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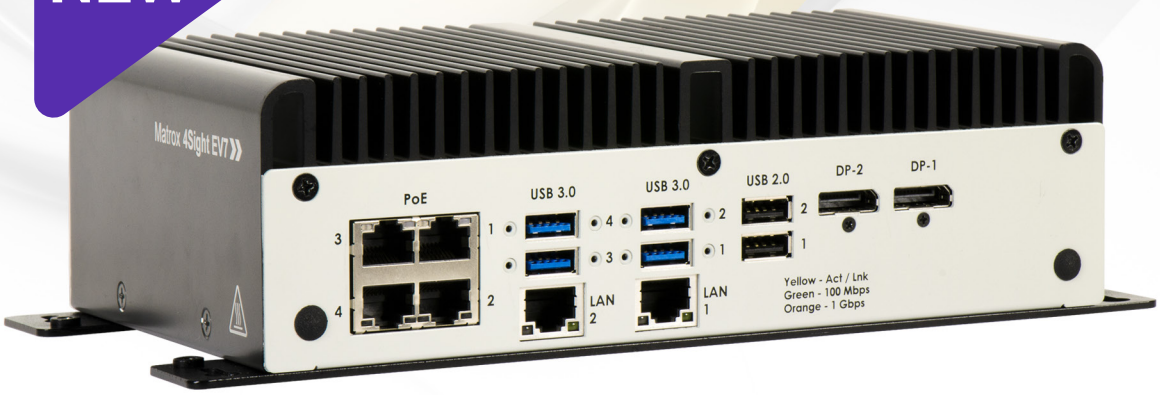



# Matrox **4Sight EV7** »

Fanless industrial imaging computer

ZEBRA | MATROX IMAGING

# Overview

## Built for the factory floor

Matrox® 4Sight EV7 is an industrial computer built for multi-camera machine vision applications on the factory floor. Part of a long and solid history, the Matrox 4Sight EV7 is an evolution of its immediate predecessor, integrating a twelfth-generation twelve-core Intel® Core™ processor that includes acceleration for deep learning inference or prediction. A fanless design with multiple ports for GigE Vision® and USB3 Vision® cameras makes the Matrox 4Sight EV7 right at home in any production facility, keeping an eye on a single line or many production lines.

Matrox 4Sight EV7 vision controllers are supported by two comprehensive software platforms: Matrox Design Assistant® X is a flowchart-based integrated development environment (IDE), whereas Matrox Imaging Library (MIL) X is a software development kit (SDK) for more traditional programmers. Engineers and technicians can quickly configure and deploy machine vision applications to Matrox 4Sight EV7 vision controllers using the range of included software tools for video capture, analysis, classification, location, measurement, reading, verification, communication, and I/O operations.

## Serve multi-camera installations with simplicity

With four 2.5 Gigabit Ethernet and four SuperSpeed USB ports, Matrox 4Sight EV7 vision controllers connect to the full range of available GigE Vision and USB3 Vision cameras. The 2.5 Gigabit Ethernet ports support PoE to further simplify cabling and thus reduce costs when opting for suitable GigE Vision cameras. Powered by a mobile-class embedded processor, Matrox 4Sight EV7 is ideal to handle typical multi-camera inspections.

## Connect to factory and enterprise equipment

Interfacing to other industrial equipment and communicating with enterprise systems is easy with Matrox 4Sight EV7 vision controllers. RS-232/RS-485 ports support connections to legacy automation devices, while two additional Gigabit Ethernet ports provide independent connections to industrial and enterprise networks. One of these networking ports includes a hardware-assisted mechanism for PROFINET® communication. This mechanism ensures timely response when the automation controller is set up for a short cycle-time or when the processor is too busy performing other tasks.

## Count on an industrial-strength design

Designed to reduce upkeep, the fanless Matrox 4Sight EV7 eliminates the need to clean or replace an air filter or a worn-out fan. A small footprint, rugged casing, and wide ambient operational temperature range allows the Matrox 4Sight EV7 to be mounted either horizontally or vertically in hostile, space-limited locations. Carefully selected components ensure consistent long-term availability of Matrox 4Sight EV7 vision controllers, thus maximizing return on the original investment.

