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Find the *National Instruments PCI-1428* at our website: *Click HERE*

Camera Link Image Acquisition

NI 1428

- High-resolution and high-speed image acquisition for Camera Link cameras
- Simple, small cabling
- Onboard programmable region of interest
- Pixel decimation and image scaling
- Four 256 by 8-bit LUTs
- 16 MB of onboard memory
- 4 external triggers (digital I/O lines)
- RTSI bus or PXI trigger bus synchronization with data acquisition, motion, and CAN
- Camera control with LVDS (EIA-644) differential output or asynchronous serial control

Operating Systems
- Windows 2000/NT/XP

Recommended Software
- LabVIEW™
- LabWindows™/CVI™
- Measurement Studio™
- Vision Development Module

Other Compatible Software
- C/C++

Driver Software (included)
- NI-IMAQ™



Overview and Applications

For machine vision and scientific imaging developers who need very high-resolution digital imaging with simple cabling, the National Instruments 1428 devices are for image acquisition from Camera Link cameras.

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 is a slender 26-pin cable with 24-bit data, clock, and enables as well as control 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

NI 1428 devices come with 16 MB of onboard high-speed synchronous dynamic RAM (SDRAM). You can use the onboard memory as a FIFO buffer for high-speed image acquisition.

Serial Interface

Use the serial interface on the Camera Link connector to easily configure and control the camera with NI-IMAQ and NI Measurement & Automation Explorer software. An NI 1428 includes a National Instruments counter/timer ASIC that generates real-time control signals. You can use the advanced triggering to send strobe pulses and pulse trains.

Synchronize Motion and Vision

Onboard trigger control and mapping circuitry route, monitor, and drive the external RTSI bus trigger lines for PCI. Using the RTSI bus, you can develop applications where motion, vision, and measurements are tightly integrated. You can use the RTSI bus to route an incoming trigger on your PCI-1428 to an NI measurement device to synchronize data acquisition. The PXI trigger bus offers similar features.

NI-IMAQ and Interchangeable Cameras

NI-IMAQ driver software for image acquisition can scale between many types of cameras and acquisition methods. Using NI-IMAQ, you can begin by using a low-cost RS-170 camera and image acquisition device and then upgrade to a faster, higher-resolution digital camera and acquisition device with minimal software changes. When using a camera, you can configure the new board and camera in NI Measurement & Automation Explorer and then immediately reuse your software. Because NI-IMAQ driver software uses one set of function calls, it works for a wide variety of cameras, and there is no need to rewrite your software.

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Camera Link Image Acquisition

Camera Compatibility

An NI 1428 device works with base configuration Camera Link cameras from PULNiX, Basler, Dalsa, and other camera manufacturers. Go to ***ni.com/camera*** for a current list of compatible cameras.

I/O Connector

An NI 1428 features a small 26-pin connector compatible with all Camera Link video inputs, camera control outputs, and the serial interface. The 68-pin connector on NI 1428 devices connects to the external trigger signals using the IMAQ-D6804 cable.

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 – Meet project life-cycle requirements and maintain optimal performance in a cost-effective way – ***ni.com/services***

Machine Vision and Image Processing Training – Instructor-led courses – ***ni.com/training***

Professional Services – Feasibility, consulting, and integration through our Alliance program members – ***ni.com/alliance***

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



Ordering Information

NI PCI-1428 778315-01
NI PXI-1428 778775-01
Includes NI-IMAQ software

Cables

Camera Link cable (2 m).....187676-02
IMAQ-D6804 187804-01

BUY ONLINE!

Visit ni.com/info and enter pci1428.

Specifications

Typical at 25° C, unless otherwise stated.

External Connections

Trigger sense	TTL
Trigger polarity	Programmable (positive or negative)
Pixel clock	Camera Link compatible
Enables	Camera Link compatible
Control signal	Camera Link compatible
Video data	Camera Link compatible

Clocks

Pixel clock frequency range	20 to 50 MHz

PCI Master Performance

Sustained	100 MB/s

Onboard Memory

PCI	16 MB
PXI	32 MB

Power Requirements

+5 VDC	2 A
+12 VDC	24 mA
-12 VDC	20 mA

Physical

Dimensions

PCI	10.7 by 17.5 cm (4.2 by 6.9 in.)
PXI	10 by 16 cm (3.9 by 6.3 in.)

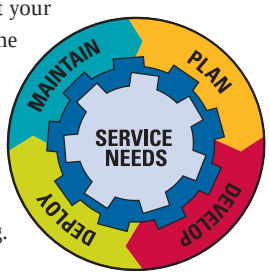
Environment

Operating temperature	0 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	5 to 90%, noncondensing
MTBF	544,562 h at 25 °C
Emissions	EN 55011:1991 Group 1 Class A at 10 m FCC Class A at 10 m

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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.



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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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