

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

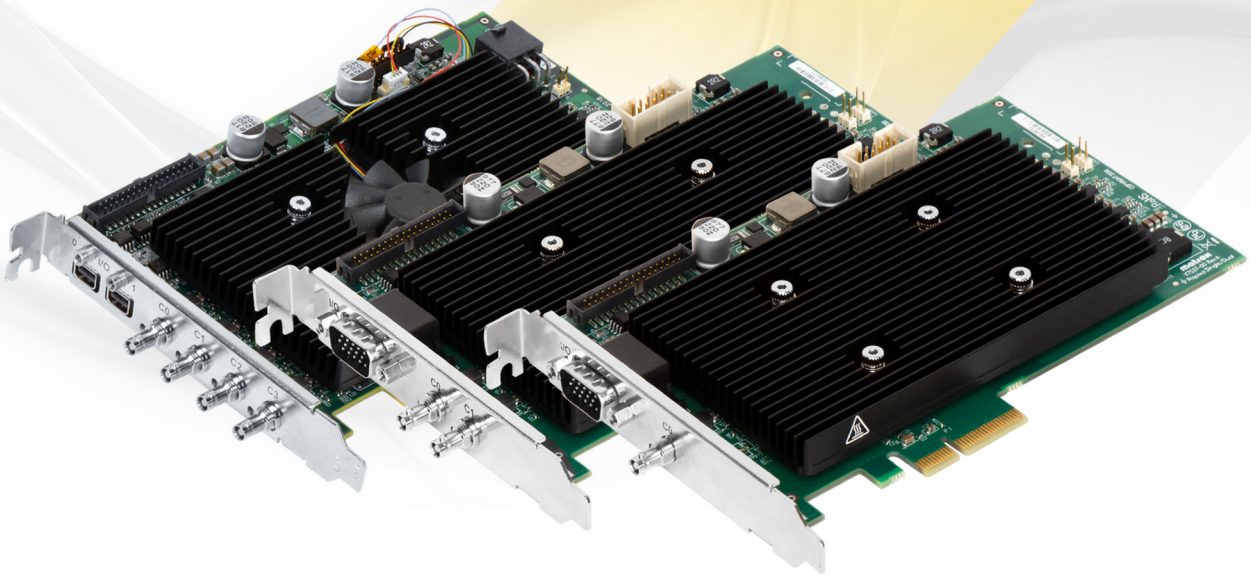
Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*



Matrox **Rapixo CXP** »

Single- to quad-input CoaXPress 2.0 frame grabbers with optional data forwarding and FPGA-based image processing offload

MATROX
IMAGING

Overview

Interface cards for high-speed imaging

Matrox® Rapixo CXP is a new generation of frame grabbers, supporting version 2.0 of the CoaXPress® digital interface standard for machine vision applications. The Matrox Rapixo CXP series supports data rates of either up to 6.25 Gbps (CXP-6) or up to 12.5 Gbps (CXP-12) per connection. The PCIe® host interface comfortably matches the maximum input bandwidth from the CXP links. The CXP links are accessed through high-density BNC connectors allowing for a homogenous interconnection with new cameras. Power-over-CoaXPress (PoCXP) support on each connection simplifies system configurations, combining the camera's power interface with its command- and data-interface onto the same coaxial cable.

The Matrox Rapixo CXP series of frame grabbers feature one, two, or four connections for interfacing to independent cameras. Matrox Rapixo CXP Dual and Quad can also handle higher data rates through connection aggregation. The Matrox Rapixo CXP series possesses sufficient onboard memory to buffer incoming image data in situations where the host computer is temporarily unable to accept data. The fanless design for select models ensures extended use without maintenance.

FPGA-based image processing offload

The Matrox Rapixo CXP Pro makes use of a field-programmable gate array (FPGA) device from the Xilinx Kintex® UltraScale™ family for not only integrating the controlling, formatting, and streaming logic of the various interfaces, but also allowing developers to incorporate Matrox Imaging- or user-developed custom image pre-processing operations to offload from the host computer. A variety of FPGA sizes are available for the Matrox Rapixo CXP Pro, providing a range of solutions tailored to a given application. Operations performed on-board are controlled through MIL X application-development software. Within MIL X, an existing FPGA configuration can be rearranged to perform a required sequence of operations without necessarily having to generate a new FPGA configuration. Using the Matrox FDK, developers generate their own FPGA configurations with custom operations written in C/C++.