### Matrox 4Sight EV7 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 deep learning and traditional machine vision applications** with a mobile-class embedded twelfth-generation Intel Core processor

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

**Synchronize with other equipment** using the integrated real-time digital I/Os with rotary encoder support and RS-232/RS-485 ports

**Streamline application development** using the Matrox Design Assistant X flowchart-based IDE or the MIL X SDK

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

## Manage discrete I/Os in real time

A dedicated hardware-assisted mechanism on the Matrox 4Sight EV7 supports discrete I/O management, enabling output events to occur at precise moments in time, based on elapsed time, or for specific input events. An input event can come directly from a discrete input—including from a rotary encoder—or be count-derived from a discrete input. Programmed output events are stored in a hardware list, which is traversed based on a clock or an input event. Carrying out an output event results in a state transition, pulse, or pulse train on a specific discrete output. Multiple cascadable hardware timers are available to count or generate specific events. The Matrox 4Sight EV7 has what it takes to effectively synchronize a typical vision application with a manufacturing line.

# Software Environment

### Microsoft Windows 10 IoT Enterprise

Matrox 4Sight EV7 comes pre-installed with Microsoft® Windows® 10 IoT Enterprise 2021 (64-bit), which provides the familiarity, performance, and reliability of Windows 10—including the Unified Write Filter (UWF) to prevent corruptions caused by unanticipated power-downs—and multi-language support.

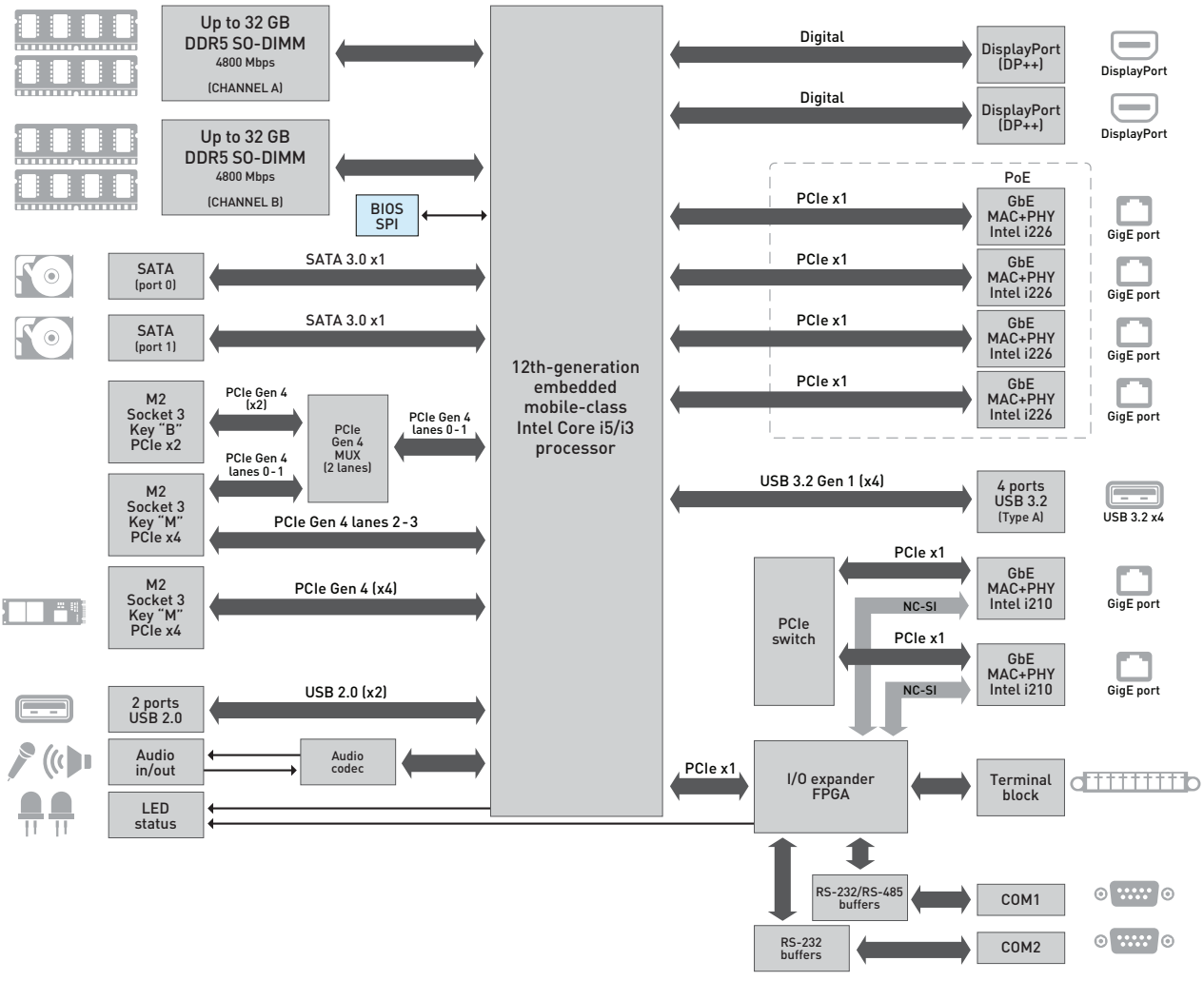
### Field-proven application development software

