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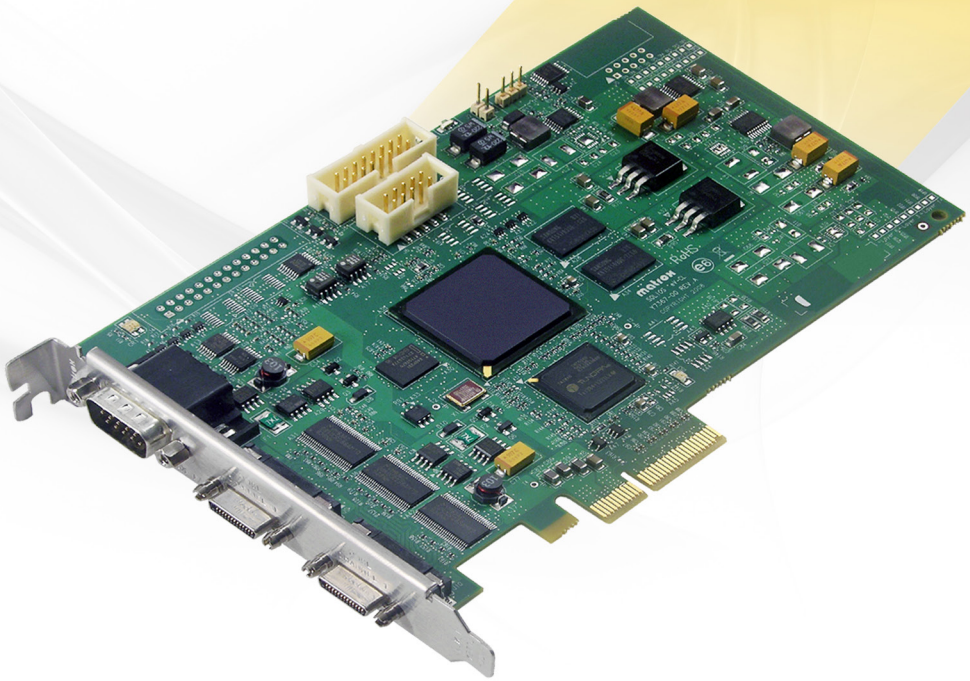
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Matrox **Solios eV-CL** »

Value-packed Camera Link frame grabber

MATROX
IMAGING

Overview

New level of value

Matrox® Solios eV-CL ushers in a new level of value for Camera Link® frame grabbers. It provides connectivity to the market's most high-performance, multi-megapixel area- and line-scan Camera Link cameras, augmented with onboard Bayer interpolation (eV-CLB/CLBL models), color space conversions, and look-up tables (LUTs). The Matrox Solios eV-CL provides all these capabilities at an attractive price point.

Versatile Camera Link interface

For field-proven, low-latency, and deterministic acquisition, Camera Link provides a scalable solution conceived specifically for machine vision applications. From cost-sensitive low data-rate applications to mainstream applications including color and right up to maximum-bandwidth applications, Camera Link is an excellent fit. The introduction of the mini Camera Link connector (eV-CLB/CLF models) has led to compatibility with small-footprint PCs, enabling two Base-mode Camera Link interfaces with triggering and general purpose I/O in a single slot. Even the most space-constrained systems can now support dual Base or single Medium/Full configurations.

The Matrox Solios eV-CLB/CLBL is capable of simultaneously capturing from two completely independent Base Camera Link cameras at up to 85 MHz. Fully supporting PoCL, the Matrox Solios eV-CLB/CLBL can reduce cabling complexity, eliminating the need for bulky and costly external camera power supplies. Alternatively, the Matrox Solios eV-CLF/CLFL—capable of handling a single Full Camera Link camera with up to 10-taps at 70 MHz—can acquire and reconstruct images from the most advanced multi-tap high-performance area- and line-scan cameras.

