

## NI PXI-6251

### 16-Bit, 1 MS/s (Multichannel), 1.25 MS/s (1-Channel), 16 Analog Inputs

- 16 analog inputs, 1.25 MS/s 1-channel, 1 MS/s multichannel; 16-bit resolution,  $\pm 10$  V
- Correlated DIO (8 clocked lines, 10 MHz); analog and digital triggering
- NIST-traceable calibration certificate and more than 70 signal conditioning options
- NI-MCal calibration technology for increased measurement accuracy
- Get improved measurement accuracy, resolution, and sensitivity by choosing high-accuracy M Series.
- NI-DAQmx driver software and NI LabVIEW SignalExpress interactive data-logging software



## Overview

The National Instruments PXI-6251 is a high-speed multifunction M Series data acquisition (DAQ) board optimized for superior accuracy at fast sampling rates. For increased measurement accuracy, consider the high-accuracy M Series devices with an 18-bit analog-to-digital converter providing a 4X resolution increase.

High-speed M Series devices incorporate advanced features such as the NI-STC 2 system controller, NI-PGIA 2 programmable amplifier, and NI-MCal calibration technology to increase performance and accuracy. High-speed M Series devices have an onboard NI-PGIA 2 amplifier designed for fast settling time at high scanning rates, ensuring 16-bit accuracy even when measuring all channels at maximum speeds. To learn more about M Series technologies, device specifications, and information on recommended cables and accessories, please refer to the data sheet and specifications.

#### Driver Software

M Series devices work with multiple operating systems using three driver software options including NI-DAQmx, NI-DAQmx Base, and the Measurement Hardware DDK. Browse the information in the Resources tab to learn more about driver software or download a driver. M Series devices are not compatible with the Traditional NI-DAQ (Legacy) driver.

#### Application Software

With NI LabVIEW, you can create custom data acquisition applications with the ease of graphical programming and power of more than 500 analysis functions and advanced programming tools. LabVIEW Full and Professional Development Systems include LabVIEW SignalExpress for interactive data logging. M Series data acquisition devices are compatible with the following versions (or later) of NI application software – LabVIEW 7.x, LabWindows™/CVI 7.x, or Measurement Studio 7.x; LabVIEW SignalExpress 1.x; or LabVIEW with the LabVIEW Real-Time Module 7.1. M Series data acquisition devices are also compatible with Visual Studio .NET, C/C++, and Visual Basic 6.

## Specifications

### Specifications Documents

- Specifications
- Data Sheet

### Specifications Summary

General

Product Name	PXI-6251
Product Family	Multifunction Data Acquisition
Form Factor	PXI Platform
PXI Bus Type	PXI Hybrid Compatible
Part Number	779117-01
Operating System/Target	Windows , Real-Time , Linux , Mac OS
LabVIEW RT Support	Yes
Power Requirement for +3.3V Rail	1.2 A
Power Requirement for +5V Rail	0.03 A
Power Requirement for +12V Rail	0.38 A
Power Requirement for -12V Rail	0 A
Slot Two Module	No
Module Width	1
MXI Compatible	Yes
DAQ Product Family	M Series
Measurement Type	Quadrature encoder , Digital , Voltage , Frequency
RoHS Compliant	Yes
<b>Analog Input</b>	
Channels	16 , 8
Single-Ended Channels	16
Differential Channels	8
Resolution	16 bits
Sample Rate	1.25 MS/s
Max Voltage	10 V
Maximum Voltage Range	-10 V , 10 V
Maximum Voltage Range Accuracy	1920 $\mu$ V
Maximum Voltage Range Sensitivity	112 $\mu$ V
Minimum Voltage Range	-100 mV , 100 mV
Minimum Voltage Range Accuracy	52 $\mu$ V

