

Product Guide



Software

Smart Cameras

Vision Controllers and I/O Cards

Frame Grabbers

About Matrox Imaging >>

Founded in 1976, Matrox is a privately held company based in Montreal, Canada. Imaging, Graphics, and Video divisions provide leading component-level solutions, leveraging the others' expertise and industry relations to provide innovative, timely products.

Matrox Imaging is an established and trusted supplier to top OEMs and integrators involved in machine vision, image analysis, and medical imaging industries. The components consist of smart cameras, vision controllers, I/O cards, and frame grabbers, all designed to provide optimum price-performance within a common software environment.

The Matrox Imaging Advantage



Assured Quality & Longevity

We adhere to industry best practices in all hardware manufacturing and software development; product designs pay careful attention to component selection to secure consistent long-term availability. Matrox Imaging is able to meet Copy Exact and Revision Change Control procurement requirements in particular circumstances, backed by our dedicated team of QA specialists.



Trusted Industry Standards

Matrox Imaging champions industry standards in our design and production. We leverage these standards to deliver quality compatible products, protecting our customers' best interests by ensuring our hardware and software components work with as many third-party products as possible.



Comprehensive Customer Support

Our devoted front-line support and applications teams are on call to offer timely product installation, usage, and integration assistance, while the exclusive Matrox Imaging Vision Squad provides hands-on support, helping assess application feasibility, recommend best methods, and even prototype solutions.



Tailored Customer Training

Matrox Vision Academy comprises online and on-premises training for our vision software tools. On-premises intensive training courses are regularly held at Matrox headquarters, and can also be customized for onsite delivery. Vision Academy online training platform hosts a comprehensive set of on-demand videos available when and where needed.



Long-Standing Global Network

Matrox Imaging customers benefit from a global network of distributors who offer complementary products and support, and integrators who build customized vision systems. These relationships are built on years of mutual trust and span the globe, ensuring customer access to only the best assistance in the industry



Industries & Applications >>



Industry leaders rely on Matrox Imaging technology. We ensure that customers stay with us over multiple product generations by consistently meeting their demands for cutting-edge technology, technical assistance, integration support, and the highest manufacturing standards.

Industries Served



Automotive manufacturing



Medical imaging



Electronics manufacturing



Packaging



Flat panel display manufacturing



Pharmaceutical production



Food & beverage production



Semiconductor manufacturing



Logistics



Surveillance



Medical device manufacturing



Transportation

Applications



Image processing and analysis software readies images for effective examination using grey scale, edge, and color information for study, diagnoses, and quality control. The software is also capable of offloading to FPGA-based hardware.



Image compression and video encoding uses software and hardware to prepare images and video for optimal storage and distribution. Matrox Imaging products offer support for the JPEG, JPEG2000, and H.264 standards.



Machine and robot guidance employs vision software to accurately locate and determine the pose of objects and features; great repeatability is crucial for guiding automated fabrication and manufacturing using machines and industrial robots. Intensity and geometric-based pattern-recognition tools are key aspects of the software.



LOT 0015CC
EXP 2015/11

ID mark reading and verification software helps ensure effective item tracking and tracing during manufacturing, packaging, and distribution, as well as general automated handling. It reads widely-used barcodes and 2D symbologies, including direct part marking (DPM), and verifies decodability against established standards. Matrox Imaging software performs OCR on product information text made up of solid-stroke and dot-matrix characters.



Image and video capture comes via software and hardware that reliably captures SD, HD, UHD, and non-standard definition images and video delivered using the Camera Link®, Camera Link HS™, CoaXpress®, DVI-D, GigE Vision®, SDI, and USB3 Vision® digital interface standards as well as legacy analog formats.



Visual inspection and measurement software inspects assemblies, components, packaging, parts, and materials for presence/absence, anomalies, defects, flaws, and conformity to quality standards. The software includes tools to take accurate and repeatable measurements in both 2D and 3D.

Software >>

Matrox Design Assistant

Matrox Design Assistant¹ is an integrated development environment (IDE) for Windows[®] for creating machine vision applications using a flowchart instead of writing traditional program code. In addition to building a flowchart, the IDE enables users to design a graphical web-based operator interface for the application.