Matrox 4Sight EV7 is supported by MIL X[1] software—a comprehensive 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 machine vision applications. Refer to the MIL X datasheet for more information.

Matrox 4Sight EV7 is also available with, and licensed for, Matrox Design Assistant X[1] software, a versatile and extendable IDE. Vision applications are created by constructing an intuitive flowchart instead of writing traditional programming code. A custom, web-based operator interface to the application is created through an integrated HTML visual editor. Refer to the Matrox Design Assistant X datasheet for more information.

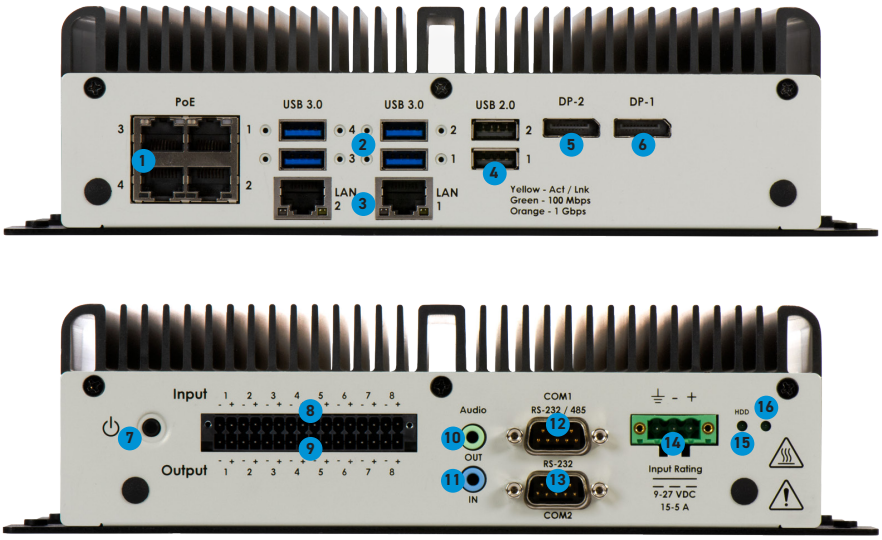
# Connectivity

**Matrox 4Sight EV7 block diagram**



# **Connectivity** (cont.)

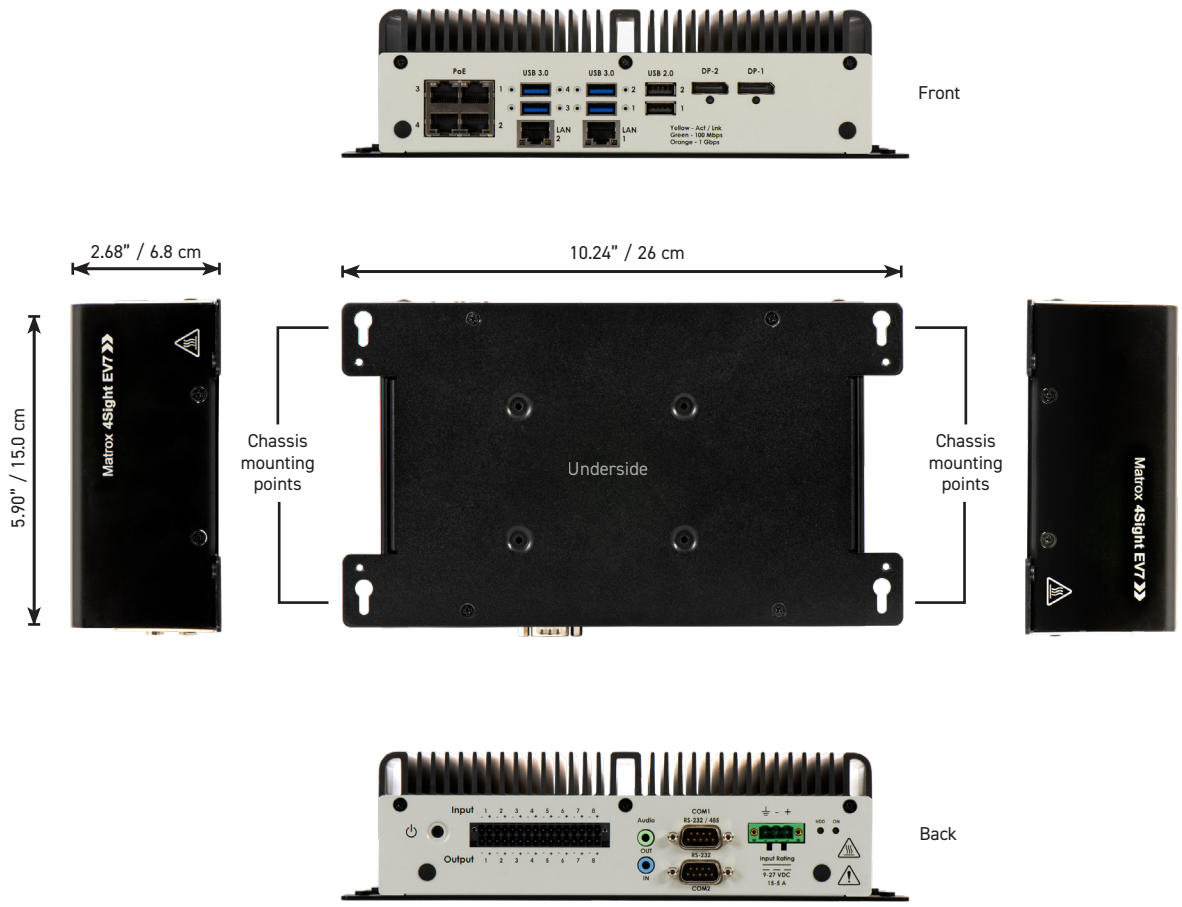
## Matrox 4Sight EV7 front and back views




1. Gigabit Ethernet ports with PoE
2. USB 3.2 ports
3. Gigabit Ethernet ports
4. USB 2.0 ports
5. DisplayPort
6. DisplayPort
7. Power button
8. Digital inputs
9. Digital outputs
10. Audio out
11. Audio in
12. RS-232/RS-485 port
13. RS-232 port
14. Power input
15. HDD LED
16. Power-on LED

# **Connectivity** (cont.)

## Matrox 4Sight EV7 chassis



# Specifications

| Matrox 4Sight EV7 |
|---|
| **System** |
| Intel Core i5-1250PE / Intel Core i3-1220PE |
| Two (2) DDR5-4800 SODIMM slots |
| Dual-head graphics support |
| Two (2) DisplayPort Dual-Mode (DP++) outputs |
| Up to 4096x2304 @ 60 Hz |
| Six (6) Ethernet ports |
| Four (4) 2.5 Gigabit Ethernet ports with PoE (up to 15.4 W per port) |
| Two (2) standard Gigabit Ethernet ports |
| Four (4) USB 3.2 ports |
| Two (2) USB 2.0 ports |
| Two (2) SATA 3.0 ports (internal) |
| One (1) M.2 connector socket 3 Key 'M' (used by supplied 256GB MVMe M.2 2280 SSD) |
| One (1) M.2 connector socket 3 Key 'M' 2280 |
| One (1) M.2 connector socket 2 Key 'B' 3052 |
| One (1) 24-bit stereo audio input and 24-bit stereo output |
| One (1) RS-232 port |
| One (1) RS-232/RS-485 port |
| Sixteen (16) digital I/Os |
| Eight (8) inputs |
| Up to 24 V |
| Eight (8) outputs (open collector) |
| 100 mA maximum @ 24 VDC |
| 256 GB MVMe M.2 2280 SSD |
| Power input: 9–27 VDC (nominal 24 VDC @ 6.3 A) |
| **Chassis** |
| Dimensions (L x W x H): 22.5 x 15.0 x 6.8 cm (8.86 x 5.90 x 2.68 in) |
| Four (4) mounting slots |
| Fanless enclosure |
| Power switch |
| Power and HDD notification LEDs |
| **Mounting** |
| Horizontal or vertical mounting |
| **Certifications** |
| FCC Class A (pending) |
| ICES-003 Class A (pending) |
| CE Class A (pending) |
| RCM Class A (pending) |
| KC Class A (pending) |
| CSA 61010-1-12 (pending) |

