

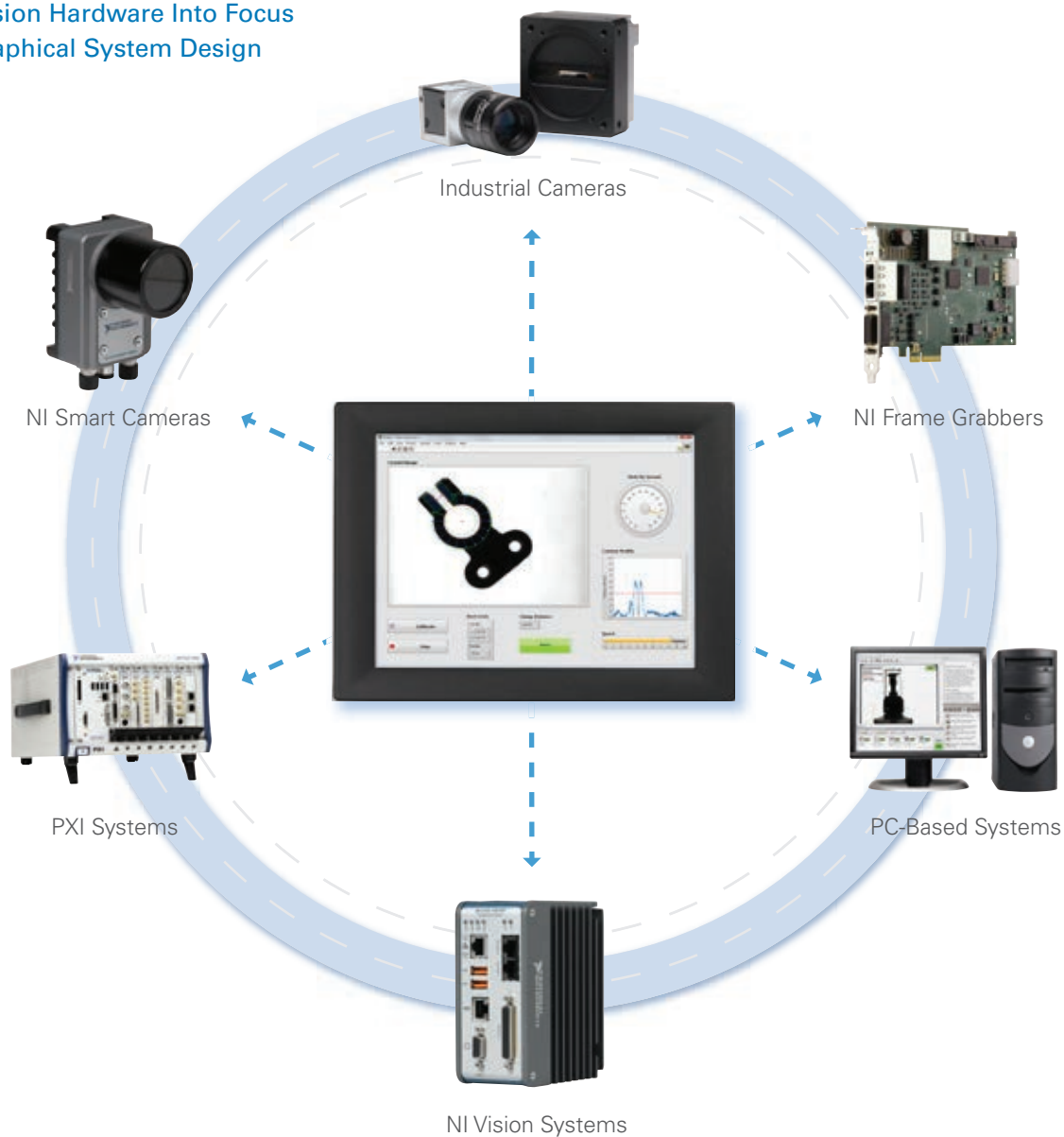
# NI Vision



# The NI Vision Approach

Integrate NI LabVIEW graphical system design software across the entire NI vision hardware portfolio to create a flexible, open platform that reduces development time and maintenance costs and ports existing code when you update hardware. Because NI vision products integrate with third-party automation devices and work with a variety of cameras and imaging standards, you can choose the sensor type, resolution, and bandwidth to meet all of your vision application needs.

Bring Vision Hardware Into Focus  
With Graphical System Design



# NI Vision Industries and Applications

National Instruments vision products have been used to meet a wide variety of application needs from inspecting automotive parts to researching advanced medicines to monitoring traffic (see examples below). To read vision case studies featuring NI products, visit [ni.com/visionsolutions](http://ni.com/visionsolutions).

