Multifunction I/O Devices

- Up to 208 analog input channels, 16-bit resolution, up to 2 MS/s
- Up to 4 analog outputs; up to 48 digital I/O lines at 10 MHz
- Four 32-bit counter/timers with a 100 MHz timebase
- Simultaneous-sampling options with a dedicated ADC per channel
- Native PCI Express bus interface

Key Features

All-in-One Devices

Multifunction I/O devices include a combination of ±10 V input/output, digital input/output, and counters on the same device. These are great multipurpose measurement devices with a ton of flexibility.

Advanced I/O Timing and Triggering

Onboard counters handle encoder position, frequency, PWM, and event counting without add-on hardware. NI-STC3 synchronization tightly aligns analog, digital, and counter subsystems on a device and across multiple devices for correlated measurements.

Measure with Confidence

Advanced self-calibration technology that uses third-order polynomial correction to compensate for offset, gain, and ADC nonlinearity errors, helping maintain high measurement accuracy.

PCI Express Multifunction I/O Devices

Category	Model	Part Number	16-bit AI Channels DI/SE	Sample Rate	DIO Channels	AO Channels	AO Update Rate	Counters	AI Absolute Accuracy
Lowest Cost	**PCIe-6320**	781043-01	8/16	250 kS/s	24	0	—	4	2,200 µV
	PCIe-6321	781044-01	8/16	250 kS/s	24	2	900 kS/s	4	2,200 µV
	PCIe-6323	781045-01	16/32	250 kS/s	48	4	900 kS/s	4	2,200 µV
	PCIe-6340	790586-01	8/16	500 kS/s	24	0	—	4	2,190 µV
	PCIe-6341	781046-01	8/16	500 kS/s	24	2	900 kS/s	4	2,190 µV
	PCIe-6342	790587-01	16/32	500 kS/s	48	0	900 kS/s	4	2,190 µV
	PCIe-6343	781047-01	16/32	500 kS/s	48	4	900 kS/s	4	2,190 µV
Highest Speed	**PCIe-6350**	790588-01	8/16	1.25 MS/s	24	0	—	4	1,520 µV
	PCIe-6351	781048-01	8/16	1.25 MS/s	24	2	2.86 MS/s	4	1,520 µV
	PCIe-6352	790589-01	16/32	1.25 MS/s	48	0	900 kS/s	4	1,520 µV
	PCIe-6353	781049-01	16/32	1.25 MS/s	48	4	2.86 MS/s	4	1,520 µV
	PCIe-6361	781050-01	8/16	2 MS/s (1-ch)	24	2	2.86 MS/s	4	1,660 µV
	PCIe-6363	781051-01	16/32	2 MS/s (1-ch)	48	4	2.86 MS/s	4	1,660 µV
Highest Channel Density	**PCIe-6345**	790686-01	40/80	500 kS/s	24	2	2.86 MS/s	4	1,520 µV
	PCIe-6347	790691-01	104/208	500 kS/s	24	2	2.86 MS/s	4	1,520 µV
	PCIe-6355	790687-01	40/80	1.25 MS/s	24	2	2.86 MS/s	4	1,520 µV
	PCIe-6357	790688-01	104/208	1.25 MS/s	24	2	2.86 MS/s	4	1,520 µV
Simultaneous	**PCIe-6346**	785813-01	8/0	500 kS/s	24	2	900 kS/s	4	3225 µV
	PCIe-6374	785817-01	4/0	3.57 MS/s/ch	24	2	3.3 MS/s/ch	4	2688 µV
	PCIe-6376	785809-01	8/0	3.57 MS/s/ch	24	2	3.3 MS/s/ch	4	2690 µV

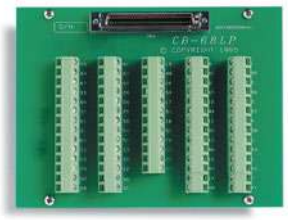
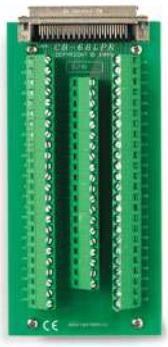
SHC68-68-EPM/SHC68-68 Cable Compatibility

Model	Part Number	Cable for Connector 0	Cable for Connector 1	Cable for Connector 2	Cable for Connector 3
PCIe-6320	781043-01	SHC68-68-EPM	—	—	—
PCIe-6321	781044-01	SHC68-68-EPM	—	—	—
PCIe-6323	781045-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PCIe-6340	790586-01	SHC68-68-EPM	—	—	—
PCIe-6341	781046-01	SHC68-68-EPM	—	—	—
PCIe-6342	790587-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PCIe-6343	781047-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PCIe-6350	790588-01	SHC68-68-EPM	—	—	—
PCIe-6351	781048-01	SHC68-68-EPM	—	—	—
PCIe-6352	790589-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PCIe-6363	781051-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PCIe-6345	790686-01	SHC68-68-EPM	SHC68-68	—	—
PCIe-6347	790691-01	SHC68-68-EPM	SHC68-68	SHC68-68	SHC68-68
PCIe-6355	790687-01	SHC68-68-EPM	SHC68-68	—	—
PCIe-6357	790688-01	SHC68-68-EPM	SHC68-68	SHC68-68	SHC68-68

Cables to Connect Multifunction PCI Express DAQ Devices to Terminal Blocks

Recommendation	Part Number	Length	
Best performance if compatible with your device. **SHC68-68-EPM** Separates DIO from AI signals in cable to reduce crosstalk.	192061-0R5	0.5 m	
	192061-01	1 m	
	192061-02	2 m	
	192061-05	5 m	
	192061-10	10 m	
Any device connection not supported by the EPM cable. Works on any multifunction I/O device and connector. Basic Shielded **SHC68-68**	191945-0R5	0.5 m	
	191945-01	1 m	
	191945-02	2 m	
Ribbon cable for low-cost systems. Not recommended for noisy environments. Works on any multifunction I/O device and connector. **RC68-68**	187252-0R25	0.25 m	
	187252-0R5	0.5 m	
	187252-01	1 m	

Screw Terminal Accessories for Multifunction I/O PCI Express Devices

Description	Model	Part Number	Shielded	
Most common desktop accessory for NI DAQ devices. Metal breakout box with removable magnetic lid covering screw terminals. **SCB-68A**	SCB-68A	782536-01	✓	
Low-Cost Terminal Block (Wide Layout) **CB-68LP**	CB-68LP	777145-01	—	
Low-Cost Terminal Block (Narrow Layout) **CB-68LPR**	CB-68LPR	777145-02	—	
DIN Rail-Mountable Terminal Connector Block **TBX-68**	TBX-68	777141-01	—	

BNC Accessories for Multifunction PCI Express DAQ Devices

Description and Model	Part Number	
Shielded BNC Connector Block **BNC-2110**	777643-01	
Single-Ended Shielded BNC Connector Block **BNC-2111**[1]	779347-01	
Shielded BNC Connector Block with Onboard Function Generator and Quadrature Encoder **BNC-2120**	777960-01	
Rack-Mountable Accessory for 68-Pin Multifunction DAQ **BNC-2090A**	779556-01	

[1]BNC-2111 cannot be used with NI 6356/6358/6366/6368/6374/6376/6378/6386/6396 Simultaneous I/O X Series devices.

For more accessory compatibility information, see the following online KnowledgeBase articles.

DAQ Multifunction I/O Accessory Guide

DAQ Multifunction I/O Cable Guide

NI Cable and Accessory Guides





Develop With:
NI LabVIEW, NI FlexLogger™ Software, LabWindows™/CVI, Python, C/C++, and .NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger Lite

USB/PCI/PCI Express Digital I/O Devices

- General-purpose 5 V TTL or high-voltage industrial options
- Up to 96 bidirectional digital I/O channels
- Bank or channel-channel isolation options
- Programmable power-up states
- Watchdog timers
- Digital filtering and change detection

Key Features

Expand Digital Control and Monitoring Capabilities

Add high-channel-count digital input and output lines to control, monitor, and automate a wide range of test and measurement systems.

Improve System Reliability with Built-In Protection Features

Programmable power up states and watchdog timers help ensure safe operation by defining known startup conditions and detecting unexpected computer or application faults.

Capture Digital Events Accurately

Programmable digital filters reject glitches, relay chatter, and short-duration transients, while change-detection helps trigger your application and perform a read operation after a digital event with minimal processor usage.

PCI/PCI Express Digital I/O Devices

Category	Model	Part Number	Logic Levels	DI Voltage Range	DIO Channels	DI Only Channels	DO Only Channels	Output Voltage	Output Current[1]
5 V TTL/ CMOS	**PCI-6503**	777690-01	5 V	0 V to 5 V	24	—	—	0 V to 5 V	2.4 mA
5 V TTL/ CMOS	**PCIe-6509**	778966-01	5 V	0 V to 5 V	96	0	0	0 V to 5.5 V	24 mA
Industrial	**PCI-6512**	778970-01	—	±30 V	—	—	64	0 V to 30 V	350 (75) source mA
	PCI-6513	778836-01	—	—	—	—	64	0 V to 30 V	500 (120) sink mA
	PCI-6514	778835-01	24 V	±30 V	—	32	32	±30 V	350 (75) source mA
	PCI-6515	779082-01	24 V	±30 V	—	32	32	±30 V	500 (120) sink mA
	PCI-6516	779083-01	—	—	—	—	32	0 V to 30 V	350 (75) mA
	PCI-6518	779085-01	24 V	±30 V	—	16	16	±30 V	350 (75) mA
Ch-Ch Isolated	**PCI-6520**	778833-01	60 V	±30 V	—	8	8	±60 V	2 A
	PCI-6528	777690-01	60 V	±60 V	—	24	24	±60 V	150 mA

See user manuals for min/max voltage levels for low/high digital values.
[1]When using all lines at a 100% duty cycle, the maximum drive current for the -6512, -6514, -6516, and -6518 is 75 mA. It is 120 mA for the -6513, -6515, and -6519. When using only one output line in each bank at a 100% duty cycle, the maximum drive current for the -6512, -6514, -6516, and -6518 is 350 mA. It is 500 mA for the -6513, -6515, and -6519.

USB Digital I/O Devices

Category	Model	Part Number	Logic Level	DI Voltage Range	DIO Channels	DI Only Channels	DO Only Channels	Output Voltage	Output Current
5 V TTL/ CMOS	**USB-6501**	779205-01	5 V	0 V to 5 V	24	—	—	0 V to 5 V	8.5 mA
	USB-6509	779975-01	5 V	0 V to 5 V	96	—	—	0 V to 5 V	1.5 mA
Ch-Ch Isolated	**USB-6525**	779640-01	60 V	±60 V	0	8	8	0 V to 60 V	500 mA

Cable for PCI-6503 (IDC Connector)

Description	Model	Part Number	
Low-Cost Ribbon Cable	NB1	180524-05	

Terminal Block Options for PCI-6503 (IDC Connector)

Description	Model	Part Number	
Screw Terminal Block for DIN Rail Mount	CB-50	776164-90	
Screw Terminal Block – Standoffs	CB-50LP	777101-01	

Cables for PCIe-6509/12/13/14/15/28 and USB-6509 (SCSI Connector)

Description	Model	Part Number	Length	
Shielded Cable (Recommended)	SH100M-100M Flex	185095-01	1 m	
		185095-02	2 m	
Unshielded split cable that converts device connection to 2x 50-pin connectors. Purchase 2x 50pin terminal blocks.	R1005050	182762-02	2 m	

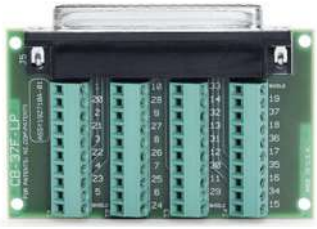
Terminal Block Options for PCIe-6509/12/13/14/15/28 and USB-6509 (SCSI Connector)

Description	Model	Part Number	
Shielded Screw Terminal Block	SCB-100A	785024-01	
Unshielded Screw Terminal Block, DIN Rail Mount	CB-50	776164-90	
Unshielded Screw Terminal Block	CB-50LP	777101-01	

Cables for PCI-6516/18/20 (D-SUB Connector)

Description	Model	Part Number	Length	
Shielded Cable (Recommended)	SH37F-37M	778621-02	2 m	
Unshielded Ribbon Cable	R37F-37M	779195-0R25	0.25 m	
		779195-0R5	0.5 m	
		779195-01	1 m	

Connector Blocks for PCI-6516/18/20 (D-SUB Connector)

Description	Model	Part Number	Shielded	
Horizontal DIN-Rail-Mount Terminal Block	CB-37FH	778676-01	—	
Vertical DIN-Rail-Mount Terminal Block	CB-37FV	778672-01	—	
DIN-Rail-Mount for High-Voltage Signals up to 150 V. UL-Recognized.	CB-37F-HVD	779491-01	—	
D-SUB-to-Screw Terminal Conversion. Connects to D-SUB Connector on Device. No Cable Needed.	CB-37F-LP	779353-01	—	



Develop With:
NI LabVIEW, LabWindows™/CVI, Python, C/C++, .NET
Driver(s):
NI-DAQmx
Included:
NI Flexlogger™ Lite Software

High-Speed Digital I/O Devices for PCI Express

- 32 digital I/O channels
- Selectable logic levels
- 10 MHz, 25 MHz, and 50 MHz maximum clock-rate options
- Up to 200 MB/s data throughput
- Per-channel directional control
- Change detection

Key Features

Stream High-Speed Digital Data

Continuously stream large volumes of digital data across the PCI Express bus—ideal for image sensor validation, display panel testing, and other high-throughput applications

Accelerate Digital Test and Emulation

Use the devices for pattern I/O, change detection, protocol emulation, and other custom digital interfacing

Configure I/O for Maximum Flexibility

Select voltage levels and independently configure each digital line as an input or output to simplify connection to a wide variety of devices and custom interfaces

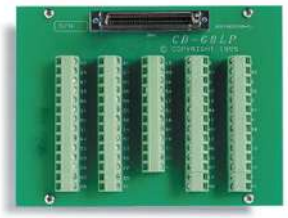
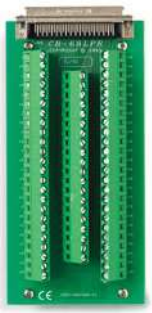
PCIe-6535B Device

Model	Part Number	Logic	Maximum Clock Rate	Voltage Range	DIO Channels	Output Range	Output Current
PCIe-6535B	782629-01	5 V	10 MHz	0 V to 5 V	32	0 V to 5 V	32 mA
PCIe-6536B	782630-01	5 V	25 MHz	0 V to 5 V	32	0 V to 5 V	32 mA
PCIe-6537B	782631-01	5 V	50 MHz	0 V to 5 V	32	0 V to 5 V	32 mA

PCI Express High-Speed Digital I/O Accessory Compatibility (VHDCI connector)

Description	Model	Part Number	Length	
Shielded Cable	SHC68-C68-D4	781013-01	0.5 m	
		196275-01	1 m	
		781293-01	2 m	
		132625-03	3 m (Lower DC Resistance)	
Unshielded Cable	C68-C68-D4	195949-01	1 m	

Connector Blocks for High-Speed Digital I/O Devices

Description	Model	Part Number	Shielded	
Connector block designed for high-speed DIO devices (recommended)	SCB-68 HSDIO	782914-01	✓	
Low-cost terminal block (wide layout) **CB-68LP**	CB-68LP	777145-01	—	
Low-cost terminal block (narrow layout) **CB-68LPR**	CB-68LPR	777145-02	—	
DIN-Rail-mountable terminal connector block **TBX-68**	TBX-68	777141-01	—	



Develop With:
NI LabVIEW, NI FlexLogger™ Software, LabWindows™/CVI, Python, C/C++, .NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger Lite

±10 V Analog Output Devices for PCI Express

- 32- and 64-channel analog output options
- 16-bit analog output resolution
- ±10 V output range
- Up to 1 MS/s maximum update rate
- 8 or 20 digital I/O channels
- Four counters

Key Features

Generate Multichannel Waveforms

Simultaneous multichannel updates support control and waveform output applications.

Stimulate and Simulate Signals

Use the devices for function generation and stimulus-response tests, including acoustic distortion and three-phase power simulations.

Coordinate External Timing

Digital I/O lines and four counters support digital triggering and external clocking.

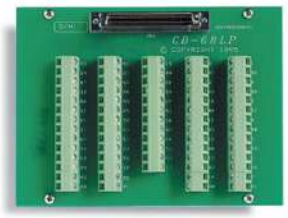
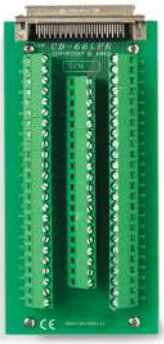
PCIe-6738 Devices

Model	Part Number	AO Channels	AO Resolution	AO Voltage	Max Update Rate	DIO	Counters
PCIe-6738	783800-01	32	16-bit	±10 V	1 MS/s	8	4

Cables for PCIe-6738 Analog Output Devices

Description	Model	Part Number	Length	
Shielded 68-pin VHDCI to 68-pin SCSI cable for use with the PXIe-6738 and PXIe-6739.	SHC68-68-A2	157599-0R5	0.5 m	
		157599-01	1 m	
		157599-05	2 m	

Connector Blocks for PCIe-6738 Analog Output Devices

Description	Model	Part Number	Shielded	
Most common desktop accessory for NI DAQ devices. Metal breakout box with removable magnetic lid covering screw terminals. **SCB-68A**	SCB-68A	782536-01	✓	
Low-cost terminal block (wide layout) **CB-68LP**	CB-68LP	777145-01	—	
Low-cost terminal block (narrow layout) **CB-68LPR**	CB-68LPR	777145-02	—	
DIN-rail-mountable terminal connector block **TBX-68**	TBX-68	777141-01	—	
BNC connector block for PCIe-6612 with built-in quadrature encoders, square wave generator, button for digital trigger	BNC-2121	778289-01	—	



Develop With:
NI LabVIEW, NI FlexLogger™ Software, LabWindows™/CVI, Python, C/C++, .NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger Lite,

Counter/Timer Device for PCI Express

- Eight counter/timers
- 80 MHz measurement frequency
- 40 digital I/O channels
- 5 V TTL logic level
- Digital debouncing filters
- TTL/CMOS-compatible digital I/O

Key Features

Measure Position and Events

Use the PCIe-6612 for encoder position, event counting, period, pulse-width, and frequency measurements.

Generate Precise Pulses

Create pulses and pulse trains for timing, control, and synchronization tasks.

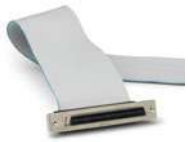
Connect Digital Timing Signals

Forty TTL/CMOS-compatible digital I/O channels support external timing and control connections.

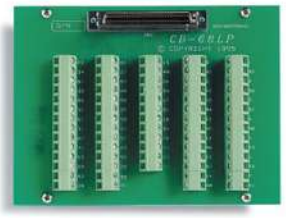
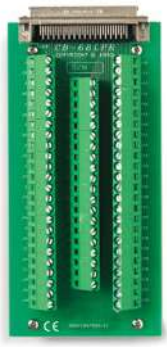
PCIe-6612 Device

Model	Part Number	Logic Level	Counters	DIO Channels	Measure Frequency
PCIe-6612	782352-01	5 V TTL	8	40	80 MHz

Cables for PCIe-6612

Description	Model	Part Number	Length	
Shielded cable to connect PCIe-6612 to terminal block. (SCSI to SCSI)	SH68-68-D1	183432-0R4	0.4 m	
		183432-01	1 m	
		183432-10	2 m	
Unshielded Ribbon Cable	R68-R68	182482-OR25	0.25 m	
		182482-01	1 m	

Connector Block Accessories for PCIe-6612

Description	Model	Part Number	Shielded	
Most common desktop accessory for NI DAQ devices. Metal breakout box with removable magnetic lid covering screw terminals. **SCB-68A**	SCB-68A	782536-01	✓	
Low-cost terminal block (wide layout) **CB-68LP**	CB-68LP	777145-01	—	
Low-cost terminal block (narrow layout) **CB-68LPR**	CB-68LPR	777145-02	—	
DIN-rail-mountable terminal connector block **TBX-68**	TBX-68	777141-01	—	
BNC connector block for PCIe-6612 with built-in quadrature encoders, square wave generator, button for digital trigger	BNC-2121	778289-01	—	



Develop With:
NI LabVIEW, NI LabVIEW Real-Time Module, NI LabVIEW FPGA Module
Driver(s):
NI-RIO

Reconfigurable I/O Devices—PCI Express, USB

- 8 analog input channels, 8 analog output channels, and up to 128 bidirectional channels
- 16-bit analog input resolution, up to 1 MS/s/ch sampling rate
- 16-bit analog output resolution, up to 1 MS/s/ch update rate

Key Features

Flexible Functionality

Match requirements and mimic the functionality of fixed I/O devices with software in timing and triggering applications, such as control and hardware-in-the-loop (HIL) simulations.

Embed Logic and Processing

Implement NI LabVIEW logic and processing in the FPGA including basics such as Boolean operations, comparisons, and basic mathematical operations or complex algorithms such as control loops.

Define I/O Resources

Create custom measurements using the fixed I/O resources.

RIO Devices

Model	Part Number	LabVIEW Programmable FPGA	AI Channels	AI Sample Rate	AI Ranges	AO Channels	AO Update Rate	Bidirectional Digital Channels	DIO Logic Levels	Maximum DIO Rate
PCIe-7820	785361-01	Kintex-7 160T	—					128	1.2 V, 1.5 V, 1.8 V, 2.5 V, 3.3 V	80 MHz
PCIe-7841	781100-01	Virtex-5 LX30	8	200 kS/s/ch	±10 V	8	1 MS/s/ch	96	3.3 V, 5 V	40 MHz
PCIe-7842	781101-01	Virtex-5 LX50			±10 V					
PCIe-7846	786456-01	Kintex-7 160T		500 kS/s/ch	±10 V, ±5 V, ±2 V, ±1 V			48	1.2 V, 1.5 V, 1.8 V, 2.5 V, 3.3 V	80 MHz
PCIe-7852	781103-01	Virtex-5 LX50		750 kS/s/ch	±10 V			96	3.3 V, 5 V	40 MHz
USB-7845[1]	783200-01	Kintex-7 70T		500 kS/s/ch	±10 V, ±5 V, ±2 V, ±1 V			48	1.2 V, 1.5 V, 1.8 V, 2.5 V, 3.3 V	80 MHz
USB-7856[1]	782916-01	Kintex-7 160T		1 MS/s/ch	±10 V, ±5 V, ±2 V, ±1 V					

[1]Requires power cord.

Required Power Cords for USB RIO Devices

Region / Voltage	Length (m)	Max Current (A)	Part Number
United States 120 VAC	2.3	10	763000-01
United Kingdom 240 VAC	2.5		763064-01
Swiss 220 VAC			763065-01
Australia 240 VAC			763066-01
European 240 VAC, Right Angle			763067-01
North America 240 VAC	3		763068-01
Japan 125 VAC	2.3	12	786377-01
India 250 VAC	2.5	10	763072-01
Korea 220 VAC, Right Angle			784685-01
China 220 VAC			784686-01
Brazil 250 VAC			785626-01
Taiwan 125 VAC		15	787642-01

Shielded accessories improve measurement quality by reducing crosstalk between channels and electromagnetic interference. NI recommends shielded accessories for the best quality measurement. The RMIO cable is specifically shielded for the analog I/O connector and the RDIO cable is for a digital I/O connector.

Reconfigurable I/O Shielded Accessories

Shielded RIO Cables[1]

Description	Length	Part Number	
RMIO Shielded Cables	0.5 m	189588-0R5	
	1 m	189588-01	
	2 m	189588-02	
RDIO Shielded Cables	0.5 m	191667-0R5	
	1 m	191667-01	
RDIO2 High-Speed 80 MHz Shielded Cables	1 m	156166-01	
	2 m	156166-02	

[1]See the table below for compatibility by model.

RIO Cable Compatibility Guide

Model	RMIO	RDIO	RDIO (High-Speed, 80 MHz)
PCIe-7820	—	—	✓
PCIe-7841	✓	✓	—
PCIe-7842	✓	✓	—
PCIe-7846	✓	—	✓
PCIe-7852	✓	✓	—
USB-7845	✓	—	✓
USB-7856	✓	—	✓

Shielded RIO Connector Blocks[1]

Description	Part Number	Selection Criteria	
Shielded Connector Block	782536-01	MIO screw termination connector block	
	782914-01	High-speed DIO screw termination connector block	

[1]See the table below for connector block compatibility by model.

RIO Connector Block Compatibility

Model	MIO Screw Termination Connector Block	High-Speed DIO Screw Termination Connector Block
PCIe-7820	—	✓
PCIe-7841	✓	—
PCIe-7842	✓	—
PCIe-7846	✓	✓
PCIe-7852	✓	—
USB-7845	✓	✓
USB-7856	✓	✓





Develop With:
NI LabVIEW, LabVIEW Real-Time Module, LabVIEW FPGA Module
Driver(s):
NI-XNET

USB/PCI/PCI Express Communication Modules

- Up to four independently configurable ports per module
- Real-time, high-speed manipulation of hundreds of CAN frames and signals such as hardware-in-the-loop simulation, rapid control prototyping, bus monitoring, and automation control modules
- Bandwidth from 40 kb/s to 1,000 Mb/s
- Channel-channel and channel-bus isolation, galvanically isolated up to 60 VDC

Key Features

Synchronization with Mixed I/O

NI vehicle communication bus hardware includes robust timing and triggering options for precise application control, easily synchronizing mixed analog and digital signals with communication interfaces.

Flexibility in Form Factor

The NI-XNET API provides functions for reading and writing automotive Ethernet, CAN, LIN, and FlexRay frames and signals on multiple platforms, including USB, PXI, PCI, NI CompactDAQ, and NI CompactRIO, enabling code re-use between applications.

XNET IP Stack

For automotive Ethernet hardware, the NI-XNET driver provides its own IP stack independent from the OS IP stack. This architecture provides enhanced control and flexibility for test applications such as testing multiple devices in parallel with the same IP address.

USB Communication

Selection Guide	Model	Part Number	Physical Layer	Ports	Connector	Transciever
CAN	USB-8501	786307-01	Low-Speed/Fault Tolerant	2	USB 2.0/DB9	NXP TJA1055T
	USB-8501	786306-01	Low-Speed/Fault Tolerant	1	USB 2.0/DB9	NXP TJA1055T
	USB-8502	784662-01	Flexible Data-Rate, High-Speed	2	USB 2.0/DB9	NXP TJA1043T
	USB-8502	784661-01	Flexible Data-Rate, High-Speed	1	USB 2.0/DB9	NXP TJA1043T
LIN	USB-8506	784664-01	—	2	USB 2.0/DB9	NXP TJA1028
	USB-8506	784663-01	—	1	USB 2.0/DB9	NXP TJA1028

PCIe Communication

Selection Guide	Model	Part Number	Physical Layer	Ports	Connector	Transciever
Hardware-Selectable CAN/LIN	PCIe-8510	785324-01	Low-Speed/ Fault-Tolerant, High-Speed, Flexible Data Rate	4	Proprietary, Compatible with NI TRC-854X Cable	—
	PCIe-8510	785325-01	Low-Speed/Fault Tolerant, High-Speed, Flexible Data Rate	2	Proprietary, Compatible with NI TRC-854X Cable	—
CAN	PCI-8512	780683-02	High-Speed, Flexible Data Rate	2	DB9	NXP TJA1043
	PCI-8512	780683-01	High-Speed, Flexible Data Rate	1	DB9	NXP TJA1043
	PCI-8513	780684-02	Software-Selectable: High-Speed, Flexible Data Rate, Low-Speed/ Fault-Tolerant, Single-Wire	2	DB9	NXP TJA1043
	PCI-8513	780684-01	Software-Selectable: High-Speed, Flexible Data Rate, Low-Speed/ Fault-Tolerant, Single-Wire	1	DB9	NXP TJA1043
LIN	PCI-8516	781365-01	—	2	DB9	ATMEL ATA6625
FlexRay	PCI-8517	780685-02	—	2	DB9	NXP TJA1080 x 2

NI FieldDAQ





Develop With:
NI LabVIEW, NI FlexLogger™ Software, LabWindows™/CVI, Python, C/C++, .NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger Lite

NI FieldDAQ Hardware

- 24-bit resolution and sample rates up to 102.4 kS/s/ch for fast, accurate measurements
- Sensor-specific signal conditioning and filtering for voltage, strain/bridge, accelerometer, microphone, and thermocouple measurements
- Built-in switch for easy daisy-chained distribution
- Designed for applications including environmental and HALT tests, structural test, NVH analysis, rocket engine test, in-flight structural test, off-road vehicle test, and academic research in wind tunnels, temperature chambers and more.

Key Features

Rugged

With IP65/IP67 rating, shock and vibration resistance over 100 g/10grms conditions, and a -40 °C to 85 °C operating range, FieldDAQ takes high-quality measurements as close to the sensor as possible in all-weather conditions like rain, sleet, snow, or mud.

High-Performance

FieldDAQ delivers stable measurements across a wide temperature range, with an impressively low noise floor. 24-bit resolution, simultaneous sample rates up to 102.4 kS/s/ch, and sensor-specific signal conditioning and filtering help you capture accurate measurements across a range of signal types.

Tight Synchronization

FieldDAQ synchronizes measurement data between devices over long distances using Time Sensitive Networking (TSN). TSN provides synchronization accuracy of less than 1 µs, while integrated network switches let you daisy-chain devices for distributed measurements.

Specifications

Measurement	Voltage (±10 V) with Sensor Power	Temperature	Sound/Vibration	Strain/Bridge
FieldDAQ model	**FD-11601**	**FD-11614**	**FD-11634**	**FD-11637**
Part Number	790065-01	790064-01	790066-01	785641-01
Channel Count	8	16	8	8
Supported Sensors	±10 V analog input with sensor power	Thermocouple type: J, K, T, E, N, B, C, R, S	IEPE accelerometers and microphones	Strain gage: quarter-, half-, and full-bridge
Input Connector Type	5-pin A-coded M12 connectors	Universal miniature thermocouple jack	8-pin A-coded M12 connectors	8-pin A-coded M12 connectors
Resolution	24-bit	24-bit	24-bit	24-bit
Sample Rate (Simultaneous)	Up to 102.4 kS/s/ch	Up to 85 S/s/ch	Up to 102.4 kS/s/ch	Up to 102.4 kS/s/ch
Sensor Power or Excitation Output	5 V to 24 V, 600 mW per channel	N/A	4 mA	3 V, 5 V, or 10 V
Filtering	Anti-alias, Butterworth, comb filtering	50 Hz to 60 Hz rejection	Anti-alias, Butterworth, comb filtering	Anti-alias, Butterworth, comb filtering
Isolation	Channel-to-Channel Isolation, and V_{rms}			

Power Supply

Power your FieldDAQ device with an IP67-rated power supply.

Description	Part Number	
IP67 Power Supply, 24 VDC, 6 A[1]	147464-01	

[1] 100-240 VAC input cable not included

Cables

Choose a cable to connect your power supply to the FieldDAQ power input.

Description	Part Number	Length	
L-code M12 5-Pin Female-Pigtail	786172-01	1 m	
	786172-02	2 m	
	786172-03	3 m	

Power additional FieldDAQ devices by connecting them daisy-chain style, with one of these cables per additional module.

Description	Part Number	Length	
L-code M12 5-Pin Female-Male	786173-01	1 m	
	786173-03	3 m	
	786173-0R3	0.3 m	

Tools for Securing the Connection

Use a torque wrench to tighten the power cable connection and ensure a good seal.

Description	Part Number
M12 Torque Wrench, Power	786182-01

Ethernet

Connect your FieldDAQ to Ethernet and secure the connection with the following accessories.

Cables

Connect your first FieldDAQ device to Ethernet using one of these IP67 shielded cables.

Description	Part Number	Length	
X-Code M12 8-Pin Male to RJ45	785944-01	1 m	
	785944-02	2 m	
	785944-03	3 m	
	785944-10	10 m	
X-Code M12 8-Pin Male to RJ45, Right-angle	786171-01	1 m	
	786171-02	2 m	
	786171-03	3 m	

Connect subsequent FieldDAQ devices to Ethernet by daisy-chaining them together, using one of these IP67 shielded cables per additional module.

Description	Part Number	Length	
X-Code M12 8-pin Male-Male	785946-01	1 m	
	785946-03	3 m	
	785946-0R3	0.3 m	
X-Code M12 8-Pin Male-Male, Right-angle	785945-01	1 m	
	785945-03	3 m	
	785945-0R3	0.3 m	

Tools for Securing the Connections

Use a torque wrench to tighten the Ethernet cable connections and ensure a good seal.

Description	Part Number
M12 Torque Wrench, Ethernet and I/O	786181-01

Signal Cables

Select the right IP67 shielded I/O cable to match your specific measurement needs.

Voltage Input (FD-11601, 790065-01)

Choose from the following cables to measure voltage.

Description	Part Number	Length	
A-Code M12 5-Pin Male-Pigtail	785950-01	1 m	
	785950-03	3 m	
	785950-0R3	0.3 m	
A-Code M12 5-Pin Male-Pigtail, Right-angle	785949-01	1 m	
	785949-03	3 m	

IEPE/Sound and Vibration (FD-11634, 790066-01)

Choose from the following cables to measure signals from IEPE and non-IEPE sensors such as accelerometers, tachometers, proximity probes, and even TEDS sensors.

Description	Part Number	Length	
A-Code M12 5-Pin Male-Pigtail	785950-01	1 m	
	785950-03	3 m	
	785950-0R3	0.3 m	
A-Code M12 5-Pin Male-Pigtail, Right-angle	785949-01	1 m	
	785949-03	3 m	
A-Code M12 5-Pin Male-BNC Female	787037-01	1 m	
	787037-03	3 m	
	787037-0R3	0.3 m	
A-Code M12 5-Pin Male-BNC Female, Right-angle	787038-01	1 m	
	787038-03	3 m	
	787038-0R3	0.3 m	

Strain/Bridge Input (FD-11637, 785641-01)

Choose from the following cables to measure strain from quarter-, half-, and full-bridge sensors.

Description	Part Number	Length	
A-Code M12 8-Pin Male-Pigtail	786325-01	1 m	
	786325-03	3 m	
	786325-0R3	0.3 m	
A-Code M12 8-Pin Male-Pigtail, Right-angle	786326-01	1 m	
	786326-03	3 m	
	786326-0R3	0.3 m	

Connectors

Use a field wirable connector to adapt the pigtail end of a sensor wire to an M12 connector and ensure an IP67-rated connection when completed correctly.

Description		Part Number	
Housing: A-Code M12 Male straight Connection: Screw termination (use end splice)	5-Pin	785941-01	
	8-Pin	785940-01	

Tools for Securing I/O Connections

Use a torque wrench to tighten the I/O cable connections and ensure a good seal.

Description	Part Number
M12 Torque Wrench, Ethernet and I/O	786181-01

I/O Caps/Covers for Sealing Out Dust and Water

Protect your equipment from the elements with the following caps.

M12 (FD-11601, -11634, -11637)

M12 connectors must be mated to cables or have caps installed on them to meet IP65/IP67 requirements. Cover the unused connectors with either plastic or metal caps whenever water, dust, or dirt are present.

Metal caps have the highest durability.

Both (Plastic and Metal)	Metal
✓ Dustproof ✓ Waterproof	✓ Highest durability

Select caps to cover unused ports.

Description		Part Number	
Universal M12 Plastic	Ethernet, I/O (Male) Qty. 10	786177-01	
	Power (Female) Qty. 1	786180-01	
Universal M12 Metal	Ethernet, I/O (Male) Qty. 1	786178-01	
	Power (Female) Qty. 1	786179-01	

Mini-TC (FD-11614)

To protect against ESD, water, and dirt, install unconnected mini-TC plugs into all unused terminals, and install a Mini-TC Connector Protection Boot on all mini-TC plugs.

Description	Part Number	
Mini-TC Connector Protection Boot	786394-01	

Mounting

Install a FieldDAQ device onto a DIN rail using the DIN rail mounting kit.

Description	Part Number	
DIN Rail Mounting Kit	786443-01	

NI CompactDAQ (C Series I/O Modules)





Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite software

NI CompactDAQ

- High-speed sensor measurements
- Portable or benchtop validation systems
- Combined sensor and electrical measurements
- PC connection over USB or Ethernet
- Three independent analog input timing engines
- Network-based synchronization support through time-sensitive networking (TSN)

Key Features

Modular I/O (Future Expansion)

Choose from 17 C Series module types and more than 60 variants for a range of measurement and sensor needs. Customize your system with the specifications and connectors you need, then add or swap modules as test requirements evolve.

Synchronization

Synchronize multiple CompactDAQ systems over TSN for accurately correlated measurements across distributed tests. NI-DAQmx simplifies network synchronization while supporting submicrosecond accuracy between chassis.

Counter/Timer Capability

CompactDAQ offers advanced counter/timer capabilities powered by NI System Timing Controller Technology (NI-STC), which is based on 30 years of timing expertise. All CompactDAQ chassis come with four independent 32-bit advanced counters.