Matrox Design Assistant at a glance

Solve machine vision applications quickly and easily without writing program code by using an intuitive flowchart-based methodology

Choose the best platform for the job within a hardware-independent environment that supports any PC with any GigE Vision or USB₃ Vision camera

Deploy the same project simultaneously on a rugged and reliable Matrox vision controller and smart camera

Tackle machine vision applications with utmost confidence using field-proven tools for analyzing, locating, measuring, reading, and verifying

Use a single program for creating both the application logic and operator interface

Work with multiple cameras within the same project

Rely on a common underlying vision library for the same results with a Matrox smart camera, vision controller, or third-party computer

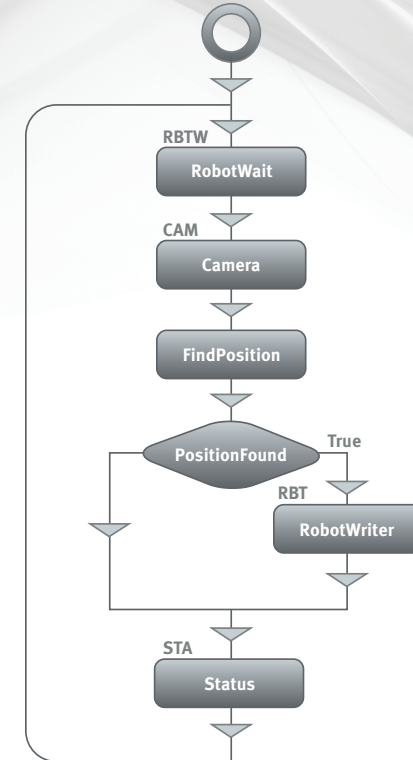
Maximize productivity with instant feedback on image analysis and processing operations

Receive immediate, pertinent assistance through an integrated contextual guide

Communicate actions and results to other automation and enterprise equipment via discrete Matrox I/Os, RS-232, and Ethernet (TCP/IP, EtherNet/IP™, Modbus®, PROFINET®, and native robot interfaces)

Maintain control and independence through the ability to create custom flowchart steps

Increase productivity and reduce development costs with access to Matrox Vision Academy, our online and on-premises training and support for Matrox Imaging vision software tools



1. The software may be protected by one or more patents; see www.matrox.com/patents for more information.

Software >>

Matrox Imaging Library (MIL)

MIL¹ is a software development kit (SDK) with a comprehensive collection of tools for coding machine vision, image analysis, and medical imaging applications. The SDK includes tools for every step in the process, from application feasibility to prototyping, through to development and ultimately deployment.



MIL at a glance

Solve applications rather than develop underlying tools by leveraging a toolkit with a 20-year history of reliable performance

Tackle applications with utmost confidence using field-proven tools for analyzing, locating, measuring, reading, and verifying

Harness the full power of today's hardware through optimizations exploiting SIMD, multi-core CPU, multi-CPU, GPU², and FPGA technologies

Support platforms ranging from smart cameras to high-performance computing (HPC) clusters via a single consistent and intuitive application programming interface (API)

Obtain live images from the interface of choice, with support for analog, Camera Link, Camera Link HS, CoaXPress, DVI-D, GigE Vision, SDI, and USB₃ Vision transmission formats