## Automotive and Aerospace



- Assembly verification
- Gauging and metrology
- Quality assurance
- Surface inspection for metal and glass
- Industrial robot guidance

## Food, Pharmaceuticals, Consumer Goods



- Defect detection
- High-speed sorting
- Packaging inspection
- Traceability and identification
- Web inspection for fabrics and paper

## Embedded



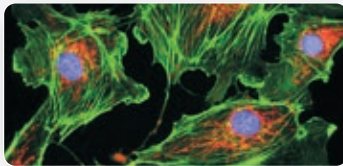
- Obstacle avoidance for autonomous vehicles
- Point-of-sale kiosks
- Intelligent surveillance
- Traffic monitoring
- Vision-guided motion

## Semiconductor and Solar



- Electroluminescence
- Shunt detection
- Silicon purification
- Solar inspection for thin-film and crystalline photovoltaics
- Wafer sorting and alignment

## Medical and Scientific



- Automated microscopy
- Body temperature scanning
- Eye tracking
- Fluorescence imaging
- Optical coherence tomography (OCT)

## Electronics Validation



- Cell phone camera testing
- Display inspection
- Image sensor testing
- LED testing
- PCB inspection

Automotive photo courtesy of Renault communication / LA ROCCA, Antoine. Solar panel photo courtesy of Silk'n Renewable Energy Company

## National Instruments Alliance Partners

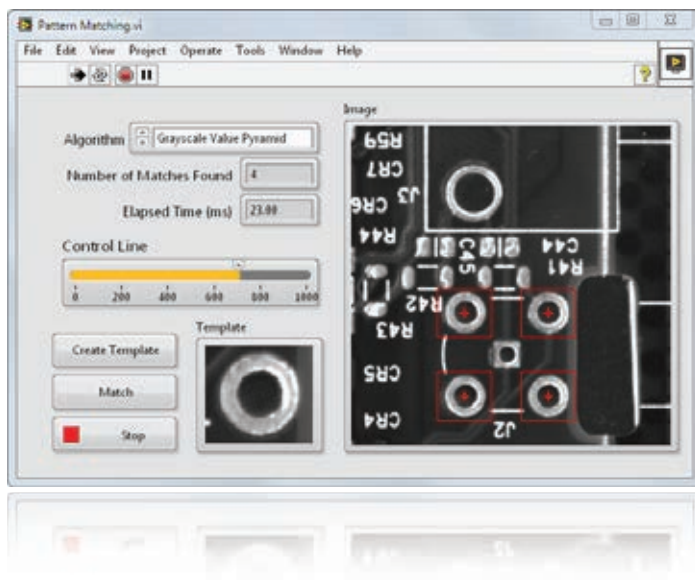
Whether you are looking for assistance with a small integration project, require in-house expertise to build a large multifaceted system, or want to find a turnkey solution, NI Alliance Partners have the resources and know-how to provide what you need in every region and industry. Find integrators that specialize in vision at [ni.com/visionintegration](http://ni.com/visionintegration).

## NI Vision Software

NI vision software provides a comprehensive library of imaging functions to help you solve a wide range of image acquisition and processing applications. NI offers two software options you can use across the entire NI vision hardware portfolio. Program your system with LabVIEW graphical system design software using the NI Vision Development Module or configure it with NI Vision Builder for Automated Inspection, an easy-to-use, stand-alone package for machine vision. Both packages help you:

- Take advantage of hundreds of image processing algorithms
- Make decisions based on multiple inspection results
- View results through customizable deployment interfaces
- Communicate results using I/O and industrial communication protocols

Learn more at [ni.com/vision/software](http://ni.com/vision/software).



### Vision Development Module

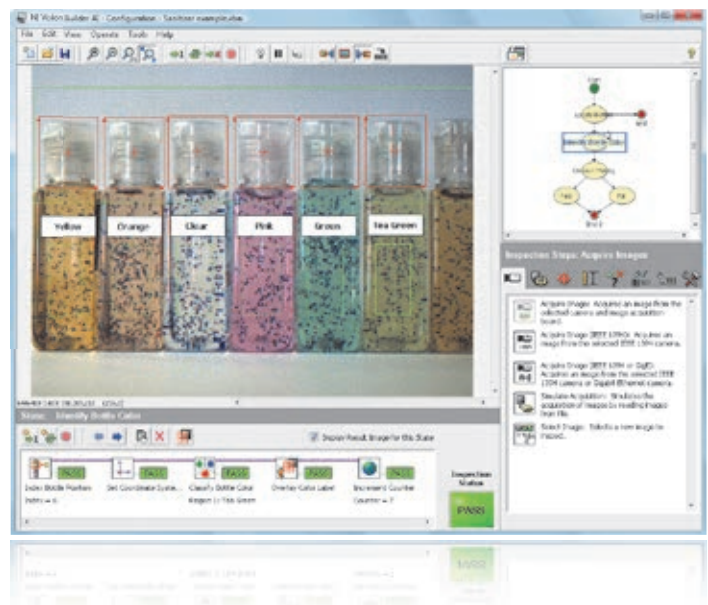
Build highly customized applications with this comprehensive library of image processing and machine vision functions. Learn more at [ni.com/vision/vdm](http://ni.com/vision/vdm).