CompactDAQ Chassis and Power Cords

CompactDAQ Chassis

Model	Part Number	Connection to PC	Number of Modules Chassis Can Hold	Synchronized Measurements Between Chassis	Built-In Digital Trigger	Operating Temperature
cDAQ-9170	789116-01	USB-C	1	—	—	-20 °C to 55 °C
cDAQ-9173	789115-01		4			-40 °C to 70 °C
cDAQ-9177	789117-01		8		✓	
cDAQ-9179	783597-01	USB 3.0	14			-20 °C to 55 °C
cDAQ-9181	781496-01	Ethernet	1		—	0 °C to 55 °C
cDAQ-9183	789996-01		4	✓	—	-40 °C to 70 °C
cDAQ-9185	785064-01				✓	
cDAQ-9187	789997-01		8		—	
cDAQ-9189	785065-01				✓	

CompactDAQ Chassis Power Cords[1]

Power Cord	Length (m)	Max Current (A)	Part Number
United States 120 VAC	2.3	10	763000-01
United Kingdom 240 VAC	2.5		763064-01
Swiss 220 VAC			763065-01
Australia 240 VAC			763066-01
European 240 VAC, Right Angle			763067-01
North America 240 VAC	3		763068-01
Japan 125 VAC	2.3	12	786377-01
India 250 VAC	2.5	10	763072-01
Korea 220 VAC, Right Angle			784685-01
China 220 VAC			784686-01
Brazil 250 VAC			785626-01
Taiwan 125 VAC		15	787642-01

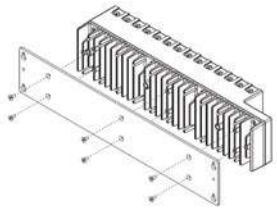
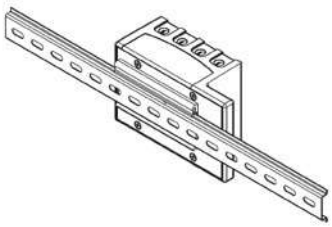
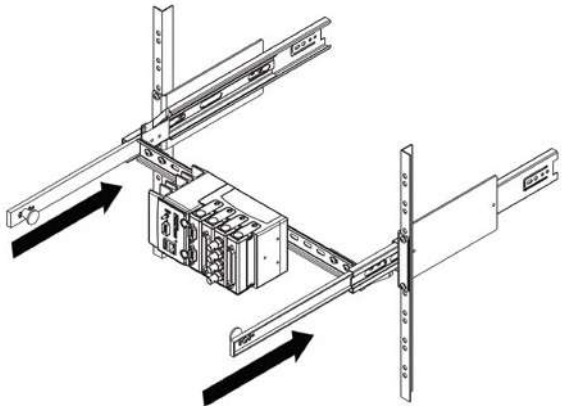
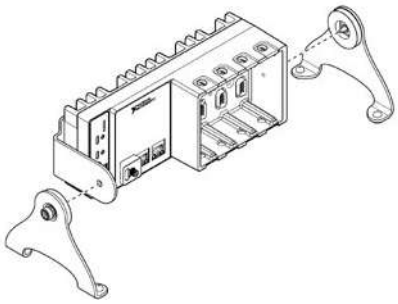
[1]Power cords are required if you're using a desktop power supply. If using an industrial power supply, the CompactDAQ chassis does not need a power cord. Instead, wire it directly to the power supply.

CompactDAQ Chassis Accessories

Mechanical mounting and fixturing is a critical element of a design validation test system. Use the following tables to select a mounting kit as you work through the physical design of your system.

Mounting Kits

Types of Mounting Kits

Type	Selection Criteria and Considerations	
Panel	Use to mount CompactDAQ chassis on flat surfaces Recommended for high shock and vibration applications	
DIN Rail	Mount CompactDAQ chassis and controllers to any standard 35 mm DIN rail Industrial power supplies have DIN mounting options Don't ship systems on DIN rail without considering shock impacts of traditional shipping methods	
Rack-Mount	Use to mount a CompactDAQ chassis on a standard 19-inch rack I/O cables for CompactDAQ systems all come out the same direction Consider space for terminal blocks, power supplies, and cable management	
Desktop	Use for easier access to I/O terminals when working on a desk or benchtop	

Mounting Kits for CompactDAQ Chassis

Type	Part Number	Selection Criteria
Horizontal Panel Mount	781722-01	Horizontal Panel Mounting Kit for 9181/91 Chassis
	779097-01	For any 4-Slot Chassis
	779558-01	For any 8-Slot Chassis
	784303-01	For any 14-Slot Chassis
DIN Rail	779019-01	For 4-Slot cRIO-910x/911x/906x/907x and cDAQ-917x/918x
	781740-01	For NI-9181/9191 Chassis
	779018-01	For 8-Slot cRIO-910x/911x/906x/907x and cDAQ-917x/918x
	157254-01	For 4-Slot cRIO-903x/904x/905x and cDAQ-9132/34/36
Rack	786411-01	Industrial Rack-Mount Kit for CompactRIO and CompactDAQ
Desktop	779473-01	For any CompactDAQ Chassis

Power Supplies

CompactDAQ chassis must be purchased with a 9–30 VDC output power supply (refer to **page 61**). This section contains alternate power supplies.

Power Supplies for CompactDAQ Chassis

Type	Part Number	Selection Criteria
Industrial	783167-01	24 VDC, 3.3 A, 100–240 VAC/110–300 VDC Input
	781094-01	24 VDC, 10 A, 100–120/200–240 VAC Input
Desktop	782698-01	24 VDC, 5 A, 100–240 VAC Input

See the white paper **CompactDAQ Controller and Chassis Mounting Accessories** for more information and images related to mounting CompactDAQ systems.

Use the CompactDAQ advisor to match the right mounting accessories to your chassis. See the **Configuring and Buying a System Online** section.

2D Drawings and 2D CAD Files

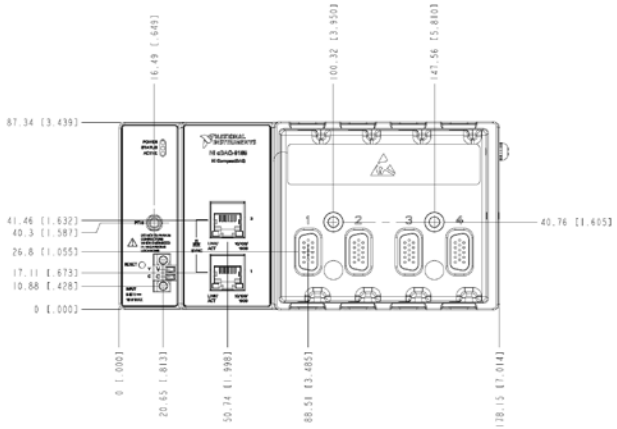


FIGURE 4

2D dimensional drawings and 3D models are available on ni.com. Available file formats for the cDAQ-9185 (2D drawing shown in image) include PDF, DXF, PRT, STP, and IGS.

See the **Dimensional Drawings** support page and enter the product model number (for example, cDAQ-9185) to access 2D drawings and CAD model files.

Module Selection

The following table lists C Series modules by category. Use the individual tables to match your need to a part number. Can't find exactly what you're looking for? There are more than 70 C Series modules; contact your NI Product Expert or authorized reseller for help.

Module Selection Tables

Module Type	Page
Voltage Input Modules	**65**
Current Input Modules	**66**
Voltage and Current Output Modules	**67**
Temperature Modules	**67**
Accelerometer and Microphone Modules	**68**
Bridge, Strain, Load, Pressure, and Torque Modules	**68**
Universal Input Modules	**68**
Digital Input and Output Modules	**68**
Power (Voltage Input) Modules	**70**
Power (Current Input) Modules	**70**
Communication Modules	**70**
Specialty I/O Modules	**71**
Conformal-Coated / Enclosed Module Variants	**72**

Module accessories are grouped by connector type. Use the **Front Connector Type** column in the module tables to find the matching accessory table in the accessories section starting on **page 74**.

Voltage Input Modules

Selection Criteria	Model	Part Number	Front Connector Type	AI Resolution	Max Sample Rate	Differential Channels	Single-Ended Channels	AI Voltage Range	Simultaneous Sampling
General Purpose	NI-9204	789114-01	D-SUB	16-bit	250 kS/s	8	16	±10 V, ±5 V, ±1 V, ±200 mV	—
		789113-01	Spring Terminal						
Higher Channel Count	NI-9205	779357-01	D-SUB			16	32		
		785184-01	Spring-Terminal						
Higher Channel Count, 600 VDC Ch-Earth Ground Isolation	NI-9206	779526-01	Spring-Terminal	16-bit				±10 V	
Higher Channel Count, Higher Resolution	NI-9209	785042-01	Spring-Terminal	24-bit	500 S/s				
		783729-01	D-SUB						
	NI-9320	790068-01	D-SUB	16-bit	250 kS/s		0		✓
		790078-01	Spring-Terminal						
24-bit Resolution, 250 V Channel-Channel Isolation	NI-9239	779593-01	Screw-Terminal	24-bit	50 kS/s/ch	4		±10 V	
		780181-01	BNC						
		789154-01	Snap-In						
60 V Input Range	NI-9229	779785-01	Screw-Terminal					±60 V	
		780180-01	BNC						
		789153-01	Snap-In						
60 V Input Range, Higher Channel Count	NI-9228	783861-01	Screw-Terminal	24-bit	1 kS/s/ch	8			
Lowest Cost, Simultaneous Sampling	NI-9215	779011-01	Screw-Terminal	16-bit	100 kS/s/ch	4		±10 V	
		779138-01	BNC						
		783739-01	Spring-Terminal						
Highest Speed, Simultaneous Sampling	NI-9223	781398-01	Screw-Terminal		1 MS/s/ch				
		783284-01	BNC						
		789125-01	Snap-in						
Medium Speed, Medium Cost	NI-9222	781397-01	Screw-Terminal		500 kS/s/ch				
		783283-01	BNC						
		789124-01	Snap-In						
Selectable Filter, Noise Rejection	NI-9202	784399-01	D-SUB	24-bit	10 kS/s/ch	16			
		784400-01	Spring-Terminal						

Voltage Input Modules (continued)

Selection Criteria	Model	Part Number	Front Connector Type	AI Resolution	Max Sample Rate	Differential Channels	Single-Ended Channels	AI Voltage Range	Simul-taneous Sampling
Digitizer Functionality	**NI-9775**	784539-01	BNC	14-bit	20 MS/s/ch	0	4	±10 V	✓
Low Cost, High-Speed, 12-bit	**NI-9201**	779013-01	Screw-Terminal	12-bit	500 kS/s		8		—
		779372-01	D-SUB						
		783730-01	Spring-Terminal						
High-Speed, 60 V Range, 12-bit	**NI-9221**	779014-01	Screw-Terminal	12-bit	800 kS/s	0	8	±60 V	
		779373-01	D-SUB						
		783732-01	Spring-Terminal						
8-Ch Voltage/ 8-Ch Current Combo Input	**NI-9207**	781068-01	D-SUB	24-bit	500 S/s	8 (Voltage)	—	±10 V / ±20 mA	
		785040-01	Spring-Terminal						

Current Input Modules

Selection Criteria	Model	Part Number	Front Connector Type	Channel Count	AI Resolution	Input Current	Max Sample Rate	AI Isolation
General Purpose	**NI-9203**	779516-01	Screw-Terminal	8	16-bit	±20 mA	200 kS/s	250 V_{rms} Channel-Earth Ground Isolation
		783731-01	Spring-Terminal					
More Channels per Module, 24-bit, 50/60 Hz Rejection	**NI-9208**	780968-01	D-SUB	16	24-bit		500 S/s	60 VDC Channel-Earth Ground Isolation
		785041-01	Spring-Terminal					250 V_{rms} Channel-Earth Ground Isolation
Highest Speed, 24-bit	**NI-9253**	785989-01	Spring-Terminal	8		±20 mA	50 kS/s/ch	250 V_{rms} Channel-Earth Ground Isolation
8-Ch Voltage / 8-Ch Current Combo Input	**NI-9207**	781068-01	D-SUB	8 / 8		±10 V / ±20 mA	500 S/s	60 VDC Channel-Earth Ground Isolation
		785040-01	Spring-Terminal					250 V_{rms} Channel-Earth Ground Isolation

Voltage and Current Output Modules

Selection Criteria	Model	Part Number	Front Connector Type	AO Resolution	Max Update Rate	AO Channels	AO Voltage Range	Max Current Drive	AO Isolation
General Purpose	**NI-9264**	780927-01	D-SUB	16-bit	25 kS/s/ch	16	±10 V	4 mA	60 VDC Channel-Earth Ground Isolation
		785190-01	Spring-Terminal						250 V_{rms} Bank Isolation
Lower Cost, Fewer Channels, Faster	**NI-9263**	779012-01	Screw-Terminal		100 kS/s/ch	4		1 mA	250 V_{rms} Channel-Earth Ground Isolation
		783740-01	Spring-Terminal						250 V_{rms} Channel-Earth Ground Isolation
Channel-Channel Isolated Output, 40 V Range	**NI-9269**	789131-01	Snap-In					10 mA	250 V_{rms} Channel-Channel Isolation
		781098-01	Screw-Terminal						
Highest Speed	**NI-9262**	785503-01	D-SUB		1 MS/s/ch	6	±10 V	2 mA	60 VDC Channel-Earth Ground Isolation
Current Output, Higher Speed	**NI-9265**	779334-01	Screw-Terminal		100 kS/s/ch	4	—	0 mA to 20 mA	250 V_{rms} Channel-Earth Ground Isolation
	NI-9265	783733-01							
Current Output, Higher Channel Count	**NI-9266**	785046-01			24 kS/s/ch	8			
	NI-9266	785047-01	D-SUB						60 VDC Channel-Earth Ground Isolation

Temperature Modules

Selection Criteria	Model	Part Number	Front Connector Type	Sensor Type	Channel Count	Input Range	Max Sample Rate
General Purpose	**NI-9313**	785185-01	Spring-Terminal	Thermocouple	16	±78 mV	75 S/s
		789188-01					1 S/s
More Accuracy (0.37 °C Benchmark)	**NI-9214**	781510-01					68 S/s
Channel-Channel Isolation or TC Minijack Connectors	**NI-9212**	782975-01			8		95 S/s/ch
		785259-01	Miniature Thermocouple (Mini-TC)				
Compact, Mini-TC Connector	**NI-9210**	784788-01			4	±80 mV	14 S/s
		785043-01	Spring-Terminal				
General-Purpose	**NI-9216**	783863-01	D-SUB	RTD	8	0 to 400 Ω	400 S/s
		785186-01	Spring-Terminal				
PT1000 RTD Sensors	**NI-9217**	779592-01	Screw-Terminal		4		100 S/s
	NI-9226	783864-01	D-SUB		8	0 to 4 kΩ	400 S/s
		785189-01	Spring-Terminal				

Accelerometer and Microphone Modules

Selection Criteria	Model	Part Number	Front Connector Type	Channel Count	Input Voltage Range	IEPE Excitation	Max Sample Rate
General Purpose	**NI-9234**	779680-01	BNC	4	±5 V	2 mA	51.2 kS/s/ch
2X Faster Sample Rate	**NI-9250**	783827-01	BNC	2	±5 V	2 mA	102.4 kS/s/ch
2X Faster Sample Rate	**NI-9232**	782000-01	Screw-Terminal	3	±30 V	4 mA	102.4 kS/s/ch
2X Faster Sample Rate	**NI-9232**	784397-01	BNC	3	±30 V	4 mA	102.4 kS/s/ch
2X Faster Sample Rate	**NI-9232**	789129-01	Snap-In	3	±30 V	4 mA	102.4 kS/s/ch
More Channels per Module	**NI-9231**	783610-01	10-32 Coaxial	8	±5 V	2 mA	51.2 kS/s/ch
Lower Cost	**NI-9230**	783824-01	Screw-Terminal	3	±30 V	4 mA	12.8 kS/s/ch
Lower Cost	**NI-9230**	789128-01	Snap-In	3	±30 V	4 mA	12.8 kS/s/ch
Lower Cost	**NI-9230**	784396-01	BNC	3	±30 V	4 mA	12.8 kS/s/ch

Bridge, Strain, Load, Pressure, and Torque Modules

Selection Criteria	Model	Part Number	Front Connector Type	Channel Count	AI Voltage Range	Bridge Configurations	Max Sample Rate
General Purpose	**NI-9237**	779521-01	RJ50	4	±25 mV/V	Quarter-Bridge, Half-Bridge, Full-Bridge	50 kS/s/ch
General Purpose	**NI-9237**	780264-01	D-SUB	4	±25 mV/V	Quarter-Bridge, Half-Bridge, Full-Bridge	50 kS/s/ch
More than 2X 120 Ω Quarter-Bridge Sensors	**NI-9235**	785995-01	Spring-Terminal	8	±29.4 mV/V	Quarter-Bridge	10 kS/s/ch
More than 2X 350 Ω Quarter-Bridge Sensors	**NI-9236**	785996-01	Spring-Terminal	8	±29.4 mV/V	Quarter-Bridge	10 kS/s/ch

Universal Input Modules

Selection Criteria	Model	Part Number	Front Connector Type	Max Sample Rate	Channel Count	AI Isolation	Signal Measured	Supported Sensor Type
General Purpose	**NI-9219**	785994-01	Spring-Terminal	100 S/s/ch	4	250 V_{rms} Channel-Channel Isolation	Voltage, Current, 2- and 4-Wire Resistance, Thermocouple, 3- and 4-Wire RTD, Quarter-Half- and Full-Bridge, DI	Bridge, RTD, Thermocouple
High-Speed Dynamic Signal Input	**NI-9218**	783362-01	D-SUB	51.2 kS/s/ch	2	60 VDC Channel-Channel Isolation	±16 V, ±65 mV, Full-Bridge, IEPE	Accelerometer (Half-Bridge)
High-Speed Dynamic Signal Input	**NI-9218**	783367-01	LEMO	51.2 kS/s/ch	2	60 VDC Channel-Channel Isolation	±16 V, ±65 mV, Full-Bridge, IEPE	Powered Sensor (Quarter-Bridge)

Digital Input and Output Modules

Selection Criteria	Model	Part Number	Front Connector Type	DIO Channels	DI-Only Channels	DO-Only Channels	DIO Logic Levels	Max Update Rate	Signal/ Mode	DIO Isolation
General-Purpose Industrial	**NI-9421**	779136-01	D-SUB	0	8	0	12 V, 24 V	100 µs	SE-Sink	60 VDC Ch-Earth
		783734-01	Spring Terminal							250 V_{rms} Ch-Earth
		779002-01	Screw Terminal							
High-Speed Response	**NI-9425**	785044-01	Spring Terminal	0	32	0	12 V, 24 V	7 µs	SE-Sink	250 V_{rms} Ch-Earth
		779139-01	D-SUB							60 VDC Ch-Earth
	NI-9426	780030-01	D-SUB				24 V		SE-Source	
	NI-9423	783735-01	Spring Terminal		8		12 V, 24 V	1 µs	SE-Sink	250 V_{rms} Ch-Earth
		779009-01	Screw Terminal							
	NI-9475	780132-01	D-SUB		32					
	NI-9437	783393-01	Screw Terminal		8		24 VDC to 250 VDC			
		783737-01	Spring Terminal							
High-Speed Response; Specialized Differential Signaling	**NI-9411**	779005-01	D-SUB	0	6	0	5V TTL, 5V, 12V, 24V	500 ns	SE/DIFF-Sink	60 VDC Ch-Earth
	NI-9435	779010-01	Screw Terminal		4		±5 VDC to ±250 VDC 10 VAC to 250 VAC	3 ms	DIFF-Sink/ Source	250 V_{rms} Ch-Earth
	NI-9422	779522-01	Screw Terminal		8		12V, 24V, 48V	250 µs		250 V_{rms} Ch-Ch
General-Purpose Industrial	**NI-9472**	783907-01	Spring Terminal	0	0	8	12 V, 24 V	100 µs	SE-Source	250 V_{rms} Ch-Earth
		779004-01	Screw Terminal							
		779137-01	D-SUB							60 VDC Ch-Earth
High-Speed Response	**NI-9474**	779003-01	Screw Terminal	0	0	8	12 V, 24 V	1 µs	SE-Source	250 V_{rms} Ch-Earth
		783908-01	Spring Terminal							
	NI-9478	779940-01	D-SUB			16	12V, 24V, 48V	8 µs	SE-Sink	60 VDC Ch-Earth
	NI-9476	785045-01	Spring Terminal			32	12 V, 24 V	40 µs	SE-Source	
	NI-9477	779517-01	D-SUB						SE-Sink	
High-Speed Response; Specialized Differential Signaling	**NI-9470**	787089-01	Ultra-Fit	0	0	8	5V, 12V, 24V, 30V	312 µs	DIFF-Source	60 VDC Ch-Earth
Bidirectional Mixed I/O	**NI-9476**	779140-01	D-SUB	0	8	32	12V, 24V, 48V	1 µs	SE-Source	60 VDC Ch-Earth
	NI-9375	785192-01	Spring Terminal	16	0	0	12 V, 24 V	500 µs	SE-Sink/ Source	
		781030-01	D-SUB							
High-Speed Response (7µs or Faster); TTL / High-Speed Logic	**NI-9401**	782401-01	D-SUB	8	0	0	5 V TTL	25 ns	SE-Sink/ Source	60 VDC Ch-Earth
	NI-9403	779787-01	D-SUB	32			5 V TTL	7 µs		
	NI-9402	779987-01	BNC	4			3.3 V TTL	25 ns		None

Power (Current and 120+ VAC) Modules

Power (Voltage Input) Modules

Selection Criteria	Model	Part Number	Front Connector Type	AI Isolation	AI Resolution	AI Voltage Range	Max Differential Analog	Max Single-Ended Analog	Max Sample Rate	Simul-taneous Sampling
240 VAC	**NI-9242**	783107-01	Screw-Terminal	250 V_{rms} Channel-Earth Ground Isolation	24-bit	400 V_{rms}	0	3	50 kS/s/ch	✓
480 VAC	**NI-9244**	783106-01		400 V_{rms} Channel-Earth Ground Isolation						
Channel-Channel ISO Voltage	**NI-9225**	789126-01	Snap-In	600 V_{rms} Channel-Channel Isolation		300 V_{rms}	3	0		
		780159-01	Screw Terminal							
Connects to 0.33 V CTs	**NI-9238**	789130-01	Snap-In	250 V_{rms} Channel-Channel Isolation		±500 mV	4			
		783311-01	Screw Terminal							

Power (Current Input) Modules

Selection Criteria	Model	Part Number	Front Connector Type	AI Isolation	AI Resolution	Measure Current	Max Differential Analog	Max Single-Ended Analog	Max Sample Rate
Connects to 5 A CTs (20 A Range)	**NI-9246**	783920-01	Ring-Terminal	250 V_{rms} Channel-Channel Isolation	24-bit	0 A_{rms} to 5 A_{rms}	4	0	50 kS/s/ch
High Accuracy, Low Range	**NI-9227**	789127-01	Snap-In						
		781099-01	Screw-Terminal						
Direct Connect, 50 A Range	**NI-9247**	783589-01	Ring-Terminal	480 V_{rms} Channel-Channel Isolation			3		

Communication Modules

Selection Criteria (Protocol)	Model	Part Number	Front Connector Type	Ports	Max Baud Rate
CAN, 2-Port	**NI-9853**	779429-01	D-SUB	2	1 Mb/s
CAN, 1-Port (High-Speed/FD)	**NI-9862**	781639-01	D-SUB	1	1 MB/s
CANopen, NI-XNET, 2-Port (Hardware-Selectable)	**NI-9860**	783703-01	Micro-Fit	2	8 Mb/s
		788651-01	NI-XNET Hardware-Selectable Interface Port	2	8 Mb/s
CANopen, 1-Port	**NI-9881**	781673-01	D-SUB	1	1 Mb/s
LIN, 1-Port	**NI-9866**	781963-01	D-SUB	1	20 kB/s
RS232 Serial, 4-Port	**NI-9870**	779891-02	RJ50	4	921.6 kb/s
RS485/422 Serial, 4-Port	**NI-9871**	779892-02	RJ50	4	3.68 Mb/s

Specialty I/O Modules

Selection Criteria (Sub-Category)	Model	Part Number	Front Connector Type	Channels	Range/Rating	Isolation
Counter/Timer	**NI-9326**	786999-01	Screw-Terminal	6	150 V, 128 kHz Max Frequency	150 V_{rms} Channel-Channel Isolation
	NI-9361	783407-01	D-SUB	8	—	60 VDC Channel-Earth Ground Isolation
Switching	**NI-9485**	779600-01	Screw-Terminal	8	±60 VDC, 750 mA (Solid-State Relay)	60 VDC Channel-Channel Isolation

Conformal-Coated Modules

Selection Criteria (Measurement Type)	Model	Part Number	Front Connector Type	Resolution	Range	Channels
Voltage Input	**NI-9202**	784400-02	D-SUB	24-bit	±10 V	16
	NI-9205	780173-01	D-SUB	16-bit	±10 V	16 DI, 32 SE
	NI-9220	782615-02	D-SUB	16-bit	±10 V	16
	NI-9320	Coming Soon	D-SUB	16-bit	±10 V	16
	NI-9221	779373-02	D-SUB	12-bit	±60 V	8
	NI-9228	783861-02	Screw-Terminal	24-bit	±60 V	8
	NI-9229	779785-02	Screw-Terminal	24-bit	±60 V	4
	NI-9239	782402-01	Screw-Terminal	24-bit	±10 V	4
Voltage Output	**NI-9264**	785190-02	Spring-Terminal	16-bit	±10 V	16
	NI-9264	780927-02	D-SUB	16-bit	±10 V	16
	NI-9262	785503-02	D-SUB	16-bit	±10 V	6
	NI-9265	779334-02	Screw-Terminal	16-bit	0 mA to 20 mA	4
	NI-9266	785047-02	D-SUB	16-bit	0 mA to 20 mA	8
	NI-9269	781098-02	Screw-Terminal	16-bit	±10 V	4
Temperature	**NI-9213**	785185-02	Spring-Terminal	24-bit	±78 mV	16
	NI-9216	783863-02	D-SUB	24-bit	0 Ω to 400 Ω	8
	NI-9226	783864-02	D-SUB	24-bit	0 Ω to 4 kΩ	8
Accelerometer/ Microphone	**NI-9230**	783824-02	Screw-Terminal	24-bit	±30 V	3
	NI-9231	783610-02	10-32 Coaxial	24-bit	±5 V	8
	NI-9232	782000-02	Screw-Terminal	24-bit	±30 V	3
	NI-9234	779680-03	BNC	24-bit	±5 V	4
Bridge/Strain	**NI-9236**	779994-02	Spring-Terminal	24-bit	±29.4 mV/V	8
	NI-9237	780264-02	D-SUB	24-bit	±25 mV/V	4
Universal Input	**NI-9219**	779781-02	Spring-Terminal	24-bit	±60 V	4
Current Input	**NI-9203**	779516-02	Screw-Terminal	16-bit	±20 mA	8
	NI-9208	780968-02	D-SUB	24-bit	±20 mA	16
	NI-9253	785989-02	Spring-Terminal	24-bit	±20 mA	8
DIO	**NI-9375**	781030-02	D-SUB	—	24 V	16 Input + 16 Output
	NI-9401	782401-01	D-SUB	—	5 V TTL	8 Bidirectional
	NI-9403	780179-01	D-SUB	—	5 V TTL	32 Bidirectional
	NI-9411	779005-02	D-SUB	—	5 V	6 Input-Only
	NI-9421	779136-02	D-SUB	—	12 V	8 Input-Only
	NI-9425	780176-01	D-SUB	—	12 V	32 Input-Only
	NI-9426	780030-02	D-SUB	—	24 V	32 Input-Only
	NI-9437	783393-02	Screw-Terminal	—	96 V	8 Input-Only
	NI-9470	787089-02	Ultra-Fit	—	30 V	8 Output-Only
	NI-9472	779004-02	Screw-Terminal	—	12 V	8 Output-Only
	NI-9475	780132-02	D-SUB	—	24 V	8 Output-Only
	NI-9476	780175-01	D-SUB	—	12 V	32 Output-Only
	NI-9477	780174-01	D-SUB	—	24 V	32 Output-Only
	NI-9478	779940-02	D-SUB	—	48 V	16 Output-Only

Conformal-Coated Modules (continued)

Selection Criteria (Measurement Type)	Model	Part Number	Front Connector Type	Resolution	Range	Channels
Power (Voltage Input)	**NI-9225**	780159-02	Screw-Terminal	24-bit	300 V_{rms}	3
Power (Current Input)	**NI-9227**	781099-02	Screw-Terminal	24-bit	0 A_{rms} to 5 A_{rms}	4
Multifunction I/O	**NI-9207**	781068-02	D-SUB	24-bit	±10 V / ±20 mA	8 Voltage + 8 Current
	NI-9381	782580-02	D-SUB	12-bit	0 V to 5 V	8 AI + 8 AO + 4 DIO
Communication	**NI-9853**	780178-01	D-SUB	CAN	1 Mb/s	2
	NI-9860	783703-03	Micro-Fit	CANopen, NI-XNET	8 Mb/s	2
	NI-9881	781673-02	D-SUB	CANopen	1 Mb/s	1
	NI-9870	779891-03	RJ50	RS232	921.6 kb/s	4
	NI-9871	779892-03	RJ50	RS485/422 Serial	3.68 Mb/s	4
Counter/Timer	**NI-9326**	786999-02	Screw-Terminal	—	150 V Max Input	6
	NI-9361	783407-02	D-SUB	—	—	8
Switching	**NI-9485**	779600-02	Screw-Terminal	—	±60 VDC, 750 mA	8

C Series Module Accessories

This table provides general descriptions and images of accessories for C Series modules.

Accessories

Term	Definition	
Backshell	This component surrounds the male or female cable connector to protect the cable connections and provide cable strain relief.	
EMI Suppression Ferrite	This passive electrical component clamps around a cable to reduce electromagnetic interference on the line.	
DIN-Rail-Mount Terminal Block	This mounts a connector block to a DIN rail.	
Front-Mount Terminal Block	This connector block connects to the front of the module.	
Screw-Terminal Block	This type of connector block uses screw terminals as the method for connecting wires to a sensor. (included with module)	
Spring-Terminal Block	This connector block uses spring terminals to connect wires to a sensor (included with module).	

D-SUB Accessories

D-SUB connectors are an industry-standard connector with cables and accessories readily available from a variety of distributors. NI C Series modules use 37-, 25-, and 15-pin versions of the D-SUB connector. All D-SUB module accessories are sold separately. You must purchase accessories to connect to a module.



37-Pin D-SUB Connector on C Series Module NI-9205 (Male Connection)

C Series Modules with D-SUB Connectivity

25-Pin D-SUB	
Model	Part Number
NI-9201	779372-01
NI-9221	779373-01
NI-9401	779351-01
NI-9421	779136-01
NI-9472	779137-01
NI-9475	780132-01

37-Pin D-SUB	
Model	Part Number
NI-9202	784399-01
NI-9205	779357-01
NI-9207	781068-01
NI-9208	780968-01
NI-9209	783729-01
NI-9216	783863-01
NI-9220	782615-01
NI-9226	783864-01
NI-9237	780264-01
NI-9262	785503-01
NI-9264	780927-01
NI-9266	785047-01
NI-9320	790068-01
NI-9361	783407-01
NI-9375	781030-01
NI-9381	782580-01
NI-9403	779787-01
NI-9425	779139-01
NI-9426	780030-01
NI-9476	779140-01
NI-9477	779517-01
NI-9478	779940-01

25-Pin D-SUB Accessories

D-SUB modules require purchase of either a front mount terminal block or a cable and terminal block for signal connections.

Description	Part Number	Selection Criteria	
Front-Mount Terminal Block	781922-01	Disconnect multiple wires at once (recommended)	
Cable	192568-01	1 m	
	192568-02	2 m	
Mounting	781081-01	DIN rail-mount terminal block	

37-Pin D-SUB Accessories

D-SUB modules require purchase of either a front mount terminal block or a cable and terminal block for signal connections.

Description	Part Number	Selection Criteria	
Front-Mount Terminal Block	781503-01	Disconnect multiple wires at once (recommended)	
Cable	778621-01	1 m	
	778621-02	2 m	
	782316-04	Shielded, low-profile D-SUB-to-pigtail, 4 m	
	778620-04	D-SUB-to-pigtail, 12 ft.	
	154302-01	Low-profile, 1 m	

37-Pin D-SUB Accessories (continued)

Description	Part Number	Selection Criteria	
Mounting	778673-01	Screw-terminal block with horizontal DIN rail mount	
	778676-01	Spring-terminal block with horizontal DIN rail mount	

Snap-In Accessories C

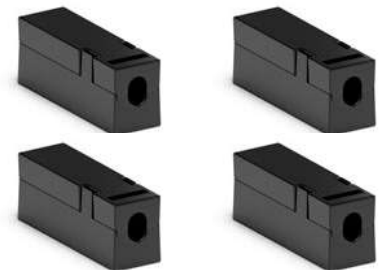
Series Modules with Snap-In Connectivity

Modules with Snap-In connectivity ship with everything needed to connect a signal wire. Purchase connectors as spares or replacements. Purchase the backshell as an optional accessory for strain relief.

C Series Modules with Snap-In Connectivity

Model	Part Number
NI-9222	789124-01
NI-9223	789125-01
NI-9225	789126-01
NI-9227	789127-01
NI-9229	789153-01
NI-9230	789128-01
NI-9232	789129-01
NI-9238	789130-01
NI-9239	789154-01
NI-9269	789131-01

Two-Position Snap-in Terminal Accessories

Part Number	Selection Criteria	
790063-01	Backshell for strain relief (Quantity 4)	
790062-01	Extra connectors (Quantity 10)	

Screw-Terminal Accessories

C Series Modules with Screw-Terminal Connectivity

Modules with screw-terminal connectivity ship with everything needed to connect a signal wire. Purchase terminals as spares or replacements. Purchase the backshell as an optional accessory for strain relief.

Two-Position	
Model	Part Number
NI-9222	781397-01
NI-9223	781398-01
NI-9225	780159-01
NI-9227	781099-01
NI-9229	779785-01
NI-9230	783824-01
NI-9232	782000-01
NI-9238	783311-01
NI-9239	779593-01
NI-9269	781098-01

Four-Position	
Model	Part Number
NI-9242	783107-01
NI-9244	783106-01

10-Position	
Model	Part Number
NI-9201	779013-01
NI-9203	779516-01
NI-9215	779011-01
NI-9221	779014-01
NI-9263	779012-01
NI-9265	779334-01
NI-9421	779002-01
NI-9423	779009-01
NI-9435	779010-01
NI-9437	783393-01
NI-9472	779004-01
NI-9474	779003-01
NI-9482	783906-01

Two-Position Screw-Terminal Accessories

Part Number	Selection Criteria	
196375-01	Backshell for strain relief (Quantity 4)	
196739-01	Extra connectors (Quantity 10)	

Accessories for NI-9242/44 High-Voltage Modules

Part Number	Selection Criteria	
783094-01	Backshell ships with the NI-9242, purchase as spare or replacement (included in shipping kit)	
783154-01	Backshell ships with the NI-9244, purchase as spare or replacement (included in shipping kit)	

10-Position Screw-Terminal Accessories

Part Number	Selection Criteria	
782715-01	Backshell for strain relief (Quantity 1)	
779105-01	Extra connectors (Quantity 10)	

Spring-Terminal Accessories

C Series Modules with Spring-Terminal Connectivity

Modules with screw-terminal connectivity ship with everything needed to connect a signal wire. Purchase terminals as spares or replacements. Purchase the backshell as an optional accessory for strain relief.

Six-Position	
Model	Part Number
NI-9219	785994-01

10-Position	
Model	Part Number
NI-9201	783730-01
NI-9203	783731-01
NI-9215	783739-01
NI-9221	783732-01
NI-9263	783740-01
NI-9265	783733-01
NI-9421	783734-01
NI-9423	783735-01
NI-9437	783737-01
NI-9472	783907-01
NI-9474	783908-01
NI-9482	783906-01

24-Position	
Model	Part Number
NI-9235	785995-01
NI-9236	785996-01

36-Position	
Model	Part Number
NI-9202	784400-01
NI-9205	785184-01
NI-9206	779526-01
NI-9207	785040-01
NI-9208	785041-01
NI-9209	785042-01
NI-9213	785185-01
NI-9216	785186-01
NI-9220	785188-01
NI-9264	785190-01
NI-9208	785041-01
NI-9425	785044-01
NI-9476	785045-01
NI-9375	785192-01

BNC Accessories

C Series Modules with BNC Connectivity

Model	Part Number
NI-9215	779138-01
NI-9222	783283-01
NI-9223	783284-01
NI-9229	780180-01
NI-9234	779680-01
NI-9239	780181-01
NI-9402	779987-01
NI-9775	784539-01
NI-9230	784396-01
NI-9232	784397-01
NI-9250	783827-01

Six-Position Spring-Terminal Accessories

(NI-9219 Universal Module only)

Part Number	Selection Criteria	
786162-01	Backshell for strain relief (Quantity 4)	
785993-01	Extra connectors (Quantity 4)	

10-Position Spring-Terminal Accessories

Part Number	Selection Criteria	
783787-01	Backshell for strain relief and operator protection (Quantity 1)	
197991-01	Extra connectors (Quantity 10)	

Recommended 24-Position Spring-Terminal Accessories

(NI-9235 strain gage module only)

Part Number	Selection Criteria	
786217-01	Backshell for strain relief (recommended)	
785992-01	Extra connectors (Quantity 1)	

36-Position Spring-Terminal Accessories

Part Number	Selection Criteria	
785080-01	Backshell for strain relief (Quantity 1)	
785502-01	Extra connectors (Quantity 1)	

BNC Accessories

Part Number	Selection Criteria	
159103-02	50 Ω BNC-BNC Cable, 2 m	
779697-02	75 Ω BNC-BNC Cable, 2 m	
782802-01	Ferrite For EMI Suppression[1]	

[1]This accessory is required for the NI-9230/9232.