Data forwarding for distributed processing

The Matrox Rapixo CXP series also offers the possibility of distributing image processing across multiple computers using the data forwarding option. This feature enables the relaying of images to another computer using four output connections running at 12.5 Gbps. The data forwarding is accomplished without host computer involvement as image data is re-transmitted prior to also being stored in onboard memory thus minimizing latency. Images can be retransmitted to multiple computers in a daisy chain fashion by equipping each PC with Matrox Rapixo CXP with data forwarding option.

Matrox Rapixo CXP at a glance

Support for the highest speeds available in CoaXPress 2.0

Connect to and capture from up to four cameras or combine connections for even higher data rates

PoCXP support simplifies cabling between cameras and vision computer

Offload host computer of custom image processing using a FPGA device

Distribute image processing workload across multiple computers through data forwarding capability

Auxiliary I/Os per CoaXPress connection to synchronize with sensors, encoders, and controllers

License fingerprint for Matrox Imaging Library (MIL) X software avoids the need for a separate hardware key

Software Environment

Pairs with MIL X[1] software

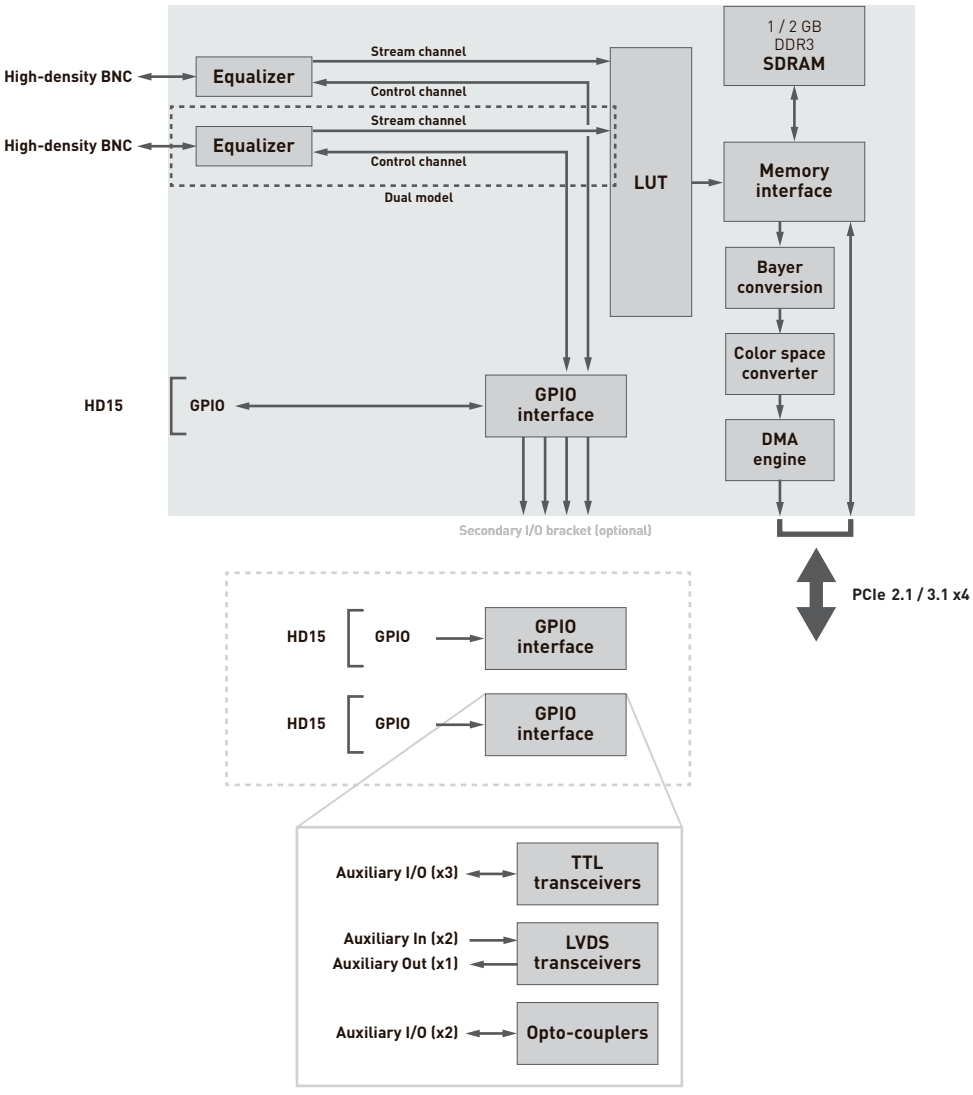
Matrox Rapixo CXP boards supports 64-bit Windows® and Linux® through the latest MIL X software. The card also acts as a license fingerprint and can store a supplemental license for MIL software, avoiding the need for a separate hardware key.