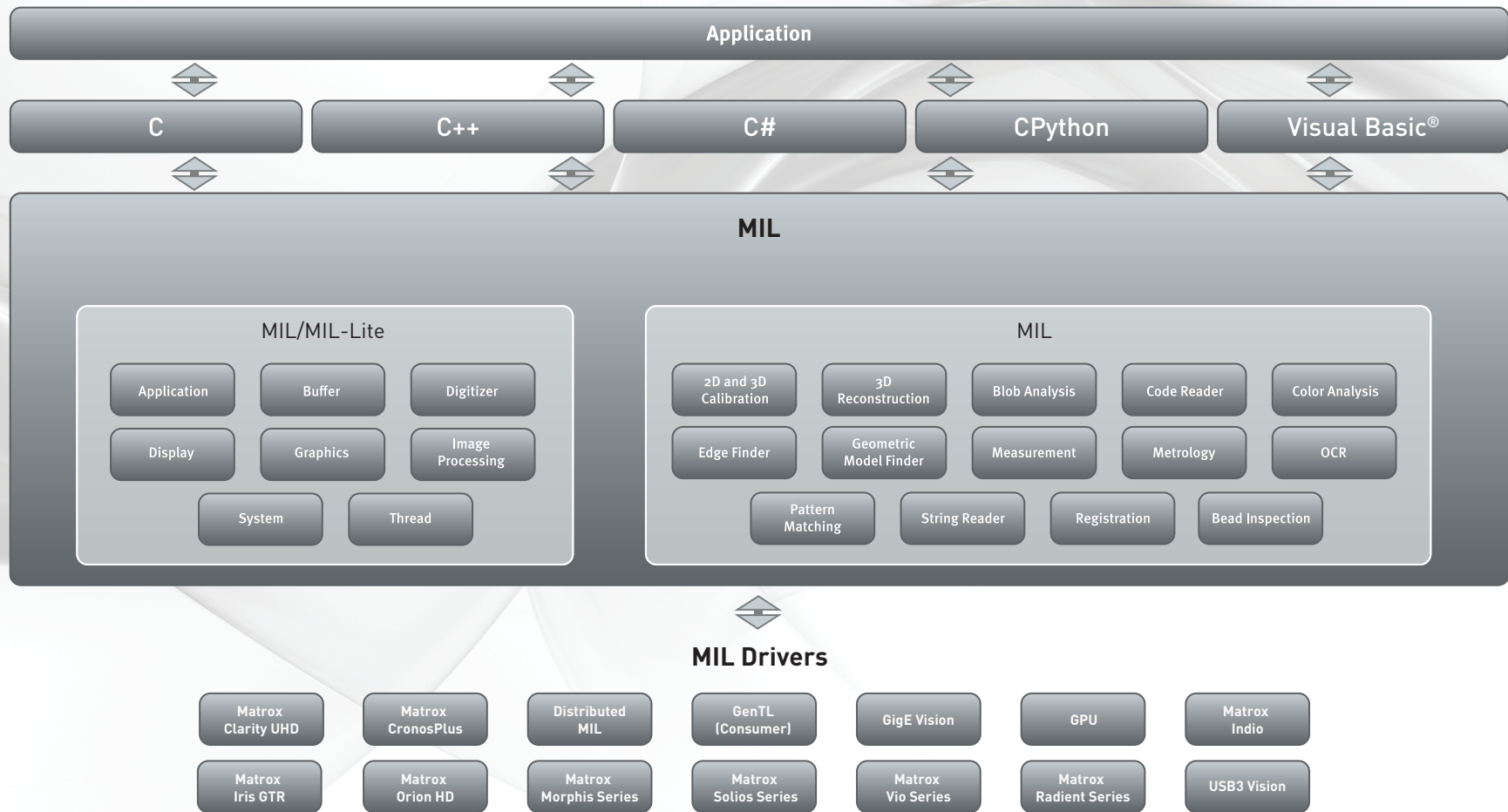
Maintain flexibility and choice by way of support for 32-/64-bit Windows, Linux[®], and RTX64 (RTOS)

Leverage available programming know-how with support for C, C++, C#, CPython, and Visual Basic[®] languages

Increase productivity and reduce development costs with access to Matrox Vision Academy, our online and on-premises training and support for Matrox Imaging vision software tools

1. The software may be protected by one or more patents; see www.matrox.com/patents for more information.
2. Only under Windows.

MIL Architecture >>



MIL provides a comprehensive set of application programming interfaces, imaging tools and hardware support

Smart Cameras >>

Matrox Iris GTR

Matrox Iris GTR is a line of compact, capable smart cameras designed for system integrators, machine builders, and OEMs alike. Matrox Iris GTR smart cameras are dust-proof, immersion-resistant, extremely rugged, and right at home in tight spots and dirty industrial environments. Develop vision applications for the Matrox Iris GTR by constructing flowcharts using Matrox Design Assistant IDE or by coding using the MIL SDK.