Minimum Voltage Range Sensitivity	6 $\mu$ V
Number of Ranges	7
Simultaneous Sampling	No
On-Board Memory	4095 samples
Analog Output	
Channels	2
Resolution	16 bits
Max Voltage	10 V
Maximum Voltage Range	-10 V , 10 V
Maximum Voltage Range Accuracy	2080 $\mu$ V
Minimum Voltage Range	-5 V , 5 V
Minimum Voltage Range Accuracy	1045 $\mu$ V
Update Rate	2.86 MS/s
Current Drive Single	5 mA
Digital I/O	
Bidirectional Channels	24
Input-Only Channels	0
Output-Only Channels	0
Number of Channels	24 , 0
Timing	Software , Hardware
Max Clock Rate	10 MHz
Logic Levels	TTL
Input Current Flow	Sinking , Sourcing
Output Current Flow	Sinking , Sourcing
Programmable Input Filters	Yes
Supports Programmable Power-Up States?	Yes
Current Drive Single	24 mA
Current Drive All	448 mA
Watchdog Timer	No

Supports Handshaking I/O?	No
Supports Pattern I/O?	Yes
Maximum Input Range	0 V , 5 V
Maximum Output Range	0 V , 5 V
<b>Counter/Timers</b>	
Counters	2
Number of DMA Channels	2
Buffered Operations	Yes
Debouncing/Glitch Removal	Yes
GPS Synchronization	No
Maximum Range	0 V , 5 V
Max Source Frequency	80 MHz
Pulse Generation	Yes
Resolution	32 bits
Timebase Stability	50 ppm
Logic Levels	TTL
<b>Physical Specifications</b>	
Length	16 cm
Width	10 cm
I/O Connector	68-pin VHDCI female
<b>Timing/Triggering/Synchronization</b>	
Triggering	Digital , Analog
Synchronization Bus (RTSI)	Yes

## Pricing

### NI PXI-6251 Packages

To use the NI PXI-6251 , you need all items in the diagram below. Select Option 1 if you already own a PXI System, or Option 2 if you do not already own a chassis, controller, or software.

Roll over the icons below to learn why you need each item in the system

PXI System

1	1 Cable	NI	Chassis	Controller	Software
Connector		PXI-6251			
Block					

NI PXI-6251 and Accessories Only

- Option 1: NI PXI-6251 and Accessories Only
- Option 2: PXI System

NI PXI-6251

Standard Board	Qty		Kč 29 900 each
779631-01			

Board for SCXI Control in PXI/SCXI Combination Chassis	Qty	0	Kč 29 900 each
779117-01			

Required Accessories

Connector Block - Screw Terminal	Qty		Kč 7 590 each
SCB-68 - 776844-01			

Cable - Shielded SHC68-68-EPM Cable (2m) -	Qty		Kč 3 390 each
192061-02			

Select length:

- 1m
- 2m
- 5m
- 10m
- 0.5m

Change Accessories

Learn about all compatible accessories and get recommendations based on your application needs.

Optional Accessories Show

Estimated Shipping Days: 5 - 10

Package Price: Kč 40 880

[Add to Cart >>](#)

Guarantee your price for 30 days (learn more) Instant Quote

[Save for Later](#)

Get Started with PXI

Choose from hundreds of specialized instruments to create a PXI System that suits your measurement needs and can scale for future applications. Then, we'll help you choose the right hardware and software to complete your configuration.

### Add More Measurements and I/O Modules

Use the PXI Advisor to choose from a variety of modules including analog I/O, digital I/O, switching and more. Then, complete and price the PXI System.

### Add Modules

### Preview a Complete System

View and price a complete PXI configuration including the NI PXI-6251, chassis, and controller. Starting from the default configuration, you can add modules, accessories, and software and customize your system.

### View and Price a Configured System

Since your device does not have direct signal connectivity, you need a connector block to act as an interface between your sensors/signals and your device. A connector block provides easy access to the inputs and outputs of your hardware. You need a cable to transmit signals between your device and your signal connections on your connector block. The chassis provides rugged, modular housing for the controller and modules and contains the high-performance PXI backplane, which includes the system's data, timing, and triggering buses. The controller runs your application and interfaces with your PXI modules. You need software to interface with your hardware and to collect, analyze, present, and store your measurements. This board is compatible with a variety of programming languages, including LabVIEW, C/C++, Visual Basic, and .NET. LabVIEW provides the easiest integration with all of your NI hardware and is recommended to maximize your hardware investment. You have selected Česká Republika as the country where you will use the product(s) (change).