Field-proven application development software

The Matrox Rapixo CXP series is supported by MIL X[1] software—a comprehensive software development kit (SDK) with a 25-year history of reliable performance. This toolkit features interactive software and programming functions for image capture, processing, analysis, annotation, display, and archiving operations, with the accuracy and robustness needed to tackle the most demanding applications. Refer to the MIL X datasheet for more information.

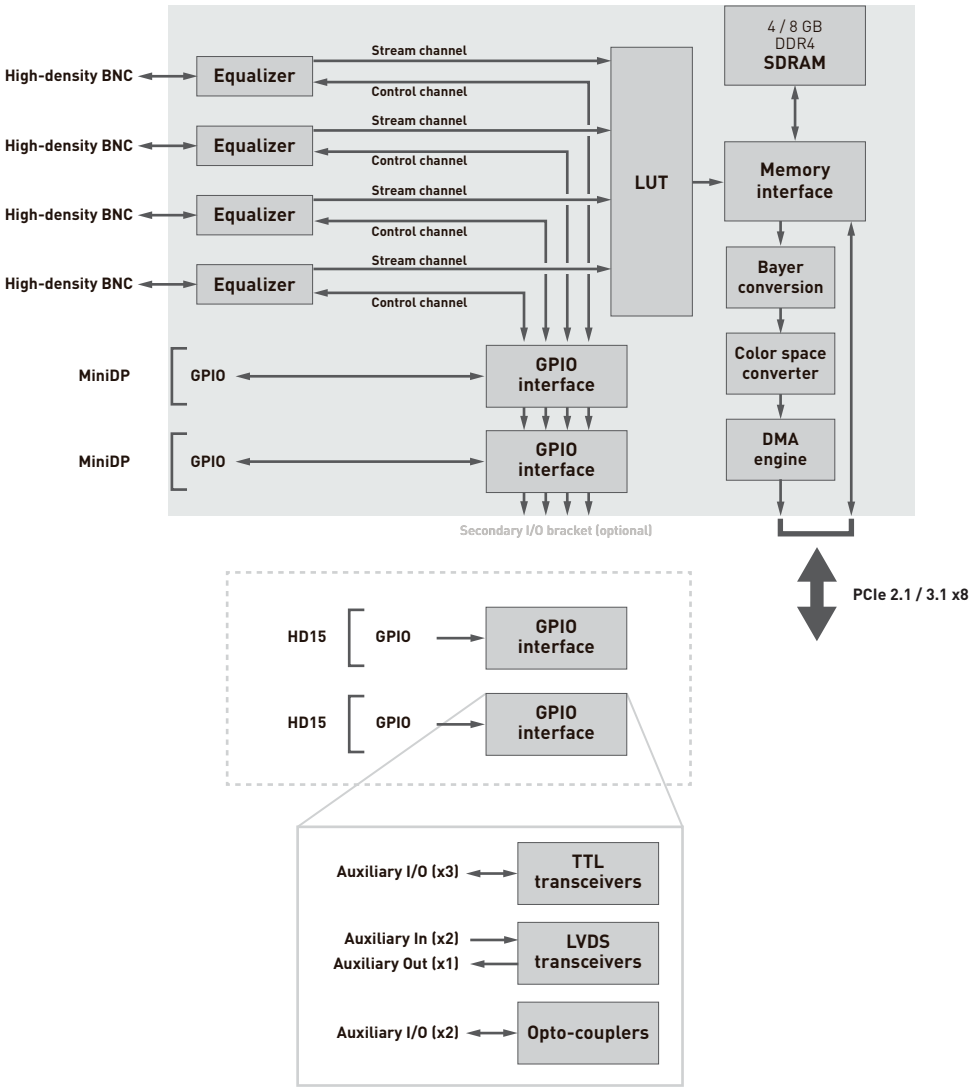
Connectivity

Matrox Rapixo CXP Single/Dual block diagram



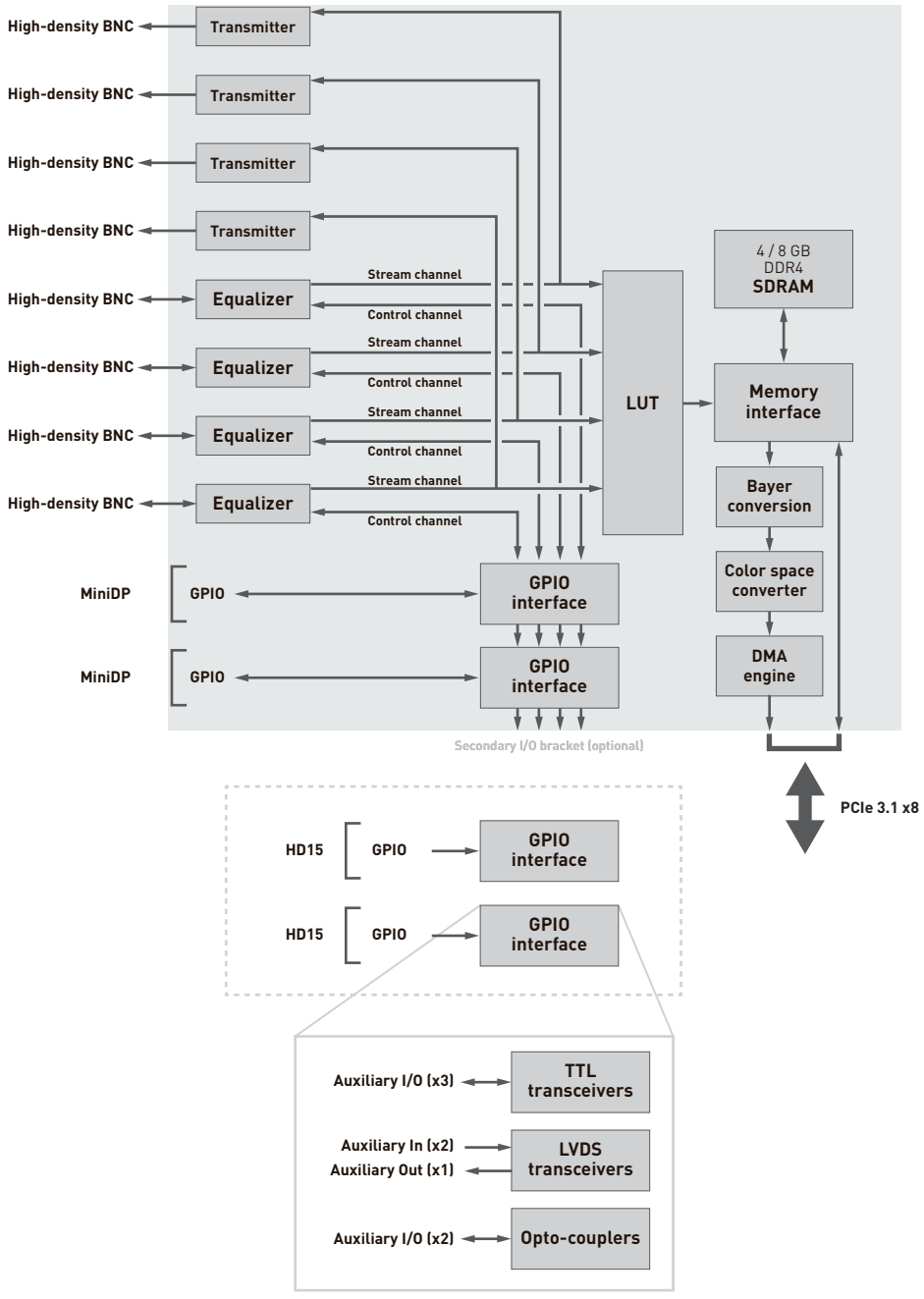
Connectivity (cont.)