Specialty Connector Accessories—Mini-TC, DIN, Ring, RJ50

C Series Modules with Specialty Connectors

Mini-TC	Part Number
NI-9210	784788-01
NI-9212	785259-01

DIN	Part Number
NI-9212	782975-01
NI-9214	781510-01

RJ50	Part Number
NI-9237	779521-01

Ring	Part Number
NI-9246	783920-01
NI-9247	783589-01

Accessories for NI-9212 Thermocouple Module

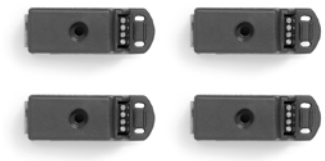
Part Number	Selection Criteria	
784486-01	Extra mini-TC front-mount terminal block for NI-9212	
783643-01	Extra screw-terminal front mount terminal block for NI-9212	

Accessories for NI-9214 Thermocouple Module with Screw Terminals

Part Number	Selection Criteria	
781511-01	Purchase terminal block for NI-9214 as spare/ replacement	

RJ50 Accessories

Note: The RJ50 connector is NOT compatible with standard Ethernet cables.

Part Number	Selection Criteria	
196809-01	RJ50 (female)-to screw-terminal adapter (Quantity 4)	
194738-01	120 Ω quarter-bridge completion terminal block (Quantity 4)	
194739-01	350 Ω quarter-bridge completion terminal block (Quantity 4)	
194611-01	Connector and terminal kit for four-position micro-fit plug that you can use with the NI-9237	
194612-02	RJ50 cable, 2 m (Quantity 4)	
194612-10	RJ50 cable, 10 m (Quantity 1)	

Accessories for NI-9246/47 Current Transformer Modules

Part Number	Selection Criteria	
784300-01	Backshell for strain relief and operator protection for NI-9246/9247 (Quantity 1). Included in shipping kit. Purchase as replacement.	

[1]Power cords are required if you're using a desktop power supply. If using an industrial power supply, the CompactDAQ chassis does not need a power cord. Instead, wire it directly to the power supply.

NI CompactRIO/ Single-Board RIO/ System on Module (SOM)





Develop With:
NI LabVIEW, NI LabVIEW Real-Time Module, LabVIEW FPGA, C/C++ where supported
Driver(s):
NI CompactRIO driver, shared NI-RIO components, NI-DAQmx for supported DAQmx-mode controllers/modules

NI CompactRIO

- Rugged, modular data acquisition and control system with an integrated processor and user-programmable FPGA
- Direct FPGA-to-I/O connectivity for faster data processing and precise I/O timing control
- TSN-enabled for deterministic communication and synchronized system operation
- Ideal for rapid control prototyping; rugged, high-speed data-logging; and advanced control beyond PLC performance

Key Features

Program with LabVIEW

Use one software environment—LabVIEW—to build and deploy time-critical applications. Program both the processor and user-programmable FPGA without having to program in HDL/VHDL.

Combined Control and Instrumentation-Grade Measurements

Integrate high-speed waveform measurements for voltage, vibration, strain, and more with analog and digital control signals for a fully custom test and control system.

Linux Real-Time OS

Harness the openness and reliability of the NI Linux Real-Time OS through thousands of open-source applications, IP, and examples, while collaborating with an active community of users and developers.

CompactRIO Controllers

Model	Part Number	Slots	Processor	FPGA Coprocessor
cRIO-9040	785624-01	4	1.30 GHz Dual-Core Intel Atom	Good
cRIO-9041	786369-01	4	1.30 GHz Dual-Core Intel Atom	Good
cRIO-9042*	785622-01	4	1.60 GHz Dual-Core Intel Atom	Good
cRIO-9043	785620-01	4	1.30 GHz Dual-Core Intel Atom	Better
cRIO-9045	785623-01	8	1.30 GHz Dual-Core Intel Atom	Good
cRIO-9046	786370-01	8	1.30 GHz Dual-Core Intel Atom	Good
cRIO-9047*	785621-01		1.60 GHz Quad-Core Intel Atom	Good
cRIO-9048*†	785619-01		1.30 GHz Dual-Core Intel Atom	Better
cRIO-9049	785618-01		1.60 GHz Quad-Core Intel Atom	Best
cRIO-9053	786424-01	4	1.33 GHz Dual-Core Intel Atom	Good
cRIO-9054	786425-01	4	1.33 GHz Dual-Core Intel Atom	Better
cRIO-9055	787043-01	4	1.33 GHz Dual-Core Intel Atom	Better
cRIO-9056	786426-01	8	1.33 GHz Dual-Core Intel Atom	Good
cRIO-9057	786427-01	8	1.33 GHz Dual-Core Intel Atom	Better
cRIO-9058	787044-01	8	1.33 GHz Dual-Core Intel Atom	Better

*Available with conformal coating—a protective layer that enhances resistance to moisture, dust, and chemicals. Coated versions have different part numbers; visit ni.com for accurate ordering information.

†Available with TPM 2.0

The CompactRIO Expansion I/O chassis extends the capabilities of CompactRIO systems by providing additional slots for C Series I/O modules for flexible, high-performance data acquisition and control in rugged, industrial environments. It seamlessly integrates with existing CompactRIO controllers for synchronized, distributed measurement and control applications.

CompactRIO Expansion I/O Chassis

Model	Part Number	Slots	Processor	FPGA	Operating Temperature
NI-9145	784756-01	8	EtherCAT	Good	-40 °C to 70 °C
NI-9147*	783496-01	4	Ethernet		
NI-9149*	783376-01	8			

*Available with conformal coating—a protective layer that enhances resistance to moisture, dust, and chemicals. Coated versions have different part numbers; visit ni.com for accurate ordering information.

Power Cords for CompactRIO Controllers (Required)[1]

Region / Voltage	Length (m)	Max Current (A)	Part Number
United States 120 VAC	2.3	10	763000-01
United Kingdom 240 VAC	2.5		763064-01
Swiss 220 VAC			763065-01
Australia 240 VAC			763066-01
European 240 VAC, Right Angle			763067-01
North America 240 VAC	3		763068-01
Japan 125 VAC	2.3	12	786377-01
India 250 VAC	2.5	10	763072-01
Korea 220 VAC, Right Angle			784685-01
China 220 VAC			784686-01
Brazil 250 VAC			785626-01
Taiwan 125 VAC		15	787642-01

[1]Power cords are required with a desktop power supply. If using an industrial power supply, the CompactRIO controllers do not need a power cord. Instead, wire them directly to the power supply.



Develop With:
LabVIEW, LabVIEW RT, LabVIEW FPGA, C/C++ where supported
Driver(s):
CompactRIO driver/NI-RIO shared components

Single-Board RIO (sbRIO)

Single-Board RIO:

- Combines a real-time processor, FPGA, and I/O on a single board.
- Designed for high performance and reliable operation.
- Ideal for industrial control, monitoring, and embedded applications.

Key Features

Real-Time Processor

Provides deterministic performance for embedded applications, ensuring reliable and timely high-level code execution.

Integrated FPGA

Offers high-speed processing for time-critical tasks, giving precise control over I/O timing and rapid prototyping.

Rugged Design

Built to withstand harsh environments and support extended temperature ranges, vibration, and shock, making it suitable for industrial and critical settings

sbRIO Hardware

		sbRIO-9603	sbRIO-9609	sbRIO-9628	sbRIO-9629	sbRIO-9638	sbRIO-9651
Description		DIO		Multifunction I/O			SOM
Part Number	Dev Kit	787287-01	787289-01	787296-01	787298-01	787297-01	783525-01
	OEM Kit	787287-02	787289-02	787296-02	787298-02	787297-02	783525-02
Performance	Processor	Intel 1.33 GHz Dual-Core	Intel 1.91 GHz Quad-Core	Intel 1.33 GHz Dual-Core	Intel 1.91 GHz Quad-Core	Intel 1.33 GHz Dual-Core	667 MHz Dual-Core ARM Cortex A9
	RAM (DDR3L)	1 GB	2 GB	1 GB	2GB	1 GB	512 MB
	Disk (eMMC)	4 GB					512 MB
	FPGA	XC7A75T	XC7A200T	XC7A100T	XC7A200T	XC7A100T	XC7Z020
Onboard Peripherals	TSN Enabled	✓		—	✓		—
	Ethernet	2x IEEE 802.1AS-2011IEEE 1588-2008 (default end-to-end profile)					
	USB Type-C port	USB 2.0 device					—
	USB Type-C port	1x USB 3.1 Gen 1 Host					—
	DisplayPort Alt Mode	—	✓			—	—
	USB Type-A port	—		2x USB 2.0 host			1x USB 2.0 Host or Device
	SD port	—		microSDHC			
	CAN port	1x CAN FD					2x CAN
	RS-232 port	1x		2x			1x
	RS-485 port	—		1x			2x
Onboard IO	Analog I/O	—		DI/SE 8/16 Differential, 233 kS/s, 16-bit, ±10 V to ±1 V			—
				4x AO 100 kS/s/ch, 16-bit, ±10 V			—
	DIO (5 V tolerant)	—		4x DIO		28x DIO	—
RMC Connector	C Series	2x C Series interfaces				—	—
	USB	USB 2.0 host				—	—
	DIO	96x DIO, 3.3 V/2.5 V SE/Differential				—	160x DIO, 3.3 V/ 2.5 V/1.8 V/ 1.5 V/1.2 V SE
	PCIe	1x PCIe x1 Gen 2.0				—	—
	SATA	1x SATA Gen 2.0				—	—
	Power	Optional Input Power from RMC (9 V to 30 V), Output power to RMC (3.3 V and 5 V, FPGA VIO)				—	—

Note: sbRIO-9651 uses a J1 connector and not RMC

sbRIO Accessories

Model	Part Number	Description
sbRIO-9684	785257-01	RIO mezzanine card with GPIC I/O board, including 16-BIT 180 KS/S SSAI, DI, DO, LVTLL, HB DO, RELAY CONTROL DO, SCAN AI, AO
Thermal Kit for sbRIO-9603/08/09/28/29/38	787331-01	Thermal kit for sbRIO-9603/08/09/28/29/38, heat spreader, thermal pads, mounting hardware
Standoff	154752-01	9.65 mm standoff for RIO mezzanine cards (4X STANDOFF: 4-40 X 0.380 IN, 8X SCREWS: 4-40 X 1/4 IN)
sbRIO Breakout Box	784507-01	Onboard I/O breakout for 50-pos 2 mm IDC header (includes qty. 2, 6 in. 2 mm IDC ribbon cables)
sbRIO I/O Ribbon Cable	154041-12	50-pin ribbon cable with IDC headers
sbRIO Power Cable	152834-01	Power cable for sbRIO controllers, two-position mini-fit JR to pigtail

NI PXI Systems



Built for automated test, NI PXI is a rugged, PC-based platform for measurement and automation systems that uses modular instrumentation and software to ensure unparalleled accuracy, timing, and synchronization for high-channel, mixed-measurement applications from the lab to the manufacturing line. Developed in 1997 and launched in 1998, PXI is an open industry standard governed by the PXI Systems Alliance (PXISA), a group of more than 70 companies chartered to promote the PXI standard, ensure interoperability, and maintain the PXI specification across its mechanical, electrical, and software architectures.

Why PXI for Automated Test?

Modularity and Scalability—Use PXI's modular architecture to customize and scale test systems with multiple instruments from DC to the mmWave spectrum. Continuously evolve test systems by integrating new modular instruments, ensuring adaptability to changing requirements.

Designed for Advanced Applications—NI PXI offers unparalleled instrument performance, data throughput, latency, and synchronization for advanced test and measurement applications.

Software-Defined—NI PXI's open architecture helps you develop application-specific measurement and analysis programs to enhance automated test productivity. With a comprehensive and connected set of software tools, it offers a seamless development experience with a consistent software interface across multiple instruments.

Vibrant Ecosystem—With NI's global vendor, integrator, and consultant network, achieve unsurpassed customization and support. Connect with a global community of solution providers, systems integrators, consultants, and product developers ready to guide you to your next innovation.

How to Build a PXI Test and Measurement System



1. Chassis

Select a PXI chassis based on your system size and performance. Some chassis include a built-in controller.



2. Controller

- For systems with a built-in computer, choose a PXI embedded controller like you would a desktop PC.
- For laptop or remote control, select a remote Thunderbolt™ chassis from the Chassis Selection Table or explore PXI modules from the PXI Remote Control Module Selection Table.



3. Instruments (Modules)

Choose your instruments and measurement modules from the PXI Instrumentation section.



PXI Chassis

NI PXI chassis offer:

- Up to 24 GB/s system bandwidth and 8 GB/s per-slot of dedicated bandwidth
- Size options ranging from 2 to 18 slots
- Hybrid slots for instrumentation flexibility; PXI, PXI Express, CompactPCI, and CompactPCI Express module compatibility
- Up to 82 W per slot of power and cooling for more advanced I/O modules

Key Features

Timing and Synchronization

NI PXI Express chassis incorporate a dedicated 10 MHz system reference clock, PXI trigger bus, star trigger bus, and slot-to-slot local bus, as well as a 100 MHz differential system clock, differential signaling, and differential star triggers for advanced timing and synchronization.

Peer-to-Peer Streaming

Use NI PXI Express chassis and software for peer-to-peer communication from a modular instrument to an FPGA module for inline signal processing that bypasses the PXI embedded controller.

Cooling

All NI PXI Express chassis exceed PXI Express requirements by providing at least 38.25 W of power and cooling to every peripheral slot; some chassis push slot cooling capacity even further by providing 58 W or 82 W of cooling to a single slot.

PXI Chassis

Selection Guide	Model	Part Number	Chassis Power-Supply Type	Max System Bandwidth	Slot Cooling Capacity	Onboard Clock Type	Slot Count	External Clocking	External Trigger Access
Entry-Level, Low Slot Count	**PXIe-1071**	781368-01	AC	3 GB/s	38 W	VCXO	Total: 4 Controller: 1 Hybrid: 3 PXI Express: 0 System Timing: 0	—	—
	PXIe-1090	787040-01	AC	2 GB/s	58 W	VCXO	Total: 2 Controller: 0 Hybrid: 1 PXI Express: 1 System Timing: 0	✓	—
	PXIe-1083	787026-01	AC	2 GB/s	58 W	VCXO	Total: 5 Controller: 0 Hybrid: 5 PXI Express: 0 System Timing: 0	✓	✓
	PXIe-1091DC	789621-01	DC	24 GB/s	58 W	VCXO	Total: 4 / Controller: 1 Hybrid: 3 / PXI Express: 0 System Timing: 0	✓	✓
Entry-Level or Prior Generation, Medium and High Slot Count	**PXIe-1081**	790631-01	AC	2 GB/s	58 W	VCXO	Total: 18 Controller: 1 Hybrid: 17 PXI Express: 0 System Timing: 0	—	—
	PXIe-1084	784058-01	AC	4 GB/s	58 W	VCXO	Total: 18 Controller: 1 Hybrid: 17 PXI Express: 0 System Timing: 0	—	—
		786397-01						✓	✓
	PXIe-1085	783588-01	AC	24 GB/s	38 W	VCXO	Total: 18 Controller: 1 Hybrid: 16 PXI Express: 0 System Timing: 1	✓	—
	PXIe-1086DC	787137-01	DC	12 GB/s	38 W	VCXO	Total: 18 Controller: 1 Hybrid: 16 PXI Express: 0 System Timing: 1	✓	—
	PXIe-1088	784782-01	AC	8 GB/s	58 W	VCXO	Total: 9 Controller: 1 Hybrid: 8 PXI Express: 0 System Timing: 0	—	—
Highest Performance, Newest-Generation	**PXIe-1092**	784781-01	AC	24 GB/s	82 W	VCXO	Total: 10 Controller: 1 Hybrid: 7 PXI Express: 0 System Timing: 1 Expansion: 1	—	—
		786991-01				OCXO		✓	✓
	PXIe-1095	783882-01	AC	24 GB/s	82 W	VCXO	Total: 18 Controller: 1 Hybrid: 5 PXI Express: 11 System Timing: 1	—	—
		785971-01				OCXO		✓	✓

PXI Chassis Accessories

PXI Chassis Power Cords

Region / Voltage	Length (m)	Max Current (A)	Part Number
United States 120 VAC	2.3	10	763000-01
United Kingdom 240 VAC	2.5		763064-01
Swiss 220 VAC			763065-01
Australia 240 VAC			763066-01
European 240 VAC, Right Angle			763067-01
North America 240 VAC	3		763068-01
Japan 125 VAC	2.3	12	786377-01
India 250 VAC	2.5	10	763072-01
Korea 220 VAC, Right Angle			784685-01
China 220 VAC			784686-01
Brazil 250 VAC			785626-01
Taiwan 125 VAC		15	787642-01

MXI-Express Cable

Part Number	779500-01	779500-03	779500-07
Description	MXI-Express Cable, Gen 1 X1, Copper, 1 m	MXI-Express Cable, Gen 1 X1, Copper, 3 m	MXI-Express Cable, Gen 1 X1, Copper, 7 m
PXIe-1073	✓	✓	✓

PXI Chassis Trigger Cable

Part Number	149055-0R2
Description	Chassis D-SUB Trigger Breakout Cable To 6 BNC For PFI 0-3, Remote Inhibit and Fault, 20 cm
PXIe-1084	✓
PXIe-1092 Timing and Synchronization (786991-01)	✓
PXIe-1095 Timing and Synchronization (785971-01)	✓

PXI Rack-Mount Kit

Part Number	788347-01	778948-01	778644-01	778644-02	787525-01	781634-01	786371-01	786372-01	786969-01	786970-01
Description	PXIe-1090 Chassis Rack-Mount Kit	PXI-103X and 107x Rack-Mount Kit	PXI 18-Slot Front Rack-Mount Kit	PXI 18-Slot Rear Rack-Mount Kit	Rack-Mount Kit For PXIe-1088	Rack-Mount Kit For PXIe-1078 and PXIe-1088 (Legacy)	PXI 18-Slot Front Rack-Mount Kit, Extended Recess	PXI 18-Slot Rear Rack-Mount Kit, Extended Recess	PXIe-1092 Chassis Front Rack-Mount Kit, Extended Recess	PXIe-1092 Chassis Rear Rack-Mount Kit, Extended Recess
PXIe-1071	—	✓	—	—	—	—	—	—	—	—
PXIe-1090	✓	—	—	—	—	—	—	—	—	—
PXIe-1083	—	✓	—	—	—	—	—	—	—	—
PXIe-1091DC	—	✓	—	—	—	—	—	—	—	—
PXIe-1081	—	—	—	—	—	—	✓	✓	—	—
PXIe-1084	—	—	—	—	—	—	✓	✓	—	—
PXIe-1085	—	—	✓	✓	—	—	—	—	—	—
PXIe-1086DC	—	—	✓	✓	—	—	—	—	—	—
PXIe-1088	—	—	—	—	✓	✓	—	—	—	—
PXIe-1092	—	—	—	—	—	—	—	—	✓	✓
PXIe-1095	—	—	—	—	—	—	✓	✓	—	—

Thunderbolt 3 Male-to-Male Cable

Part Number	785607-02	785608-02	787580-0R8
Description	Thunderbolt 3 Type-C Cable, Active 40 Gb/S, 3A, 2 m	Thunderbolt 3 Type-C Cable, Passive 20 Gb/S, 5A, 2 m	Thunderbolt 3 Type-C Cable, Passive 40 Gb/S, 5A, 0.8 m
PXIe-1090	✓	✓	✓
PXIe-1083	✓	✓	✓

HDMI Trigger Cable

Part Number	148864-01	148864-02	149055-0R2
Description	HDMI Cable for Trigger Routing (1 m)	HDMI Cable for Trigger Routing (2 m)	Chassis Trigger Breakout Cable (0.2 m)
PXIe-1084 Timing and Synchronization (786397-01)	✓	✓	✓
PXIe-1092 Timing and Synchronization (786991-01)	✓	✓	✓
PXIe-1092	✓	✓	✓
PXIe-1095	✓	✓	✓
PXIe-1095 Timing and Synchronization (785971-01)	✓	✓	✓

Power Supply Replacement

Part Number	782106-01	782107-01	784057-01	781719-01	786300-01
Description	Replacement Power Supply for NI PXIe-1066DC and PXIe-1086DC	Replacement Power Supply for NI PXIe-1066DC and PXIe-1086DC —for EU	Power Supply Filler Panel for PXIe-1066DC and PXIe-1086DC	Replacement Power Supply for PXIe-1085	Upgrade/ Replacement Power Supply for PXIe-1092 or PXIe-1095
PXIe-1071	—	—	—	—	—
PXIe-1090	—	—	—	—	—
PXIe-1083	—	—	—	—	—
PXIe-1091DC	—	—	—	—	—
PXIe-1081	—	—	—	—	—
PXIe-1084	—	—	—	—	—
PXIe-1085	—	—	—	✓	—
PXIe-1086DC	✓	✓	✓	—	—
PXIe-1088	—	—	—	—	—
PXIe-1092	—	—	—	—	✓
PXIe-1095	—	—	—	—	✓

Fan Replacement Kits

Part Number	784854-01	791013-01	786324-02	786972-01	786324-01
Description	Chassis Fan Replacement Kit for PXIe-1078 and PXIe-1088	Chassis Fan Replacement Kit for PXIe-1088	Replacement Fan Assembly for NI PXIe-1081 and PXIe-1084	Fan Replacement Kit for PXIe-1092 Chassis	Replacement Fan Assembly for NI PXIe-1095
PXIe-1071	✓	—	—	—	—
PXIe-1090	—	—	—	—	—
PXIe-1083	✓	—	—	—	—
PXIe-1091DC	✓	—	—	—	—
PXIe-1081	—	—	✓	—	—
PXIe-1084	—	—	✓	—	—
PXIe-1085	—	—	—	—	—
PXIe-1086DC	—	—	—	—	—
PXIe-1088	—	✓	—	—	—
PXIe-1092	—	—	—	✓	—
PXIe-1095	—	—	—	—	✓

NI PXI Carrying Case

Part Number	780398-01
Description	PXI Carrying Case for Midsize Chassis (10 Slots or Fewer)
PXIe-1071	✓
PXIe-1090	—
PXIe-1083	✓
PXIe-1091DC	✓
PXIe-1081	—
PXIe-1084	—
PXIe-1085	—
PXIe-1086DC	—
PXIe-1088	✓
PXIe-1092	✓
PXIe-1095	—



Develop With:
NI LabVIEW, NI TestStand, LabWindows/CVI, Python, C/C++, .NET
Driver(s):
PXI Platform Services
Included:
Windows or NI Linux Real-Time OS

PXI Controllers

With NI PXI controllers, take advantage of:

- The latest high-performance Intel processors, available with up to 8 cores
- Compatible with Windows 11, Windows 10, Windows 7, Linux Desktop (RHEL, OpenSUSE, Ubuntu), NI Linux Real-Time
- Memory and storage up to 512 GB and 64 GB, respectively
- Solid-state drives, Thunderbolt™ 3, USB 3.0, Gigabit Ethernet, and other peripheral ports

Key Features

High Performance

NI maintains close partnerships with key processor manufacturers, including Intel and Advanced Micro Devices, so NI controllers feature the latest processors, such as Intel Atom, Core i7, and Xeon.

Durability

NI offers PXI controllers with solid-state drives (SSDs) so that you can test under a wide range of conditions. Controllers with SSDs are designed to operate in extreme shock, high altitude, and random vibration environments.

Data Security

The Trusted Platform Module, a secure cryptoprocessor, is a component on select embedded controllers specifically designed to elevate platform security above the capabilities of today's software by providing a protected space for key operations and other security-critical tasks.

PXI Controller Modules

Selection Guide	Model	Part Number	Controller OS	Processors and Cores	Max Controller Bandwidth	Storage Drive	Memory	TPM Version*
Good, Intel Core i3	PXIe-8822	787881-00	No OS	11th Gen Intel Core i3-11100HE, 4 Core	4 GB/s	512 GB	8 GB standard, 16 GB maximum; DDR4-3200, non-ECC SODIMM	—
		787881-01	Windows 10 IoT LTSC 21H2 64-bit					2.0 (Infineon/ST, Global Market)
		787881-0118						2.0 (Nations Tech, China Market)
		787881-33	LabVIEW Real-Time (NI Linux Real-Time)					—
		788815-01	Windows 11 IoT LTSC 24H2 64-bit					2.0 (Infineon/ST, Global Market)
		788815-0118						2.0 (Nations Tech, China Market)
Better, Intel Core i5	PXIe-8842	787882-00	No OS	11th Gen Intel Core i5-11500HE, 6 Core	8 GB/s	512 GB	8 GB standard, 16 GB maximum; DDR4-3200, non-ECC SODIMM	2.0 (Infineon/ST, Global Market)
		790657-01**	Windows 10 IoT LTSC 21H2 64-bit					2.0 (Infineon/ST, Global Market)
		787882-01						2.0 (Infineon/ST, Global Market)
		790657-0118**						2.0 (Nations Tech, China Market)
		787882-0118						2.0 (Nations Tech, China Market)
		790657-33**	LabVIEW Real-Time (NI Linux Real-Time)					—
		787882-33						—
		790658-01**	Windows 11 IoT LTSC 24H2 64-bit					2.0 (Infineon/ST, Global Market)
		788816-01						2.0 (Infineon/ST, Global Market)
		790658-0118**						2.0 (Nations Tech, China Market)
		788816-0118						2.0 (Nations Tech, China Market)

(continued on next page)

* TPM Versions: In order to run Windows 11 on your PC, it must be installed with Trusted Platform Module (TPM) 2.0. The latest NI controllers offer TPM support. Please see the table above for regional TPM types and restrictions; currently, Global Market and China Market. Please contact NI support with questions.

**NI Controllers I/O: This part number does not include a GPIB port. Please check the model page for full I/O specs. NI controllers typically offer RS-232 Serial, DisplayPort 1.4, Ethernet, Thunderbolt 4, USB 2.0, USB 3.2, Trigger, Reset Button, and LEDs. GPIB ports are not included on all part numbers.

PXI Controller Modules

Selection Guide	Model	Part Number	Controller OS	Processors and Cores	Max Controller Bandwidth	Storage Drive	Memory	TPM Version*
Best, Intel Core i7	PXIe-8862	787987-00	No OS	11th Gen Intel Core i7-11850HE, 8 Core	16 GB/s	512 GB	16 GB standard, 32 GB maximum; DDR4-3200, non-ECC SODIMM	2.0 (Infineon/ST, Global Market)
		790662-01**	Windows 10 IoT LTSC 21H2 64-bit			512 GB		2.0 (Infineon/ST, Global Market)
		787987-01				512 GB		2.0 (Infineon/ST, Global Market)
		790663-0118**				512 GB		2.0 (Nations Tech, China Market)
		787987-0118				512 GB		2.0 (Nations Tech, China Market)
		789857-01				512 GB		2.0 (Infineon/ST, Global Market)
		788167-01				960 GB (U.2, Removable)		2.0 (Infineon/ST, Global Market)
		789546-01				512 GB		—
		790659-33**	LabVIEW Real-Time (NI Linux Real-Time)			512 GB		—
		787987-33				512 GB		—
		788167-33				960 GB (U.2, Removable)		—
		790660-01**	Windows 11 IoT LTSC 24H2 64-bit			512 GB		2.0 (Infineon/ST, Global Market)
		788817-01				512 GB		2.0 (Infineon/ST, Global Market)
		790660-0118**				512 GB		2.0 (Nations Tech, China Market)
		788817-0118				512 GB		2.0 (Nations Tech, China Market)
		790661-01**				960 GB (U.2, Removable)		2.0 (Infineon/ST, Global Market)
		788818-01						2.0 (Infineon/ST, Global Market)
		790974-01	No OS				64 GB standard ; DDR4-3200, non-ECC SODIMM	2.0 (Infineon/ST, Global Market)
		790975-0118						2.0 (Nations Tech, China Market)
		790976-01	Windows 11 IoT LTSC 24H2 64-bit			512 GB		2.0 (Infineon/ST, Global Market)
		790977-0118						2.0 (Nations Tech, China Market)
		790978-01				960 GB (U.2, Removable)		2.0 (Infineon/ST, Global Market)
		790979-01				512 GB		2.0 (Infineon/ST, Global Market)
		790980-0118						2.0 (Nations Tech, China Market)
		790981-01						--
		790982-01						2.0 (Infineon/ST, Global Market)
		790983-0118						2.0 (Nations Tech, China Market)

* TPM Versions: In order to run Windows 11 on your PC, it must be installed with Trusted Platform Module (TPM) 2.0. The latest NI controllers offer TPM support. Please see the table above for regional TPM types and restrictions; currently, Global Market and China Market. Please contact NI support with questions.

**NI Controllers I/O: This part number does not include a GPIB port. Please check the model page for full I/O specs. NI controllers typically offer RS-232 Serial, DisplayPort 1.4, Ethernet, Thunderbolt 4, USB 2.0, USB 3.2, Trigger, Reset Button, and LEDs. GPIB ports are not included on all part numbers.

Controller Accessories

Hard Drives

Hard Drive	1 TB NVMe Solid-State Drive Upgrade For PXIe-8822/8842/8862, M.2, 80 mm	Spare 512 GB NVMe Solid-State Drive for PXIe-8822/8842/8862, M.2, 80 mm
Part Number	788898-01	788897-01
PXIe-8822	✓	✓
PXIe-8842	✓	✓
PXIe-8862	✓	✓

RAM

RAM	16 GB DDR4 3200 SO-DIMM RAM for PXIe-8822/8842/8862
Part Number	788899-01
PXIe-8822 [787881-01]	✓
PXIe-8822 [787881-0118]	✓
PXIe-8822 [787881-33]	✓
PXIe-8822 [788815-01]	✓
PXIe-8822 [788815-0118]	✓
PXIe-8842 [790657-01]	✓
PXIe-8842 [787882-01]	✓
PXIe-8842 [790657-0118]	✓
PXIe-8842 [787882-0118]	✓
PXIe-8842 [790657-33]	✓
PXIe-8842 [787882-33]	✓
PXIe-8842 [790658-01]	✓
PXIe-8842 [788816-01]	✓
PXIe-8842 [790658-0118]	✓
PXIe-8842 [788816-0118]	✓
PXIe-8862 [790662-01]	✓
PXIe-8862 [787987-01]	✓
PXIe-8862 [790663-0118]	✓
PXIe-8862 [787987-0118]	✓
PXIe-8862 [790659-33]	✓
PXIe-8862 [787987-33]	✓
PXIe-8862 [790660-01]	✓
PXIe-8862 [788817-01]	✓
PXIe-8862 [790660-0118]	✓
PXIe-8862 [788817-0118]	✓
PXIe-8862 [790661-01]	✓
PXIe-8862 [788818-01]	✓
PXIe-8862 [789546-01]	✓



Develop With:
NI LabVIEW, NI TestStand, LabWindows/CVI, python, C/C++, .NET
Driver(s):
PXI Platform Services
Included:
MXI-Express BIOS Compatibility software

PXI Remote Controllers and System Expansion

Achieve the ultimate flexibility with PXI remote controllers:

- Control a PXI chassis from a desktop PC, laptop, or rack-mount controller
- Create synchronized, data-connected, multichassis PXI systems
- Choose from copper and fiber-optic cable options
- Take advantage of a software-transparent link requiring no programming

Key Features

Desktop or Rack-Mount PC Control

With a PXI remote control module, a host computer can establish a PCI Express connection to the chassis using a compatible MXI-Express cable.

Multichassis Synchronization

PXI remote control modules can leverage the architecture of the PXI platform to achieve high-accuracy synchronization between modular instruments in separate chassis. By combining NI's timing and synchronization modules with MXI-Express, you can synchronize instruments across multiple chassis with NI-TClk technology deskewing.

Flexible Topologies

While a daisy-chaining topology is the most common approach to building multichassis systems, some host interface cards support star topologies so that each chassis can communicate directly with the host.

PXI Remote Control Modules

Selection Guide	Model	Part Number	Type	MXI Bandwidth	MXI Communication Level	MXI Ports	Supported Cable Type	Supports Daisy-Chaining
Entry	**PXIe-8361**	779700-02	PXI Remote Control Module	250 MB/s	MXI-Express x1	1	Copper	—
	PCIe-8363	788814-01	Host Interface	—	MXI-Express x1	1	Copper	—
	PXIe-8364	781819-01	Bus Extension Module	250 MB/s	MXI-Express x1	—	Copper	—
	PXIe-8374	781820-04	Bus Extension Module	1 GB/s	MXI-Express x4	—	Copper	—
Performance	**PXIe-8398**	784178-01	PXI Remote Control Module	16 GB/s	MXI-Express Gen3 x16	4	Copper and Fiber-Optic	✓
	PXIe-8399	784180-01	PXI Remote Control Module	16 GB/s	MXI-Express Gen3 x16	8	Copper and Fiber-Optic	✓
	PCIe-8398	784179-01	Host Interface	—	MXI-Express Gen3 x16	1	Copper and Fiber-Optic	—
	PXIe-8394	785157-01	Bus Extension Module*	7.9 GB/s	MXI-Express Gen3 x8	—	Copper and Fiber-Optic	—
Thunderbolt	**PXIe-8301**	785679-01	PXI Remote Control Module	2.3 GB/s	Thunderbolt 3.0	2	Copper	—

*PXIe-839X Gen 3: Through modular cabling and/or the PXIe-8394 Gen 3 x8 bus extension module, several multichassis system configurations are possible.

PXI Remote Control Module Accessories

PXI Remote Control Module Cables

Cable Type	Thunderbolt 3 Type-C Cable, Active 40 GB/S, 3A, 2 m	Thunderbolt 3 Type-C Cable, Passive 20 GB/S, 5A, 2 m	Thunderbolt 3 Type-C Cable, Passive 40 GB/S, 5A, 0.8 m	MXI-Express Cable, Gen 1 x1, Copper, 1 m	MXI-Express Cable, Gen 1 x1, Copper, 3 m
Part Number	785607-02	785608-02	787580-0R8	779500-01	779500-03
PXIe-8301	✓	✓	✓	—	—
PXIe-8361	—	—	—	✓	✓
PCIe-8363	—	—	—	—	✓
PCIe-8398	—	—	—	—	—
PXIe-8398	—	—	—	—	—
PXIe-8399	—	—	—	—	—
PXIe-8374	—	—	—	✓	✓
PXIe-8394	—	—	—	—	—
PXIe-8364	—	—	—	✓	✓

PXI Remote Control Module Cables (continued)

Cable Type	MXI-Express Cable, Gen 1 x1, Copper, 7 m	MXI-Express Cable, Gen 3 x4, Copper, 3 m	MXI-Express Cable, Gen 3 x8, Copper, 1 m	MXI-Express Cable, Gen 3 x8, Copper, 3xm	MXI-Express Cable, Gen 3 x4, Fiber-Optic, 10 m
Part Number	779500-07	785549-03	785550-01	785550-03	788302-10
PXIe-8301	—	—	—	—	—
PXIe-8361	✓	—	—	—	—
PCIe-8363	—	—	—	—	—
PCIe-8398	—	✓	✓	✓	✓
PXIe-8398	—	✓	✓	✓	✓
PXIe-8399	—	✓	✓	✓	✓
PXIe-8374	✓	—	—	—	—
PXIe-8394	—	✓	✓	✓	✓
PXIe-8364	✓	—	—	—	—

PXI Remote Control Module Cables (continued)

Cable Type	MXI-Express Cable, Gen 3 x4, Fiber-Optic, 30 m	MXI-Express Cable, Gen 3 x4, Fiber-Optic, 100 m
Part Number	788302-30	788302-100
PXIe-8301	—	—
PXIe-8361	—	—
PCIe-8363	—	—
PCIe-8398	✓	✓
PXIe-8398	✓	✓
PXIe-8399	✓	✓
PXIe-8374	—	—
PXIe-8394	✓	✓
PXIe-8364	—	—



Develop With:
LabVIEW, LabWindows/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MATLAB
Driver(s):
NI-DAQmx
Included:
FlexLogger Lite where supported, InstrumentStudio where supported

PXI Multifunction I/O Modules

- Combines analog input (±10 V), analog output (±10 V), and 5 V TTL digital I/O in a single device
- Provides broad signal coverage for both measurement and control applications
- Offers flexible, general-purpose data acquisition for a wide range of use cases
- Gives engineers a versatile tool for research, design validation, and manufacturing test
- Integrates multiple DAQ functions into one device to simplify system design and reduce hardware complexity

Key Features

Simplify Test System Design with All-in-One Functionality

Multifunction I/O devices integrate analog, digital, and counter/timer capabilities into a single module, reducing the need for multiple instruments and lowering overall system complexity.

Enable Correlated Measurements and Control

With shared timing, triggering, and synchronization across I/O types, these devices support tightly correlated measurements and stimulus-response applications within a single system.

Adapt to a Wide Range of Measurement and Automation Needs

Flexible channel counts, sampling rates, and configurations allow these devices to support everything from basic data logging to high-performance automated test and control applications.

Multifunction I/O | Multiplexed

In multiplexed measurement devices, all voltage input channels share a single analog-to-digital converter through a mux/switch. For high-speed signals (~10 kS/s) that require synchronous measurement, NI recommends devices with a simultaneous architecture, as shown in the next section.