Matrox Iris GTR at a glance

Install readily in confined and dirty industrial environments because of a compact IP67-rated design

Run typical vision jobs efficiently using an Intel® dual-core embedded processor

Capture images at high speed through a choice of CMOS sensors

Simplify vision setup and upkeep via integrated lens focusing and illumination intensity control

Interact with vision and automation devices in real time by way of digital I/Os

Synchronize to the manufacturing line via support for incremental rotary encoders

Communicate with automation controllers and enterprise networks using standard Gigabit Ethernet interface

Implement Human-Machine Interface (HMI) function by way of VGA and USB connectivity

Streamline vision inspection and guidance development using the field-proven and established Matrox Design Assistant flowchart-based IDE or MIL SDK

Deploy with leading embedded operating systems through support for both Microsoft Windows and Linux

Vision Controllers >>



Matrox 4Sight GPM and Matrox Supersight

A unique combination of embedded PC technology, compact size, and ruggedness make Matrox Imaging's vision controllers ideal solutions for cost-sensitive applications. A HPC platform designed for computationally demanding industrial imaging applications is also offered.

Matrox 4Sight GPM at a glance

Reduce service stoppages with a fanless design

Inspect multiple sites through the support for four GigE Vision and four USB3 Vision cameras

Simplify cabling for GigE Vision installations using Power over Ethernet (PoE)-enabled ports

Tackle typical vision workloads with an embedded Intel Core™ processor

Connect separately to the factory floor and enterprise networks via two Gigabit Ethernet ports

Synchronize with other equipment using integrated real-time digital I/Os and RS-232/RS-485 ports

Drive up to two operator displays

Install in space-limited hostile environments because of its small footprint and rugged casing design

Run applications in a familiar, reliable, and customizable environment using the provided Windows Embedded Standard 7¹

Solve applications rather than develop underlying tools by leveraging Matrox Design Assistant flowchart-based IDE or standard Microsoft development tools and MIL SDK

Deploy with confidence thanks to Matrox Imaging's commitment to extended lifecycle management

Matrox Supersight at a glance

Tackle extreme applications with certainty using a high-performance compute cluster platform

Harness the full power of multicore CPU, GPU, and FPGA technology to offload image processing and enhance acceleration

Eliminate I/O bottlenecks with a unique PCIe® switched fabric backplane architecture

Interface directly to external process equipment through the integrated Gigabit Ethernet, RS-232/RS-485, and USB connectivity

Minimize the need for revalidation by using a lifecycle-managed platform with consistent long-term availability

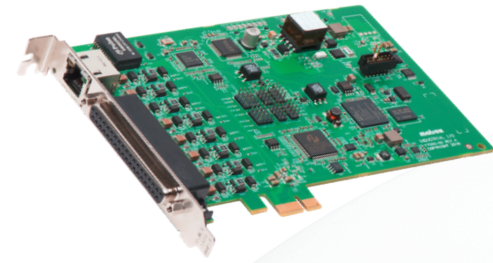
Simplify system integration with an integrated platform from a single vendor and pre-qualified third-party components

Run applications under an established operating system with factory-installed Windows 7 for Embedded Systems

Solve applications rather than develop underlying tools by leveraging standard Microsoft development tools and MIL SDK

1. Offers support for multiple languages; only one language version can be used at any given time.

I/O Cards >>



Matrox Indio

Matrox Indio provides industrial I/O and communication capabilities to turn any PC running Matrox vision software into a genuine vision controller. The versatile card offers discrete hardware-managed I/Os for the real-time synchronization of a vision application with automation devices. It also provides Gigabit Ethernet connectivity for interfacing with programmable logic/automation controllers or GigE Vision cameras equipped for PoE.