Matrox Rapixo CXP Quad block diagram



Connectivity (cont.)

Matrox Rapixo CXP Quad Data Forwarding block diagram



Specifications

Matrox Rapixo CXP			
Hardware			
Model	Matrox Rapixo CXP Single/Dual	Matrox Rapixo CXP Quad	Matrox Rapixo CXP Quad Data Forwarding
Host interface			
Interconnect	PCIe 2.1/3.1 x4[2]	PCIe 2.1/3.1 x8[2]	PCIe 3.1 x8[2]
Camera/video interface			
Standard	CXP version 2.0		
Configuration	One (1) or two (2) connection(s)[3] in	Four (4) connections in	Four (4) connections in and four (4) connections out
Speeds	1.25 / 2.5 / 3.125 / 5 / 6.25 / 10 / 12.5 Gbps (CXP-1, 2, 3, 5, 6, 10, and 12 respectively)		
Streams	Up to eight (8) total		
Connectors	High-density BNC		
Power output	PoCXP		
Miscellaneous	Connection-status indicator LEDs for inputs		
Memory			
Type	DDR3 SDRAM		DDR4 SDRAM
Quantity	1 or 2 GB		4 or 8 GB
Purpose	Image buffering and processing		
Image processing capabilities			
On-board look-up tables	8-/10-/12-bit support		
On-board Bayer interpolation	GB, BG, GR, and RG pattern support		
On-board color space conversion	Input formats: 8-/16-bit mono/Bayer, 24-/48-bit packed BGR		
	Output formats: 8-/16-bit mono, 24-/48-bit packed/planar BGR, 16-bit YUV, 16-bit YCbCr, 32-bit BGRa		
Custom processing	N/A	Matrox Imaging- or user-developed using Xilinx Vivado® Design Suite and Matrox FPGA Development Kit (FDK)	
I/Os			
Types	Three (3) TTL I/Os per connector		
	Two (2) LVDS inputs per connector		
	One (1) LVDS output per connector		
	Two (2) opto-isolated inputs per connector		
Connectors	One (1) HD15 connector on main I/O bracket	Two (2) mDP connectors on main I/O bracket accessed through a mDP-to-HD15 adaptor	
	Two (2) HD15 connectors on secondary I/O bracket		
Physical			
Form factor	Half-length, full-height, PCIe add-in card		
Dimensions (L x W x H)	16.76 x 1.871 x 11.12 cm (6.6 x 0.737 x 4.376 in)[3]		
Power consumption			
	TBD	17.33 W (typical)[4]	
Environmental			
	Operating temperature: 0°C to 55°C (32°F to 131°F)[5]		
	Relative humidity: Up to 95% (non-condensing)		

Specifications (cont.)

Matrox Rapixo CXP	
Certifications	
Electromagnetic compatibility	FCC Class A
	CE Class A (EN55032, EN55024)
	ICES-003 / NMB-003 Class A
	RCM Class A
	KC Class A
Software	
Compatible software	MIL X[6]
Operating system support	Windows 7 (64-bit)
	Windows 10 (64-bit)
	Linux (64-bit)
Licensing provisions	MIL X license fingerprint and storage