High-performance host interface

A PCIe x4 host interface provides the throughput necessary to ensure the continuous flow of pixels from Matrox Solios eV-CL frame grabbers to host memory. With a peak bandwidth of up to 1 GB/s, the Matrox Solios eV-CL's host interface prevents pixels from inadvertently being discarded, while the point-to-point connectivity of PCIe stops other add-in devices from consuming valuable bandwidth between the frame grabber and the host PC.

Matrox Solios eV-CL at a glance

Perform deterministic image acquisition by way of the jitter-free Camera Link interface

Eliminate missed frames through a PCIe® x4 host interface and ample on-board buffering

Use the most high-performance cameras with available support for 10-taps (eV-CLF/CLFL models) at 70 MHz

Employ a single board for area- and line-scan, monochrome, and color (Bayer, RGB, and tri-linear) acquisition

Optimize multi-camera applications via support for two independent cameras per board with eV-CLB/CLBL models

Minimize space requirements and maximize PC compatibility through a half-length design with mini Camera Link connectivity (eV-CLB/CLF models) for true single-slot operation

Reduce system cabling and eliminate camera power supplies by way of Power-over-Camera-Link (PoCL) support (eV-CLB/CLBL models)

Free valuable host CPU resources by offloading pre-processing tasks: Bayer interpolation (eV-CLB/CLBL models), color space conversion, and LUTs

Reduce development and validation costs through a managed lifecycle offering consistent long-term availability

Implement image capture with ease and confidence using Matrox Imaging Library (MIL) X application development toolkit

Maintain flexibility and choice by way of 32-/64-bit Windows 7/10 and 64-bit Linux® support

Overview (cont.)

Offload repetitive tasks from the host CPU

As image sizes continue to grow, frame rates steadily increase, and applications are expected to do more, the demands for host-system processing are escalating. Alleviating this pressure, the Matrox Solios eV-CL can offload repetitive CPU intensive tasks such as Bayer interpolation (eV-CLB/CLBL models), color space conversions, and LUTs, freeing valuable processing capability.

Lifecycle managed for consistent long-term supply

Each component on the Matrox Solios eV-CL has been carefully selected to ensure product availability in excess of five years. The Matrox Solios eV-CL is also subject to strict change control to provide consistent supply. Longevity of stable supply lets OEMs achieve maximum return on the original investment by minimizing the costs associated with the repeated validation of constantly changing products.