Category	Model	Part Number	AI Channels (DI/SE)	Sample Rate	AO and DIO Channels	Update Rate (All Channels Combined)	Counters	Absolute Accuracy	Resolution (Input/ Output)
Lowest Cost	**PXIe-6321**	790590-01	8/16	250 kS/s	AO: 2 DIO: 24	900 kS/s	4	2,200 µV	16-bit / 16-bit
	PXIe-6323	790591-01	16/32	250 kS/s	AO: 4 DIO: 48	900 kS/s	4	2,200 µV	16-bit / 16-bit
	PXIe-6341	781052-01	8/16	500 kS/s	AO: 2 DIO: 24	900 kS/s	4	2,190 µV	16-bit / 16-bit
	PXIe-6343	790592-01	16/32	500 kS/s	AO: 4 DIO: 48	900 kS/s	4	2,190 µV	16-bit / 16-bit
	PXIe-6345	783631-01	40/80	500 kS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,520 µV	16-bit / 16-bit
Highest Speed	**PXIe-6351**	790593-01	8/16	1.25 MS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,660 µV	16-bit / 16-bit
	PXIe-6353	790594-01	16/32	1.25 MS/s	AO: 4 DIO: 48	2.86 MS/s	4	1,660 µV	16-bit / 16-bit
	PXIe-6355	783632-01	40/80	1.25 MS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,520 µV	16-bit / 16-bit
	PXIe-6357	790595-01	104/208	1.25 MS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,660 µV	16-bit / 16-bit
	PXIe-6361	781055-01	8/16	2.0 MS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,660 µV	16-bit / 16-bit
	PXIe-6363	781056-01	16/32	2.0 MS/s	AO: 4 DIO: 48	2.86 MS/s	4	1,660 µV	16-bit / 16-bit
	PXIe-6365	783633-01	72/144	2.0 MS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,520 µV	16-bit / 16-bit
	PXIe-6375	783634-01	104/208	3.8 MS/s	AO: 2 DIO: 24	2.86 MS/s	4	1,660 µV	16-bit / 16-bit
Highest Resolution	**PXIe-6381**	790689-01	8/16	625 kS/s	AO: 2 DIO: 24	2.86 MS/s	4	980 µV	18 b/16 b
	PXIe-6383	790690-01	16/32	625 kS/s	AO: 4 DIO: 48	2.86 MS/s	4	980 µV	18 b/16 b

Multifunction I/O | Simultaneous

In simultaneous-measurement devices, each voltage input channel has a dedicated analog-to-digital converter for a parallel signal path. This design is recommended for best possible measurement quality and when high-speed signals need data acquired at the same time.

Sample Rate	Model	Part Number	AI Channels (DI Only)	DIO Channels	AO Channels	Update Rate (per Channel)	Counters	Absolute Accuracy	Resolution (Input/ Output)
500 kS/s	**PXIe-6349**	785808-01	32	24	2	900 kS/s	4	3,225 µV	16-bit / 16-bit
1.25 MS/s	**PXIe-6356**	781053-01	8	24	2	3.3 MS/s/ch	4	2,688 µV	16-bit / 16-bit
	PXIe-6358	781054-01	16	48	4	3.3 MS/s/ch	4	2,688 µV	16-bit / 16-bit
2 MS/s	**PXIe-6366**	781057-01	8	24	2	3.3 MS/s/ch	4	2,688 µV	16-bit / 16-bit
	PXIe-6368	781058-01	16	48	4	3.3 MS/s/ch	4	2,688 µV	16-bit / 16-bit
3.3 MS/s	**PXIe-6376**	781475-01	8	24	2	3.3 MS/s/ch	4	2,688 µV	16-bit / 16-bit
	PXIe-6378	781476-01	16	48	4	3.3 MS/s/ch	4	2,688 µV	16-bit / 16-bit
4 MS/s	**PXIe-6124**	780536-01	4	24	2	4 MS/s/ch	2	3,147 µV	16-bit / 16-bit
14 MS/s	**PXIe-6386**	785926-01	8	24	2	3.3 MS/s/ch	4	1,769 µV	16-bit / 16-bit
	PXIe-6396	785927-01	8	24	2	3.3 MS/s/ch	4	1,769 µV	18-bit / 16-bit

PXI Multifunction DAQ Accessories

How many cables does your PXI Express DAQ module need?



PXI Express DAQ modules offer between one and four VHDCI connectors, each with 68 pins. Purchase a cable and connector block for each VHDCI connector to connect signal wires.

Note: Not all cables are compatible with all connectors. Use the following tables to match the correct number and type of cable to your device.

For the cables in the following table, both "Shielded (EPM)" and the "SHC68-68" cables are shielded. The difference between the two is that the EPM cable accounts for the specific mix of analog and digital signal types by separating/twisting some of the pairs. We recommend using shielded EPM cables wherever possible for the best measurement quality.

SHC68-68-EPM Cable Compatibility

Model	Part Number	Cable for Connector 0	Cable for Connector 1	Cable for Connector 2	Cable for Connector 3
PXIe-6124	780536-01	SHC68-68-EPM	—	—	—
PXIe-6321	790590-01	SHC68-68-EPM	—	—	—
PXIe-6323	790591-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6341	781052-01	SHC68-68-EPM	—	—	—
PXIe-6343	790592-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6345	783631-01	SHC68-68-EPM	SHC68-68	—	—
PXIe-6349	785808-01	SHC68-68-EPM	SHC68-68	—	—
PXIe-6351	790593-01	SHC68-68-EPM	—	—	—
PXIe-6353	790594-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6355	783632-01	SHC68-68-EPM	SHC68-68	—	—
PXIe-6356	781053-01	SHC68-68-EPM	—	—	—
PXIe-6357	790595-01	SHC68-68-EPM	SHC68-68	SHC68-68	SHC68-68
PXIe-6358	781054-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6361	781055-01	SHC68-68-EPM	—	—	—
PXIe-6363	781056-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6365	783633-01	SHC68-68-EPM	SHC68-68	SHC68-68	—
PXIe-6366	781057-01	SHC68-68-EPM	—	—	—
PXIe-6368	781058-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6375	783634-01	SHC68-68-EPM	SHC68-68	SHC68-68	SHC68-68
PXIe-6376	781475-01	SHC68-68-EPM	—	—	—
PXIe-6378	781476-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6381	790689-01	SHC68-68-EPM	—	—	—
PXIe-6383	790690-01	SHC68-68-EPM	SHC68-68-EPM	—	—
PXIe-6386	785926-01	SHC68-68-EPM	—	—	—
PXIe-6396	785927-01	SHC68-68-EPM	—	—	—

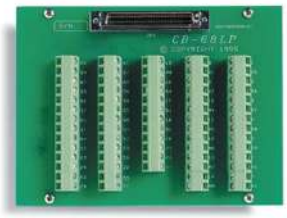
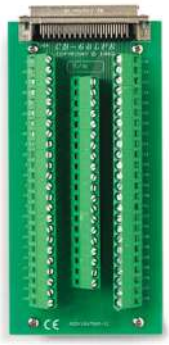
Cables to Connect Multifunction PXI Express DAQ Devices to Terminal Blocks

Recommendation	Part Number	Length	
Best performance if compatible with your device. **SHC68-68-EPM**[1] Separates DIO from AI signals in cable to reduce crosstalk.	192061-0R5	0.5 m	
	192061-01	1 m	
	192061-02	2 m	
	192061-05	5 m	
	192061-10	10 m	
Any device connection not supported by the EPM cable. Works on any multifunction I/O device and connector. Shielded **SHC68-68**	191945-0R5	0.5 m	
	191945-01	1 m	
	191945-02	2 m	
Ribbon cable for low-cost systems. Not recommended for noisy environments. Works on any multifunction I/O device and connector. **RC68-68**[2]	187252-0R25	0.25 m	
	187252-0R5	0.5 m	
	187252-01	1 m	

[1] Compatible with Connector 0 of all devices and Connector 1 of 6289/6323/6343/6353/6363/6358/6368/6378/ 6383. Does not work on 6345/6349/6355/6357/6365/6375 Connectors 1, 2, or 3.

[2] RC68-68 is not compatible with the PXIe-6345/6349/6355/6357/6365/6375 due to mechanical constraints (i.e., the larger backshell may interfere with neighboring cables where there are multiple connectors or the ejector handle where the connectors are situated directly above it). Shielded cables such as the SHC68-68-EPM1 or SHC68-68 may be used in place of the RC68-68 when connecting to unshielded connector blocks.

Screw Terminal Accessories for Multifunction I/O/PXI Express Devices

Description	Model	Part Number	Shielded	
Mounts to the front of a PXI Express device installed in a PXI chassis. No cable is required. Note: This will block Connector 1, rendering it unusable, even on compatible devices. See the note below for compatibility. **TB-2706**[1]	TB-2706	779183-01	✓	
Most common desktop accessory for NI DAQ devices. Metal breakout box with removable magnetic lid covering screw terminals. **SCB-68A**	SCB-68A	782536-01	✓	
Low-cost terminal block (wide layout) **CB-68LP**	CB-68LP	777145-01	—	
Low-cost terminal block (narrow layout) **CB-68LPR**	CB-68LPR	777145-02	—	
DIN-rail-mountable terminal connector block **TBX-68**	TBX-68	777141-01	—	

[1]Not for use with NI 6345/6346/6349/6355/6365/6375. Connects to Connector 0 of the compatible PXI Express module. After installation, Connector 1 cannot be used.

BNC Accessories for Multifunction PXI Express DAQ Devices

Description and Model	Part Number	
Shielded BNC Connector Block **BNC-2110**	777643-01	
Single-Ended Shielded BNC Connector Block **BNC-2111**[1]	779347-01	
Shielded BNC Connector Block with Onboard Function Generator and Quadrature Encoder **BNC-2120**	777960-01	
Rack-Mountable Accessory for 68-Pin Multifunction DAQ **BNC-2090A**	779556-01	

[1] BNC-2111 cannot be used with NI 6356/6358/6366/6368/6374/6376/6378/6386/6396 simultaneous I/O X Series devices.

For more accessory compatibility information, see the following online KnowledgeBase articles.

DAQ Multifunction I/O Accessory Guide

DAQ Multifunction I/O Cable Guide

NI Cable and Accessory Guides



Develop With:
NI LabVIEW, NI TestStand, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite software where supported

PXI Digital I/O Modules

- Add high-channel-count digital I/O lines to PXI test and automation systems
- Provide extensive digital connectivity for complex manufacturing test and industrial applications
- Offer high-current outputs to directly control external devices such as solid-state relays
- Supports flexible port configuration; each port can be set as input or output
- Include advanced features such as programmable power-up states, I/O watchdog timers, and software-selectable input filters

Key Features

Expand Digital Control and Monitoring Capabilities

Add scalable digital input and output channels to control, monitor, and automate a wide range of test and measurement systems.

Improve System Reliability with Built-In Protection Features

Programmable power-up states and watchdog timers help ensure safe operation by defining known startup conditions and detecting unexpected system faults.

Enable Efficient Event-Driven Operation with Change Detection

React to digital state changes without continuous polling, improving system efficiency and responsiveness in automated applications.

PXI Digital I/O Modules

Category	Model	Part Number	Bus Connector	DIO Logic Levels	DI Voltage Range	Max Clock Rate	Bidirectional Digital Channels	DI Only Channels	DO Only Channels	Output Voltage Range	Single-Ended DIO Channel
30 V, Bank Isolated	**PXI-6511**	778967-01	PXI Hybrid	24 V	±30 V	—	—	64 (source/sink)	—	—	—
	PXI-6512	778969-01	PXI Hybrid	24 V	—	—	—	—	64 (source)	0 V to 30 V	350 mA
	PXI-6513	778971-01	PXI Hybrid	24 V	—	—	—	—	64 (sink)	0 V to 30 V	500 mA
	PXI-6514	778965-01	PXI Hybrid	24 V	±30 V	—	—	32 (source/sink)	32 (source)	±30 V	350 mA
	PXI-6515	778964-01	PXI Hybrid	24 V	±30 V	—	—	32 (source/sink)	32 (sink)	±30 V	500 mA
60 V or 150 V, Ch-Ch Isolated	**PXI-6521**	779313-01	PXI Hybrid	24 V	±30 V	—	—	8	8	0 V to 150 V	2 A
	PXI-6528	778543-01	PXI Hybrid	60 V	±60 V	—	—	24	24	±60 V	150 mA
	PXI-6529	779949-01	PXI Hybrid	60 V	±60 V	—	—	48	—	—	150 mA
5 V, General Purpose	**PXIe-6509**	787358-01	PXI Express	5 V	0 V to 5 V	—	96	0	0	0 V to 5.5 V	24 mA
High Speed	**PXIe-6535**	780695-01	PXI Express	2.5 V 3.3 V 5 V TTL	-1 V to 6 V	10 MHz	32	—	—	0 V to 5 V	32 mA
	PXIe-6536	779988-01	PXI Express	2.5 V 3.3 V 5 V TTL	-1 V to 6 V	25 MHz	32	—	—	0 V to 5 V	32 mA
	PXIe-6537	779989-01	PXI Express	2.5 V 3.3 V 5 V TTL	-1 V to 6 V	50 MHz	32	—	—	0 V to 5 V	32 mA

Digital I/O Accessory Compatibility

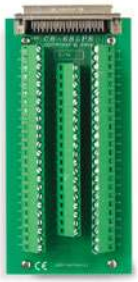
DIO Model	Description	Cable Compatibility	Cable Adapter	Connector Block Compatibility
PXI-6511/6512/6514/6515/6528 PXIe-6509	Shielded	SH100M-100M FLEX	—	SCB-100A
	Unshielded	R1005050	—	CB-50 CB-50LP
		CB-100		
PXIe-6535	Shielded	SHC68-C68-D4 SHC68-C68-D4, Low Leakage SHC68-C68-D4, Lower DC Resistance	—	SCB-68HSDIO SMB-2163
			653x Cable Adapter[1]	SCB-68A[2]
	Shielded cable backshell to unshielded flying leads	SHC68-H1x38	—	—
	Unshielded—to connector block	C68-C68-D4	—	CB-2162
			653x Cable Adapter[1]	CB-68LP CB-68LPR TBX-68

[1]The cable adapter is only required when connecting to accessories with a 68-pin SCSI connector. It is not required for accessories with 68-pin VHDCI connectors.

[2]SCB-68A must be configured in direct feedthrough mode.

Digital I/O Cable and Connector Block Accessories

Accessory Type	Accessory (Part Number)	Description	
Cable	C68-C68-D4 (195949-01) 1 m	Unshielded cable for high-speed DIO, 2x 68-pin male VHDCI cable	
	R1005050 Cable[1] (182762-01) 1 m (182762-02) 2 m (182762-0R5) 0.5 m	Unshielded ribbon cable with 100-pin SCSI to two 5-pin IDC connectors	
	SHC68-C68-D4 (196275-01) 1 m (781293-01) 2 m SHC68-C68-D4, Low Leakage (152870-01) 1 m SHC68-68-D4, Lower DC Resistance (132625-03) 3 m	Shielded cable for high-speed DIO, 2x 68-pin male VHDCI	
	SHC68-H1x38 (192681-1R5) 1.5 m	Shielded cable for high-speed DIO, 68-pin male VHDCI to 76-pin female flying leads	
	SH37F-37M (778621-01) 1 m (778621-02) 2 m	Shielded 37-Pin D-SUB cable, high-voltage-rated for CAT II, 150 VDC/VAC	

Cable	SH100M-100M FLEX (185095-01) 1 m (185095-02) 2 m	Shielded 100-pin SCSI cable	
	635x Cable Adapter (195846-01)	Cable adapter for high-speed DIO, 68-pin VHDCI to 68-pin SCSI	
Connector Block	CB-2162[2] (778592-01)	Single-Ended I/O connector block for high-speed DIO, 68-pin VHDCI to genderless solder cup terminal	
	CB-50 (776164-90)	Unshielded I/O connector block with 50 screw terminals and one 50-pin IDC connector, DIN rail mount	
	CB-50LP (777101-01)	Unshielded I/O connector block with 50 screw terminals and one 50-pin IDC connector, panel mount	
	CB-68LP (77714 5-01)	Unshielded I/O connector block with 68 screw terminals and one 68-pin vertical mounted SCSI connector	
	CB-68LPR (777145-02)	Unshielded I/O connector block with 68 screw terminals and one 68-pin vertical mounted SCSI connector	

Connector Block	SCB-68A (782536-01)	Shielded I/O connector block with 68 screw terminals and 68-pin SCSI connector	
	SCB-68 HSDIO (782914-01)	Shielded I/O connector block with 72 screw terminals and 68-pin VHDCI connector	
	SCB-100A (785024-01)	Noise-rejecting, shielded I/O connector block with 100 screw terminals and 100-pin SCSI connector	
	TBX-68 (777141-01)	Unshielded DIN-rail-mountable I/O connector block with 68 screw terminals and one 68-pin SCSI connector	

[1]Requires two 50-pin connector blocks to enable connection to all lines.

[2]You must supply 20-24 AWG stranded conductor wire to complete accessory construction.



Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite software where supported, NI InstrumentStudio™ software where supported

PXI Analog Output Modules

- High-speed, high-density analog output devices designed for simultaneous multichannel updates
- Ideal for nondeterministic control and waveform generation applications
- Support stimulus-response testing such as acoustic distortion analysis and three-phase power simulation
- Include integrated digital I/O lines for added system design flexibility
- Built-in counters for digital triggering and external clock synchronization

Key Features

Generate Precise, Synchronized Waveforms

PXI analog output devices offer accurate, multichannel waveform generation with tight timing synchronization for deterministic control and test applications.

Optimize Performance for Closed-Loop and Stimulus-Response Testing

Designed for control systems and validation workflows, these devices support real-time signal generation for hardware-in-the-loop and dynamic test scenarios.

Maintain High Signal Fidelity across Outputs

These devices are built to deliver low-noise, high-resolution voltage outputs, ensuring signal integrity for sensitive applications such as acoustic testing, power simulation, and precision control.

PXI Analog Output Modules

Category	Model	Part Number	AO Resolution	AO Voltage Range	Bus Connector	Max Update Rate	AO Channels	Output Current Range
Static (No Waveforms)	**PXI-6704**	777796-01	16-bit	±10 V	PXI Hybrid	Static	32	0.1 mA to 20.2 mA
Lowest Cost	**PXI-6723**	778998-01	13-bit	±10 V	PXI Hybrid	800 kS/s	32	—
Best Performance	**PXI-6733**	778512-01	16-bit	±10 V	PXI Hybrid	1 MS/s	8	—
	PXIe-6738	783800-01	16-bit	±10 V	PXI Express	1 MS/s	32	—
General Purpose	**PXIe-6739**	783801-01	16-bit	±10 V	PXI Express	1 MS/s	64	—

AO Accessory Compatibility

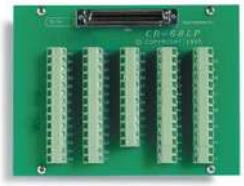
AO Device Model	Shielded/ Unshielded	Cable Model Number	Connector Block/Accessory Model Number
PXI-6704	Shielded	SH68F-68F-D1	SCB-68A
	Unshielded	R68-68	TBX-68 CB-LP CB-LPR
PXI-6723 (AO 0-7 and Digital Connector)	Shielded	SH68-C68-S	BNC-2110 SCB-68A
	Unshielded	RC68-68	CB-68LP CB-68LPR TBX-68
PXI-6723 (AO 8-31 Connector)	Shielded	SH68-C68-S	SCB-68A
	Unshielded	RC68-68	CB-68LP CB-68LPR TBX-68
PXI-6733	Shielded, Noise-Reducing	SH68-68-EPM	BNC-2110 SCB-68A
		No cable required. Front-mounted to PXI chassis.	TB-2705
	Unshielded	R68-68	CB-68LP CB-68LPR TBX-68
PXIe-6738/6739	Shielded	Shielded, basic: SHC68-68-A2 SH68-C68-S1	SCB-68A (Shielded)
	Unshielded	RC68-68	CB-68LP (Unshielded) CB-68LPR (Unshielded) TBX-68 (Unshielded)

[1]Only for use integrating/migrating the 6738/6739 into a 6723 system. Refer to Connecting the NI 6738/6739 in a NI 6723 System section of the PXIe-6738/39 user manual for more information.

AO Cable and Connector Block Accessories

	Accessory (Part Number)	Description	
Cables	R68-68 Cable (182482-0R25) 0.25 m (182482-01) 1 m	Low-cost, unshielded 68-68 pin SCSI ribbon cable	
	RC68-68 Cable (187252-0R25) 0.25 m (187252-0R5) 0.5 m (187252-01) 1 m	Low-cost, unshielded 68-pin SCSI to 68-pin VHDCI ribbon cable	
	SHC68-68-A2 Cable (157599-0R5) 0.5 m (157599-01) 1 m (157599-02) 2 m	Shielded 68-pin VHDCI to 68-pin SCSI cable for use with the PXIe-6738 and PXIe-6739	
	SH68F-68F-D1 Cable (183432-02) 2 m	Shielded 68-68 pin SCSI cable for use with the PXI-6704 or other counter/timer I/O modules	
	SH68-68-EPM Cable (199006-01) 1 m (199006-02) 2 m (199006-05) 5 m	Noise-reducing, shielded 68-68 pin SCSI cable	
	SH68-C68-S Cable (186381-01) 1 m (186381-02) 2 m	Shielded 68-pin VHDCI to 68-pin SCSI cable for use with the PXI-6723	

AO Cable and Connector Block Accessories

	Accessory (Part Number)	Description	
Connector Blocks	BNC-2110 (777643-01)	Provides BNC connectivity to all analog signals, some digital signals, and spring terminals for other digital signals	
	CB-68LP (77714 5-01)	Unshielded I/O connector block with 68 screw terminals and one 68-pin vertical mounted SCSI connector	
	CB-68LPR (777145-02)	Unshielded I/O connector block with 68 screw terminals and one 68-pin vertical mounted SCSI connector	
	SCB-68A (782536-01)	Shielded I/O connector block with 68 screw terminals and 68-pin SCSI connector	
	TBX-68 (777141-01)	Unshielded DIN rail-mountable I/O connector block with 68 screw terminals and one 68-pin SCSI connector	
PXI Terminal Block	TB-2705 (778241-01)	Shielded front mount terminal block with 62 screw terminals and one 68-pin SCSI connector. Does not require a cable.	



Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite software where supported, NI InstrumentStudio™ software where supported

PXI Counter/Timer Modules

- Support encoder position measurement, event counting, period measurement, pulse-width measurement, pulse and pulse-train generation, and frequency measurement
- Include eight built-in counter/timer channels for advanced timing and counting tasks
- Feature digital debouncing filters for improved signal accuracy and noise reduction
- Provide reliable handling of high-speed digital signals
- Equipped with TTL/CMOS-compatible digital I/O for flexible integration

Key Features

Enable Deterministic Timing and Event Coordination

Leverage counter/timer resources to precisely coordinate timed events and trigger actions across test systems, ensuring deterministic behavior in automated measurement and control applications.

Achieve High-Accuracy Measurements over Time

Benefit from onboard high precision timing sources that deliver stable, repeatable measurements for long-duration tests and high-resolution timing analysis.

Support Advanced Motion and Positioning Applications

Use counter/timer functionality common in motion control systems for tasks such as quadrature encoder monitoring and position tracking to achieve precise electromechanical system control and validation.

PXI Counter/Timer Modules

Category	Model	Part Number	Counters/ Timers	Measure Frequency	Onboard High-Precision Oscillator
High-Voltage Option	**PXI-6624**	778975-01	8	400 MHz	—
Lowest Cost	**PXIe-6612**	782352-01	8	80 MHz	—
Onboard High-Precision Oscillator	**PXIe-6614**	782353-01	8	80 MHz	✓

PXI Counter/Timer Device Accessories

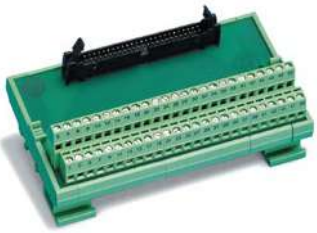
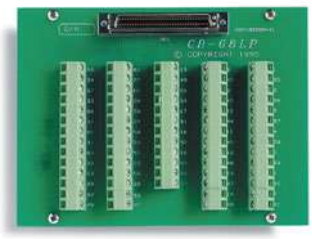
PXI Counter/Timer I/O Accessory Compatibility

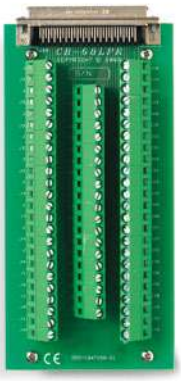
Module	Feature	Cables (Part Number)	Accessory (Part Number)
6624	Shielded	SH100M-100M FLEX	SCB-100
	Unshielded	R1005050[1]	CB-50 CB-50LP
		CB-100	
6612/6614	Shielded	SH68F-68F-D1	BNC-2121 SCB-68A TBX-68
		No cable required	TB-2715
	Unshielded	R6868	CB-68LP CB-68LPR

[1]Requires two 50-pin connector blocks to enable connection to all 6624 lines.

Counter/Timer I/O Cable and Connector Block Accessories

Accessory Type	Accessory (Part Number)	Description	
Cable	R68-68 (182482-0R25) 0.25 m (182482-01) 1 m	Low-cost, unshielded 68-pin SCSI ribbon cable	
	R1005050 (182762-01) 1 m (182762-02) 2 m (182762-0R5) 0.5 m	Unshielded ribbon cable with 100-pin SCSI to two 50-pin IDC connectors	
	SH68F-68F-D1 (183432-02) 2 m	Shielded 68-pin SCSI cable for use with the PXI-6704 other counter/timer I/O modules	
	SH100M-100M-FLEX (185095-01) 1 m (185095-02) 2 m	Shielded 100-pin SCSI cable	
	BNC-2121 (778289-01)	Shielded female SCSI to female BNC connector block with eight dedicated and six user-defined BNC connectors and spring terminals, function generator, and encoder	

Accessory Type	Accessory (Part Number)	Description	
Connector Block	CB-50 (776164-90)	Unshielded I/O connector block with 50 screw terminals and one 50-pin IDC connector, DIN rail mount	
	CB-50LP (777101-01)	Unshielded I/O connector block with 50 screw terminals and one 50-pin IDC connector, panel mount	
	SCB-68A (782536-01)	Shielded I/O connector block with 68 screw terminals and 68-pin SCSI connector	
	SCB-100A (785024-01)	Noise-rejecting, shielded I/O connector block with 100 screw terminals and 100-pin SCSI connector	
	CB-68LP (77714 5-01)	Unshielded I/O connector block with 68 screw terminals and one 68-pin vertical-mounted SCSI connector	

Accessory Type	Accessory (Part Number)	Description	
	CB-68LPR (777145-02)	Unshielded I/O connector block with 68 screw terminals and one 68-pin vertical-mounted SCSI connector	
	TBX-68 (777141-01)	Unshielded DIN-rail-mountable I/O connector block with 68 screw terminals and one 68-pin SCSI connector	
Connector Block Kit	CB-100 (777812-01)	I/O connector block kit, two CB-50 I/O connector blocks and a 1 m R1005050 ribbon cable included	
PXI Terminal Block	TB-2715 (778242-01)	PXI front-mount terminal block, screw terminal	



Develop With:
NI LabVIEW, NI TestStand
Driver(s):
NI-SCOPE
Included:
NI InstrumentStudio™ software

PXI Oscilloscopes

- Up to 1.5 GHz of bandwidth
- Up to 14-bit resolution
- Up to 8 channels per module
- Out-of-the-box capture and analysis workflow

Key Features

Build High-Channel-Count Systems

Take advantage of both high channel density and built-in multimodule synchronization to build high-channel-count systems. With NI synchronized multi-instrument sessions, you can seamlessly grow channel count by combining multiple modules into a single synchronized instrument—no extra connections or code needed.

Avoid System Downtime

Detect cable and connection issues before they impact testing. NI CableSense™ technology identifies deviations from a known-good setup without disconnecting or altering existing connections.

Accelerate Analysis for Your Application

Select oscilloscopes offer hardware acceleration with a user-programmable FPGA for custom triggering, processing, and streaming.

PXI Oscilloscope Modules

Selection Guide	Model	Part Number	Resolution	Bandwidth	Sample Rate	Channels	Memory Size	CableSense	Reconfigurable FPGA
Entry-Level, Cost-Effective	PXIe-5108	790584-01	14-bit	100 MHz	250 MS/s	4	256 MB	—	—
		790585-01	14-bit	100 MHz	250 MS/s	8	512 MB	—	—
	PXIe-5105	783590-01	12-bit	60 MHz	60 MS/s	8	16 MB	—	—
		783590-02					128 MB	—	—
		783590-03					512 MB	—	—
	PXIe-5110	785767-01	8-bit	100 MHz	1 GS/s	2	64 MB	—	—
		785767-11					64 MB	✓	—
		785768-01					512 MB	—	—
		785768-11					512 MB	✓	—
	PXIe-5114	783591-01	8-bit	125 MHz	250 MS/s	2	8 MB	—	—
		783591-02					64 MB/ch	—	—
		783591-03					256 MB/ch	—	—
High-Bandwidth	PXIe-5111	785769-01	8-bit	350 MHz	3 GS/s	2	64 MB	—	—
		785769-11					64 MB	✓	—
		785770-01					512 MB	—	—
		785770-11					512 MB	✓	—
	PXIe-5113	786375-01	8-bit	500 MHz	3 GS/s	2	64 MB	—	—
		786375-11					64 MB	✓	—
		786405-01					512 MB	—	—
		786405-11					512 MB	✓	—
	PXIe-5160	782621-02	10-bit	500 MHz	2.5 GS/s	2	2 GB	—	—
		782621-03				4	2 GB	—	—
		782621-04				2	1 GB	—	—
		782621-05				4	1 GB	—	—
		782621-12				2	2 GB	✓	—
		782621-13				4	2 GB	✓	—
	PXIe-5162	782622-07	10-bit	1.5 GHz	5 GS/s	2	1 GB	—	—
		782622-08				4	1 GB	—	—
		782622-05				2	2 GB	—	—
		782622-06				4	2 GB	—	—
		782622-15				2	2 GB	✓	—
		782622-16				4	2 GB	✓	—

(continued on next page)

PXI Oscilloscope Modules

Selection Guide	Model	Part Number	Resolution	Bandwidth	Sample Rate	Channels	Memory Size	CableSense	Reconfigurable FPGA
High-Resolution	PXIe-5163	785182-01	14-bit	200 MHz	1 GS/s	2	512 MB	—	—
	PXIe-5122	779967-01	14-bit	100 MHz	100 MS/s	2	8 MB/ch	—	—
		779967-02					64 MB/ch	—	—
		779967-03					256 MB/ch	—	—
	PXI-5922	779153-01	24-bit (Flexible Resolution)	6 MHz	15 MS/s	2	8 MB/ch	—	—
		779153-02					32 MB/ch	—	—
		779153-03					256 MB/ch	—	—
High-Resolution, Optional Custom Processing	PXIe-5164	784183-01	14-bit	400 MHz	1 GS/s	2	1.5 GB	—	Kintex-7 410T
	PXIe-5170	783690-01	14-bit	100 MHz	250 MS/s	4	0.75 GB	—	Kintex-7 325T
		783691-01				8	1.5 GB	—	Kintex-7 325T
	PXIe-5171	783692-01	14-bit	250 MHz	250 MS/s	8	1.5 GB	—	Kintex-7 410T
	PXIe-5172	784224-01	14-bit	100 MHz	250 MS/s	4	0.75 GB	—	Kintex-7 325T
		784225-01				8	1.5 GB	—	Kintex-7 325T
		784226-01				8	1.5 GB	—	Kintex-7 410T

PXI Oscilloscope Accessories

Single-Ended Passive Probes

Single-Ended Passive Probes	SP500X Single-Ended Passive Probe, 500 MHz, 300 VDC, 10:1 Attenuation	CP500X Single-Ended Coaxial Passive Probe, 500 MHz, 60 VDC, 10:1 Attenuation	CP400X Single-Ended Coaxial Passive Probe, 400 MHz, 60 VDC, 10:1 Attenuation	SP200B 10:1 and 1:1 Switchable Passive Oscilloscope Probe, 60 V	SP250B, 250 Mhz, 60 VDC, 1:1 Or 10:1 Switchable Attenuation
Part Number	783629-01	784253-01	784254-01	780284-01	790740-01
PXIe-5105	—	—	—	✓*	✓*
PXIe-5108	✓*	—	—	✓*	✓*
PXIe-5110	✓	✓	✓	✓	✓
PXIe-5111	✓	✓	✓	✓	✓
PXIe-5113	✓	✓	✓	✓	✓
PXIe-5114	—	—	✓	✓	✓
PXIe-5122	—	—	—	✓	✓
PXIe-5160	✓	✓	✓	✓	✓
PXIe-5162	✓	✓	✓	✓	✓
PXIe-5163	✓	✓	✓	✓	✓
PXIe-5164	✓	✓	✓	✓	✓
PXIe-5170	—	—	—	—	—
PXIe-5171	—	—	—	—	—
PXIe-5172	✓*	—	—	✓*	✓*
PXI-5922	—	—	—	✓	✓

*Requires SMB-to-BNC Adapter

Active Probes

Active Probes	SA1000X Single-Ended Active Probe, 1 GHz, 20 VDC, 10:1 Attenuation	SA1500X Single-Ended Active Probe, 1.5 GHz, 20 VDC, 10:1 Attenuation	SA2500X Single-Ended Active Oscilloscope Probe, 2.5 GHz	DA200025X Active Differential Probe, 2 GHz, 25:1 Attenuation
Part Number	784255-01	784256-01	784257-01	789810-01
PXIe-5105	✓	✓	✓	✓
PXIe-5108	✓	✓	✓	✓
PXIe-5110	✓	✓	✓	✓
PXIe-5111	✓	✓	✓	✓
PXIe-5113	✓	✓	✓	✓
PXIe-5114	✓	✓	✓	✓
PXIe-5122	✓	✓	✓	✓
PXIe-5160	✓	✓	✓	✓
PXIe-5162	✓	✓	✓	✓
PXIe-5163	✓	✓	✓	✓
PXIe-5164	✓	✓	✓	✓
PXIe-5170	✓	✓	✓	✓
PXIe-5171	✓	✓	✓	✓
PXIe-5172	✓	✓	✓	✓
PXI-5922	✓	✓	✓	✓

Cables

Description	BNC TO BNC Cable, 50 Ω, 0.9 m	HD BNC Male to BNC Female Cable, 50 Ω, 20 cm	SMA Male Plug X SMA Male Plug (Maxi-Flex) 5 in.	SMA Male to SMA Male Cable, 50 Ω, 38.1 cm
Part Number	781887-01	787230-0R2	763443-01	763444-01
PXIe-5105	—	—	—	—
PXIe-5108	✓*	✓*	—	—
PXIe-5110	✓	✓	—	—
PXIe-5111	✓	✓	—	—
PXIe-5113	✓	✓	—	—
PXIe-5114	✓	✓	—	—
PXIe-5122	✓	✓	—	—
PXIe-5160	✓	✓	—	—
PXIe-5162	✓	✓	—	—
PXIe-5163	✓	✓	—	—
PXIe-5164	✓	✓	—	—
PXIe-5170	—	—	✓	✓
PXIe-5171	—	—	✓	✓
PXIe-5172	✓*	✓*	—	—
PXI-5922	✓	✓	—	—

*Requires SMB-to-BNC Adapter

Cables (continued)

Description	Cable Assy, SMA to SMA, Coax, RG-402, 50 Ω, 1 m	1-Pin BNC (Male or Female) to 1-Pin SMB Female, 50 Ω Coaxial Cable	1-Pin SMB (Female) to 1-Pin BNC (Male or Female), 50 Ω Coaxial Cable, 2 ft.	1-Pin SMB (Female) to 1-Pin BNC (Male or Female),50 Ω Coaxial Cable, 1 m	SMB Female to BNC Female, 50 Ω, 0.08 m
Part Number	781845-01	189425-0R6	763389-01	763405-01	781449-01
PXIe-5105	—	—	—	—	—
PXIe-5108	—	—	✓	✓	✓
PXIe-5110	—	—	✓	✓	—
PXIe-5111	—	—	✓	✓	—
PXIe-5113	—	—	✓	✓	—
PXIe-5114	—	—	✓	✓	—
PXIe-5122	—	—	✓	✓	—
PXIe-5160	—	—	✓	✓	—
PXIe-5162	—	—	✓	✓	—
PXIe-5163	—	—	✓	✓	—
PXIe-5164	—	—	✓	✓	—
PXIe-5170	✓	✓	—	—	—
PXIe-5171	✓	✓	—	—	—
PXIe-5172	—	—	✓	✓	✓
PXI-5922	—	—	✓	✓	—

Probe Compensation Tabs

Probe Compensation Tabs	SMB Female to Probe Compensation Tabs, 8 cm
Part Number	786983-01
PXIe-5105	✓
PXIe-5108	—
PXIe-5110	—
PXIe-5111	—
PXIe-5113	—
PXIe-5114	—
PXIe-5122	—
PXIe-5160	✓
PXIe-5162	✓
PXIe-5163	✓
PXIe-5164	✓
PXIe-5170	—
PXIe-5171	—
PXIe-5172	—
PXI-5922	—



Develop With:
NI LabVIEW, NI TestStand, LabWindows™/CVI, Python, C/C++, C#/.NET, MathWorks® MATLAB® software
Driver(s):
NI-DMM
Included:
NI InstrumentStudio™ Software

PXI Digital Multimeters

- Up to 7½ digits of resolution
- Voltage measurements up to 1,000 VDC
- Current measurements up to 3 A
- Resistance measurements up to 5 GΩ
- Transient analysis without additional equipment

Key Features

Measurement Confidence

From affordable entry-level options to high-fidelity 7½-digit resolution and up to 12 ppm accuracy, NI PXI DMMs deliver confidence in every measurement over time, with onboard self-calibration and up to two-year calibration intervals

Accelerated Analysis

Select NI PXI DMMs include waveform mode, letting you capture and analyze signals at up to 1.8 MS/s without additional equipment.

Adaptable Speed and Accuracy

Adapt every measurement to your needs. Programmatically adjust measurement parameters, such as aperture time, to balance speed and accuracy based on your application.