Matrox Indio at a glance

Facilitate computer integration by means of a PCIe x1 interface

Enable real-time synchronization via 16 discrete digital I/Os with hardware-assisted management

Gain straightforward access to I/Os through a standard D-Sub connector

Use on the factory-floor and in a lab environment thanks to 24V and TTL-compatible signaling support

Protect against unintended use with options for optical isolation and resettable fuses

Track moving production lines with support for two rotary incremental encoders

Troubleshoot issues using convenient status indicator LED for each I/O assist

Conduct industrial communication or video capture using the Gigabit Ethernet interface

Manage using field-proven and established MIL SDK or Matrox Design Assistant flowchart-based IDE

Frame Grabbers >>



Matrox Clarity, Concord, and Radient Series

Matrox Imaging provides the industry's most comprehensive frame grabber lineup, ranging from entry-level models for very cost-sensitive applications to models integrating flexible, high-rate acquisition and pre-processing capabilities. These frame grabbers combine rich functionality and unbeatable value, and help reduce development and validation costs through a managed lifecycle offering consistent long-term availability.

Matrox Clarity Series at a glance

Capture video sources—legacy to the latest— through support for SD analog to UHD digital formats

Connect and switch between different video sources via Mini DisplayPort, HD-BNC, HDMI, and custom analog DVI connectivity

Handle multiple video sources with the simultaneous capture of up to four HD or two UHD streams¹

Optimize video transmission and storage through onboard multi-stream H.264 encoding

Minimize system footprint by way of a single-slot PCIe card design

Simplify application development using the MIL SDK

Deploy on a platform of choice, with support for 64-bit Windows and Linux²

Matrox Concord Series at a glance

Interface with ease using Gigabit Ethernet network interface cards (NICs)

Streamline deployment with cards pre-licensed for use with GigE Vision support in MIL SDK and Matrox Design Assistant flowchart-based IDE

Avoid manual adjustments to driver properties; unlike generic NICs, the Concord's driver is optimally preset for GigE Vision

Maintain flexibility and choice, with support for 32-/64-bit Windows, Linux, and RTX64 (RTOS)

Matrox Radient Series at a glance

Capture from the next generation of higher resolution and higher speed cameras, through Camera Link, Camera Link HS, or CoaXPress interfaces

Eliminate lost pixels and missed frames through a PCIe 2.0 x8 host interface and ample on-board buffering

Maintain flexibility and choice through support for 32-/64-bit Windows, Linux³, and RTX64 (RTOS)³

Simplify application development using the MIL SDK

Reduce cabling complexity and simplify system connectivity with Power over Camera Link (PoCL) and Power over CoaXPress (PoCXP) support

Offload some host processing with on-board peak location for 3D profiling, Bayer interpolation, color space conversion, and look-up tables

Optimize multi-camera applications with support for multiple camera connections per board

1. Alternatively, a maximum combined bandwidth of 4 GB/sec.

2. Ask for availability.

3. Select availability for Linux and RTX64 (RTOS); contact Matrox Imaging for more information.

Support & Services >>



Matrox Vision Academy online training platform hosts a comprehensive set of on-demand videos available when and where needed.



Matrox Imaging prides itself on world-class production whether carried out in-house or outsourced.



Strict adherence to industry best practices—including a specially designed on-site clean room—ensures all hardware manufacturing and software development meets the highest standards.



Our comprehensive distribution channel ensures products reach OEMs and integrators in a timely manner.

For more information:

Tel: 1-800-804-6243 (North America) or (514) 822-6020

E-mail: imaging.info@matrox.com

Web: www.matrox.com/imaging

Software

Smart Cameras

Vision Controllers and I/O Cards

Frame Grabbers

matrox[®]

All trademarks by their respective owners are hereby acknowledged. Matrox Electronic Systems, Ltd. reserves the right to make changes in specifications at any time and without notice. The information furnished by Matrox Electronic Systems, Ltd. is believed to be accurate and reliable at the time of printing. However, no responsibility license is granted under any patents or patent rights of Matrox Electronic Systems Ltd. Windows and Microsoft are trademarks of Microsoft Corporation. © Matrox Electronic Systems, 2009-2017. Printed in Canada, 25-08-2017 \$IE-5141-B