Base Configuration Camera Link Image Acquisition

NI PCI-1426, NI PCIe-1427 *NEW!*

- High-resolution, high-speed image acquisition for base configuration Camera Link cameras
- Onboard programmable region of interest
- 4 external triggers (ISO/TTL)
- RTSI bus synchronization with data acquisition, motion, and CAN
- Additional I/O on the NI PCIe-1427 using the NI Camera Link I/O Extension Board
- Quadrature encoder

Operating Systems

- Windows Vista/XP/2000

Recommended Software

- LabVIEW
- LabWindows™/CVI
- Measurement Studio
- Vision Development Module
- Vision Builder AI

Driver Software (included)

- Vision Acquisition

Overview and Applications

The National Instruments PCI-1426 and PCIe-1427 are image acquisition boards for Camera Link cameras, used by machine and scientific imaging developers who need high-throughput digital imaging at a lower cost.

Camera Link

Camera Link is an industrial high-speed serial data and cabling standard developed by National Instruments, camera vendors, and other image acquisition companies. Created for easy connectivity between the PC and the camera, Camera Link provides simple, flexible cabling for high-speed, high-resolution digital cameras. A Camera Link cable, a slender 26-pin cable with 24-bit data and clock, enables as well as controls signals. You can control camera functionality by asynchronous serial control or LVDS differential lines through a Camera Link cable. Camera Link offers future data rate capabilities up to 2.3 Gb/s. You can interchange Camera Link digital cameras from a variety of vendors with Camera Link image acquisition hardware.

Onboard Memory

The NI PCI-1426 comes with 16 or 32 MB of onboard high-speed synchronous dynamic RAM (SDRAM). You can use the onboard memory as a FIFO buffer for high-speed image acquisition. The greater than 200 MB/s transfer rates of the PCI Express x1 (by one) interface eliminates the need for onboard memory on the NI PCIe-1427. With this board, you can stream data even at high speed directly to PC memory.

Camera Control

Use the serial interface on the Camera Link connector to easily configure and control the camera with Vision Acquisition software and Measurement & Automation Explorer (MAX) software. With either of these boards, you can use the advanced triggering available to send strobe pulses and pulse trains.

Synchronize Vision, DAQ, and Motion

Using the RTSI bus, you can develop applications for which vision, data acquisition, and motion are all tightly integrated. Using the NI PCI-1426 or NI PCIe-1427, you can route digital timing lines such as acquisition

Ordering Information

NI PCI-1426

- 16 MB 779210-01
- 32 MB 779210-02

NI PCIe-1427 *NEW!* 779706-01

Accessories and Cables

NI Camera Link I/O Extension Board 779352-01

Camera Link cable (2 m) 187676-02

15-pin trigger cable (4 m) 190912-04

BUY NOW!

For complete product specifications, pricing, and accessory information, call 800 813 3693 (U.S.) or go to **ni.com/vision**.

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in progress or frame start across the RTSI bus to control the timing of your machine vision application.

Camera Link Image Acquisition

Camera Compatibility

The NI PCI-1426 and NI PCIe-1427 work with base configuration Camera Link cameras from Sony, Basler, and other camera manufacturers. Go to **ni.com/camera** for a current list of compatible cameras.

I/O Connector

The NI PCI-1426 and NI PCIe-1427 both feature a small 15-pin connector with access to onboard optically isolated, quadrature encoder, and TTL I/O. With the NI PCIe-1427, you can also use the Camera Link I/O Extension Board, which offers connectivity to additional I/O.

Warranty and Support Services

As a complement to your image acquisition product, consider:

Technical Support – FREE through applications engineers worldwide, Web resources, and Premier Support – **ni.com/support**
Extended Warranty – A cost-effective way to meet project life-cycle requirements and maintain optimal performance – **ni.com/services**
Machine Vision and Image Processing Training – Instructor-led courses – **ni.com/training**
Professional Services – Feasibility, consulting, and integration through National Instruments Alliance Partners – **ni.com/alliance**

For more information on NI services and support, visit ni.com/services.

Specifications

Typical at 25 °C, unless otherwise stated.

External Connections

Trigger sense	TTL, optically isolated
Trigger polarity	Programmable (positive or negative)
Camera interface	Camera Link

Pixel Clock Frequency Range

NI PCI-1426	20 to 50 MHz
NI PCIe-1427	20 to 80 MHz

PCI Master Performance

NI PCI-1426	100 MB/s
NI PCIe-1427	>200 MB/s

Onboard Memory

NI PCI-1426	16 or 32 MB
NI PCIe-1427	0

Power Requirements

NI PCI-1426	
+5 VDC	1.5 A
+12 VDC	24 mA
-12 VDC	20 mA
NI PCIe-1427	
+3.3 VDC	1.5 A
+12 VDC	250 mA

Physical

Dimensions	
PCI	10.7 by 17.5 cm (4.2 by 6.9 in.)
PCI Express	11.1 by 16.8 cm (4.4 by 6.6 in.)

Environment

Operating temperature	0 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	5 to 90%, noncondensing
Emissions	EN 55011:1991 Group 1 Class A at 10 m FCC Part 15 A above 1 GHz

NI Services and Support

NI has the services and support to meet your needs around the globe and through the application life cycle – from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit **ni.com/services**.

Training and Certification

NI training is the fastest, most certain route to productivity with our products. NI training can shorten your learning curve, save development time, and reduce maintenance costs over the application life cycle. We schedule instructor-led courses in cities worldwide, or we can hold a course at your facility. We also offer a professional certification program that identifies individuals who have high levels of skill and knowledge on using NI products. Visit **ni.com/training**.

Professional Services

Our Professional Services Team is composed of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 600 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit **ni.com/alliance**.

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OEM Support

We offer design-in consulting and product integration assistance if you want to use our products for OEM applications. For information about special pricing and services for OEM customers, visit **ni.com/oem**.

Local Sales and Technical Support

In offices worldwide, our staff is local to the country, giving you access to engineers who speak your language. NI delivers industry-leading technical support through online knowledge bases, our applications engineers, and access to 14,000 measurement and automation professionals within NI Developer Exchange forums. Find immediate answers to your questions at **ni.com/support**.

We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support. Visit **ni.com/ssp**.

Hardware Services

NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with **ni.com/pxiadvisor**.

Calibration Services

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit **ni.com/calibration**.

Repair and Extended Warranty

NI provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements. Visit **ni.com/services**.

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