PXI Digital Multimeter Modules

Selection Guide	Model	Part Number	Basic DC Voltage Accuracy	Bus Connector	DC Current Range	DC Voltage Range	Digits of Resolution	L&C Measurements	Max Reading Rate	Waveform Mode (Isolated Digitizer)
High-Resolution, High-Accuracy	**PXIe-4081**	783130-01	12 ppm	PXI Express	±3 A	±1000 V	7.5	—	20 kS/s	Up to 1.8 MS/s
High-Accuracy, General-Purpose	**PXIe-4082**	783131-01	25 ppm	PXI Express	±1 A	±300 V	6.5	✓	20 kS/s	Up to 1.8 MS/s
	PXIe-4080	783129-01	25 ppm	PXI Express	±1 A	±300 V	6.5	—	20 kS/s	Up to 1.8 MS/s
Entry-Level	**PXIe-4086**	790851-01	35 ppm	PXI Express	±1 A	±300 V	6.5	—	15 kS/s	—
	PXI-4065	780011-01	90 ppm	PXI Hybrid	±3 A	±300 V	6.5	—	3 kS/s	—

PXI Digital Multimeter Accessories

Probes

Probe	P-1 DMM Test Probes	P-2 Probe Set	P-3 Probe Set, Banana Plug to Bare Wire DMM Cable, 1 m	Low-Leakage, Low-Thermal-EMF Cable Set (60 V Max)	Low-Leakage, Low-Thermal-EMF Connectivity Kit for Custom Cables (60 V Max)	Digital Multimeter Trigger Cable, 9-Pin DIN to 2 BNC, 0.5 m
Part Number	761000-01	184698-01	185692-01	779410-01	779499-01	184931-0R5
PXIe-4082	✓	✓	✓	✓	✓	—
PXIe-4081	✓	✓	✓	✓	✓	—
PXIe-4086	✓	✓	✓	✓	✓	—
PXI-4065	✓	✓	✓	✓	✓	✓

Current Shunts

Current Shunts	200 mA Current Shunt	10 A Current Shunt
Part Number	777488-01	777488-02
PXIe-4082	✓	✓
PXIe-4081	✓	✓
PXIe-4086	✓	✓
PXI-4065	✓	✓



Develop With:
NI LabVIEW, NI TestStand
Driver(s):
NI-FGEN
Included:
NI InstrumentStudio™ Software

PXI Waveform Generators

- Up to two 16-bit channels
- 800 MS/s update rate with 20, 40, and 80 MHz bandwidth options
- Up to 34 channels in parallel per chassis
- Maximum ±12 V and minimum ±7.75 mV output ranges

Key Features

Waveform Streaming

Stream hundreds of megasamples per second to instrument memory.

Digital Filtering

Take advantage of digital filtering designed to remove unwanted frequency images from the generated signal in arbitrary generation mode.

Waveform Scripting

Define standard and arbitrary waveforms that can be looped and burst using scripts.

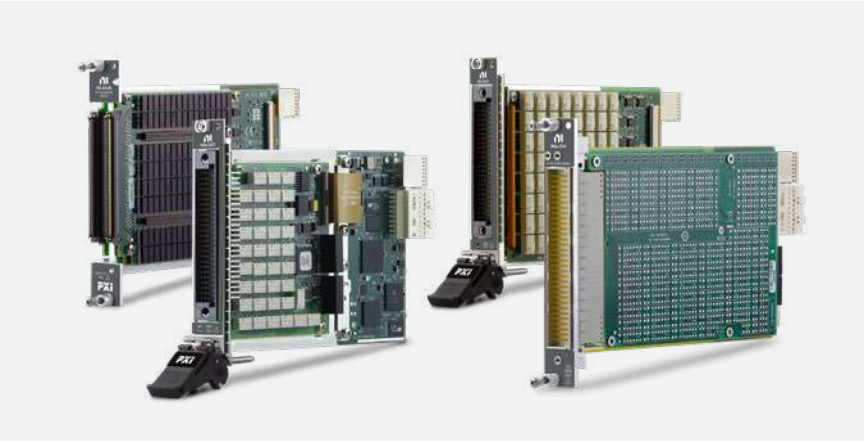
PXI Waveform Generator Modules

Selection Guide	Model	Part Number	Resolution	Bandwidth	Upload Rate	Memory Size	Channels
Lowest Bandwidth	**PXIe-5413**	784181-01	16	20 MHz	800 MS/s	512 MB	1
		785114-01				1 GB	2
Medium Bandwidth	**PXIe-5423**	785115-01	16	40 MHz	800 MS/s	512 MB	1
		785116-01				1 GB	2
Highest Bandwidth	**PXIe-5433**	785117-01	16	80 MHz	800 MS/s	512 MB	1
		785118-01				1 GB	2
Clock Generator	**PXI-5404**	778577-02	12	100 MHz	300 MS/s	8 MB	1

PXI Waveform Generator Accessories

Cables

Description	Double-Shielded SMB to BNC Male Coax Cable, 50 Ω, 1 m	SMB Plug to SMB Plug Coax Cable, 50 Ω, 1 m, Qty 1	SMB Female to BNC Male Coax Cable, 1 m, Qty 1	SMA Male to SMA Male Cable, 50 Ω, 1 m	SMA Male to SMA Male Cable, 50 Ω, 30 cm	SMA Male to SMA Male Cable, 50 Ω, 38.1 cm
Part Number	778827-01	188859-01	763405-01	781845-01	781846-01	763444-01
PXIe-5413	—	—	—	✓	✓	✓
PXIe-5423	—	—	—	✓	✓	✓
PXIe-5433	—	—	—	✓	✓	✓
PXI-5404	✓	✓	✓	—	—	—



Develop With:
NI Switch Executive, NI LabVIEW, NI TestStand
Driver(s):
NI-SWITCH
Included:
NI InstrumentStudio™ Software (select modules supported)

PXI Switches

- More than 100 different switching topologies
- Up to 600 V and 40 A
- Bandwidth up to 40 GHz
- Up to 544 matrix crosspoints
- 1- wire, 2- wire, and 4-wire options
- Software selectable topologies offer flexibility

Key Features

PXI Switch Expansion
Physically combine multiple PXI switches to create a single, larger switch by either joining the rows/columns of PXI matrices or by joining the COMs of PXI multiplexers.

Synchronize with Instruments
Perform hardware handshaking to synchronize a PXI switch with another PXI instrument, removing the software overhead and bus latency.

Switch Executive Software
Utilize this application software for intelligent switch management and routing that accelerates development and simplifies maintenance of complex switch systems.

PXI Switch Modules

General-Purpose Switches

Selection Guide	Model	Part Number	Max Voltage (DC V)	Max Voltage (AC V)	Max Current (Switching)	Max Current (Carry)	Relay Type	Bandwidth	Topology
Low Power (1A)	**PXI-2569**	778572-69	100	100	1	1	EMR	20 MHz	100-Channel, SPST
	PXIe-2569	780587-69	100	100	1	1	EMR	20 MHz	100-Channel, SPST
	PXI-2571	778572-71	100	100	1	1	EMR	35 MHz	66-Channel, SPDT
Medium Power (2A to 5A)	**PXI-2520**	778572-20	150	150	2	2	EMR	35 MHz	80-Channel, SPST
	PXI-2521	778572-21	150	150	2	2	EMR	25 MHz	40-Channel, DPST
	PXI-2522	778572-22	100	100	2	2	EMR	51 MHz	53-Channel, SPDT
	PXI-2523	778572-23	100	150	2	2	EMR	36 MHz	26-Channel, DPF
	PXI-2564	778572-64	150	150	5	5	EMR	10 MHz	16-Channel, SPST
	PXI-2566	778573-66	150	125	2	5	EMR	70 MHz	16-Channel, SPDT
	PXI-2568	778572-68	150	150	2	2	EMR	40 MHz	31-Channel, SPST
High Power (5A)	**PXI-2586**	778572-86	300	300	12	12	EMR	20 MHz	10-Channel, SPST

General-Purpose Switch Accessories

Model	Compatible Accessories (Part Number)
PXI-2569	LFH200 to 4x50-pin D-SUB Cable, 1 m (779038-03) LFH200 to 4x50-pin D-SUB Cable, 2 m (783139-02) TB-2666 (778717-66)
PXIe-2569	
PXI-2571	LFH200 to 4x50-pin D-SUB Cable, 1 m (779038-03) LFH200 to 4x50-pin D-SUB Cable, 2 m (783139-02) NI TBX-50B Screw Terminal Block (782866-01)
PXI-2520	160 Pin DIN to Bare Wire Cable, 1 m (782417-01) 160 Pin DIN to 160 Pin DIN Cable, 1 m (782417-02) 160 Pin DIN to 4 D-SUB Cable, 1 m (782417-03) 160-Pin DIN to Bare Wire (781090-03) NI TBX-50B Screw Terminal Block (782866-01)
PXI-2521	
PXI-2522	
PXI-2523	
PXI-2564	37-Pin Female-to-Female D-SUB Cable, 1 m (779955-01)
PXI-2566	TB-2666 (778717-66) Backshell and Connector Kit for PXI-2566 (779957-01)
PXI-2568	62-Pin Female-to-Female Shielded D-SUB Cable, 1 m (779956-01) NI TBX-62 Screw Terminal Block (779957-01)
PXI-2586	Cable for PXI-2585/2586, GMCT20-GMCT20 (781256-01) Cable for PXI-2585/2586, GMCT20-Bare Wire (781257-01) Connector and Backshell for NI PCI-258x (779168-01)

Multiplexer Switches

Selection Guide	Model	Part Number	Max Voltage (DC V)	Max Voltage (AC V)	Max Current (Switching)	Max Current (Carry)	Relay Type	Bandwidth	Channels/Crosspoints
Low Density	**PXI-2503**	777697-01	60	30	1	1	EMR	10 MHz	48-channel Mux
	PXI-2575	778572-75	100	100	1	1	EMR	20 MHz	196-channel Mux
	PXI-2576	778572-76	100	100	1	1	EMR	30 MHz	64-channel Mux
	PXI-2584	778572-84	600	600	0.5	0.5	Reed	900 kHz	12-Channel Mux
	PXI-2585	778572-85	300	300	12	12	EMR	10 MHz	10-Channel Mux
	PXIe-2525	780587-25	150	150	2	2	EMR	10 MHz	64-channel Mux
	PXIe-2527	780587-27	300	300	2	2	EMR	30 MHz	32-channel Mux
High Density	**PXI-2530B**	778572-30	60	30	0.4	0.4	Reed	12 MHz	128-channel Mux
	PXIe-2575	780587-75	100	100	1	1	EMR	20 MHz	196-channel Mux
	PXIe-2524	780587-24	150	150	2	2	EMR	10 MHz	64-channel Mux
	PXIe-2526	780587-26	150	150	2	2	EMR	10 MHz	158-Channel Mux
	PXIe-2575	780587-75	100	100	1	1	EMR	20 MHz	196-channel Mux

Multiplexer Switch Accessories

Model	Compatible Accessories (Part Number)
PXI-2503	TB-2605 (777878-01) 2x68-Pos .050 SH68-68-S Cable, 1 m (185262-01) 2x68-Pos .050 SH68-68-S Cable, 2 m (185262-02) 2x68-Pos .050 SH68-68-S Cable, 5 m (185262-05) TBX-68 Connector Block (777141-01) TBX-68S (777716-01)
PXI-2575	TBX-50 Screw Terminal Block (779305-01) TBX-50B (782866-01) LFH200 Connector to Bare Wire Switch Cable, 60 VDC, 2 m (779038-01) LFH200 to 4x50-Pin D-SUB Switch Cable (Ch-Com Twisted), 60 VDC, 1 m (779038-02)
PXIe-2575	
PXI-2576	TBX-50 Screw Terminal Block (779305-01) TBX-50B (782866-01) TB-2676 Terminal Block (779535-01) LFH160 to 50-Pin D-SUB (780009-01)
PXI-2584	Connector and Backshell for PXI-2584 (779168-02)
PXI-2585	No dedicated accessories
PXIe-2525	TBX-50 Screw Terminal Block (779305-01) 160 Pin DIN to 4 D-SUB Cable, 1 m (782417-03) TBX-50B (782866-01) Cable for PXI-2520, 160-Pin DIN to 160-Pin DIN (781090-02) 160-Pin DIN to Bare Wire (781090-03)
PXIe-2524	
PXIe-2526	
PXIe-2527	TB-2627 (779358-01)
PXI-2530B	TBX-50 Screw Terminal Block (779305-01) TBX-50B (782866-01) TB-2630B (781687-01) LFH160 to 50-Pin D-SUB, 2530B (781692-01)

Matrix Switches

Selection Guide	Model	Part Number	Max Voltage (DC V)	Max Voltage (AC V)	Max Current (Switching)	Max Current (Carry)	Relay Type	Bandwidth
128-Crosspoints	**PXI-2529**	778739-01	150	150	1	2	EMR	10 MHz
	PXIe-2529	780587-29	150	150	1	2	EMR	10 MHz
256-Crosspoints	**PXI-2533**	778572-33	55	30	1	1	Solid State	1.5 MHz
	PXI-2534	778572-34	55	30	1	1	Solid State	2 MHz
	PXIe-2737	782835-37	100	100	2	2	EMR	10 MHz
	PXIe-2738	782835-38	100	100	2	2	EMR	10 MHz
	PXIe-2739	782835-39	100	100	2	2	EMR	10 MHz
512-Crosspoints	**PXIe-2531**	780587-31	60	30	0.5	0.5	Reed	10 MHz
	PXI-2532B	782383-01	100	100	0.5	0.5	Reed	30 MHz
	PXIe-2532B	782384-01	100	100	0.5	0.5	Reed	30 MHz
544-Crosspoints	**PXI-2535**	778572-35	12	8	0.1	0.1	FET	1 MHz
	PXI-2536	778572-36	12	8	0.1	0.1	FET	1 MHz

Matrix Switch Accessories

Description	Topology	Common Accessories (all topologies)	Topology-Specific Accessories
PXI-2529	4x32	—	TB-2636, 4x32 (2-Wire) Matrix (196762-01) TB-2634, 4x32 Matrix (778840-01)
	8x16	—	TB-2635, 8x16 Matrix (778839-01)
	4x16	—	No Dedicated Accessories
PXIe-2529	4x32	—	TB-2636, 4x32 (2-Wire) Matrix (196762-01) TB-2634, 4x32 Matrix (778840-01)
	8x16	—	TB-2635, 8x16 Matrix (778839-01)
	4x16	—	No Dedicated Accessories
PXI-2533	4x64	2x68-Pos .050 SH68-68-S Cable, 1 m (185262-01) 2x68-Pos .050 SH68-68-S Cable, 2 m (185262-02) 2x68-Pos .050 SH68-68-S Cable, 5 m (185262-05) TBX-68 Connector Block (777141-01)	TB-2633 (780270-01)
PXI-2534	8x32	2x68-Pos .050 SH68-68-S Cable, 1 m (185262-01) 2x68-Pos .050 SH68-68-S Cable, 2 m (185262-02) 2x68-Pos .050 SH68-68-S Cable, 5 m (185262-05) TBX-68 Connector Block (777141-01)	—
PXIe-2737	4x64	160 Pin DIN to 160 Pin DIN Cable (781090-02) 160 Pin DIN to Bare Wire (781090-03) 160 Pin DIN to 4 D-SUB Cable (782417-03) TBX-50 Screw Terminal Block (779305-01) TBX-50B (782866-01)	—
PXIe-2738	8x32		—
PXIe-2739	16x16		—
PXIe-2531	4x128	SHC68-68 Cable, 1 m (191945-01) SHC68-68 Cable, 2 m (191945-02) TBX-68 Connector Block (777141-01)	Terminal Block, 4x128 Matrix (781131-01)
	4x64		TB-2649, Dual 4x64 Matrix (781131-02)
	8x64		TB-2650 (781131-03)
	8x32		TB-2651 (781131-04)
PXIe-2532B	4x128	Screw Terminal Block Accessory, TB-264XB, 60 VDC (779341-01) Matrix Expansion Cable, TB-264XB, 60 VDC (779325-01) Row & Column Cable Kit, TB-264XB, 60 VDC (779346-01) Matrix Expansion Cable, TB-264XB, 100 VDC (782426-01) Row & Column Cable Kit, TB-264XB, 100 VDC (782427-01)	TB-2640B (782385-01) TB-2640B W/100Ω (782385-02)
	8x64		TB-2641B (782385-03) TB-2641B W/100Ω (782385-04)
	16x32		TB-2642B (782385-05) TB-2642B W/100Ω (782385-06)
	4x64		TB-2643B (782385-07) TB-2643B W/100Ω (782385-08)
	8x32		TB-2644B (782385-09) TB-2644B W/100Ω (782385-10)
	16x16		TB-2645B (782385-11) TB-2645B W/100Ω (782385-12)
	4x32		TB-2646B (782385-13) TB-2646B W/100Ω (782385-14)
PXI-2535	4x135	CB-68LP (777145-01) CB-68LPR (777145-02)	SHC68-68 Cable, 1 m (191945-01) SHC68-68 Cable, 2 m (191945-02) SHC68-C68-S (186380-02)
PXI-2536	8x68		SHC68-68 Cable, 1 m (191945-01) SHC68-68 Cable, 2 m (191945-02) TBX-50 Screw Terminal Block (779305-01)

RF Switches

Selection Guide	Model	Part Number	Max Voltage (DC V)	Max Voltage (AC V)	Max Current (Switching)	Max Current (Carry)	Relay Type	Bandwidth	Topology
General Purpose	**PXI-2599**	778572-99	—	90	—	1.73	EMR	26.5 GHz	Dual SPDT
Multiplexer	**PXI-2545**	778572-45	30	30	0.5	0.5	EMR	2.7 GHz	4x1 Mux
	PXI-2546	778572-46	30	30	0.5	0.5	EMR	2.7 GHz	Dual 4x1 Mux
	PXI-2547	778572-47	30	30	0.5	0.5	EMR	2.7 GHz	8x1 Mux
	PXI-2594	778572-94	30	30	0.5	0.5	EMR	2.5 GHz	4x1 Mux
	PXI-2596	778572-96	—	90	—	1.73	EMR	26.5 GHz	Dual 6x1 Mux
	PXI-2597	778572-97	—	90	—	1.73	EMR	26.5 GHz	6x1 Mux
	PXI-2796	782356-01	—	30	—	0.6	EMR	40 GHz	Dual 6x1 Mux
	PXI-2797	782357-01	—	30	—	0.6	EMR	40 GHz	6x1 Mux
	PXIe-2542	780587-42	8	8	1	1	FET	6.6 GHz	Quad SPDT
	PXIe-2543	780587-43	8	8	1	1	FET	6.6 GHz	Dual 4x1 Mux
	PXIe-2544	780587-44	8	8	—	—	FET	6.6 GHz	8x1 Mux
	PXIe-2593	780587-93	150	150	0.5	0.5	EMR	750 MHz	16x1 Mux
	PXIe-2746	780587-46	30	30	0.5	0.5	EMR	2.7 GHz	Quad 4x1 Mux
	PXIe-2747	780587-47	30	30	0.5	0.5	EMR	2.7 GHz	Dual 8x1 Mux
	PXIe-2748	780587-48	30	30	0.5	0.5	EMR	3 GHz	Quad SPDT
Matrix	**PXIe-2540**	780587-40	60	42	0.5	0.5	Reed	350 MHz	8x9 Matrix
	PXIe-2541	780587-41	60	42	0.5	0.5	Reed	300 MHz	8x12 Matrix
Transfer	**PXI-2598**	778572-98	—	60	—	1.25	EMR	26.5 GHz	Dual Transfer
	PXI-2798	782358-01	—	30	—	0.6	EMR	40 GHz	Dual Transfer

RF Switch Accessories

Model	Compatible Accessories (Part Number)
PXIe-2540	MCX Male-to-MCX Male Cable, 15 cm (188374-0R15) MCX Male-to-MCX Male Cable, 30 cm (188374-0R3) MCX Male-to-MCX Male Cable, 1 m (188374-01) MCX Male-to-BNC Male Cable, 30 cm (188375-0R3) MCX Male-to-BNC Male Cable, 1 m (188375-01) MCX Male-to-SMB Female Cable, 30 cm (188376-0R3) MCX Male-to-SMB Female Cable, 1 m (188376-01) MCX Male-to-SMA Male Cable, 30 cm (188377-0R3) MCX Male-to-SMA Male Cable, 1 m (188377-01)
PXIe-2541	
PXIe-2593	
PXIe-2746	
PXIe-2747	
PXIe-2748	
PXI-2545	MCX Male-to-SMA Male Cable, 30 cm (188377-0R3) MCX Male-to-BNC Male Cable, 1 m (188375-01)
PXI-2546	
PXIe-2542	SMA Male-to-SMA Male Cable, 12.7 cm (763443-01) SMA Male-to-SMA Male Cable, 30 cm (781846-01) SMA Male-to-SMA Male Cable, 38.1 cm (763444-01) SMA Male-to-SMA Male Cable for USRP, 2 m (783470-01)
PXIe-2543	
PXIe-2544	
PXI-2547	
PXI-2594	
PXI-2596	
PXI-2597	
PXI-2598	
PXI-2599	
PXI-2796	
PXI-2797	
PXI-2798	

Switch Expansion

Selection Guide	Model	Part Number	Max Voltage (DC V)	Max Voltage (AC V)	Max Current (Switching)	Max Current (Carry)	Relay Type	Bandwidth	Type A/B Module
SwitchBlock PXI Carrier Module	**PXI-2800**	781420-00	150	150	2	2	—	—	—
SwitchBlock Modules	**SWB-2834**	781420-34	100	0	2	2	EMR	10 MHz	Type A
	SWB-2834	781421-34	100	0	2	2	EMR	10 MHz	Type B
	SWB-2833	781420-33	100	100	2	2	EMR	10 MHz	Type A
	SWB-2833	781421-33	100	100	2	2	EMR	10 MHz	Type B
	SWB-2816	781420-16	100	70	0.25	0.3	Reed	8 MHz	Type A
	SWB-2816	781421-16	100	70	0.25	0.3	Reed	8 MHz	Type B
	SWB-2815	781420-15	100	70	0.25	0.3	Reed	6 MHz	Type A
	SWB-2815	781421-15	100	70	0.25	0.3	Reed	6 MHz	Type B
	SWB-2810	781420-10	150	0	1	1	Reed	10 MHz	Type A
	SWB-2810	781421-10	150	0	1	1	Reed	10 MHz	Type B

Type A: Row-to-column signal routing
Type A and B: Column-to-column signal routing

SwitchBlock Accessories

Model	Compatible Accessories (Part Number)
SWB-2834	SH160F-160M (153028-01) TBX-2808 (781420-08)
SWB-2833	
SWB-2816	SH96F-96M Cable, 1 m (150275-01) SH96F-96M Cable, 0.5≈m (150275-0R5) SH96F-96M Cable, 1.5 (150275-1R5) SH96F-96M-Res Cable (100 Ω Protection), 1 m (150579-01) 96-Pin Screw Terminal Accessory (781420-09)
SWB-2815	
SWB-2810	

Specialty Modules

Selection Guide	Model	Part Number	Max Voltage (DC V)	Max Voltage (AC V)	Max Current (Switching)	Max Current (Carry)	Relay Type	Bandwidth
Programmable Resistor	**PXIe-2725**	781986-25	60	30	0.3	0.3	Reed	—
	PXIe-2727	781986-27	60	30	0.3	0.3	Reed	—
Relay Driver	**PXI-2567**	778572-67	—	—	—	—	—	—
Fault Insertion	**PXI-2510**	778572-10	150	150	2	2	EMR	6.5 MHz
	PXIe-2512	780587-12	50	30	10	10	FET	800 kHz
	PXIe-2514	780587-14	28	19.8	40	40	FET	801 kHz
	PXIe-2515	780587-15	30	30	0.25	0.3	Reed	50 MHz



Develop With:
NI LabVIEW, NI TestStand, LabWindows™/CVI, Python, C/C++, C#/.NET
Driver(s):
NI-DCPower
Included:
NI InstrumentStudio™ Software

PXI Source Measure Units

- Achieve up to 24 SMU channels per slot—scaling to 408 channels per chassis
- Up to 200 V and 3 A (10 A pulse)
- Current sensitivity down to 10 fA
- Maximum power per channel of 40 W (500 W pulse)

Key Features

Unmatched Channel Density

Reduce test time, increase throughput, and meet today's manufacturing requirements by reducing a full rack to a few inches of physical space with up to 408 SMU channels in a single PXI chassis.

Built-In IV Sweep

Reconfigure and repurpose the same SMUs across test cases with configuration-based IV sweeps in InstrumentStudio and a path to more advanced customization in programming environments.

High-Power Pulsing

Operate beyond the basic DC power boundary of PXI SMUs by pulsing current or voltage instead of supplying a constant DC source, allowing you to test at high instantaneous power with limited or no heat-sink infrastructure.

PXI Source Measure Unit Modules

Selection Guide	Model	Part Number	Channel Count	Max Voltage	Max Current	Current Sensitivity	Max Source Power	Max Sink Power	Pulsing	Max Sample Rate	SourceAdapt
High-Performance System SMUs	**PXIe-4135**	783762-01	1	200 V	1 A	10 fA	20 W	12 W	✓	1.8 MS/s	✓
	PXIe-4135	783762-02	1	200 V	1 A	10 fA	40 W	40 W	✓	1.8 MS/s	✓
	PXIe-4137	783761-01	1	200 V	1 A	100 fA	20 W	12 W	✓	1.8 MS/s	✓
	PXIe-4137	783761-02	1	200 V	1 A	100 fA	40 W	40 W	✓	1.8 MS/s	✓
	PXIe-4139	782856-02	1	60 V	3 A	100 fA	20 W	12 W	✓	1.8 MS/s	✓
	PXIe-4139	782856-03	1	60 V	3 A	100 fA	40 W	40 W	✓	1.8 MS/s	✓
Low-Cost System SMUs	**PXIe-4136**	783760-01	1	200 V	1 A	1 pA	20 W	12 W	—	1.8 MS/s	—
	PXIe-4138	782856-01	1	60 V	3 A	1 pA	20 W	12 W	—	1.8 MS/s	—
Low Cost Medium Density SMUs	**PXIe-4142**	782430-01	4	24 V	150 mA	100 pA	3.6 W	3.6 W	—	600 kS/s	—
	PXIe-4144	782432-01	4	6 V	500 mA	150 pA	3 W	3 W	—	600 kS/s	—
High-Performance Medium-Density SMUs	**PXIe-4143**	782431-01	4	24 V	150 mA	10 pA	3.6 W	3.6 W	—	600 kS/s	✓
	PXIe-4145	782435-01	4	6 V	500 mA	15 pA	3 W	3 W	—	600 kS/s	✓
	PXIe-4147	786888-01	4	8 V	3 A	100 fA	24 W	24 W	—	1.8 MS/s	✓
High-Density SMUs	**PXIe-4162**	785680-01	12	24 V	100 mA	100 pA	2.4 W	1.2 W	—	100 kS/s	✓
	PXIe-4162	785680-02	12	24 V	100 mA	10 pA	2.4 W	1.2 W	—	100 kS/s	✓
	PXIe-4163	784483-01	24	24 V	50 mA	100 pA	1.2 W	0.6 W	—	100 kS/s	✓
	PXIe-4163	784483-02	24	24 V	50 mA	10 pA	1.2 W	0.6 W	—	100 kS/s	✓
Combo LCR Meter and SMU	**PXIe-4190**	788101-01	1	10 V	100 mA	1 pA	1 W	1 W	—	600 kS/s	✓
	PXIe-4190	788088-01	1	40 V	100 mA	1 fA	4 W	4 W	—	600 kS/s	✓



Develop With:
NI LabVIEW, NI TestStand, LabWindows™/CVI, Python, C/C++, C#/.NET
Driver(s):
NI-DCPower
Included:
NI InstrumentStudio™ Software

PXI LCR Meters and SMUs

- AC stimulus frequency up to 2 MHz
- AC stimulus amplitude up to 7.07 V_{rms}
- DC bias up to ± 40 V
- Basic impedance accuracy of 0.05 percent

Key Features

High-Precision, High-Accuracy Measurements

NI LCR meters are built with a combination of off-the-shelf high-speed and high-precision data converter technology to provide low noise measurements across a wide range of LCR meter stimulus frequencies and SMU measurement speeds.

High-Speed Measurement and Update Rate

The NI PXIe-4190 provides flexible measurement time settings, including preset options (100 ms for slow, 10 ms for normal, and 1 ms for fast) and the ability to choose custom values outside of these three preset values.

SourceAdapt Digital Control Loop Technology

NI SourceAdapt technology gives you the ability to optimize the SMU response for any device under test (DUT). This provides fast and stable measurements for a variety of loads, even highly capacitive or inductive ones, and prevents damage to your DUT by removing harmful overshoots and oscillations.

PXI LCR Meter and SMU Modules

Selection Guide	Model	Part Number	Channel Count	Min AC Stimulus Frequency	Max AC Stimulus Frequency	Max AC Stimulus Voltage	Max AC Stimulus Current	Max DC Bias Voltage (DC + AC)	Max DC Bias Current (DC + AC)
500 kHz Lower-Cost LCR Meter and SMU	**PXIe-4190**	788101-01	1	40 Hz	500 kHz	7.07 V_{rms}	70.7 mA_{rms}	10 V	100 mA
2 MHz LCR Meter and SMU	**PXIe-4190**	788088-01			2 MHz			40 V	

PXI LCR Meter and SMU Accessories

Cable	SHDB13W6-4BNCM-LL Low-Leakage D-SUB to Male BNC Cable			SHDB13W6-4BNCF-LL Low-Leakage D-SUB to Female BNC Cable			SHDB13W6-4TriaxM-LL Low-Leakage D-SUB to Male Triax Cable			SHDB13W6-DB13W6-LL Low-Leakage D-SUB to D-SUB Cable		
Length	1 m	2 m	4 m	0.5 m	1 m	2 m	1 m	2 m	4 m	1 m	2 m	4 m
Part Number	788280-01	788280-02	788280-04	789536-0R5	789536-01	789536-02	788281-01	788281-02	788281-04	788279-01	788279-02	788279-04
PXIe-4190	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

PXI Source Measure Unit Accessories

Cables

Cables	TriaxM-TriaxM Low-Noise Triaxial-to-Triaxial Cable			Safety Interlock Cable PXIe-4135/6/7		SH8M-7F-LL Low-Leakage Cable	
Length	1 m	3 m	5 m	8 in.	48 in.	1 m	2 m
Part Number	785659-01	785659-03	788746-05	142998-08	142998-48	130123-01	130123-02
PXIe-4135	✓	✓	✓	✓	✓	—	—
PXIe-4136	—	—	—	✓	✓	✓	✓
PXIe-4137	—	—	—	✓	✓	✓	✓
PXIe-4138	—	—	—	—	—	✓	✓
PXIe-4139	—	—	—	—	—	✓	✓
PXIe-4142	—	—	—	—	—	—	—
PXIe-4143	—	—	—	—	—	—	—
PXIe-4144	—	—	—	—	—	—	—
PXIe-4145	—	—	—	—	—	—	—
PXIe-4147	—	—	—	—	—	—	—
PXIe-4162	—	—	—	—	—	—	—
PXIe-4163	—	—	—	—	—	—	—

Cables (continued)

Cables	SHDB25F-DB25F Low-Leakage 25-Pin D-SUB Cable		SHDB62M-DB62M-LL Low-Leakage 62-Pin D-SUB Cable		SHDB62M-BW-LL Low-Leakage 62-Pin D-SUB to Bare Wire Cable	
Length	1 m	2 m	1 m	2 m	1 m	2 m
Part Number	132893-01	132893-02	142947-01	142947-02	142948-01	142948-02
PXIe-4135	—	—	—	—	—	—
PXIe-4136	—	—	—	—	—	—
PXIe-4137	—	—	—	—	—	—
PXIe-4138	—	—	—	—	—	—
PXIe-4139	—	—	—	—	—	—
PXIe-4142	✓	✓	—	—	—	—
PXIe-4143	✓	✓	—	—	—	—
PXIe-4144	✓	✓	—	—	—	—
PXIe-4145	✓	✓	—	—	—	—
PXIe-4147	✓	✓	—	—	—	—
PXIe-4162	—	—	✓	✓	✓	✓
PXIe-4163	—	—	✓	✓	✓	✓

Screw Terminal Connectors and Adapters

Screw Terminal Connectors and Adapters	SA-413B Banana Jack Adapter for PXIe-4136/7/8/9	SA-413T Triaxial Adapter for PXIe-4138/9	Additional or Replacement Connector Kit*				
Part Number	786818-01	784000-01	784484-01	784068-01	787611-01	786984-01	786985-01
PXIe-4135	—	—	✓	—	—	—	—
PXIe-4136	✓	—	—	✓	—	—	—
PXIe-4137	✓	—	—	✓	—	—	—
PXIe-4138	✓	✓	—	✓	—	—	—
PXIe-4139	✓	✓	—	✓	—	—	—
PXIe-4142	—	—	—	—	✓	—	—
PXIe-4143	—	—	—	—	✓	—	—
PXIe-4144	—	—	—	—	✓	—	—
PXIe-4145	—	—	—	—	✓	—	—
PXIe-4147	—	—	—	—	✓	—	—
PXIe-4162	—	—	—	—	—	✓	—
PXIe-4163	—	—	—	—	—	—	✓

*Replacement/extra

Protection Accessories

Protection Accessories	Open-Sense Protection Accessory without Detection		Current and Open-Sense Protection Accessory with Detection**		Open-Sense Protection Accessory with Detection	
Part Number	787719-01	787720-01	788403-01	788404-01	787719-02	787720-02
PXIe-4162	✓	—	✓	—	✓	—
PXIe-4163	—	✓	—	✓	—	✓

**Replacement/extra



Develop With:
NI LabVIEW, NI TestStand, LabWindows™/CVI, Python, C/C++, C#/.NET
Driver(s):
NI-DCPower
Included:
NI InstrumentStudio™ Software

PXI Power Supplies

- Source up to 300 W of DC power
- Voltage and current measurements with sample rates up to 1.8 MS/s and update rates up to 100 kS/s
- 4-wire remote-sense hardware timing and triggering

Key Features

Source and Measure Faster

You can power your device under test with up to 300 W of DC power, all while taking current and voltage measurements up to 1.8 MS/s to capture the dynamic signal performance. Additionally, high-speed data converters offer update rates up to 100 kS/s for creating dynamic sequences.

Increase Measurement Accuracy

You can use multiple measurement ranges in certain PXI power supplies for both voltage and current to enhance measurement accuracy and reduce quantization noise. With this feature, you can achieve higher accuracy for both large and small signals, surpassing what you could do with one range.

Tune the Transient Response

You can use NI SourceAdapt technology to optimize system stability and minimize transient response times for a given load with your PXI programmable power supply. With NI SourceAdapt technology, you can test faster without potentially damaging your device.

PXI Power Supply Modules

Selection Guide	Model	Part Number	Channels	Maximum Voltage (V)	Maximum Current (A)	Maximum Power Per Channel (W)	Maximum Voltage Measurement Resolution	Maximum Current Measurement Resolution	SourceAdapt	Auxiliary Power Supply
Most Channels	PXI-4110	779647-11	3	±20	1	20	0.06 mV	0.20 µA	—	Included with Kit
General Purpose	PXIe-4112	782857-01	2	+60	1	60	17 mV	274 µA	—	Included with Kit
	PXIe-4113	782857-02	2	+10	6	60	3 mV	2 mA	—	Included with Kit
High Power	PXIe-4150	788176-01	1	+60	10*	300	1 µV	10 nA	✓	Not Included
	PXIe-4151	788176-02	1	+20	25*	300	1 µV	10 nA	✓	Not Included

*Requires a 58 W or greater chassis to source full-scale current

PXI Power Supply Accessories

Auxiliary Power Supplies and Cables

Auxiliary Power Supply or Cable	APS-4100 Auxiliary Power Source for NI DC Power Supplies*	Replacement Auxiliary Power Supply Module for NI PXIe-4112/13*	APS-4157, 48 V Auxiliary Power Supply for NI PXIe-4150/1	APS-4158, 8-Channel Auxiliary Power Supply, 1,200 W, 48 V	APS-4159, 8-Channel Auxiliary Power Supply, 2,400 W, 48 V	Auxiliary Power Cable for APS-415x, 0.5 m	Auxiliary Power Cable for APS-415x, 1 m
Part Number	779671-01	782888-01	789776-01	788201-01	788201-02	788199-0R5	788199-01
PXI-4110	✓	—	—	—	—	—	—
PXIe-4112	—	✓	—	—	—	—	—
PXIe-4113	—	✓	—	—	—	—	—
PXIe-4151	—	—	✓	✓	✓	✓ **	✓ **
PXIe-4150	—	—	✓	✓	✓	✓**	✓**

*Replacement/extra

**Must purchase 1x auxiliary cable option per PXIe-4151 and PXIe-4150

Connectors and Connector Kits

Connectors and Connector Kits	Screw Terminal Connector Kit for PXI-4130 SMU***	Screw Terminal Connector Kit for PXIe-4112/3 Power Supplies***	Connector Kit for PXIe-4150/1 Power Supplies and PXIe-4051 Electronic Load***
Part Number	780557-01	782887-01	788197-01
PXI-4110	✓	—	—
PXIe-4112	—	✓	—
PXIe-4113	—	✓	—
PXIe-4151	—	—	✓
PXIe-4150	—	—	✓

***Replacement/extra

Mounting Kits

Mounting Kit	Rack-Mount Kit for APS-4158/9 Auxiliary Power Supplies
Part Number	786340-01
APS-4158	✓
APS-4159	✓



Develop With:
NI LabVIEW, NI TestStand, LabWindows™/CVI, Python, C/C++, C#/.NET
Driver(s):
NI-DCPower
Included:
NI InstrumentStudio™ Software

PXI Electronic Loads

- Ability to sink up to 300 W of DC power
- Voltage and current measurements with sample rates up to 1.8 MS/s and update rates up to 100 kS/s
- Hardware timing and triggering
- 4-wire remote sense

Key Features

Acquire Data at High Speed

You can sink up to 300 W of power into the PXI electronic load module to test a range of electronic devices, all while gathering voltage and current measurements at rates up to 1.8 MS/s. The first PXI electronic load module in the industry also features high-speed data converters that offer update rates up to 100 kS/s.