Ordering Information

Part number	Description
Hardware[7]	
RAP 1G 1C12	Matrox Rapixo CXP Single CXP-12 PCIe 2.1 x4 frame grabber with 1 GB DDR3 SDRAM and passive heatsink. Note: Cable adaptors for second and third GPIO sets sold separately.
RAP 2G 2C12	Matrox Rapixo CXP Dual CXP-12 PCIe 3.1 x4 frame grabber with 2 GB DDR3 SDRAM and passive heatsink. Note: Cable adaptors for second and third GPIO sets sold separately.
RAP 4G 4C6	Matrox Rapixo CXP Quad CXP-6 PCIe 2.1 x8 frame grabber with 4 GB DDR4 SDRAM and passive heatsink. Includes one (1) mDP-to-HD15 GPIO cable adaptor. Note: Cable adaptors for second, third, and fourth GPIO sets sold separately.
RAP 4G 4C12	Matrox Rapixo CXP Quad CXP-12 PCIe 3.1 x8 frame grabber with 4 GB DDR4 SDRAM and passive heatsink. Includes one (1) mDP-to-HD15 GPIO cable adaptor. Note: Cable adaptors for second, third, and fourth GPIO sets sold separately.
RAP 8G 4C12 P352	Matrox Rapixo CXP Pro Quad CXP-12 PCIe 3.1 x8 frame grabber with 8 GB DDR4 SDRAM, Xilinx Kintex Ultrascale KU035 FPGA, and active heatsink (fansink). Includes one (1) mDP-to-HD15 GPIO cable adaptor. Note: Cable adaptors for second, third, and fourth GPIO sets sold separately.
RAP 8G 4C12 P602	Matrox Rapixo CXP Pro Quad CXP-12 PCIe 3.1 x8 frame grabber with 8 GB DDR4 SDRAM, Xilinx Kintex Ultrasacale KU060 FPGA, and active heatsink (fansink). Includes one (1) mDP-toHD15 GPIO cable adaptor. Note: Cable adaptors for second, third, and fourth GPIOs sold separately.
RAP 4G 4C12 DF	Matrox Rapixo CXP Quad Data Forwarding CXP-12 PCIe 3.1 x8 frame grabber, 4 GB DDR4 SDRAM, and passive heatsink. Includes one (1) mDP-to-HD15 GPIO cable adaptor. Note: Cable adaptors for second, third, and fourth GPIO sets sold separately.
Software	
Refer to MIL X datasheet and Matrox FDK datasheet. Note: MIL X sold separately.	
Accessories	
RAPACCKIT02	Accessory kit for Matrox Rapixo CXP Single/Dual. Includes one (1) secondary dual HD15 I/O bracket with ribbon cable.
RAPACCKIT01	Accessory kit for Matrox Rapixo CXP Quad. Includes one (1) additional mDP-to-HD15 GPIO cable adaptor and one (1) secondary dual HD15 I/O bracket with ribbon cable.
HDBNC2BNC	One (1) 12 in or 30 cm HDBNC-male-to-BNC-female adaptor cable.

Endnotes:
1. The software may be protected by one or more patents; see www.matrox.com/patents for more information.
2. Model dependent.
3. Dimensions (length x width x height) are taken from bottom edge of goldfinger to top edge of board. These measurements do not include mounting bracket.
4. Matrox Rapixo CXP Pro model power consumption is dependent on FPGA device and onboard processing workload.
5. Models with passive heatsink require a minimum ventilation of 150 LFM (linear feet per minute) in a single board configuration. Contact a sales representative for ventilation requirement for multiple board configurations.
6. Through an update.
7. Contact Matrox Imaging for other part numbers.

The Matrox Imaging advantage

Assured quality & longevity
Adhering 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 a dedicated team of QA specialists.

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

Comprehensive customer support
Devoted front-line support and applications teams are on call to offer timely product installation, usage, and integration assistance. Matrox Professional Services delivers deep technical assistance to help customers develop their particular applications in a timely fashion. Services include personalized training and device interfacing as well as application feasibility, prototyping, troubleshooting, and debugging.

Tailored customer training
Matrox Vision Academy comprises online and on-premises training for Matrox Imaging vision software tools. On-premises intensive training courses are regularly held at Matrox headquarters, and can also be customized for onsite delivery. The Matrox 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.



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.

Contact Matrox

imaging.info@matrox.com

North America Corporate Headquarters: 1 800-804-6243 or 514-822-6020
Serving: Canada, United States, Latin America, Europe, Asia, Asia-Pacific, and Oceania
www.matrox.com/imaging

The use of the terms "industrial" or "factory-floor" do not indicate compliance to any specific industrial standards.

© 2020 Matrox Electronic Systems, Ltd. All rights reserved. Matrox reserves the right to change specifications without notice. Matrox and Matrox product names are either trademarks and/or registered trademarks in Canada or other countries and/or trademarks of Matrox Electronic Systems, Ltd and/or Matrox Graphics Inc. All other company and product names are registered trademarks and/or trademarks of their respective owners. The information furnished herein is believed to be accurate and reliable at time of printing; however, no responsibility license is granted under any patents or patent rights of Matrox Electronic Systems, Ltd. 02/2020

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP