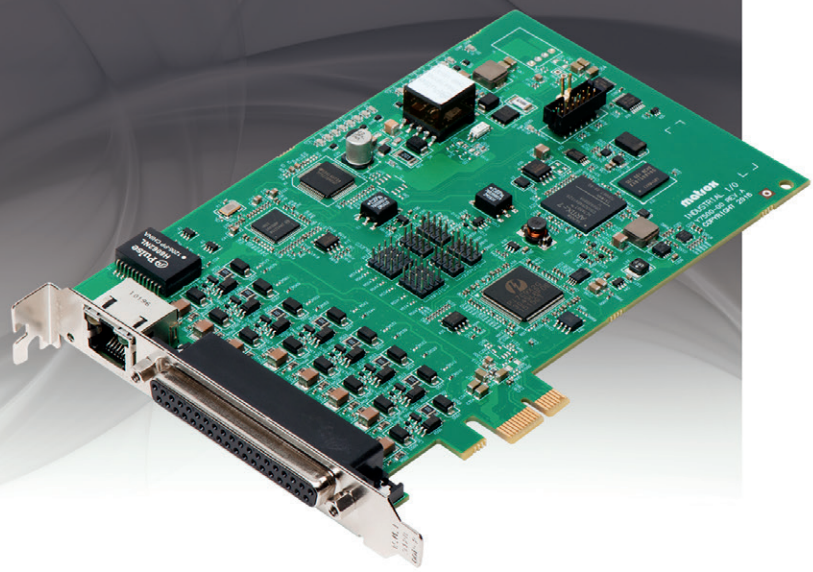
Matrox **Indio**

Industrial I/O and communication card



At a glance

- **PCIe x1 interface facilitates** computer integration
- **16 discrete digital I/Os** with hardware-assisted management enables real-time synchronization
- **Standard D-Sub connector provides** straightforward access to I/Os
- 24V and TTL-compatible signaling supports factory-floor and lab use
- **Optical isolation and resettable fuses** protect against unintended use
- **Support for two rotary incremental** encoders enables tracking of moving production lines
- **Status indicator LED** for each I/O assists with integration troubleshooting
- **Gigabit Ethernet port allows** for industrial communication or video capture using GigE Vision®
- For use with **Matrox Design Assistant and Matrox Imaging Library (MIL) vision software**

Turn any PC into a Matrox vision controller

Matrox Indio provides the industrial I/O and communication capabilities to turn any PC running Matrox vision software into a genuine vision controller. It provides discrete inputs and outputs managed in hardware 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 Power-over-Ethernet (PoE).

Discrete I/Os

Matrox Indio offers 8 discrete inputs and 8 discrete outputs that are jumper-selectable for 24V or TTL-level signaling, supporting both factory-floor and lab use. The I/Os are optically isolated while the outputs are also protected by resettable fuses, all to prevent damage from unintended use. The I/Os can be hooked up in either sinking or sourcing configurations and are accessible from a standard 37-pin D-Sub connector.

Real-time synchronization

Matrox Indio delivers real-time I/O management through a dedicated hardware-assisted mechanism. The mechanism enables output events to occur at precise moments in time, based on elapsed time, or specific input events. An input event can come directly from a discrete input, including from a rotary encoder, or a 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. The carrying out of 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.

Industrial Ethernet or GigE Vision®

Matrox Indio also makes available a Gigabit Ethernet port through a standard RJ45 connector for industrial networking using the EtherNet/IP™, Modbus® and PROFINET protocols. PROFINET communication is hardware-assisted to ensure timely response. The Gigabit Ethernet port can alternatively connect to a GigE Vision® camera and power it by way of PoE support.