Improve Accuracy with Selectable Ranges

When measuring voltage or current with the PXI electronic load module, you have multiple measurement ranges to choose from. You can enhance the accuracy of your measurement by selecting the most suitable range for the magnitude of the measurement, optimizing the ADC range.

Tune the Transient Response

You can maximize stability, reduce overshoot, and decrease test times by digitally controlling the transient response of the PXI electronic load module. Patented NI SourceAdapt technology on the PXI electronic load module, power supplies, and source measure units (SMUs) eliminates custom circuitry.

PXI Electronic Load Modules

Selection Guide	Model	Part Number	PXI Slots	Maximum Voltage (V)	Maximum Current (A)	Maximum Power Per Channel (W)	Maximum Voltage Measurement Resolution	Maximum Current Measurement Resolution	SourceAdapt
1-Channel, 60 V, 40 A PXI Electronic Load Module	PXIe-4051	788179-01	3	60	40*	300	1 µV	10 µA	✓

*Requires an 82 W PXI chassis to achieve maximum power of 300 W

PXI Electronic Load Accessories

Connectors and Connector Kits

Connectors and Connector Kits	Connector Kit for PXIe-4150/1 Power Supplies and PXIe-4051 Electronic Load
Part Number	788197-01
PXIe-4051	✓



Develop With:
NI LabVIEW, NI TestStand, Semiconductor Device Control Add-On for NI InstrumentStudio™ software
Driver(s):
NI-Digital Pattern Driver
Included:
Digital Pattern Editor, InstrumentStudio (requires the Semiconductor Device Control Add-On)

PXI Digital Pattern Instruments

- 32-channel module (up to 512 per chassis)
- 100 MHz vector rate, 39 ps edge placement
- Digital voltage of -2 V to 6 V
- Up to 200 Mb/s data rate

Key Features

Dedicated Digital Pattern Editor

The Digital Pattern Editor is an interactive tool for importing, editing, or creating test patterns. The software integrates editing sheets for device pin maps, specifications, and patterns to develop or edit imported digital test vectors and patterns.

Debug Digital Test Patterns

The Digital Pattern Editor includes tools such as Shmoo plots to provide a deeper understanding of DUT performance across variation. The editor also offers debugging tools such as History RAM or Digital Scope for an analog view of the pin data.

Programmatic Pattern Bursting

The NI-Digital Pattern Driver in LabVIEW, C, Python, or .NET offers the ability to develop test code to interact with PXI Digital Pattern Instruments.

PXI Digital Pattern Instrument Modules

Selection Guide	Model	Part Number	Supported Chassis	Active Load	Channels	Maximum Vector Rate	Maximum Data Rate	Maximum Clock Generation	Pattern Timing	Drive Formats	Timing Specifications
Higher Channel Count, Higher Active Load	**PXIe-6570**	785283-01	PXIe-6570 >= 38 W	24 mA	32 per Module	100 MHz (10 ns Minimum Vector Period)	200 Mb/s	160 MHz*	31 Time Sets 39.0625 ps Edge-Placement Resolution	Nonreturn (NR), Return to Low (RL), Return to High (RH) (100 MHz max), Surround by Complement (SBC) (50 MHz max)	Warranted
Higher Channel Count	**PXIe-6571**	786320-01	PXIe-6571 32 ch = 82 W	16 mA	32 per Module						Warranted
General Purpose	**PXIe-6571**	786320-02	PXIe-6571 8-ch >= 58 W	16 mA	8 per Module						Typical

*Clock rates >133 MHz will have a non-50% duty cycle.

See **PXI Digital Waveform and Pattern Instrument Accessories



Develop With:
NI LabVIEW, NI TestStand
Driver(s):
NI-HSDIO

PXI Digital Waveform Instruments

- Standard TTL/CMOS interface voltages and programmable voltage levels
- 32 bidirectional digital channels
- Advanced waveform sequencing and streaming features
- Up to 200 Mb/s SDR and 400 Mb/s DDR

Key Features

Synchronization and Memory Core (SMC)

SMC architecture is designed to enhance testing efficiency through deep onboard memory, flexible data transfer cores, and precise timing synchronization.

Dedicated Digital Waveform Editor

The Digital Waveform Editor is a software tool that facilitates creating, editing, and importing digital waveforms for customized interfacing and test conditions. The editor also supports the design of digital vectors with six drive and compare states.

Driver and API Support

The NI-HSDIO driver includes a flexible API based on IVI guidelines, complete documentation of supported hardware, and configuration and testing utilities to communicate with PXI digital waveform instruments.

PXI Digital Waveform Instrument Modules

Selection Guide	Model	Part Number	Number of Bidirectional Digital Channels	Logic Family	Maximum Sample Clock	Maximum Generation Rate	Maximum Acquisition Rate	Onboard Memory	Hardware Compare
Starter Module	PXIe-6544	780992-01	32	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	100 MHz	100 Mb/s SDR	100 Mb/s SDR	1 Mb/ch (4 MB total)	—
		780992-02						8 Mb/ch (32 MB total)	
		780992-03						64 Mb/ch (256 Mb total)	
Higher Clock Rate	PXIe-6545	780993-01	32	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	200 MHz	200 Mb/s SDR	200 Mb/s SDR	1 Mb/ch (4 MB total)	—
		780993-02						8 Mb/ch (32 MB total)	
		780993-03						64 Mb/ch (256 Mb total)	
Programmable Voltage Levels	PXIe-6547	781011-01	32	1.2 V to 3.3 V Programmable	100 MHz	100 Mb/s SDR (200 Mb/s DDR)	100 Mb/s SDR (200 Mb/s DDR)	1 Mb/ch (4 MB total)	✓
		781011-02						8 Mb/ch (32 MB total)	
		781011-03						64 Mb/ch (256 Mb total)	
Higher Clock Rate + Programmable Voltage Levels	PXIe-6548	781012-01	32	1.2 V to 3.3 V Programmable	200 MHz	200 Mb/s SDR (400 Mb/s DDR)*	200 Mb/s SDR (300 Mb/s DDR)*	1 Mb/ch (4 MB total)	✓
		781012-02						8 Mb/ch (32 MB total)	
		781012-03						64 Mb/ch (256 MB total)	

*Maximum DDR data rate is dependent on logic family or programmed voltage level. See specs for mapping of voltage levels to data rates.

PXI Digital Waveform and Pattern Instrument Accessories

Digital Cables

Digital Cables	SHC68-C68-D4 Shielded Single-Ended Cable, 0.55 m	SHC68-C68-D4 Shielded Single-Ended Cable, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, 2m	SHC68-C68-D4 Shielded Single-Ended Cable, Low Leakage, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, Lower DC Resistance, 3 m	C68-C68-D4 Unshielded Cable, 2X68-Position VHDCI Offset, 1 m	SHC68-H1X38 High-Speed Digital Flying-Leads Cable Accessory, 1.5 m
Part Number	781013-01	196275-01	781293-01	152870-01	132625-03	195949-01	192681-1R5
Shielding	Shielded	Shielded	Shielded	Shielded	Shielded	Unshielded	Shielded
PXIe-6570	✓	✓	✓	✓	✓	✓	✓
PXIe-6571	✓	✓	✓	✓	✓	✓	✓
PXIe-6544	✓	✓	✓	✓	✓	✓	✓
PXIe-6545	✓	✓	✓	✓	✓	✓	✓
PXIe-6547	✓	✓	✓	✓	✓	✓	✓
PXIe-6548	✓	✓	✓	✓	✓	✓	✓

Breakout Terminal Blocks, Boxes, and Adapters

Breakout Terminal Blocks, Boxes, and Adapters	SCB-68 HSDIO, Shielded 68-Pin Connector Block for R Series DIO and HSDIO Products	CB-2162 Single-Ended DIO Accessory	SMB-2163 Single-Ended DIO Accessory (Rack-Mountable)	653x Cable Adapter, 68-Pin D-Type to 68-Pin VHDCI Adapter	SCB-68A Noise-Rejecting, Shielded I/O Connector Block	CB-68LP Low-Cost, Unshielded I/O Connector Block	CB-68LPR I/O Connector Block	TBX-68, 68-Pin Screw Terminal Connector Block
Part Number	782914-01	778592-01	778747-01	195846-01	782536-01	777145-01	777145-02	777141-01
Receptacle	68-Pin 0.8 mm VHDCI	68-Pin 0.8 mm VHDCI	68-Pin 0.8 mm VHDCI	68-Pin SCSI 0.050 D-Type Female	68-Pin SCSI 0.050 D-Type Male	68-Pin SCSI 0.050 D-Type Male	68-Pin SCSI 0.050 D-Type Male	68-Pin SCSI 0.050 D-Type Female
Output Connections	Screw Terminal	Through-Hold and Surface-Mount Solder Pads	SMB	68-Pin 0.8 mm VHDCI	Screw Terminal	Screw Terminal	Screw Terminal	Screw Terminal
Shielding	Shielded	Unshielded	Shielded	N/A	Shielded	Unshielded	Unshielded	Unshielded
PXIe-6570	✓	✓	✓	—	—	—	—	—
PXIe-6571	✓	✓	✓	—	—	—	—	—
PXIe-6544	✓	✓	✓	✓	✓	✓	✓	✓
PXIe-6545	✓	✓	✓	✓	✓	✓	✓	✓
PXIe-6547	✓	✓	✓	✓	✓	✓	✓	✓
PXIe-6548	✓	✓	✓	✓	✓	✓	✓	✓



Develop With:
NI LabVIEW, NI LabVIEW Real-Time Module, NI LabVIEW FPGA Module
Driver(s):
LabVIEW Instrument Design Libraries for High-Speed Serial Instruments

PXI High-Speed Serial

- Up to 48 Xilinx multigigabit transceivers (MGTs) with line rates up to 28.2 Gb/s
- Various high-speed serial protocols on the user-programmable Xilinx Kintex UltraScale + or 7 series FPGAs
- High-speed P2P backplane data streaming up to 7 GB/s to host, disk, or other PXI Express modules
- Up to 20 GB onboard DDR3 DRAM

Key Features

Protocol Flexibility

PXI high-speed serial instruments leverage Xilinx FPGAs and flexible clocking circuitry to implement a variety of both standard and custom high-speed serial protocols.

Data Streaming

High-speed serial instruments benefit from PXI high-speed data movement capabilities. The modules have a PCI Express Gen 3 x8 interface for sustained data streaming rates of 7 GB/s unidirectional and 2.4 GB/s bidirectional to or from a host processor or other instruments that support P2P streaming.

Flexible Software Experience

PXI high-speed serial instruments support programming with either NI LabVIEW FPGA or VHDL via Xilinx Vivado.

PXI High-Speed Serial Modules

Selection Guide	Model	Part Number	HSS Physical Ports	Multi-Gigabit Transceivers (MGTs)	Max Line Rate (Gb/s)	Max Throughput (GB/s)	FPGA Family	High-Speed Serial Connector	PXI Express Slots
Lowest Cost	**PXIe-6592**	783639-01	4	4	10	5	Kintex-7 K410	SFP+	1
Low Cost	**PXIe-6591**	783638-01	2	8	12.5	13	Kintex-7 K410	MiniSAS-HD	1
	PXIe-6593	785976-01	2	8	16.3	16	UltraScale KU040	QSFP28	1
		785977-01					UltraScale KU060		
High Throughput, Large FPGA	**PXIe-6594**	786939-01	2	8	28.2	28	UltraScale+ KU15R	QSFP28	1
High Throughput	**PXIe-7902**	784232-01	6	24	12.5	38	Virtex-7	MiniSAS-HD	1
Highest Throughput, Largest FPGA	**PXIe-7903**	788917-01	12	48	28.2	169	UltraScale+ VU11P	MiniSAS-zHD	2

PXI High-Speed Serial Accessories

Cables

Cable	MINI-SAS HD Cable x4 Lanes, 1 m	MINI-SAS HD Cable x4 Lanes, 3 m	MINI-SAS HD Optical Cable x4 Lanes, 10 m	SMA-SMA Cable, 1 m	SMB-SMB Cable, 1 m	QSFP28-QSFP28 Cable, 1 m	QSFP28-QSFP28 Cable, 2 m	QSFP28-QSFP28 Active Optical Cable, 10 m
Part Number	783976-01	783977-01	783978-01	783469-01	188859-01	788256-01	788256-02	788257-10
PXIe-6591	✓	✓	—	✓	—	—	—	—
PXIe-6592	—	—	—	—	✓	—	—	—
PXIe-6593	—	—	—	✓	—	✓	✓	✓
PXIe-6594	—	—	—	✓	—	✓	✓	✓
PXIe-7902	✓	✓	✓	✓	—	—	—	—
PXIe-7903	—	—	—	✓	—	—	—	—

Cables (continued)

Cable	zHD to QSFP28 Cable, 2 m	zHD to zHD Cable, 1 m	zHD to zHD Cable, 2 m	zHD to zHD Cable, 0.5 m	SHC68-C68-D4 Single-Ended Cable, 1 m	SFP+ Copper Cable, 1 m	Nano-Pitch-Nano-Pitch Cable, 1 m	mHDMI to mHDMI, 1 m
Part Number	788928-02	788927-01	788927-02	788927-0R5	152870-01	784076-01	785486-01	784091-01
PXIe-6591	—	—	—	—	✓	—	—	—
PXIe-6592	—	—	—	—	—	✓	—	—
PXIe-6593	—	—	—	—	—	—	✓	—
PXIe-6594	—	—	—	—	—	—	✓	—
PXIe-7902	—	—	—	—	—	—	—	—
PXIe-7903	✓	✓	✓	✓	—	—	—	✓

Connector Blocks

Connector Block	CB-2162 Digital Connector Block	SCB-12 Nano-Pitch Connector Block	SCB-19 mHDMI Connector Block
Part Number	778592-01	787419-01	783959-01
PXIe-6591	✓	—	—
PXIe-6592	—	—	—
PXIe-6593	—	✓	—
PXIe-6594	—	✓	—
PXIe-7902	—	—	—
PXIe-7903	—	—	✓



Develop With:
NI LabVIEW, LabVIEW Real-Time Module, NI TestStand
Driver(s):
NI-Sync

PXI Timing and Synchronization

- Generate high-stability PXI system reference clocks and high-resolution sample clocks
- Achieve synchronization over long distance through GPS, IEEE 1588, IRIG-B, or PPS
- Develop advanced timing and sync applications with NI-Sync and NI-TClk software
- Import and export system reference clocks for synchronization between multiple chassis or external devices

Key Features

High-Stability, High-Accuracy Onboard Clock

Replace this backplane system reference clock using a higher accuracy oscillator for high-performance applications.

Time-Base Synchronization

Generate triggers and clock signals at programmable future times and timestamp input events with the synchronized system time.

Advanced Clock and Trigger Routing

Utilize more source-to-destination routes for more flexible designs and efficient use of system resources.

PXI Timing and Synchronization Modules

Selection Guide	Model	Part Number	Connector Types	Supported Timing Protocols	Onboard Oscillator Accuracy	DDS Range	Override PXI 10 MHz Backplane Clock	PXI Star-Capable	PXI Express DSTAR-Capable
Ethernet and GPS Time Sync	**PXI-6683H**	782110-01 782110-02	RJ-45, SMB	IEEE-1588, GPS, IRIG-B, IEEE-802.1as (Linux only), PPS	±3.5 ppm	—	—	—	—
Clock and Trigger Routing and Generation	**PXIe-6672**	783639-01	SMB	—	±3.5 ppm	DC to 105 MHz	✓	✓	—
High-Performance Clock and Trigger Routing and Generation	**PXIe-6674T**	785976-01	SMA	—	±80 ppb	0.3 Hz to 1 GHz	✓	✓	✓

PXI Timing and Synchronization Accessories

Cables and Terminal Blocks

Description	Ethernet Cable, 2 m	Ethernet Cable, 5 m	GPS Antenna, Bullet III	SMB-SMB Cable, 1 m	SMB-Alligator Cable	SMA-SMA Cable, 1 m
Part Number	151733-02	151733-05	196304-30	188859-01	763388-01	783469-01
PXI-6683H	✓	✓	✓	✓	✓	—
PXIe-6672	—	—	—	✓	✓	—
PXIe-6674T	—	—	—	—	—	✓



Develop With:
NI LabVIEW, NI LabVIEW Sound and Vibration Toolkit, LabWindows/CVI, Python, C/C++, C#, VB.NET
Driver(s):
NI-DAQmx
Included:
NI FlexLogger Lite

PXI Sound and Vibration Modules

- Dynamic sensor measurements at 51.2 kS/s, 102.4 kS/s, 204.8 kS/s, or 1.25 MS/s
- Built-in high-pass filtering
- High dynamic range signal acquisition for precision vibration and acoustic measurements
- Per-channel, software-selectable AC input coupling
- Per-channel, software-selectable input gain settings
- LabVIEW Sound and Vibration Toolkit includes analysis functions and visualization tools for audio test, acoustic measurement, and vibration measurement applications

Key Features

Perform Signal-Chain Distortion Analysis

The PXIe-4468 sound and vibration module supports benchtop-quality signal-chain distortion analysis in a single-slot PXI Express form factor. Additional new features include Pure Tone sine wave generation mode for more test coverage as well as support for independent operation and synchronization of each channel for improved utilization in test systems.

Generate and Acquire High-Dynamic-Range Signals

NI's PXI Sound and Vibration Module is a dynamic signal acquisition (DSA) device that can accurately measure the frequency content of signals with a very high dynamic range. Modules provide software-configurable AC/DC coupling, antialiasing filters, and IEPE conditioning to ensure precision measurements.

Add Accelerometer Measurements to Your System

PXI Sound and Vibration Modules and the accompanying NI software make it fast to connect microphones and accelerometers for vibration test and measurement. NI-DAQmx supports NI programming environments as well as Python, ANSI C, C#.NET, and MathWorks® MATLAB® software.

PXI Sound and Vibration Modules

Selection Guide	Model	Part Number	DSA Dynamic Range	Highpass Filter Cutoff Frequency	Max AI Channels (DI)	Max Sample Rate	AO Channels	Gain Settings	Front Connection Type
AO Only	**PXIe-4463**	783086-01	—	3.4 Hz	—	51.2 kS/s	2	3	BNC
		783086-02							Mini-XLR
AI Only	**PXIe-4464**	783087-01	119 dB	0.72 Hz	4	204.8 kS/s	—	6	BNC
		783087-02							Mini-XLR
2 AI, 2 AO	**PXIe-4468**	788511-01	121 dB	0.8 Hz	2	250 kS/s	2	6	BNC
		788512-01							Mini-XLR
High Bandwidth with Signal Conditioning	**PXIe-4480***	784277-01	115 dB	0.5 Hz	6	1.25 MS/s	—	4	InfiniBand (IB)
High Bandwidth	**PXIe-4481**	784278-01	115 dB	0.5 Hz	6	1.25 MS/s	—	4	InfiniBand (IB)
High-Density AI	**PXIe-4492**	789567-01	114 dB	0.5 Hz	8	204.8 kS/s	—	2	InfiniBand (IB)
	PXIe-4496	789564-01	114 dB	0.5 Hz	16	204.8 kS/s	—	2	InfiniBand (IB)
	PXIe-4497	789565-01	114 dB	0.5 Hz	16	204.8 kS/s	—	2	InfiniBand (IB)
	PXIe-4499	789566-01	114 dB	0.5 Hz	16	204.8 kS/s	—	4	InfiniBand (IB)

*Antialiasing Filter, Voltage Excitation, Current Excitation Signal Conditioning

PXI Sound and Vibration Accessories

Accessory Type	Compatible Model	Accessory (Part Number)	Description	Image
Cables	PXIe-4463, BNC [783086-01] PXIe-4464, BNC [783097-01] PXIe-4468, BNC [788511-01]	BNC Male-to-BNC Male Cable, 75 Ω, 2 m (x4) 779697-02	1-Pin BNC Male-to-1-Pin BNC Male Coaxial Cable	
	PXIe-4463, MXLR [783086-02] PXIe-4464, MXLR [783097-02] PXIe-4468, MXLR [788512-01]	Extended-Temperature, BNCM-MXLRF 140150-0R46 (0.46 m) 140150-0R91 (0.91 m) 140150-2R4 (2.4 m)	1-Pin Male BNC-to-3-Pin Female Mini-XLR	
		Extended-Temperature, MXLRF-MXLRF 140151-0R46 (0.46 m) 140151-0R91 (0.91 m) 140151-2R4 (2.4 m)	3-Pin Female Mini-XLR-to-3-Pin Female Mini-XLR	
		Extended-Temperature, MXLRF-XLRM 140152-0R46 (0.46 m)	3-Pin Female Mini-XLR-to-3-Pin Female XLR	
	PXIe-4463, BNC [783086-01] PXIe-4464, BNC [783097-01] PXIe-4468, BNC [788511-01]	SMB-100, SMB-BNC 781449-01 (0.08 m) 763389-01 (0.6 m)	SMB Female-to-BNC Female Coax Cable, -BNC Coaxial Cable, 50 Ω, Connects Measurement and Signal Devices	
	PXIe-4480, InfiniBand [784277-01] PXIe-4481, InfiniBand [784278-01]	InfiniBand SHB12x-6BNC 140296-0R2 (0.2 m)	Shielded Connection between Input Signals and the PXIe-4480 Module; InfiniBand (Male) Connector Terminates into Six BNC Connectors	
		InfiniBand SHB12x-6MXLRM 140303-0R2 (0.2 m)	Shielded Connection between Input Signals and the PXIe-4480 Module; InfiniBand (Male) Connector Terminates into Six Mini-XLR Connectors	
		InfiniBand SHB12x-6RJ50 140304-0R2 (0.2 m)	Shielded Connection between Input Signals and the PXIe-4480 Module; InfiniBand (Male) Connector Terminates into Six RJ50 Connectors	
	PXIe-4492, InfiniBand [789567-01] PXIe-4496, InfiniBand [789564-01] PXIe-4497, InfiniBand [789565-01] PXIe-4499, InfiniBand [789566-01]	InfiniBand, SHB4X-8BNC 789569-01	16-Pin K-Type InfiniBand Male-to-8 1-Pin BNC Male, 50 Ω Coaxial Cable	
		InfiniBand, SHB4X-B4X 789570-01 (1 m) 789570-01 (2 m)	4, 4-Pin InfiniBand Female-to-4, 4-Pin InfiniBand Female Analog Cable	
Terminal Block	PXIe-4492, InfiniBand [789567-01] PXIe-4496, InfiniBand [789564-01] PXIe-4497, InfiniBand [789565-01] PXIe-4499, InfiniBand [789566-01]	BNC-2144 789563-01	32-Channel, 68-Pin BNC, PXI Sound and Vibration Module Terminal Block for Testing and Debugging; Features a 19-Inch Rack-Mount Adapter	



Develop With:
NI LabVIEW, NI LabVIEW Real-Time Module, NI LabVIEW FPGA Module
Driver(s):
NI R Series Multifunction RIO

PXI Reconfigurable I/O Module (FPGA)

- Onboard FPGAs, all programmable with LabVIEW—no VHDL programming required
- 16-bit analog input resolution and 16-bit AO resolution
- Up to 16 analog input channels, 1 MS/s/ch analog sample rates
- Up to 24 AO channels, 1 MS/s/ch analog update rates
- Up to 48 bidirectional DIO I/O with selectable logic levels

Key Features

Flexible Functionality

Each module features a user-programmable FPGA for high-performance onboard processing and direct control over I/O signals to ensure complete flexibility of system timing and synchronization.

Graphical FPGA Programming

You can customize these devices with the LabVIEW FPGA Module to develop applications requiring precise timing and control such as hardware in the loop testing, custom protocol communication, sensor simulation, and high-speed control.

Advanced I/O Timing and Triggering

Each analog input and output has dedicated ADCs and DACs per channel. FPGA-based sample clocks and triggers offer specialized functionality such as multirate sampling and individual channel triggering, which are outside the capabilities of typical data acquisition hardware.

PXI Reconfigurable I/O Modules (FPGA)

Category	Model	Part Number	AI Voltage Range	DIO I/O Logic Levels	Dynamic RAM (DRAM)	FPGA	Max Clock Rate	Max Sample Rate	Channels
Multifunction I/O, General Purpose	**PXI-7841**	780337-01	±10 V	3.3 V 5 V	—	Virtex-5 LX30	40 MHz	200 kS/s	AI: 8 AO: 8 DIO: 96
	PXI-7842	780338-01	±10 V	3.3 V 5 V	—	Virtex-5 LX50	40 MHz	200 kS/s	AI: 8 AO: 8 DIO: 96
	PXIe-7846	784143-01	±1 V ±2 V ±5 V ±10 V	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	—	Kintex-7 160T	80 MHz	500 kS/s	AI: 8 AO: 8 DIO: 48
Fast Clock Rate	**PXI-7851**	780339-01	±10 V	3.3 V 5 V	—	Virtex-5 LX30	40 MHz	750 kS/s	AI: 8 AO: 8 DIO: 96
	PXI-7852	780340-01	±10 V	3.3 V 5 V	—	Virtex-5 LX50	40 MHz	750 kS/s	AI: 8 AO: 8 DIO: 96
	PXI-7853	780341-01	±10 V	3.3 V 5 V	—	Virtex-5 LX85	40 MHz	750 kS/s	AI: 8 AO: 8 DIO: 96
	PXI-7854	780342-01	±10 V	3.3 V 5 V	—	Virtex-5 LX110	40 MHz	750 kS/s	AI: 8 AO: 8 DIO: 96
	PXIe-7856	784145-01	±1 V ±2 V ±5 V ±10 V	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	0 Mb	Kintex-7 160T	80 MHz	1 MS/s	AI: 8 AO: 8 DIO: 48
Dynamic RAM (DRAM) Available	**PXIe-7847**	784144-01	±1 V ±2 V ±5 V ±10 V	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	512 Mb	Kintex-7 160T	80 MHz	500 kS/s	AI: 8 AO: 8 DIO: 48
	PXIe-7857	784146-01	±1 V ±2 V ±5 V ±10 V	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	512 Mb	Kintex-7 160T	80 MHz	1 MS/s	AI: 8 AO: 8 DIO: 48
	PXIe-7861	786671-01	±1 V ±2 V ±5 V ±10 V	3.3 V	512 Mb	Kintex-7 160T	10 MHz	1 MS/s	AI: 16 AO: 8 DIO: 32
	PXIe-7865	787355-01	±1 V ±2 V ±5 V ±10 V	5 V 3.3 V	512 Mb	Kintex-7 160T	20 MHz	1 MS/s	AI: 2 AO: 24 DIO: 32
	PXIe-7867	785570-01	±1 V ±2 V ±5 V ±10 V	3.3 V	512 Mb	Kintex-7 160T	80 MHz	1 MS/s	AI: 6 AO: 18 DIO: 48
	PXIe-7868	785571-01	±1 V ±2 V ±5 V ±10 V	3.3 V	512 Mb	Kintex-7 325T	80 MHz	1 MS/s	AI: 6 AO: 18 DIO: 48
Dynamic RAM (DRAM) Available, Largest FPGA	**PXIe-7862**	786672-01	±1 V ±2 V ±5 V ±10 V	3.3 V	512 Mb	Kintex-7 325T	10 MHz	1 MS/s	AI: 16 AO: 8 DIO: 32
	PXIe-7866	787354-01	±1 V ±2 V ±5 V ±10 V	3.3 V 5 V	512 Mb	Kintex-7 325T	20 MHz	1 MS/s	AI: 2 AO: 24 DIO: 32
	PXIe-7858	784147-01	±1 V ±2 V ±5 V ±10 V	1.2 V 1.5 V 1.8 V 2.5 V 3.3 V	512 Mb	Kintex-7 325T	80 MHz	1 MS/s	AI: 8 AO: 8 DIO: 48

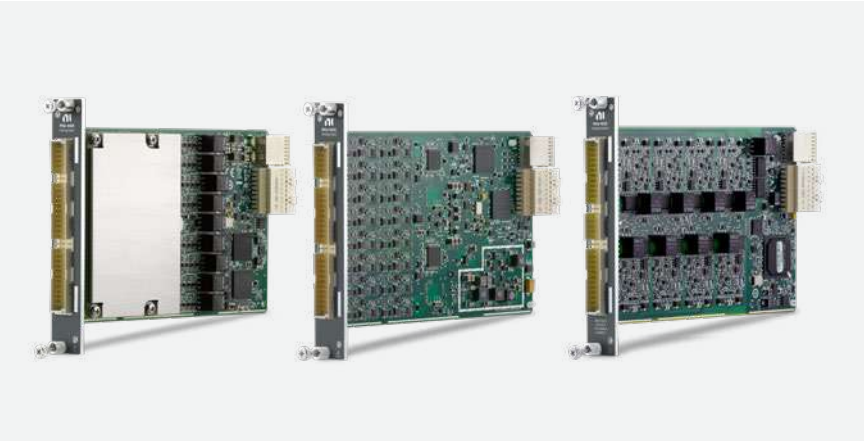
PXI Reconfigurable I/O Accessories (FPGA)

Cables

Cables	SHC68-68-RDIO Cable, 68-Pos .50 Series D-Type To 68-Pos VHDCI Offset, 1 m	SHC68-68-RMIO Cable, 68-Pos .50 Series D-Type To 68-Pos VHDCI Offset, 1 m	SHC68-68-RMIO Cable, 68-Pos .50 Series D-Type To 68-Pos VHDCI Offset, 2 m	Shielded R Series High-Speed DIO Cable, 2 m	Shielded R Series High-Speed DIO Cable, 1 m
Part Number	191667-01	189588-01	189588-02	156166-02	156166-01
PXI-7841	✓	✓	✓	—	—
PXI-7842	✓	✓	✓	—	—
PXI-7851	✓	✓	✓	—	—
PXI-7852	✓	✓	✓	—	—
PXI-7853	✓	✓	✓	—	—
PXI-7854	✓	✓	✓	—	—
PXIe-7846	—	✓	✓	✓	✓
PXIe-7847	—	✓	✓	✓	✓
PXIe-7856	—	✓	✓	✓	✓
PXIe-7857	—	✓	✓	✓	✓
PXIe-7858	—	✓	✓	✓	✓
PXIe-7861	—	✓	✓	✓	✓
PXIe-7862	—	✓	✓	✓	✓
PXIe-7865	—	✓	✓	✓	✓
PXIe-7866	—	✓	✓	✓	✓
PXIe-7867	—	✓	✓	✓	✓
PXIe-7868	—	✓	✓	✓	✓

Connector Block

Model	SCB-68A Shielded Connector Block	SCB-68 HSDIO, Shielded 68-Pin Connector Block
Part Number	782536-01	782914-01
PXI-7841	✓	—
PXI-7842	✓	—
PXI-7851	✓	—
PXI-7852	✓	—
PXI-7853	✓	—
PXI-7854	✓	—
PXIe-7846	✓	✓
PXIe-7847	✓	✓
PXIe-7856	✓	✓
PXIe-7857	✓	✓
PXIe-7858	✓	✓
PXIe-7861	✓	✓
PXIe-7862	✓	✓
PXIe-7865	✓	✓
PXIe-7866	✓	✓
PXIe-7867	✓	✓
PXIe-7868	✓	✓



Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx or companion instrument driver, depending on module
Included:
NI FlexLogger™ Lite software, NI InstrumentStudio™ software where supported

PXI Precision Conditioned Analog I/O Modules

- Multichannel measurements for voltage and high-performance analog signals
- Flexible architectures, including multiplexed, simultaneous, and isolated measurements
- Scalable performance from precision low-speed to ultrahigh-speed acquisition
- High-voltage and channel-to-channel isolation options
- Flexible, synchronized, and accurate measurements
- Swappable front-mount terminal block

Key Features

Accessory Autodetection

Modules automatically detect compatible accessories or terminal blocks. Integrated connector pins provide power to connected accessories while enabling digital communication for accessory identification and configuration.

Multiple Timing Engines

Several modules are equipped with multiple timing engines, each customizable with independent timing, triggering, and sample mode settings (buffered or hardware-timed single-point). This capability enables the device to execute multiple tasks simultaneously.

Chopping Mode

The PXIe-4309 supports chopping mode to reduce offset voltages and other low-frequency errors. By measuring a signal twice, once normally and once with inverted inputs, the device averages the measurements to create each sample. This technique provides significant noise rejection, enabling measurements as low as 10 nV while improving stability across temperature variations.

PXI Isolated and High-Voltage Analog Input Modules

Selection Guide	Model Name	Part Number	AI Isolation	AI Resolution	AI Voltage Range	Discrete Lowpass Filter	Max AI Channels (DI)	Max Sample Rate
Isolated AI	**PXIe-4300**	781337-01	300 V Ch-Ch Isolation	16-bit	±1 V ±2 V ±5 V ±10 V ±60 V ±150 V ±300 V	10 kHz 100 kHz	8	250 kS/s/ch
Highest-Voltage Isolated AI	**PXIe-4310**	784813-01	600 V Ch-Ch Isolation	16-bit	±1 V ±2 V ±5 V ±10 V ±60 V ±150 V ±300 V ±600 V	10 kHz 100 kHz	8	400 kS/s/ch

PXI Precision and Filter Analog Input Modules

Selection Guide	Model Name	Part Number	AI Isolation	AI Resolution	AI Voltage Range	Discrete Lowpass Filter	Max AI Channels (DI)	Max Sample Rate
General-Purpose Filtered AI	**PXIe-4302**	783865-01	—	24-bit	±0.1 V ±10 V	2 Hz 20 Hz 200 Hz 1 kHz 2 kHz	32	5 kS/s/ch
General-Purpose Filtered AI with Higher Sampling	**PXIe-4303**	783866-01	—					51.2 kS/s/ch
High-Voltage Filtered AI	**PXIe-4304**	783867-01	—		±42 V			5 kS/s/ch
High-Voltage Filtered AI with Higher Sampling	**PXIe-4305**	783868-01	—					51.2 kS/s/ch

PXI High-Performance Simultaneous Analog Input Modules

Selection Guide	Model Name	Part Number	AI Isolation	AI Resolution	AI Voltage Range	Discrete Lowpass Filter	Max AI Channels (DI)	Max Sample Rate
High-Resolution Simultaneous AI	**PXIe-4309**	784471-01	—	Flexible-Resolution, 18 to 28-bit	±0.1 V ±1 V ±10 V ±15 V	—	32	2 MS/s/ch
High-Channel, High-Speed Simultaneous AI	**PXIe-4311**	789864-01		Flexible-Resolution, 16 to 22-bit	±150 mV 0 V to 6 V 0 V to 25 V			4 MS/s/ch

PXI Isolated Analog Output Module

Selection Guide	Model Name	Part Number	AI Isolation	AI Resolution	AI Voltage Range	Discrete Lowpass Filter	Max AI Channels (DI)	Max Sample Rate
Isolated AO	**PXIe-4322**	782878-01	—	16-bit	±16 V	—	8	250 kS/s/ch

PXI Precision Conditioned Analog I/O Accessories

Accessory Type	Compatible Models	Accessory	Part Number	Description	Image
Cables	PXIe-4302 PXIe-4303	SH96-96-2	157350-01 (1 m) 157350-03 (3 m) 157350-05 (5 m)	96-Pin DIN Male-to-96-Pin DIN Female, 60 VC Shielded Analog Cable to connect to Compatible Rack-Mount Terminal Blocks	
	PXIe-4304 PXIe-4305	SH96F-96M-42 V	158228-01 (1 m) 158228-03 (3 m) 158228-05 (5 m)	Shielded Cable for PXIe-4304/5-to-Rack-Mount Terminal Block	
Terminal Block	PXIe-4302 PXIe-4303	RM-4302	783872-01	Shielded 96-Pin Female Connector-to-96-Pin Male Calibration Analog Cable	
	PXIe-4304 PXIe-4305	RM-4304	783873-01	PXIe-4304/4305 Rack-Mount Terminal Block	
	PXIe-4300	TB-4300 10 V Input	781338-01	96-Pin Female DIN-to-25-Pin Female Screw Terminal, Module-Mount Terminal Block	
		TB-4300 20 mA Input	784280-01		
		TB-4300B 300 V Input	781338-02	96-Pin Female DIN-to-25-Pin Female Screw Terminal, 300 V, PXI Module-Mount Terminal Block	
	PXIe-4302 PXIe-4303	TB-4302 10 V Input	783869-01	96-Pin Female DIN-to-82-Pin Female Screw Terminal PXI Module-Mount Terminal Block	
		TB-4302 Current Input	783871-01		
	PXIe-4304 PXIe-4305	TB-4304	783870-01	96-Pin Female DIN-to-82-Pin Female Screw Terminal, 42 V, PXI Module-Mount Terminal Block	
	PXIe-4309 PXIe-4311	TB-4309	784956-01 (Screw Terminal) 784957-01 (VHDCI Terminal)	96-Pin Female DIN-to-Screw Terminal/Mount Termination, 15 V, PXI Module-Mount Terminal Block; TB-4309 Available in Screw Terminal and Mount Termination Options	
Calibration	PXIe-4300	CAL-4300B	781852-01	Precision Accessory Used to Calibrate the TB-4300B Terminal Block; Provides Stable Connections for Accurate Measurements and Works with Standard High-Accuracy Calibrators	
	PXIe-4309 PXIe-4311	CAL-4309	784958-01	Banana-Plug, PXIe-4309 DC Offset Calibration Accessory to Help Automatically Verify PXIe-4309 DC Offset Accuracy	



Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite software, NI InstrumentStudio™ software where supported

PXI Strain/Bridge Input Modules

- Dedicated support for strain, load, pressure, and torque measurements
- Integrated bridge excitation and signal conditioning for simplified setup
- High-resolution measurements for low-level bridge signals
- Built-in filtering and noise reduction for improved measurement accuracy
- Swappable front-mount terminal block

Key Features

High-Resolution, Low-Level Signal Acquisition

Optimized for millivolt-level bridge outputs, these modules provide high dynamic range and precision for demanding strain, load, pressure, and torque measurements.