# Specifications (cont.)

| Matrox 4Sight EV7 |
|---|
| **Environmental** |
| Operating temperature: 0°C to 45°C (32°F to 113°F) |
| Storage temperature: -40°C to 85°C (-40°F to 185°F) |
| Relative humidity: Up to 90% (non-condensing) |
| **Software** |
| Pre-loaded with Microsoft Windows 10 IoT Enterprise 2021 (64-bit) |
| Pre-loaded with MIL X and Matrox Design Assistant X run-time environments |
| Optionally pre-loaded with Matrox Design Assistant X development and run-time environments |

# Ordering Information

| Part number | Description |
|---|---|
| **Hardware** | |
| EV7I3M8 | Matrox 4Sight EV7 integrated unit with Intel Core i3-1220PE, 8 GB DDR5 RAM, 256 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise 2021 (64-bit). Pre-loaded with MIL X and Matrox Design Assistant X run-time environments. Partially licensed for Matrox Design Assistant X and MIL X.<br>Note: The use of this product is governed by Microsoft Software License Terms, among others. |
| EV7I5M16 | Matrox 4Sight EV7 integrated unit with Intel Core i5-1250PE, 16 GB DDR5 RAM, 256 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise 2021 (64-bit). Pre-loaded with MIL X and Matrox Design Assistant X run-time environments. Partially licensed for Matrox Design Assistant X and MIL X.<br>Note: The use of this product is governed by Microsoft Software License Terms, among others. |
| EV7I5M16DA | Matrox 4Sight EV7 integrated unit with Intel Core i5-1250PE, 16 GB DDR5 RAM, 256 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise 2021 (64-bit). Pre-loaded with Matrox Design Assistant X design-time and run-time environments. Partially licensed for Matrox Design Assistant X and MIL X.<br>Note: The use of this product is governed by Microsoft Software License Terms, among others. |
| EV7I5M16DAP | Matrox 4Sight EV7 integrated unit with Intel Core i5-1250PE, 16 GB DDR5 RAM, 256 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise 2021 (64-bit). Pre-loaded with Matrox Design Assistant X design-time and run-time environments. Fully licensed for Matrox Design Assistant X and MIL X.<br>Note: The use of this product is governed by Microsoft Software License Terms, among others. |
| EVPS | 150 W AC/DC power adapter (100–240 VAC input/24 VDC output) for Matrox 4Sight EV7. |
| **Software** | |
| Included with EV7I3M8 and EV7I5M16 | Licensed for the Matrox Design Assistant X / MIL X Interface, Distributed MIL and Industrial and Robot Communications run-time packages. See Matrox Design Assistant X and MIL X datasheets for more information. |
| Included with EV7I5M16DA and EV7I5M16DAP | Separate installation media with the Matrox Design Assistant X IDE and on-line documentation as well as a Matrox Design Assistant Maintenance registration number. Pre-loaded with the Matrox Design Assistant X design-time and run-time environment. Allow the Matrox Design Assistant IDE to run when it is connected to them. EV7I5M16DA is licensed for the Matrox Design Assistant X / MIL X Machine Vision, Identification, Image Compression, Interface, Distributed MIL, Metrology, Color Analysis, and Industrial and Robot Communications run-time packages. The String Reader and SureDotOCR®, Geometric Model Finder, Registration, 3D Calibration and Supplemental and Classification packages need to be licensed separately. See Matrox Design Assistant X and MIL X datasheets for more information. EV7I5M16DAP is licensed for all Matrox Design Assistant X and MIL X run-time packages. |

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

## 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**

**Matrox Imaging, now a part of Zebra Technologies, 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, 3D sensors, vision controllers, I/O cards, and frame grabbers, all designed to provide optimum price-performance within a common software environment. For more information, visit www.matrox.com/imaging**

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

Preliminary