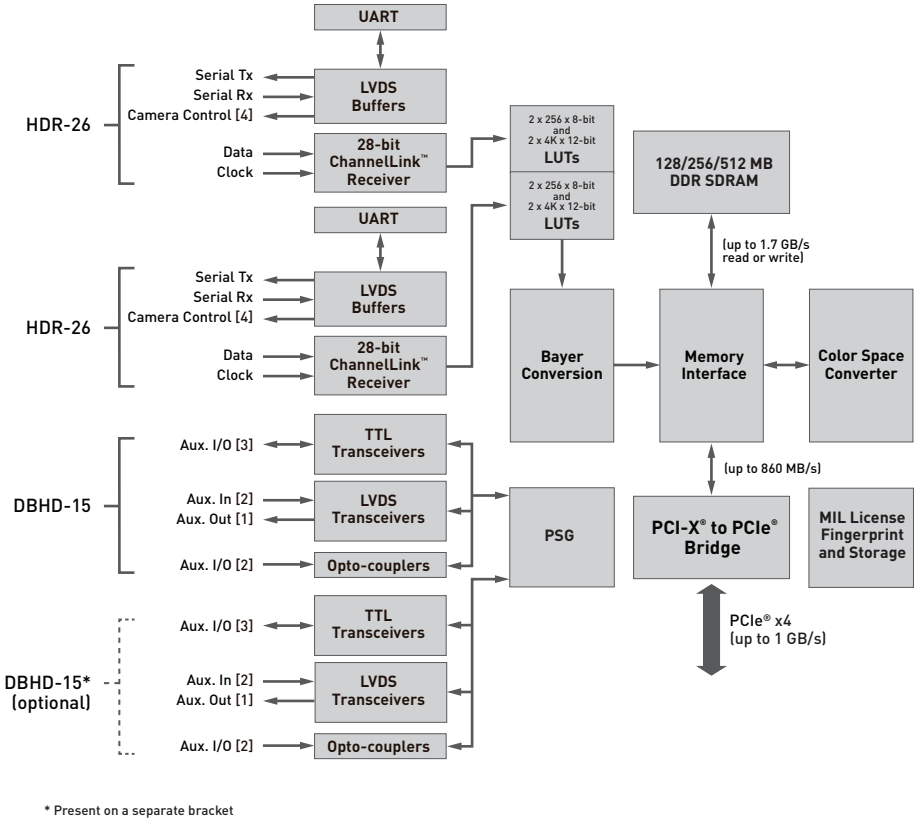
Software Environment

Field-proven application development software

Matrox Solios eV-CL is supported by MIL X, a comprehensive collection of software tools for developing industrial imaging applications. MIL X features interactive software and programming functions for image capture, processing, analysis, annotation, display, and archiving. These tools are designed to enhance productivity, thereby reducing the time and effort required to bring solutions to market. Refer to the MIL X datasheet for more information.

Connectivity

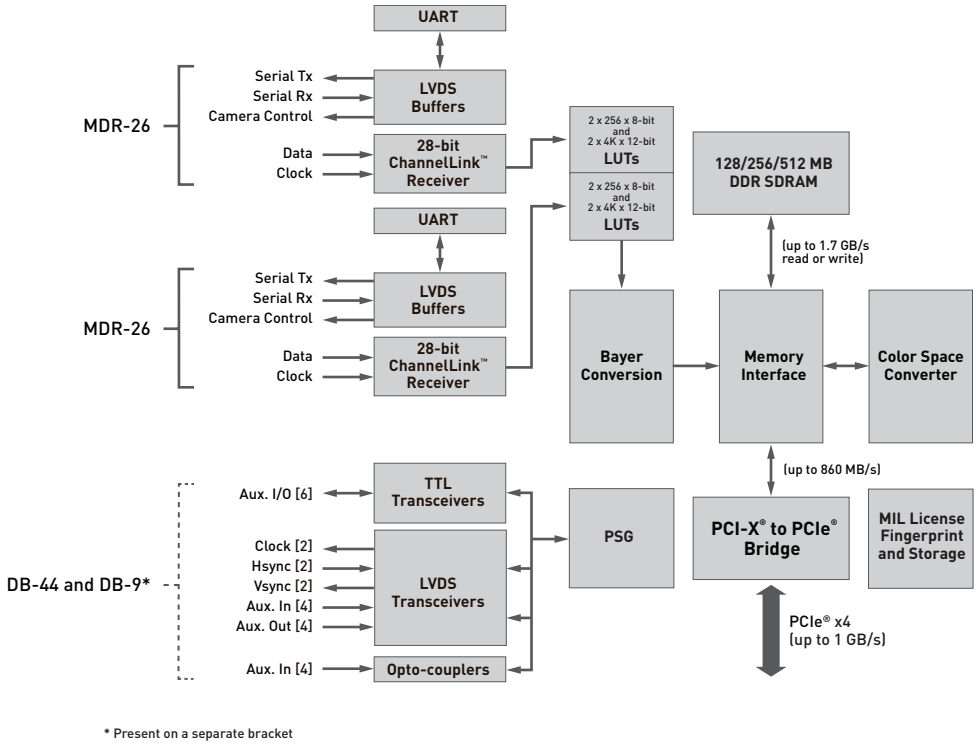
Matrox Solios eV-CLB block diagram



* Present on a separate bracket

Connectivity (cont.)