Integrated Bridge Excitation and Measurement

Built-in bridge excitation eliminates the need for external signal conditioning hardware and supports full-, half-, and quarter-bridge measurement configurations for simplified system setup.

Noise-Resistant Signal Path

Integrated filtering and signal conditioning help reduce the effects of noise in industrial environments, improving measurement accuracy and signal quality in real-world applications.

PXI Strain Bridge Input Modules

Selection Guide	Model Name	Part Number	AI Voltage Range	Bridge Configurations	Bridge Resistance	Max AI Channels (DI)	Max Sample Rate
Starter Module	**PXIe-4330**	781346-01	±25 mV/V ±100 mV/V	Full-Bridge Quarter-Bridge Half-Bridge	120 Ω 350 Ω 1,000 Ω	8	25.6 kS/s
Fastest Sample Rates	**PXIe-4331**	781345-01	±25 mV/V ±100 mV/V	Full-Bridge Half-Bridge Quarter-Bridge	120 Ω 350 Ω 1,000 Ω	8	102.4 kS/s
Largest Input Ranges	**PXIe-4339**	783531-01	±10 mV/V ±20 mV/V ±40 mV/V ±50 mV/V ±80 mV/V ±200 mV/V ±0.1 V ±0.2 V ±0.5 V ±1 V ±4 V ±10 V	Quarter-Bridge Full-Bridge Half-Bridge	120 Ω 350 Ω 1,000 Ω	8	25.6 kS/s

PXI Strain/Bridge Input Accessories

Accessory Type	Compatible Models	Accessory	Part Number	Description	Image
Cables	PXIe-4339	SH96-96-2	157350-01 (1 m) 157350-03 (3 m) 157350-05 (5 m)	96-Pin DIN Male-to-96-Pin DIN Female, 60 VC Shielded Analog Cable to Connect to Compatible Rack-Mount Terminal Blocks	
	PXIe-4330 PXIe-4331	SH96F-96M-5	786341-01 (1 m) 786341-03 (3 m) 786341-05 (5 m)	96-Pin DIN Male-to-96-Pin DIN Female, PXIe-4330 and PXIe-4331-to-Rack-Mount Terminal Block, Shielded Sensor Cable	
		SH96F-95M-CAL4330	787003-01	Shielded 96-Pin Female Connector-to-96-Pin Male Calibration Analog Cable	
Calibration	PXIe-4330 PXIe-4331	CAL-4330	786988-01	PXIe-4330 and PXIe-4331 Module calibration accessory	
Terminal Block	PXIe-4330 PXIe-4331	TB-4330	781347-01	96-Pin Female DIN-to-88-Pin Female Screw Terminal, 10 V, PXI Module-Mount Terminal Block	
	PXIe-4339	TB-4339	783532-01	96-Pin Female DIN-to-100-Pin Female Screw Terminal, 120 Ω Quarter Bridge, 50 kΩ Shunt Calibration, 10 V, PXI Universal Bridge Input Module Terminal Block	
		TB-4339B	783533-01	96-Pin Female DIN-to-100-Pin Female Screw Terminal, 350 Ω Quarter Bridge, 100 kΩ Shunt Calibration, 10 V, PXI Universal Bridge Input Module Terminal Block	
		TB-4339C	783534-01	96-Pin Female DIN-to-100-Pin Female Screw Terminal, 1 Ω Quarter Bridge, 100 kΩ Shunt Calibration, 10 V, PXI Universal Bridge Input Module Terminal Block	
	PXIe-4330 PXIe-4331	RM-24999	785840-01	Provides RJ50 Connectivity in a 1U Rack-Mount Form Factor for up to Three Bridge Input Modules	
	PXIe-4339	RM-4339	783535-01 785356-01	8-Channel, PXI Strain/Bridge Input Module Terminal Block	



Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite software, NI InstrumentStudio™ software where supported

PXI Displacement Input Modules

- Dedicated support for displacement and position measurements, including LVDT, RVDT, and similar sensors
- Integrated excitation and signal conditioning for simplified sensor connectivity
- Built-in digital demodulation for direct displacement and position extraction

Key Features

Integrated Displacement Signal Conditioning

Built-in excitation and signal conditioning for displacement sensors eliminates the need for external signal conditioning hardware and reduces overall system complexity.

Remote Sense for Excitation Accuracy

Remote sense continuously compensates for voltage drops in excitation wiring, helping maintain accurate excitation levels and improving measurement accuracy.

Programmable Filtering for Noise Rejection

Selectable digital filtering reduces carrier feedthrough and environmental noise, improving signal stability and measurement repeatability in electrically noisy environments.

PXI Displacement Input Modules

Selection Guide	Model	Part Number	AI Resolution	Input Level	AI Channels	Max Sample Rate	Excitation Voltage	Excitation Frequency	Max Sample Rate
Displacement Module	**PXIe-4340**	785068-01	24-bit	±7 V_{rms}	4	25.6 kS/s	1 V_{rms} to 7 V_{rms} with 0.5 V_{rms} Increments	400 Hz to 10 kHz with 10 Hz Increments	25.6 kS/s

PXI Displacement Input Accessories

Compatible Models	Accessory	Part Number	Description	Image
PXIe-4340	TB-4340	784087-01	96-Pin Female DIN-to-42-Pin Female Screw Terminal, 7 V_{rms}, PXI Module-Mount Terminal Block	



Develop With:
NI LabVIEW, LabWindows™/CVI, Visual Studio, Python, C/C++, C#/.NET, VB.NET, MathWorks® MATLAB® software
Driver(s):
NI-DAQmx
Included:
NI FlexLogger™ Lite Software, NI InstrumentStudio™ Software where supported

PXI Temperature Modules

- Dedicated support for thermocouple and temperature measurements
- Built-in cold junction compensation for accurate thermocouple readings
- Hardware-based open thermocouple detection with per-channel fault reporting
- High channel density for scalable temperature monitoring systems

Key Features

Integrated Cold Junction Compensation (CJC)

Onboard cold junction compensation sensors provide real-time reference junction measurements, enabling accurate thermocouple readings without requiring external compensation hardware.

Open Thermocouple Detection

Each channel includes a hardware current source that drives the input to full scale when a thermocouple is disconnected. The module detects and reports open channels, enabling per-channel fault identification and monitoring.

Autozero-Based Offset Correction

Dedicated autozero channels measure offset errors and apply real-time correction to thermocouple inputs. Autozero can be configured per task using NI-DAQmx to optimize measurement accuracy, noise performance, and throughput.

PXI Temperature Input Modules

Selection Guide	Model Name	Part Number	Supported Sensor Type	AI Isolation	AI Channels (DI)
Thermocouple Module	**PXIe-4353**	781348-01	Thermocouple	300 V Bank Isolation	32
RTD Measurement Module	**PXIe-4357**	782118-01	RTD	—	20

PXI Temperature Input Accessories

Accessory Type	Compatible Models	Accessory	Part Number	Description	Image
Cables	PXIe-4353	SH96-96-1	190668-01 (1 m) 190668-03 (3 m) 190668-05 (5 m)	96-Pin DIN Male-to-96-Pin DIN Female, Shielded Analog Cable to Connect PXI Modules to Rack-Mount Terminal Blocks	
Terminal Block	PXIe-4353	TB-4353	781349-01	96-Pin Female DIN-to-67-Pin Female Screw Terminal, 10 V, PXI Module-Mount Terminal Block	
	PXIe-4353	TC-4353	782403-01	96-Pin Female DIN-to-83-Pin Female Screw Terminal, 80 mV, PXI Module-Mount Terminal Block	
	PXIe-4357	TB-4357	782119-01	96-Pin Female DIN-to-80-Pin Female Screw Terminal, 60 V, PXI Module-Mount Terminal Block	
Calibration	PXIe-4353	CAL-4353	781350-01	Calibration Terminal Block for PXIe-4353	
Sensors	PXIe-4353	J-Type Fiberglass Thermocouple	745690-J001 (1 m) 745690-J002 (2 m)	J-Type Thermocouple Temperature Sensor (32 °F to 900 °F)	
	PXIe-4353	K-Type Fiberglass Thermocouple	745690-K001 (1 m) 745690-K002 (2 m)	K-Type Thermocouple Temperature Sensor (32 °F to 900 °F)	
	PXIe-4353	K-Type Thermocouple Wire	745687-K030 (30 m) 745687-K300 (300 m)	K-Type Thermocouple Wire (32 °F to 900 °F)	
	PXIe-4353	T-Type Fiberglass Thermocouple, 2 m	745690-T002	T-Type Thermocouple Wire, Fiberglass (32 °F to 500 °F)	
	PXIe-4357	RTD	745686-01	3-Wire, 100 Ω Platinum RTD (Field-Cuttable Probe)	



Develop With:
InstrumentStudio where supported, VeriStand where supported, TestStand, Vision Development Module use cases, LabVIEW, LabVIEW FPGA Module, LabVIEW Real-Time Module, Xilinx Vivado for supported workflows, C/C++, Python, LabWindows/CVI for host-side access where supported
Driver(s):
NI FlexRIO

PXI NI FlexRIO

- Analog I/O up to 6.4 GS/s, digital I/O up to 1.25 Gb/s, RF I/O up to 4.4 GHz
- High-performance Xilinx FPGAs with up to 20 GB of onboard DRAM
- LabVIEW FPGA or Xilinx Vivado programmability
- Application-specific I/O with the FlexRIO Module Development Kit

Key Features

Leverage Rapidly Evolving Technology

FlexRIO provides the latest high-speed converter and FPGA technologies before they are widely available in commercial instruments. You can use FlexRIO to develop applications that push the requirements for sample rate, bandwidth, resolution, and channel count.

Accelerate FPGA Programming

LabVIEW FPGA is a powerful tool for designing and implementing custom hardware circuits that can provide high-speed and low-latency processing for a wide range of applications.

Process Signals in Real Time

FlexRIO can help you keep up with faster converters. Modules from the Xilinx Kintex UltraScale FPGA to the Xilinx Virtex UltraScale+ VU11P FPGA, paired with LabVIEW FPGA, provide the resources you need to engineer complex algorithms, process data in real time between the I/O and CPU, and deploy your designs to hardware.

FPGA Modules for FlexRIO

Selection Guide	Model	Part Number	FPGA	FPGA Slices	FPGA DSP Slices	FPGA Block RAM (Kb)	Onboard Memory	Streaming Throughput
Highest Performance	**PXIe-7976**	783625-01	Kintex 7 K410T	63,550	1,540	28,620	2 GB	3.2 GB/s
Larger FPGA	**PXIe-7975**	782955-01	Kintex 7 K410T	63,550	1,540	28,620	2 GB	1.7 GB/s
Lower Cost with DRAM	**PXIe-7972**	782954-01	Kintex 7 K325T	50,950	840	16,020	2 GB	1.7 GB/s
Lowest Cost	**PXIe-7971**	782953-01	Kintex 7 K325T	50,950	840	16,020	0 GB	1.7 GB/s

FPGA Modules and Adpater Module Compatability

Adapter Module Compatability

Adapter Module Type	FlexRIO Digitizer Adapter Modules					FlexRIO Signal Generator Adapter Modules	
Model	NI-5734	NI-5751B	NI-5752B	NI-5771	NI-5772	AT-1120	AT-1212
PXIe-7976	✓	✓	✓	✓	✓	✓	✓
PXIe-7975	✓	✓	✓	✓	✓	✓	✓
PXIe-7972	✓	✓	✓	✓	✓	✓	✓
PXIe-7971	✓	✓	✓	✓	✓	✓	✓

Adapter Module Compatability (continued)

Adapter Module Type	FlexRIO Digital Adapter Modules					FlexRIO Transceiver Adapter Modules	FlexRIO RF Adapter Modules	FlexRIO Camera Link Adapter Modules
Model	NI-6581B	NI-6583	NI-6584	NI-6585B	NI-6589	NI-5783	NI-5791	NI-1483
PXIe-7976	✓	✓	✓	✓	✓	✓	✓	✓
PXIe-7975	✓	✓	✓	✓	✓	✓	✓	✓
PXIe-7972	✓	✓	✓	✓	✓	✓	✓	✓
PXIe-7971	✓	✓	✓	✓	✓	✓	✓	✓

FlexRIO Digitizers Adapter Modules

Selection Guide	Model	Part Number	Compatible FPGA	Resolution	Channels	Maximum Sample Rate	Maximum Bandwidth	Coupling	Full-Scale Input Range	Connectivity
High-Resolution FlexRIO Digitizer FAM	**NI-5734**	781659-04	Refer to FPGA Modules for FlexRIO	16	4	120 MS/s	117 MHz	AC and DC	2 Vpp	BNC
High-Density FlexRIO Digitizer FAMs	**NI-5751B**	784061-01	Refer to FPGA Modules for FlexRIO	14	16	50 MS/s	26 MHz	DC	2 Vpp	VHDCI
	NI-5752B	784062-01		12	32	50 MS/s	14 MHz	AC	2 Vpp	VHDCI
Wide-Bandwidth FlexRIO Digitizer FAMs	**NI-5771**	781419-02	Refer to FPGA Modules for FlexRIO	8	2	3 GS/s	900 MHz	DC	1.3 Vpp	SMA
	NI-5772	782097-01	Refer to FPGA Modules for FlexRIO	12	2	1.6 GS/s	2.2 GHz	AC	2 Vpp	SMA
		782097-02		12	2	1.6 GS/s	2.2 GHz	DC	2 Vpp	SMA

FlexRIO Digitizer Adapter Modules Accessories

Cables

Cables	BNC Male (Plug) to BNC Male (Plug), 75 Ω, 2 m Cables, 4-Pack	SHH19-H19-AUX Shielded Single-Ended Cable For Aux DIO with Jackscrew, 2 m	SHC68-C68-D4 Shielded Single-Ended Cable, Lower DC Resistance, 3 m	SHC68-C68-D4 Shielded Single-Ended Cable, Low Leakage, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, 0.55 m	SHC68-C68-D4 Shielded Single-Ended Cable, 2 m	SHC68-C68-D3, Male VHDCI to Male VHDCI, Shielded LVDS Cable, 1 m	SHC68-C68-D3, Male VHDCI to Male VHDCI, Shielded LVDS Cable, 2 m
Part Number	779697-02	152629-02	132625-03	152870-01	196275-01	781013-01	781293-01	188143-01	788905-02
NI-5734	✓	✓	—	—	—	—	—	—	—
NI-5751B	—	—	✓	✓	✓	✓	✓	—	—
NI-5752B	—	—	✓	✓	✓	✓	✓	✓	✓
NI-5771	—	✓	—	—	—	—	—	—	—
NI-5772	—	✓	—	—	—	—	—	—	—

Connector Block

Connector Blocks	SCB-19 Noise-Rejecting, Shielded AUX I/O Connector Block	SMB-2147 16-Channel AI Accessory	SMB-2145 16-Channel AI Accessory
Part Number	782444-01	781518-01	781516-01
NI-5734	✓	—	—
NI-5751B	—	✓	—
NI-5752B	—	—	✓
NI-5771	✓	—	—
NI-5772	✓	—	—

FlexRIO Digitizers With Integrated I/O Modules

Selection Guide	Model	Part Number	FPGA	AI Bandwidth	AI Resolution	AI Voltage Range	Max Sample Rate	Voltage Input Channels	AI Coupling	CableSense™	Dynamic RAM (DRAM)
High-Resolution Integrated FlexRIO Digitizer	PXIe-5763	785160-01	Kintex UltraScale KU035	225 MHz	16-bit	±1 V	500 MS/s	4	AC	—	0 GB
		785161-01	Kintex UltraScale KU040							—	4 GB
		785162-01	Kintex UltraScale KU060							—	4 GB
		785163-01	Kintex UltraScale KU035						DC	—	0 GB
		785164-01	Kintex UltraScale KU040							—	4 GB
		785165-01	Kintex UltraScale KU060							—	4 GB
	PXIe-5764	785166-01	Kintex UltraScale KU035	1.15 GHz	16-bit	±1 V	1 GS/s	4	AC	—	0 GB
		785167-01	Kintex UltraScale KU040							—	4 GB
		785168-01	Kintex UltraScale KU060							—	4 GB
		785169-01	Kintex UltraScale KU035	400 MHz					DC	—	0 GB
		785170-01	Kintex UltraScale KU040							—	4 GB
		785171-01	Kintex UltraScale KU060							—	4 GB
High-Bandwidth Integrated FlexRIO Digitizers	PXIe-5774	785646-01	Kintex UltraScale KU040	3 GHz	12-bit	200 mVpp to 1 Vpp	6.4 GS/s	2	DC	—	4 GB
		785646-02	Kintex UltraScale KU040	1.6 GHz						—	
		785647-01	Kintex UltraScale KU060	3 GHz						—	
		785647-02	Kintex UltraScale KU060	1.6 GHz						—	
		785647-11	Kintex UltraScale KU060	3 GHz						✓	
		785647-12	Kintex UltraScale KU060	1.6 GHz						✓	
	PXIe-5775	785590-01	Kintex UltraScale KU035	6 GHz	12-bit	1.25 Vpp	6.4 GS/s	2	AC	—	0 GB
		785591-01	Kintex UltraScale KU040							—	4 GB
		785592-01	Kintex UltraScale KU060							—	4 GB

FlexRIO Digitizers With Integrated I/O Accessories

Connector Block

	SCB-12, Nano-Pitch Connector Block, 8 SE DIO, 1 QSFP+	SCB-8 Noise-Rejecting, Shielded Nano-Pitch Connector Block
Part Number	787419-01	786335-01
PXIe-5763	✓	✓
PXIe-5764	✓	✓
PXIe-5774	✓	✓
PXIe-5775	✓	✓

FlexRIO Signal Generator Adapter Modules

Selection Guide	Model	Part Number	Compatible FPGA	Resolution (Bits)	Channels	Maximum Sample Rate	Maximum Bandwidth	Coupling	Signaling	Connectivity
High-Speed FlexRIO Signal-Generator FAMs	AT-1120	782248-01	Refer to FPGA Modules for FlexRIO	14	1	2 GS/s	550 MHz	DC	Differential	SMA
	AT-1212	782248-02	Refer to FPGA Modules for FlexRIO	14	2	1.25 GS/s	400 MHz	DC	Differential	SMA

FlexRIO Signal Generator Adapter Modules Accessories

Cables

Cables	SMA Male to SMA Male Cable, 50 Ω, 38.1 cm	SMA Male to SMA Male Cable, 50 Ω, 12.7 cm	SMA Male to SMA Male Cable for USRP, 50 Ω, 2 m	SMA Male to SMA Male Cable, 50 Ω, 30 cm
Part Number	763444-01	763443-01	783470-01	781846-01
AT-1120	✓	✓	✓	✓
AT-1212	✓	✓	✓	✓

FlexRIO Signal Generator Integrated I/O Modules

Selection Guide	Model	Part Number	FPGA	Resolution (Bits)	Channels	Maximum Sample Rate	Maximum Bandwidth	Coupling	Signaling	Connectivity	Reconstruction Filter
High-Speed Integrated FlexRIO Signal Generator	PXIe-5745	785596-01	Kintex UltraScale KU035	12	2	6.4 GS/s	2.9 GHz	AC	Single-Ended	SMA	—
		785596-02									✓
		785597-01	Kintex UltraScale KU040								—
		785597-02									✓
		785598-01	Kintex UltraScale KU060								—
		785598-02									✓

FlexRIO Signal Generator Integrated I/O Module Accessories

Connector Blocks

Connector Block	SCB-12, Nano-Pitch Connector Block, 8 SE DIO, 1 QSFP+	SCB-8 Noise-Rejecting, Shielded Nano-Pitch Connector Block
Part Number	787419-01	786335-01
PXIe-5745	✓	✓

FlexRIO Digital Adapter Modules

Selection Guide	Model	Part Number	Compatible FPGA	DIO Termination	Duplex	Logic Levels And Range	Max Clock Rate	Max Data Rate	Number of Bidirectional Digital Channels	Signaling Type
General Purpose	NI-6581B	783887-01	Refer to FPGA Modules for FlexRIO	50 Ω	—	1.8 V 2.5 V 3.3 V	100 MHz	100 Mb/s	54	Single-Ended
General Purpose + LVDS	NI-6583	781320-01	Refer to FPGA Modules for FlexRIO	50 Ω	—	LVDS Programmable 1.2 V to 3.3 V	200 MHz	300 Mb/s	32	Single-Ended Differential
		781320-02	Refer to FPGA Modules for FlexRIO			mLVDS Programmable 1.2 V to 3.3 V				
RS422 and RS485	NI-6584	781290-01	Refer to FPGA Modules for FlexRIO	100 Ω	Half Duplex	RS422/ RS485	16 MHz	16 Mb/s	16	Differential
		781290-02	Refer to FPGA Modules for FlexRIO	100 Ω	Full Duplex					
		781290-03	Refer to FPGA Modules for FlexRIO	N/A, External Termination Recommended	Full Duplex					
LVDS	NI-6585B	784060-01	Refer to FPGA Modules for FlexRIO	100 Ω	—	LVDS	200 MHz	300 Mb/s	32	Differential
LVDS	NI-6589	783888-01	Refer to FPGA Modules for FlexRIO	100 Ω	—	LVDS	1 GHz	1 Gb/s	20	Differential

FlexRIO Digital Adapter Module Accessories

Cables

Cable	C68-C68-D4 Unshielded Cable For High-Speed DIO, 2x 68-Position VHDCI Offset, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, Lower DC Resistance, 3 m	SHC68-C68-D4 Shielded Single-Ended Cable, Low Leakage, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, 1 m	SHC68-C68-D4 Shielded Single-Ended Cable, 0.55 m	SHC68-C68-D4 Shielded Single-Ended Cable, 2 m	SHB12X-B12X, Male InfiniBand to Male Infiniband, Shielded LVDS Cable, 1 m
Part Number	195949-01	132625-03	152870-01	196275-01	781013-01	781293-01	192344-01
NI-6581B	✓	✓	✓	✓	✓	✓	—
NI-6583	✓	✓	✓	✓	✓	✓	✓
NI-6584	✓	✓	✓	✓	✓	✓	—
NI-6585B	—	—	—	—	—	—	—
NI-6589	—	—	—	—	—	—	✓

Cables (continued)

Cable	SHB12X-B12X, Male InfiniBand to Male Infiniband, Shielded LVDS Cable, 2 m	SHB12X-H3X24, Male InfiniBand to Differential Flying Leads, Shielded LVDS Cable, 1.5 m	BNC Male (Plug) to BNC Male (Plug), 75 Ω, 2 m Cables, 4 Pack	SHC68-C68-D3, Male VHDCI to Male VHDCI, Shielded LVDS Cable, 1 m	SHC68-C68-D3, Male VHDCI to Male VHDCI, Shielded LVDS Cable, 2 m	68 Pos VHDCI Connector to Eight 9 POS D-SUB, RS485, 1 m
Part Number	192344-02	196236-1R5	779697-02	188143-01	788905-02	197546-01
NI-6581B	—	—	—	—	—	—
NI-6583	✓	✓	—	—	—	—
NI-6584	—	—	✓	—	—	✓
NI-6585B	—	—	—	✓	✓	—
NI-6589	✓	✓	—	—	—	—

Breakout Boxes and Adapters

Breakout Boxes and Adapters	CB-2162 Single-Ended DIO Accessory	SMB-2163 Single-Ended DIO Accessory (Rack-Mountable)	SMA-2164 LVDS Prototyping Accessory	SMA-2165 Prototyping Accessory For NI 6585	SCB-68 HSDIO, Shielded 68-Pin Connector Block
Part Number	778592-01	778747-01	779323-01	782092-01	782914-01
NI-6581B	✓	✓	—	—	✓
NI-6583	✓	✓	✓	—	✓
NI-6584	✓	✓	—	—	✓
NI-6585B	—	—	—	✓	—
NI-6589	—	—	✓	—	—

FlexRIO Digital Integrated I/O Modules

Selection Guide	Model	Part Number	FPGA	DI Only Channels	DO Only Channels	Logic Levels And Range	Max Data Rate
LVDS FlexRIO DIO Module	PXIe-6569	787280-01	Kintex UltraScale KU035	32	32	LVDS	300 Mb/s
		787281-01	Kintex UltraScale KU060	—	64		
		787282-01	Kintex UltraScale KU060	64	0		
		787283-01	Kintex UltraScale KU060	32	32		
		787284-01	Kintex UltraScale KU035	0	64		
		787285-01	Kintex UltraScale KU035	64	0		

FlexRIO Digital Integrated I/O Module Accessories

Cables

Cable	MINI-SAS HD Breakout Cable To 16 SMA	SR240M-SR240M Cable, LVDS With SE, 1 m	SR240M-SR240M Cable, LVDS With SE, 0.5 m
Part Number	788260-01	787317-01	787317-0R5
PXIe-6569	✓	✓	✓

Terminal Block

Terminal Block	TB-6569 High-Speed SEARAY To Mini-SAS HD Breakout
Part Number	788259-01
PXIe-6569	✓

FlexRIO Transceiver Adapter Modules

Selection Guide	Model	Part Number	Available Filters	AI Sampling Rate	Compatible FPGA	IF Transceiver Max Bandwidth	Input Coupling	Max AO Update Rate	AI Channels	AO Channels	Resolu-tion
40 MHz Bandwidth Transceiver Adapter Module for FlexRIO	NI-5783	784364-01	Elliptic	100 MS/s	Refer to FPGA Modules for FlexRIO	175 MHz	DC	400 MS/s	4	4	16
		784364-02	Butterworth								

FlexRIO Transceiver Adapter Module Accessories

Cables

Cable	HD BNC Male to Bnc Female Cable, 50 Ω, 20 cm	HD BNC To SMA Cable, 50 Ω, 1 m	SHH19-H19-Aux Shielded Single-Ended Cable For Aux DIO with Jackscrew, 2 m
Part Number	787230-0R2	784995-01	152629-02
NI-5783	✓	✓	✓

Digital Cables

Digital Cable	SHH19-H19-AUX Shielded Single-Ended Cable, 2 m
Part Number	152629-02
NI-5783	✓

Connector Blocks

Connector Block	SCB-19 Noise-Rejecting, Shielded Aux I/O Connector Block
Part Number	782444-01
NI-5783	✓

FlexRIO Transceiver Integrated I/O Modules

Selection Guide	Model	Part Number	FPGA	Dynamic RAM (DRAM)	AO Bandwidth	Recon-struction Filter	Channels	Max Input Sample Rate	Max Output Sample Rate	Coupling	Resolu-tion
12-bit, 6.4 GS/s, 2-Channel PXI FlexRIO IF Transceiver	PXIe-5785	785584-01	Kintex UltraScale KU035	0 GB	2.9 GHz	—	2 AI, 2 AO	6.4 GS/s	3.2 GS/s	AC	12-bit
		785584-02	Kintex UltraScale KU035	0 GB	2.4 GHz	✓					
		785585-01	Kintex UltraScale KU040	4 GB	2.9 GHz	—					
		785585-02	Kintex UltraScale KU040	4 GB	2.4 GHz	✓					
		785586-01	Kintex UltraScale KU060	4 GB	2.9 GHz	—					
		785586-02	Kintex UltraScale KU060	4 GB	2.4 GHz	✓					

FlexRIO Transceiver Integrated I/O Module Accessories

Cables

Description	Nano-Pitch Male to Nano-Pitch Male OCuLink x4 Cable, 1 m	SMA Male to SMA Male Cable, 50 Ω, 30 cm	SMA Male to SMA Male Cable, 50 Ω, 1 m
Part Number	785486-01	781846-01	781845-01
PXIe-5785	✓	✓	✓

Connector Block

Description	SCB-12, Nano-Pitch Connector Block, 8 SE DIO, 1 QSFP+	SCB-8 Noise-Rejecting, Shielded Nano-Pitch Connector Block
Part Number	787419-01	786335-01
PXIe-5785	✓	✓

FlexRIO RF Adapter Modules

Selection Guide	Model	Part Number	Input Noise Density	Max Input Power	Max Output Power	RF Analyzer Instantaneous Band	RF Generator Frequency Range	RF Generator Instantaneous Band	Compatible FPGA
100 MHz Bandwidth, 200 MHz to 4.4 GHz, RF Adapter Module for FlexRIO	NI-5791	782510-01	-148 dBm/Hz	20 dBm	8 dBm	100 MHz	200 MHz to 4.4 GHz	100 MHz	Refer to FPGA Modules for FlexRIO

FlexRIO RF Adapter Module Accessories

Cables

Description	SMA Male to SMA Male Cable, 50 Ω, 30 cm	SMA Male to SMA Male Cable, 50 Ω, 1 m
Part Number	781846-01	781845-01
NI-5791	✓	✓

FlexRIO Coprocessor Modules

Selection Guide	Model	Part Number	I/O	Block RAM	DSP Slices	Dynamic RAM	FPGA	Max Line Rate
Lowest Cost	PXIe-7912	785173-01	4 HSS MGTs 8 GPIO	21 Mb	1,920	4 GB	Kintex UltraScale KU040	16.375 Gb/s
Low Cost	PXIe-7915	785174-01	4 HSS MGTs 8 GPIO	38 Mb	2,760	4 GB	Kintex UltraScale KU060	16.375 Gb/s
Highest Throughput and Largest FPGA	PXIe-7903	788917-01	48 HSS MGTs 8 GPIO	341 Mb	9,216	20 GB	Virtex UltraScale+ XCVU11P	28.2 Gb/s

FlexRIO Coprocessor Module Accessories

Cables

Description	Nano-Pitch Male to Nano-Pitch Male OCuLink x4 Cable, 1 m	Nano-Pitch Male to Mini-SAS HD Male OCuLink x4 Cable, 1 m
Part Number	785486-01	786215-01
PXIe-7912	✓	✓
PXIe-7915	✓	✓

Connector Blocks

Description	SCB-12, Nano-Pitch Connector Block, 8 SE DIO, 1 QSFP+	SCB-8 Noise-Rejecting, Shielded Nano-Pitch Connector Block
Part Number	787419-01	786335-01
PXIe-7912	✓	✓
PXIe-7915	✓	✓

FlexRIO Camera Interface Modules

Selection Guide	Model	Part Number	Deserializer	DI Only Channels	DO Only Channels	Serializer	Supported Modes	Serial Link	FPGA
8-Channel GMSL2 Automotive Camera Interface Module	PXIe-1487	787456-01	MAX9296A	8	0	—	Pixel	GMSL2	Kintex UltraScale+ KU11P
		787457-01	MAX9296A	4	4	MAX9295A	Pixel		
		787458-01	—	0	8	MAX9295A	Pixel		
		788714-01	MAX96716A	4	4	MAX96717	Pixel Tunneling		
		788715-01	—	0	8	MAX96717	Pixel Tunneling		
		788716-01	MAX96716A	8	0	—	Pixel Tunneling		
		788719-01	—	0	8	MAX96717F	Pixel Tunneling		
		788781-01	MAX96716A	4	4	MAX96717F	Pixel Tunneling		
4-Channel GMSL3 Automotive Camera Interface Module	PXIe-1489	788355-01	MAX96792A	4	0	—	Pixel Tunneling	GMSL3	Kintex UltraScale+ KU11P
		788356-01	MAX96792A	2	2	MAX96793	Pixel Tunneling		
		788357-01	—	0	4	MAX96793	Pixel Tunneling		
8-Channel FPD-LINK III Automotive Camera Interface Module	PXIe-1486	787453-01	DS90UB954	8	0	—	—	FPD-LINK III	Kintex UltraScale+ KU11P
		787454-01	DS90UB954	4	4	DS90UB953	—		
		787455-01	—	0	8	DS90UB953	—		
		788711-01	DS90UB638	8	0	—	—		
		788712-01	DS90UB638	4	4	DS90UB635	—		
		788713-01	—	0	8	DS90UB635	—		
8-Channel FPD-LINK IV Automotive Camera Interface Module	PXIe-1488	788350-01	DS90UB9702	8	0	—	—	FPD-LINK IV	Kintex UltraScale+ KU11P
		788351-01	DS90UB9702	4	4	DS90UB971	—		
		788352-01	—	0	8	DS90UB971	—		

FlexRIO CameraLink Adapter Modules

Selection Guide	Model	Part Number	Supported Configurations	Connector	Supported Pixel Clock Frequency	Aux I/O	Compatible FPGA
Full-Configuration CameraLink Adapter Module for FlexRIO	NI-1483	781341-01	Base, Medium, Full CameraLink	2x 26-Pin SDR	20 MHz to 85 MHz	4x TTL, 2x Isolated Digital Inputs, 1x Quadrature Encoder	Refer to FPGA Modules for FlexRIO

FlexRIO CameraLink Adapter Module Accessories

Cables

Description	Cable, Power Over CameraLink (PoCL), MDR to MDR, 2 m	Cable, Power Over CameraLink (PoCL), MDR to MDR, 5 m	Cable, Power Over CameraLink (PoCL), MDR to SDR, 5 m	Cable, Power Over CameraLink (PoCL), SDR to SDR, 5 m
Part Number	199744-02	199744-05	199745-05	199746-05
NI-1483	✓	✓	✓	✓



Develop With:
NI LabVIEW, LabVIEW Real-Time Module, LabVIEW FPGA Module
Driver(s):
NI-XNET

PXI Communication Modules

- Up to four independently configurable ports per module
- Real-time, high-speed manipulation of hundreds of CAN frames and signals such as hardware-in-the-loop simulation, rapid control prototyping, bus monitoring, and automation control modules
- Bandwidth from 40 Kb/s to 1000 Mb/s
- Channel-channel and channel-bus isolation, galvanically isolated up to 60 VDC

Key Features

Synchronization with Mixed I/O

NI vehicle communication bus hardware includes robust timing and triggering options for precise application control, easily synchronizing mixed analog and digital signals with communication interfaces.

Flexibility in Form Factor

The NI-XNET API provides functions for reading and writing automotive Ethernet, CAN, LIN, and FlexRay frames and signals on multiple platforms, including USB, PXI, PCI, NI CompactDAQ, and NI CompactRIO, enabling code re-use between applications.

XNET IP Stack

For automotive Ethernet hardware, the NI-XNET driver provides its own IP stack independent from the OS IP stack. This architecture provides enhanced control and flexibility for test applications such as testing multiple devices in parallel with the same IP address.