## Services

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### System Assurance Programs

Reduce your setup time and total cost of ownership, and get a system you can use out of the box with National Instruments system assurance programs. System assurance programs include:

- Installation and integration test of all individual hardware
- Courtesy installation of system driver sets and application development environments
- Extended warranty and calibration coverage for up to five years
- Custom documentation plus a custom restore and startup utility

This service is only available for PXI, NI CompactRIO, and NI Compact FieldPoint systems.

- Learn More about System Configuration and Deployment Services [<http://www.ni.com/services/configuration.htm>]
- Customize Your CompactRIO System [<http://ohm.ni.com/advisors/crio>]
- Customize Your Compact FieldPoint System [<http://ohm.ni.com/advisors/cfp>]
- Customize Your PXI System [<http://ohm.ni.com/advisors/pxi>]
- Talk to an Expert about Custom System Configurations [[javascript:openCallMeWindowCTA\(document.referrer,%20'US'\)](javascript:openCallMeWindowCTA(document.referrer,%20'US'))]

### Extended Warranties

National Instruments designs and manufactures all products to minimize failures, however unexpected failures can still occur. Extended warranties provide a fixed economical price at the time of system purchase, covering any repair costs for up to three years. In addition, they offer the following benefits:

- Significant cost savings compared to individual repair incidents
- Fault location, diagnostics, and repair by NI any time the system product fails
- All parts and labor costs covered as well as any adjustments needed to restore the hardware to manufacturing specifications

For more information about your warranty options:

- Learn More about Warranty Services [<http://www.ni.com/services/warranty.htm>]

- [Talk to an Expert about Extended Warranties](#) [javascript:openCallMeWindowCTA(document.referrer,%20'US')]
- [View Warranty Repair Policies](http://www.ni.com/services/warranty_repair_policies.htm) [http://www.ni.com/services/warranty\_repair\_policies.htm]

## Calibration

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. NI provides manual calibration procedures, services to recalibrate your products, and automated calibration software to calibrate many NI measurement products.

- [Learn More about Calibration Services](http://www.ni.com/services/calibration.htm) [http://www.ni.com/services/calibration.htm]

## Training

NI training is the fastest, most certain route to productivity with NI tools and successful application development.

- [Learn More about NI Training and Certification](http://www.ni.com/training/) [http://www.ni.com/training/]
- [Find a Course Near You and View Schedules](http://sine.ni.com/apps/utf8/nisv.custed) [http://sine.ni.com/apps/utf8/nisv.custed]

## Repair Services

Return your registered product under warranty at no additional labor and parts cost. NI offers fault location, diagnostics, and repair any time the system fails as well as any adjustments needed to restore the hardware to manufacturing specifications.

- [Learn More about Repair Services](http://www.ni.com/services/warranty.htm) [http://www.ni.com/services/warranty.htm]
- [Contact NI to Obtain a Return Material Authorization \(RMA\) Form and Shipping Instructions](http://sine.ni.com/apps/utf8/nicc.call_me) [http://sine.ni.com/apps/utf8/nicc.call\_me]
- [View Your RMA Support Request Status Online](http://www.ni.com/support/servicereq/) [http://www.ni.com/support/servicereq/]
- [Register Your Product](http://www.ni.com/register) [http://www.ni.com/register]

## Technical Support

[ni.com/support](http://www.ni.com/support) [http://www.ni.com/support/]

## Resources

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### Additional Product Information

- [Manuals \(6\)](#)
- [Dimensional Drawings](#)
- [Product Certifications](#)

### Related Information

- [Obtain superior accuracy in your measurements with 18-bit, high-accuracy M Series](#)
- [Upgrade to S Series with simultaneous sampling](#)
- [Learn about LabVIEW Graphical Programming](#)
- [Learn about Data Acquisition Driver Software](#)
- [Learn about academic pricing and product kits](#)
- [Obtain OEM pricing information](#)
- [Download NI drivers](#)
- [Read More About NI Software Maintenance and Support](#)
- [View an introductory video on getting started with NI data acquisition](#)