MATROX IMAGING

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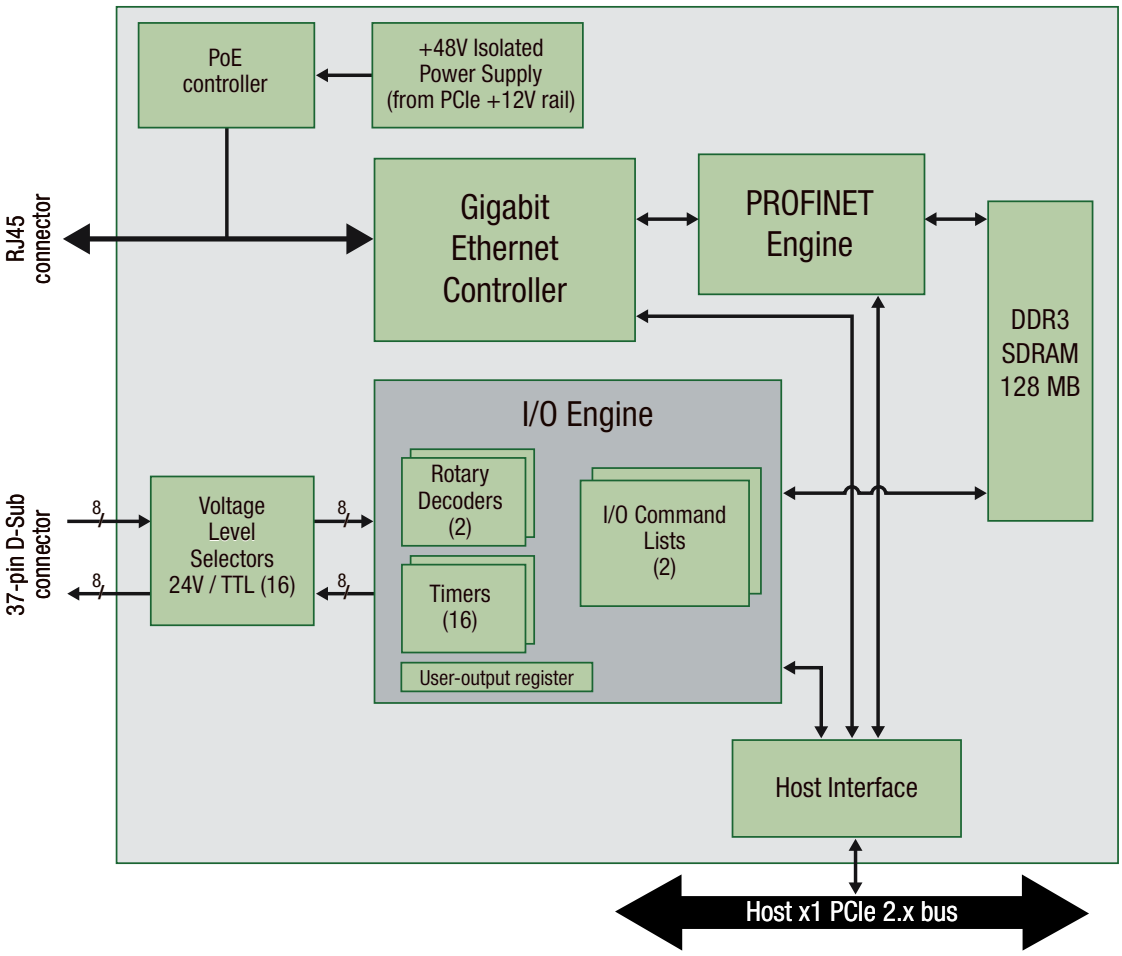
Vision software support

Matrox Design Assistant and Matrox Imaging Library (MIL) vision software include support for the Matrox Indio. The card automatically provides access to the software's industrial communication and GigE Vision® functionality.

Matrox Indio block diagram



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Ordering Information

Specifications

- Eight (8) independent inputs
  - opto-isolated
  - jumper selectable for 24V or TTL operation
  - logic low level: 0-5V (default) or 0-0.8V (TTL mode)
  - logic high level: 11-24V (default) or 2-5V (TTL mode)
  - sink or source acting at up to 100mA
  - configurable for two rotary incremental encoders
  - generate system interrupt
  - with status indicator LED
- Eight (8) independent outputs
  - opto-isolated
  - jumper selectable for 24V or TTL operation
  - logic low level: 0-3V (default) or 0-0.1V (TTL mode)
  - logic high level: up to 24V (default) or up to 5V (TTL mode)
  - sink or source acting at up to 100mA
  - protected by resettable fuse
  - with status indicator LED
- Gigabit Ethernet port
  - hardware-assist for PROFINET protocol (1ms min. I/O cycle time)
  - Isolated Power-over-Ethernet (PoE) support up to 15.4W
- Connectors
  - 37-pin D-Sub for I/Os
  - RJ45 for Gigabit Ethernet port
- MIL license fingerprint and storage
- Environmental information
  - dimensions: 16.76cm L x 10.67cm H x 1.87cm W (6.6" L x 4.2" H x 0.737" W)
  - power requirements: +3.3V @ 1.6A max., +12V @ 2A max. (when 15.4W is drawn for PoE)
  - operating temperature: 0^0C to 55^0C (32^0F to 131^0F)
  - storage temperature: -40^0C to 85^0C (-40^0F to 185^0F)
  - operating relative humidity: 10 to 90% (non-condensing)
  - certifications: FCC Part 15 Class B, CE mark. EN55011 class B, EN61326-1 Industrial environment, ICES-003/ NMB-003 Class B and RCM Class B

Ordering Information

Hardware

Part number & Description	
INDIO	Matrox Indio PCIe x1 card with 16 real-time discrete digital I/Os and GbE port with PoE. Pre-licensed for MIL Interface (GigE Vision®) and Industrial Communications packages.

Endnotes:
i. As of Matrox Design Assistant 5.
ii. As of MIL 10 with Update 53..

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