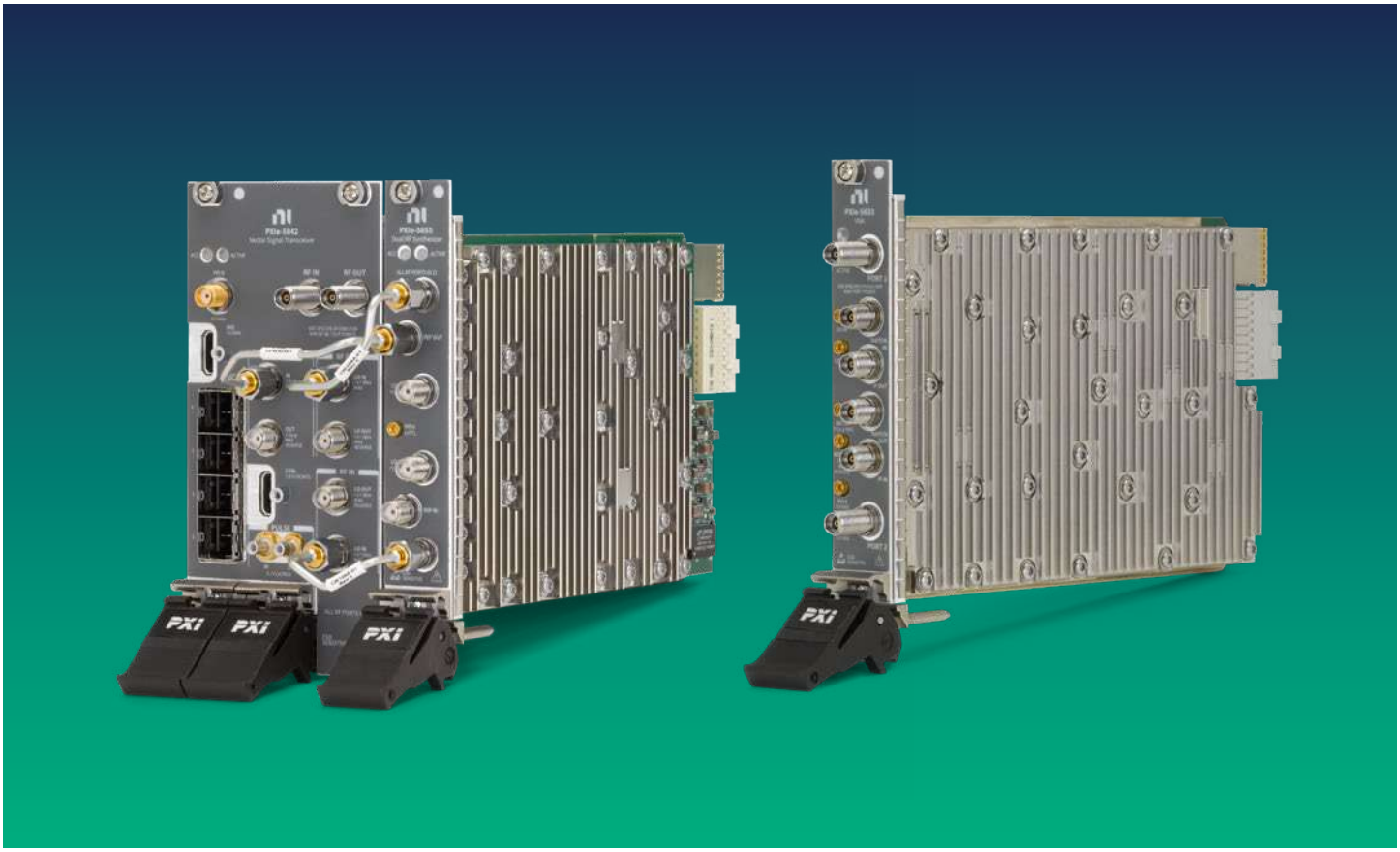
Vehicle Communication

Selection Guide	Model	Part Number	Physical Layer	Ports	Connector	Transciever
Automotive Ethernet	**PXIe-8520**	789554-01	100/1000BASE-T1	4	H-MTD Z	BCM89885M
	PXIe-8521	786771-01	100BASE-T1	4	Spring Terminal	NXP TJA1100HN
	PXIe-8522	787312-01	1000BASE-T1	4	Spring Terminal	BCM89881
	PXIe-8523	787311-01	100/1000BASE-T1	4	Spring Terminal	BCM89881
Ethernet	**PXIe-8623**	787992-01	100/1000BASE-T	4	RJ45	Ethernet PXIe-8623
Hardware-Selectable CAN/LIN	**PXIe-8510**	784122-01	Low-Speed/Fault-Tolerant, High-Speed, Flexible Data Rate	6	Proprietary, Compatible with NI TRC-854X Cable	—
	PXIe-8510	784121-01	Low-Speed/Fault-Tolerant, High-Speed, Flexible Data Rate	2	Proprietary, Compatible with NI TRC-854X Cable	—
CAN	**PXI-8512**	780687-02	High-Speed, Flexible Data Rate	2	DB9	NXP TJA1043
	PXI-8512	780687-01	High-Speed, Flexible Data Rate	1	DB9	NXP TJA1043
	PXI-8513	780688-02	Software-Selectable: High-Speed, Flexible Data Rate, Low-Speed/Fault-Tolerant, Single-Wire	2	DB9	NXP TJA1043
	PXI-8513	780688-01	Software-Selectable: High-Speed, Flexible Data Rate, Low-Speed/Fault-Tolerant, Single-Wire	1	DB9	NXP TJA1043
LIN	**PXI-8516**	781366-01	LIN PXI-8516: LIN 2.0, LIN 2.1, LIN 2.2	2	DB9	ATMEL ATA6620
FlexRay	**PXI-8517**	780689-02	FlexRay PXI-8517: FlexRay	2	DB9	2x NXP TJA1080

Vehicle Communication Accessories

Selection Guide	Model	Part Number	Description	Ports	Transciever
Automotive Ethernet Media Converters	IVN-8563	789841-01	10BASE-T1S to 10/100BASE-TX	2	—
	IVN-8561	786169-01	100BASE-T1 to 100BASE-TX	4	—
CAN Transciever Cables	TRC-8542	789802-01	CAN HS/FD with Signal Improvement Capability (SIC)	—	NXP TJA1463
	TRC-8542	783699-02	CAN HS/FD	—	NXP TJA1043T
	TRC-8542	783699-03	CAN HS/FD, Conformal Coated	—	NXP TJA1043T
	TRC-8543	789803-01	CAN XS (LS/FT, HS/FD) with Signal Improvement Capability (SIC)	—	NXP TJA1463
	TRC-8543	783701-02	CAN XS (LS/FT, HS/FD)	—	NXP TJA1043T
	TRC-8543	783701-03	CAN XS (LS/FT, HS/FD), Conformal Coated	—	NXP TJA1043T
LIN Transciever Cables	TRC-8546	783702-02	LIN	—	NXP TJA1028
	TRC-8546	783702-03	LIN, Conformal Coated	—	NXP TJA1028

RF





Develop With:
NI RFmx APIs in NI LabVIEW, Python, C#, and NI TestStand
Driver(s):
NI-RFSG, NI-RFSA
Included:
RFmx SpecAn, NI InstrumentStudio™ Software

PXI Vector Signal Transceivers

- RF signal generation and analysis up from baseband to 54 GHz, with up to 4 GHz instantaneous bandwidth
- Coverage of the latest IEEE and 3GPP specifications, including 5G NR, 5G-Advanced, and Wi-Fi 7/8
- Achieve better than -50 dB EVM performance for higher-order modulation schemes
- Phase-coherent, multichannel RF synchronization in a single, integrated system
- Real-time, sustained full bandwidth data streaming with FPGA coprocessors

Key Features

Test High Frequency and Wide Instantaneous Bandwidth

With frequency coverage from baseband to mmWave and up to 4 GHz instantaneous bandwidth, Vector Signal Transceivers (VSTs) are ideally suited for carrier aggregation, digital predistortion, and radar testing.

Perform Fast and Accurate EVM Measurements

Low phase noise, high linearity, and patented IQ calibration combine to achieve best-in-class EVM performance with higher-order modulation schemes.

Optimize RF Front-End Validation

Easy-to-use and customizable DPD algorithms and up to 4 GHz of instantaneous RF bandwidth translate to quick and easy DPD implementation in RFIC characterization.

Vector Signal Transceiver Modules

Selection Guide	Model	Part Number	I/O Type	Module Width	Frequency Range	Instantaneous Bandwidth	EVM (5G NR 100 MHz, Loopback @ 5.5 GHz)	Tuning Time	P2P Streaming
High-Performance RF	PXIe-5842	789600-26211	RF In and RF Out	4 Slots	30 MHz to 26.5 GHz	2 GHz	-58 dB	230 µs	Yes, up to 1 GHz
		789600-18211			30 MHz to 18 GHz				
		789600-12211			30 MHz to 12 GHz				
		789600-08211			30 MHz to 8 GHz				
		789600-26111			30 MHz to 26.5 GHz	1 GHz			
		789600-18111			30 MHz to 18 GHz				
		789600-12111			30 MHz to 12 GHz				
		789600-08111			30 MHz to 8 GHz				
		789600-26511			30 MHz to 26.5 GHz	500 MHz			
		789600-18511			30 MHz to 18 GHz				
		789600-12511			30 MHz to 12 GHz				
		789600-08511			30 MHz to 8 GHz				
		789602-26411			30 MHz to 26.5 GHz	4 GHz	—		
		789602-18411			30 MHz to 18 GHz				
		789602-12411			30 MHz to 12 GHz				
		789600-54211		6 Slots	30 MHz to 26.5 GHz, 22.5 GHz to 54 GHz	2 GHz	-55 dB		
High Density	PXIe-5860	789449-01	2 RF In and 2 RF Out	2 slots	50 MHz to 8.5 GHz	1 GHz	-55 dB	150 µS	Yes, up to 1 GHz
		790790-01	RF In and RF Out						
Sub-6 GHz	PXIe-5841	789182-01	RF In and RF Out	2 Slots	9 kHz to 6 GHz	1 GHz	-49 dB	380 µs	Yes, up to 1 GHz
		789186-01				200 MHz	-49 dB		
mmWave, Built-In Switching	PXIe-5831	786856-01	RF In and RF Out	6 Slots	5 GHz to 31.3 GHz, 37 GHz to 44 GHz	1 GHz	-51 dB	500 µs	Yes, up to 1 GHz
IF	PXIe-5831	786853-01	RF In and RF Out	4 Slots	5 GHz to 21 GHz	1 GHz	-51 dB	500 µs	Yes, up to 1 GHz
Baseband	PXIe-5820	783967-01	I/Q In and I/Q Out	2 Slots	DC–500 MHz	1 GHz	N/A	380 µs	Yes, up to 1 GHz
		789179-01							

*See **RF Module Accessories**

VST and VNA Accessories

Selection Guide	Cable Part Number	Length	Back-End Connection	Front-End Connection	Max Frequency	Description	Model Compatibility
High Performance, Temperature-Stable	136692-1000	1,000 mm	2.92 mm (Male)	2.92 mm (Male)	26.5 GHz	Phase stability over temperature for wideband and some VNA applications. Lower insertion loss.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	136692-0650	650 mm					
Temperature-Stable	136691-0870	870 mm	SMA (Male)	SMA (Male)	26.5 GHz	Phase stability over temperature for wideband and some VNA applications. Higher insertion loss.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	136691-0670	670 mm					
	136691-0400	400 mm					
High Performance, Phase-Stable for VNA Applications	137445-01	1,000 mm	3.5 mm (Male)	3.5 mm (Male)	26.5 GHz	Phase stable measurements (S-parameters). Best performance.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
Phase-Stable for VNA Applications	137446-03	3,000 mm	3.5 mm (Male)	3.5 mm (Male)	26.5 GHz	Phase stable measurements (S-parameters). Higher flexibility.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	137446-01	1,000 mm					
Low Cost	137833-1000	1,000 mm	SMA (Male)	SMA (Male)	26.5 GHz	Suitable for most configurations needing 26 GHz. Low cost.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	137833-0600	600 mm					
	137833-0300	300 mm					
	137833-0150	150 mm					
Rated for mmWave Applications	138286-1000	1,000 mm	1.85 mm (Male)	1.85 mm (Male)	67 GHz	High-performance, suitable for mmWave applications.	PXIe-5842 PXIe-5831
Combining VST and VNA Capabilities	790597-01	—	2.92 mm (Male)	2.92 mm (Male)	26.5 GHz	PXIe-5860 VST to PXIe-5633 VNA pass-through cable kit	PXIe-5842
	790504-01	—	SMA (Male)	SMA (Male)			PXIe-5860
4-Port VNA	789195-01	—	MMPX (Male)	MMPX (Male)	26.5 GHz	LO Cable for 4-port PXIe-5633	PXIe-5633



Develop With:
NI RFmx APIs in NI LabVIEW, Python, C#, and NI TestStand
Driver(s):
NI-RFSA
Included:
RFmx SpecAn, NI InstrumentStudio™ Software

PXI Vector Signal Analyzers

Spectral measurements, demodulation, and RF signal analysis up to 26.5 GHz

Excellent RF specifications, including -167 dBm/Hz average noise density and ±0.2 dB absolute accuracy

Subnanosecond synchronization of NI VSAs with other RF, DC, analog, and digital instruments

Key Features

Perform Excellent RF Measurements

A combination of low phase noise and noise floor, excellent dynamic range, and high second- and third-order intercepts makes an NI VSA well suited for measurements, including ACLR measurements, spurs, and harmonics

Measure Wide Instantaneous Bandwidth

With up to 4 GHz of instantaneous RF bandwidth, NI VSAs offers the ability to measure extremely wide bandwidths in a single acquisition. This is useful for many applications, including testing the latest IEEE and 3GPP wireless standards, implementing digital predistortion, and taking radar pulse measurements.

Achieve Multi-Instrument Synchronization

PXI's inherent timing and synchronization capabilities can help you achieve subnanosecond synchronization of an NI VSA with other test instruments for applications such as phase-coherent radar measurements, envelope tracking, and direction finding.

Vector Signal Analyzer Modules

Selection Guide	Model	Part Number	I/O Type	Module Width	Frequency Range	Instantaneous Bandwidth	EVM (5G NR 100 MHz, Loopback at 5.5 GHz)	Tuning Time	P2P Streaming
High-Performance RF	PXIe-5842	789600-26210	Vector	4 Slots	30 MHz to 26.5 GHz	2 GHz	-58 dB	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-18210	Vector		30 MHz to 18 GHz	2 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-12210	Vector		30 MHz to 12 GHz	2 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-08210	Vector		30 MHz to 8 GHz	2 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-26110	Vector		30 MHz to 26.5 GHz	1 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-18110	Vector		30 MHz to 18 GHz	1 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-12110	Vector		30 MHz to 12 GHz	1 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-08110	Vector		30 MHz to 8 GHz	1 GHz			Yes, up to 1 GHz
	PXIe-5842	789600-26510	Vector		30 MHz to 26.5 GHz	500 MHz			Yes, up to 1 GHz
	PXIe-5842	789600-18510	Vector		30 MHz to 18 GHz	500 MHz			Yes, up to 1 GHz
	PXIe-5842	789600-12510	Vector		30 MHz to 12 GHz	500 MHz			Yes, up to 1 GHz
	PXIe-5842	789600-08510	Vector		30 MHz to 8 GHz	500 MHz			Yes, up to 1 GHz
	PXIe-5842	789600-26410	Vector		30 MHz to 26.5 GHz	4 GHz	N/A		Yes, up to 1 GHz
	PXIe-5842	789600-18410	Vector		30 MHz to 18 GHz	4 GHz	N/A		Yes, up to 1 GHz
	PXIe-5842	789600-12410	Vector		30 MHz to 12 GHz	4 GHz	N/A		Yes, up to 1 GHz
Sub-6 GHz	PXIe-5841	789183-01	Vector	2 Slots	9 kHz to 6 GHz	1 GHz	-49 dB	380 µs	Yes, up to 1 GHz
	PXIe-5841	789187-01	Vector		9 kHz to 6 GHz	200 MHz	-49 dB	380 µs	Yes, up to 1 GHz



Develop With:
APIs in NI LabVIEW, Python, C#
Driver(s):
NI-RFSG, NI-RFSA
Included:
NI InstrumentStudio™ Software

NI RFmx

- Interactively analyze signals, monitor test results, and debug measurements
- Quickly create and generate standard-compliant waveforms
- Build application-specific measurement configurations in a fully integrated test bench
- Quickly transition from interactive measurements to automated workflows
- Develop custom test applications with powerful APIs
- Simplify automation and accelerate test execution

Key Features

More Specificity

Test multiple wireless standards for cellular, connectivity, and IoT signals. Select the personality of RFmx for your specific application and testing needs.

Quicker Start

Begin measurement out of the box with interactive soft front panels and, with waveform creation software, generate and modify unlocked waveforms.

Faster Execution

Complete testing quicker by taking advantage of innate high-speed measurement algorithms and composite measurement functionality.



Develop With:
NI LabVIEW, Python, C#, NI TestStand
Driver(s):
NI-RFSG
Included:
NI InstrumentStudio™ Software

PXI RF Signal Generators

- High-frequency RF generation from 9 kHz up to 20 GHz
- Continuous wave (CW), standard analog modulation such as AM, FM, and pulse, and vector signal generation
- Standard-compliant RF signal generation for coverage of the latest IEEE and 3GPP specifications, including 5G NR, 5G-Advanced, and Wi-Fi 7/8
- High-power RF output up to +27 dBm
- Subnanosecond synchronization of NI RF signal generators with other RF, DC, analog, and digital instruments

Key Features

Generate High-Quality RF stimulus for RF Test Applications

With fast tuning speeds, low phase noise, and support for standard and custom wireless communications testing, NI RF signal generators provide powerful capabilities for a wide range of RF signal generation applications.

Build a Fully Integrated RF Test Bench

Combine NI RF signal generators with a wide range of other instrumentation, from RF to DC, analog, and digital, to build a fully cohesive, integrated test bench.

Ensure Fast Execution with Accurate Results

Leverage driver-optimized APIs, signal-generation scripts, and other features designed with measurement speed and execution in mind for subnanosecond-level synchronization and fast test speeds.

RF Signal Generator Modules

Selection Guide	Model	Part Number	I/O Type	Module Width	Frequency Range	Instantaneous Bandwidth	Maximum Output Power, Nominal	Tuning Time	P2P Streaming
High-Performance RF	PXIe-5842	789600-26201	Vector	4 Slots	30 MHz to 26.5 GHz	2 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-18201	Vector	4 Slots	30 MHz to 18 GHz	2 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-12201	Vector	4 Slots	30 MHz to 12 GHz	2 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-08201	Vector	4 Slots	30 MHz to 8 GHz	2 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-26101	Vector	4 Slots	30 MHz to 26.5 GHz	1 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-18101	Vector	4 Slots	30 MHz to 18 GHz	1 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-12101	Vector	4 Slots	30 MHz to 12 GHz	1 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-08101	Vector	4 Slots	30 MHz to 8 GHz	1 GHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-26501	Vector	4 Slots	30 MHz to 26.5 GHz	500 MHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-18501	Vector	4 Slots	30 MHz to 18 GHz	500 MHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-12501	Vector	4 Slots	30 MHz to 12 GHz	500 MHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789600-08501	Vector	4 Slots	30 MHz to 8 GHz	500 MHz	+25 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789602-26401	Vector	4 Slots	30 MHz to 26.5 GHz	4 GHz	+24 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789602-18401	Vector	4 Slots	30 MHz to 18 GHz	4 GHz	+24 dBm	230 µs	Yes, up to 1 GHz
	PXIe-5842	789602-12401	Vector	4 Slots	30 MHz to 12 GHz	4 GHz	+24 dBm	230 µs	Yes, up to 1 GHz
Sub-6 GHz	PXIe-5841	789184-01	Vector	2 Slots	9 kHz to 6 GHz	1 GHz	+20 dBm	380 µs	Yes, up to 1 GHz
	PXIe-5841	789185-01	Vector	2 Slots	9 kHz to 6 GHz	200 MHz	+20 dBm	380 µs	Yes, up to 1 GHz
Baseband	PXIe-5820	789180-01	I/Q	2 Slots	DC–500 MHz	1 GHz	N/A	380 µs	Yes, up to 1 GHz
RF Analog Signal Generator	PXIe-5654	784777-02	Analog	5 Slots	250 kHz to 20 GHz	N/A	+27 dBm	100 µs	N/A
	PXIe-5654	784777-01	Analog	5 Slots	250 kHz to 20 GHz	N/A	+27 dBm	1 ms	N/A
	PXIe-5654	783127-01	Analog	3 Slots	250 kHz to 20 GHz	N/A	+15 dBm	1 ms	N/A
	PXIe-5654	784776-02	Analog	5 Slots	250 kHz to 10 GHz	N/A	+27 dBm	100 µs	N/A
	PXIe-5654	784776-01	Analog	5 Slots	250 kHz to 10 GHz	N/A	+27 dBm	1 ms	N/A
	PXIe-5654	783126-01	Analog	3 Slots	250 kHz to 10 GHz	N/A	+15 dBm	1 ms	N/A
CW	PXIe-5655	786586-02	CW	1 Slot	50 MHz to 7.2 GHz	N/A	+10 dBm	230 µs	N/A



Develop With:
NI RFmx APIs in NI LabVIEW, Python, C#, and NI TestStand
Driver(s):
NI-RFSG, NI-RFSA
Included:
RFmx SpecAn, NI InstrumentStudio™ Software

PXI Vector Network Analyzers

- Single-slot 26.5 GHz 2- or 4-port VNA
- Combined Vector Signal Transceiver (VST) and VNA pass-through mode for Vector Signal Generator (VSG), VSA, and VNA capabilities at a single insertion
- 4-port VNA capabilities with two PXI-5633 VNAs
- Vector calibration module for automated 1-port and 2-port S-parameter calibrations
- Software support with RFmx VNA and InstrumentStudio

Key Features

Single-Connection Modulation Analysis and S-Parameter Testing

Pair the PXIe-5633 VNA with the PXIe-5842 or PXIe-5860 VSTs to integrate both S-parameter and modulation measurements into a DUT test plan without complex switching setups.

Simplified Calibration Process

Simplify calibration using an electronic vector calibration module for easy and convenient S-parameter calibration.

Powerful Software

RFmx is a set of interoperable measurement personalities together with waveform creation software that extends the capability of NI RF instrumentation for general-purpose, connectivity, cellular, and aerospace and defense test applications.

Vector Network Analyzers Modules

Selection Guide	Model	Part Number	Frequency Range	Ports	Dynamic Range (Typical)	Maximum Source Power (Typical)	Corrected Directivity
High-Performance S-Parameter Capability	PXIe-5633	788182-26	50 MHz to 26.5 GHz	2*	125 dB (> 22 GHz to 26.5 GHz) 134 dB (> 18 GHz to 22 GHz) 137 dB (> 8 GHz to 18 GHz) 138 dB (> 6 GHz to 8 GHz) 146 db (> 300 MHz to 6 GHz) 134 dB (100 MHz to 300 MHz)	+5 dBm (> 22 GHz to 26.5 GHz) +10 dBm (> 18 GHz to 22 GHz) +13 dBm (> 12 GHz to 18 GHz) +15 dBm (> 8 GHz to 12 GHz) +16 dBm (> 6 GHz to 8 GHz) +18 dBm (50 MHz to 6 GHz)	≥ 39 dB (> 20 GHz to 26.5 GHz) ≥ 40 dB (> 12 GHz to 20 GHz) ≥ 41xdB (> 8 GHz to 12 GHz) ≥ 42 dB (100 MHz to 8 GHz)
		788182-18	50 MHz to 18 GHz				
		788182-12	50 MHz to 12 GHz				
		788182-08	50 MHz to 8 GHz				
High-Performance S-Parameter Capability, pairable with PXIe—5860 VST	PXIe-5633	790406-26	50 MHz to 26.5 GHz	2*	125 dB (> 22 GHz to 26.5 GHz) 134 dB (> 18 GHz to 22 GHz) 137 dB (> 8 GHz to 18 GHz) 138 dB (> 6 GHz to 8 GHz) 146 db (> 300 MHz to 6 GHz) 134 dB (100 MHz to 300 MHz)	+5 dBm (> 22 GHz to 26.5 GHz) +10 dBm (> 18 GHz to 22 GHz) +13 dBm (> 12 GHz to 18 GHz) +15 dBm (> 8 GHz to 12 GHz) +16 dBm (> 6 GHz to 8 GHz) +18 dBm (50 MHz to 6 GHz)	≥ 39 dB (> 20 GHz to 26.5 GHz) ≥ 40 dB (> 12 GHz to 20 GHz) ≥ 41xdB (> 8 GHz to 12 GHz) ≥ 42 dB (100 MHz to 8 GHz)
		790406-18	50 MHz to 18 GHz				
		790406-12	50 MHz to 12 GHz				
		790406-08	50 MHz to 8 GHz				

*For 4-Port VNA Capabilties, Combine 2x of the above P/Ns together, and the 4-Port VNA cable kit (in the next table)

RF Module Accessories

VST and VNA Accessories

Selection Guide	Cable Part Number	Length	Back-End Connection	Front-End Connection	Max Frequency	Description	Model Compatibility
High Performance, Temperature-Stable	136692-1000	1,000 mm	2.92 mm (Male)	2.92 mm (Male)	26.5 GHz	Phase stability over temperature for wideband and some VNA applications. Lower insertion loss.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	136692-0650	650 mm					
Temperature-Stable	136691-0870	870 mm	SMA (Male)	SMA (Male)	26.5 GHz	Phase stability over temperature for wideband and some VNA applications. Higher insertion loss.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	136691-0670	670 mm					
	136691-0400	400 mm					
High Performance, Phase-Stable for VNA Applications	137445-01	1,000 mm	3.5 mm (Male)	3.5 mm (Male)	26.5 GHz	Phase stable measurements (S-parameters). Best performance.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
Phase-Stable for VNA Applications	137446-03	3,000 mm	3.5 mm (Male)	3.5 mm (Male)	26.5 GHz	Phase stable measurements (S-parameters). Higher flexibility.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	137446-01	1,000 mm					
Low Cost	137833-1000	1,000 mm	SMA (Male)	SMA (Male)	26.5 GHz	Suitable for most configurations needing 26 GHz. Low cost.	PXIe-5842 PXIe-5841 PXIe-5831 PXIe-5633
	137833-0600	600 mm					
	137833-0300	300 mm					
	137833-0150	150 mm					
Rated for mmWave Applications	138286-1000	1,000 mm	1.85 mm (Male)	1.85 mm (Male)	67 GHz	High-performance, suitable for mmWave applications.	PXIe-5842 PXIe-5831
Combining VST and VNA Capabilities	790597-01	—	2.92 mm (Male)	2.92 mm (Male)	26.5 GHz	PXIe-5860 VST to PXIe-5633 VNA pass-through cable kit	PXIe-5842
	790504-01		SMA (Male)	SMA (Male)			PXIe-5860
4-Port VNA	789195-01	—	MMPX (Male)	MMPX (Male)	26.5 GHz	LO Cable for 4-port PXIe-5633	PXIe-5633

VNA Calibration Kits and Accessories

Selection Guide	Model	Part Number	Number of Ports	Frequency Coverage	Calibration Method
Electronic Vector Calibration Module	CAL-5501*	788189-01	2	50 MHz to 26.5 GHz	Short, Open, Load (SOL) and Short, Open, Load, Through (SOLT)

*For Use with PXIe-5633 VNA Only



Develop With:
GNU Radio, RFNoC, Python, C++, MATLAB, NI LabVIEW, LabVIEW FPGA Module
Driver(s):
UHD, NI-USRP

Software Defined Radios

- 1 MHz to 20 GHz frequency ranges
- Up to 1.6 GHz/channel of bandwidth
- Up to eight transmit and eight receive channels per radio
- Development tools such as NI LabVIEW, open-source UHD, GNU Radio, and MathWorks® MATLAB® software

Key Features

Build Advanced Wireless Systems

Modern wireless systems require a new generation of software defined radios (SDRs) for prototyping and deployment. Systems need wider bandwidth, higher frequencies, and more advanced digital signal-processing architectures. Explore how the latest USRP (Universal Software Radio Peripheral) options offer enhanced performance to build your next advanced wireless prototype.

Prototype with Wider Bandwidth

Prototyping algorithms for applications such as radar research requires the need for wider bandwidths and more channels. At up to 1.6 GHz of bandwidth and eight transmit and receive channels, the NI Ettus USRP X440 achieves higher accuracy for direction-finding while maintaining phase coherency.

Use the Software of Your Choice

No matter your development tool preferences, you can be confident in USRP hardware, which is compatible with the broadest range of software workflows on the market. You can choose LabVIEW for a unified dataflow programming style or use the open-source driver with support for C, C++, MathWorks® MATLAB®, GNU Radio, and more.

Software Defined Radio Modules

Selection Guide	NI Model	NI Ettus Model	Part Number	#TX	#RX	Frequency Range	Bandwidth
Stand-Alone, FPGA-Enabled, High-Performance	**USRP X440**	USRP X440	788670-01	8	8	30 MHz to 4 GHz	1.6 GHz
	USRP X420	USRP X420	789917-01	2	2	10 MHz to 20 GHz	1 GHz
	USRP X410	USRP X410	787272-01	4	4	1 MHz–7.2 GHz	400 MHz
	—	**USRP N320**	786503-01	2	2	3 MHz to 6 GHz	200 MHz
	—	**USRP N321**	786504-01				
	—	**USRP N310**	785067-01	4	4	10 MHz to 6 GHz	100 MHz
	USRP-2974	N/A	785606-01	2	2	10 MHz to 6 GHz	160 MHz
Host-Connected, FPGA-Enabled, High-Performance	—	OBX daughterboard for USRP X310	789162-01	2	2	10 MHz to 8.4 GHz	160 MHz
	USRP-2944	USRP X310 + UBX	783149-01	2	2	30 MHz to 6 GHz	160 MHz
	USRP-2945	USRP X310 + TwinRx	785263-01	0	4	10 MHz to 6 GHz	80 MHz
	USRP-2954	USRP X310 + UBX + GPSDO	783153-01	2	2	30 MHz to 6 GHz	160 MHz
	USRP-2955	USRP X310 + TwinRx + GPSDO	785264-01	0	4	10 MHz–6 GHz	80 MHz
Low Size, Weight, and Power (SWAP), Stand-Alone, Embedded	—	**USRP E320 (Larger FPGA)**	786189-01	2	2	70 MHz to 6 GHz	56 MHz
Low SWAP, Low Cost, Bus-Connected	**USRP B310**	**USRP B310 (Enclosed)**	790414-01	2	2	400 MHz to 7.2 GHz	100 MHz
		USRP B310 (PCIe)	790817-01	2	2	400 MHz to 7.2 GHz	100 MHz
	USRP B206mini-i	**USRP B206mini-i**	789155-01	1	1	70 MHz to 6 GHz	56 MHz
	USRP-2900	USRP B200	784039-01	1	1	70 MHz to 6 GHz	56 MHz
	USRP-2901	USRP B210	784040-01	2	2	70 MHz to 6 GHz	56 MHz

Software Defined Radio Accessories

USRP Power Cables

Part Description	EMI Supression Ferrite, 13.05 mm	Power Cord for USRP RIO, Australia	Power Cord for USRP RIO, China	Power Cord for USRP RIO, Europe	Power Cord for USRP RIO, Japan	Power Cord for USRP RIO, Korea	Power Cord for USRP RIO, UK	Power Cord for USRP RIO, US	International Power Cords for USRP RIO
Part Number	784968-01	785023-03	785023-10	785023-04	785023-07	785023-09	785023-06	785023-01	783490-01
USRP X440	✓	✓	✓	✓	✓	✓	✓	✓	✓
USRP X410	✓	✓	✓	✓	✓	✓	✓	✓	✓
USRP 2955	✓	✓	✓	✓	✓	✓	✓	✓	—
USRP 2954	✓	✓	✓	✓	✓	✓	✓	✓	—
USRP 2945	✓	✓	✓	✓	✓	✓	✓	✓	—
USRP 2974	✓	✓	✓	✓	✓	✓	✓	✓	—
USRP N321	✓	✓	✓	✓	✓	✓	✓	✓	—
USRP N320	✓	✓	✓	✓	✓	✓	✓	✓	—
USRP N310	✓	✓	✓	✓	✓	✓	✓	✓	—

RF Cables

Part Description	Kit for USRP Systems Includes Two SMA-M to SMA-M Cables (1 m) and Two SMA-F to SMA-M Attenuators (30 dB, 50 Ω, DC-6 GHz)	One SMA-M to SMA-M Cable, New Low-Loss Coax Good to 6 GHz, 1 m
Part Number	782781-01	783469-01
USRP X440	—	—
USRP X410	✓	✓
USRP 2955	✓	✓
USRP 2954	✓	✓
USRP 2945	✓	✓
USRP 2974	✓	✓
USRP N321	✓	✓
USRP N320	✓	✓
USRP N310	✓	✓
USRP 2900	✓	✓
USRP 2901	✓	✓
USRP B206mini	✓	✓

USRP X4XX Accessories

Compatible Models	Part Number	Full Description
All X4XX Models	788149-01	USRP X4XX 19 in. Rack-Mount Accessory, 1U, 1 USRP X4XX Device, w/ Surrogate Extension
All X4XX Models	788147-01	USRP X4XX 19 in. Rack-Mount Accessory, 1U, 2 USRP X4XX Devices, Shoulder-to-Shoulder
All X4XX Models	788148-01	USRP X4XX Desktop Stack Accessory, Single USRP X4XX Device Fastened Buildup
All X4XX Models	788164-01	USRP X4XX Fan Cartridge Accessory, Exhaust
All X4XX Models	788165-01	USRP X4XX Fan Cartridge Accessory, Intake
All X4XX Models	788216-01	Dual 100 Gigabit Ethernet PCI Express Interface Kit for Ettus USRP X4XX
All X4XX Models	152629-02	SHH19-H19-AUX Shielded Single-Ended Cable for AUX DIO with Jackscrew, 2 m
USRP X410 Only	788264-01	PCI Express Gen3 Interface Kit for Ettus USRP X4XX (Desktop)
All X4XX Models	788214-01	QSFP28 to 4XSFP28 Breakout Cable, 1 m
All X4XX Models	788215-03	QSFP28 Twinaxial Cable, 3 m
All X4XX Models	782444-01	SCB-19 Noise-Rejecting, Shielded Auxiliary I/O Connector Block

USRP RIO Accessories

Part Description	PCIe-MXI Express Interface Kit for USRP RIO	PXIe-MXI Express Interface Kit for USRP RIO	SFP+ Cable, 1 m	GPIO Connection Kit for USRP RIO
Part Number	783487-01	783488-01	784076-01	783491-01
USRP 2974	✓	✓	✓	✓
USRP 2955	✓	✓	✓	✓
USRP 2954	✓	✓	✓	✓
USRP 2945	✓	✓	✓	✓
USRP 2944	✓	✓	✓	✓

Clocking Accessories

Part Description	OctoClock-G CDA-2990	OctoClock CDA-2990	Board-Mounted GPSDO (TCXO) Recommended for USRP B200/B210	Board-Mounted GPSDO (OCXO) Recommended for USRP X300/X310	GPSDO Always Included
Part Number	784306-01	784305-01	783454-01	783173-01	—
USRP X4xx	✓	✓	—	—	✓
USRP X3xx	✓	✓	—	✓	—
USRP N3xx	✓	✓	—	—	✓
USRP 294x	✓	✓	—	✓	—
USRP 295x	✓	✓	—	included	✓
USRP B2xx	✓	✓	✓ (not compatible with USRP 2900/2901)	—	—
USRP E320	✓	✓	—	—	✓
USRP B310	✓	✓	—	—	✓

Instrument Control

Too often, powerful box instruments are left on the shelf collecting dust because they communicate using outdated interfaces like serial and GPIB. NI instrument-control hardware can connect these instruments to your laptop or desktop using USB, Ethernet, or PCI Express. Take advantage of thousands of ready-to-use instrument drivers that make it easy to control your instruments using LabVIEW.

Instrument Connection	Form Factor	Notes	Model Name
GPIB	Ethernet	—	**GPIB-ENET/1000**
GPIB	RS232	—	**GPIB-RS232**
GPIB	USB 2.0	—	**GPIB-USB-HS**
GPIB	USB 2.0	Onboard GPIB Analyzer	**GPIB-USB-HS+**
GPIB	PCI Express	—	**PCIe-GPIB**
GPIB	PCI Express	Onboard GPIB Analyzer	**PCIe-GPIB+**
RS232	PCI Express	2 Channels	**PCIe-8430/2**
RS232	PCI Express	8 Channels	**PCIe-8430/8**
RS232	PCI Express	16 Channels	**PCIe-8430/16**
RS485, RS422	PCI Express	2 Channels	**PCIe-8431/2**
RS485, RS422	PCI Express	8 Channels	**PCIe-8431/8**
RS485, RS422	PCI Express	16 Channels	**PCIe-8431/16**
RS232	PCI Express	2 Channels, Port-Port Isolation	**PCIe-8432**
RS485, RS422	PCI Express	2 Channels, Port-Port Isolation	**PCIe-8433**
RS232	USB 2.0	1, 2, and 4 Channels	**USB-232**
RS485, RS422	USB 2.0	1, 2, and 4 Channels	**USB-485**
RS232	PXI Express	16 Channels	**PXIe-8430/16**
RS232	PXI Express	8 Channels	**PXIe-8430/8**
RS485, RS422	PXI Express	16 Channels	**PXIe-8431/16**
RS485, RS422	PXI Express	8 Channels	**PXIe-8431/8**
Ethernet	PXI Express	Ethernet bandwidth 25 Gb/s	**PXIe-8285**
Ethernet	PXI Express	Ethernet bandwidth 1 Gb/s	**PXIe-8245**
Ethernet	PXI Express	Ethernet bandwidth 40 Gb/s	**PXIe-8240**
Ethernet	PXI Express	Ethernet bandwidth 10 Gb/s	**PXIe-8238**
Ethernet	PXI Express	Ethernet bandwidth 50 Gb/s	**PXIe-8280**
GPIB (IEEE 488) RJ45	PXI	Linux	**PXI-GPIB**

LabVIEW for Instrument Control

- 7000+ ready-to-run instrument drivers with examples and documentation
- Plug-and-play functionality for popular vendors like Tektronix, Keysight, Keithley, Rohde & Schwarz, and more
- Immediate start with open-and-run examples
- Flexible, scalable software platform to accomplish more with less time, effort, and budget

Visit our Instrument Driver Network (**NI.com/idnet**) to download a driver to communicate with third-party instruments.

NI Partner Network

The NI Partner Program offers domain, application, and overall test development expertise to help your team get ahead and stay ahead:

- Innovate faster with proven scalable solutions
- Reduce development time and cost through integration and consulting assistance

Types of Partners

Solution Partners

- Experts in delivering products and solutions to solve your specific automated test or automated measurement application challenges.

System Integrators

- Specialists in integrating and deploying test and measurement systems, based on your specific requirements and their mature industry capabilities.

Consultants

- Experts in project services in areas such as software development, engineering, science, analytics, regulatory compliance, or other specialized skills to support complex systems.

Distributors

- Globally and regionally accessible, authorized distributors with local knowledge and an understanding of the available NI product portfolio, providing a one-stop option for configuring and sourcing your project needs.

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Services

NI offers a variety of services to ensure you can be successful throughout the lifecycle of your application. With global solution centers, NI engineers in more than 40 countries, and a vast network of more than 900 NI Partners, NI service programs help you mitigate risks, develop faster, and reduce costs to achieve your goals.

Hardware Services

From the moment you unbox your hardware to deployment and maintenance, NI hardware services help you get started quickly and operate efficiently throughout the lifecycle of your test system.

Entitlement	Hardware Warranty	Standard	Premium	Description
Duration at Point of Sale	1 Year; Included	3 Years; Optional	3 Years; Optional	NI enhances warranty coverage with additional service benefits provided with a hardware service program.
Maximum Duration with Renewal	≤5 Years with Service Program	≤5 Years	≤5 Years	NI maintains high performance and availability of your hardware for up to 5 years with a hardware service program. For coverage beyond 5 years, NI provides lifecycle service options.
Extended Repair Coverage (3 or 5 years)	✓	✓	✓	NI restores your device's functionality and includes firmware updates and factory calibration.
System Configuration, Assembly, and Test	—	✓	✓	NI technicians assemble, install software on, and test your system per your custom configuration prior to shipment.
Advanced Replacement	—	—	✓	NI stocks replacement hardware that can be shipped immediately if a repair is needed.
System RMA	—	—	✓	NI accepts the delivery of fully assembled systems when performing repair services.
Technical Support	✓	✓	✓	NI provides access to support resources for your hardware.
Calibration Plan (Optional)	—	Standard	Expedited	NI performs the requested level of calibration at a specified calibration interval for the duration of the service program.

Education Services

Whether you are new to NI products or have been using them for years, access to the right learning resources when you need them is critical to your success. We offer courses and certification programs to help you develop applications, work with NI hardware, and more.



Customer Education Courses

Whether it's a class held at a local facility, on-site at your office, or in a virtual classroom, you can select a training delivery format to accommodate your learning preferences.



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Purchase Education Services Credits now and redeem later for any training or certification offering. Education Services Credits expire after one year.

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Organize a private training event

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Technical support included with your software subscription license

Included with NI Hardware Warranty

One year of standard technical support is included with all NI hardware through your hardware warranty

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