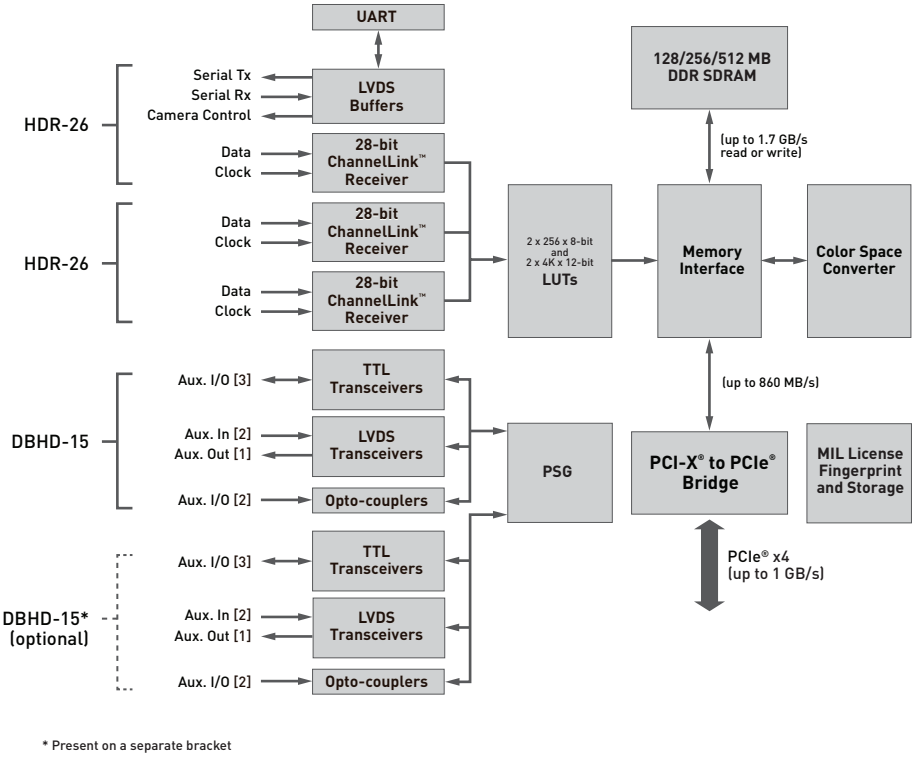
Matrox Solios eV-CLBL block diagram



* Present on a separate bracket

Connectivity (cont.)

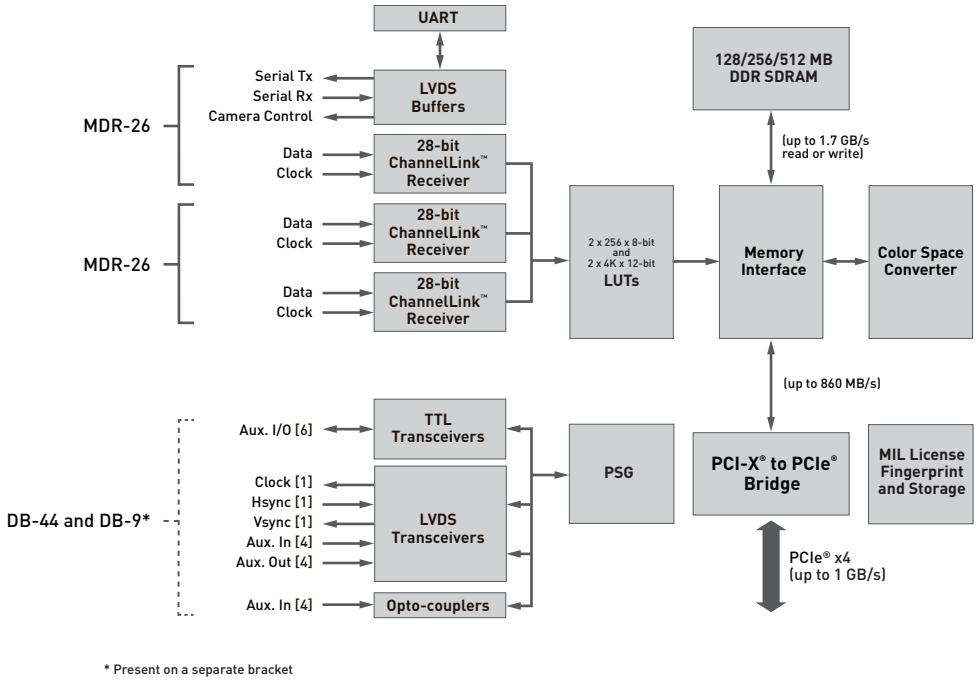
Matrox Solios eV-CLF block diagram



* Present on a separate bracket

Connectivity (cont.)