- Take advantage of add-ons and toolkits that complement the LabVIEW environment
- Program in LabVIEW, C, C++, Visual Basic, or .NET languages
- Prototype applications and generate ready-to-run code with the NI Vision Assistant

### Vision Builder for Automated Inspection

Simplify the development process with this sophisticated yet easy-to-use menu-driven environment. Learn more at [ni.com/vision/vbai](http://ni.com/vision/vbai).

- Configure, benchmark, and deploy complete applications
- Specify inspection flow with the state diagram tool
- Model variations in lighting, camera position, and more





## NI Vision Hardware

From rugged and reliable smart cameras to high-performance PC-based systems, NI has the hardware to meet your needs. In addition to the NI tools below, you can acquire images from a vast selection of third-party cameras. For more information, visit [ni.com/vision](http://ni.com/vision).

### NI Smart Cameras

Save on cost and space by combining an image sensor and a real-time embedded processor into one rugged, industrial package. Learn more at [ni.com/vision/smartcameras](http://ni.com/vision/smartcameras).

- Choose from a selection of resolution and performance options
- Use integrated lighting control, digital I/O, serial, and Ethernet protocols
- Take advantage of the rugged IP67 rating



### NI Vision Systems

Harness high performance with fanless designs, connectivity to multiple cameras, and reconfigurable digital I/O. Learn more at [ni.com/vision/systems](http://ni.com/vision/systems).

- Acquire images from GigE Vision, IEEE 1394, USB, and Camera Link devices
- Choose between real-time and Windows OS options
- Interface using RS232 serial, Modbus serial, Modbus/TCP, EtherNet/IP, TCP/IP, EtherCAT, and reconfigurable digital I/O

### NI Frame Grabbers

Build high-performance, PC-based systems using the latest processor technologies. Learn more at [ni.com/vision/framegrabber](http://ni.com/vision/framegrabber).

- Benefit from unequalled synchronization with DAQ and motion products
- Acquire from Camera Link, GigE Vision, USB3 Vision, and IEEE 1394 devices
- Choose from PXI, PXI Express, PCI, and PCI Express form factors



# NI Global Services and Support

## Professional Services

The NI professional services team, comprising NI engineers and worldwide National Instruments Alliance Partners, can help you with prototyping, feasibility analysis, consulting, and systems integration. Visit [ni.com/services](http://ni.com/services) for more information.

## Software Maintenance and Support

Visit [ni.com/ssp](http://ni.com/ssp) to learn how, as a National Instruments Standard Service Program (SSP) member, you can receive free software upgrades and maintenance releases, direct mail and phone support from NI applications engineers, and access to exclusive software training modules.

## Hardware Services

Make the most of your hardware investment by using NI hardware services including flexible and renewable extended warranties, time-critical repair services, and hardware recalibration options. Visit [ni.com/services](http://ni.com/services) for more information.

## Training and Certification

The NI training and certification program is the most effective way to increase application development proficiency and productivity using NI software and hardware. Visit [ni.com/training](http://ni.com/training) for more information.

## NI Volume Licensing

Designed for organizations with five or more licenses of the same software program, the NI Volume License Program features services such as centralized license management, flexible budget purchasing, customized on-site training, and more. Visit [ni.com/vlp](http://ni.com/vlp) for more information.

## Technical Support

NI provides superior worldwide technical resources. Visit [ni.com/support](http://ni.com/support) and [ni.com/zone](http://ni.com/zone) to access volumes of self-help technical information including

- Application tips and case studies
- Example programs and frequently asked questions
- Troubleshooting wizards, user forums, and developer communities

For those who have software maintenance memberships or volume license agreements, qualified NI applications engineers are available for technical support directly via email or phone.

### US Corporate Headquarters

11500 N Mopac Expwy Austin, TX 78759-3504  
T: 512 683 0100 F: 512 683 9300 [info@ni.com](mailto:info@ni.com)

### International Branch Offices—[ni.com/global](http://ni.com/global)