Matrox Solios eV-CLFL block diagram



* Present on a separate bracket

Specifications

Matrox Solios eV
Hardware
PCIe x4 host interface
128, 256, or 512 MB of DDR SDRAM
Up to 1.7 GB/s
Camera Link 2.0 acquisition
Two (2) independent Base Camera Link ports (eV-CLB/CLBL models)
PoCL with SafePower
One (1) Medium Camera Link port
One (1) Full Camera Link port (eV-CLF/CLFL models)
10-tap support
20 MHz to 85 MHz Camera Link clock
Serial port(s) mapped as PC COM port(s)
Supports frame- and line-scan sources
On-board image reconstruction
On-board image sub-sampling
On-board color space conversion
Input formats
8-/16-bit mono
8-/16-bit color
Output formats
8-/16-bit mono
8-/16-bit planar RGB
32-bit packed BGRa
On-board Bayer conversion (eV-CLB/CLBL models)
GB, BG, GR, and RG pattern support
On-board LUTs per port
Two (2) 256 x 8-bit LUTs
Two (2) 4K x 12-bit LUTs
Support for one (1) quadrature rotary encoder per port
Connectivity (eV-CLB/CLF models)
Two (2) mini Camera Link (HDR) connectors
One (1) DBHD-15 male connector
Three (3) TTL configurable auxiliary I/Os
Two (2) LVDS auxiliary inputs
One (1) LVDS auxiliary output
Two (2) opto-isolated auxiliary inputs
Optional add on DBHD-15 male connector[1]
Three (3) TTL configurable auxiliary I/Os
Two (2) LVDS auxiliary inputs
One (1) LVDS auxiliary output
Two (2) opto-isolated auxiliary inputs

Specifications

Matrox Solios eV
Connectivity (eV-CLB/CLF models) cont.
Optional add on DB-9[2] female connector[1]
One (1) TTL configurable auxiliary I/O
One (1) LVDS auxiliary input
Two (2) opto-isolated auxiliary inputs
Connectivity (eV-CLBL/CLFL models)
Two (2) Camera Link (MDR) connectors
One DB-44 and DB-9 connector
Six (6) TTL configurable auxiliary I/Os
Four (4) LVDS configurable auxiliary inputs
Four (4) LVDS configurable auxiliary outputs
Separate LVDS pixel clock, hsync, and vsync outputs
Four (4) opto-isolated configurable auxiliary inputs
Power consumption (typical)
1.5 A @ 3.3 V
100 mA @ 12 V
6.15 W total[3]
Physical
Dimensions (L x W x H): 167.6 x 98.4 x 15.6 mm (6.6 x 3.87 x 0.61 in)
Certifications
FCC class A
CE class A
RoHS-compliant
Environmental
Operating temperature: 0°C to 55°C (32°F to 131°F)
Relative humidity: Up to 95% (non-condensing)
Software
MIL X license fingerprint and storage
Software drivers: MIL drivers for 32-/64-bit Windows 7
Software drivers: MIL drivers for 32-/64-bit Windows 10
Software drivers: MIL drivers for 64-bit Linux[4]
Implements GenICam™ 2.3.1 (CLProtocol 1.1) and GenICam GenCP 1.0 under Windows/Linux

Ordering Information

Part number	Description
Hardware	
SOL 2M EV CLB*	Matrox Solios eV-CLB Single Medium / Dual-Base, up to 85 MHz, Camera Link PCIe x4 frame grabber with 256 MB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
SOL 2M EV CLBL*	Matrox Solios eV-CLBL Single Medium / Dual-Base, up to 85 MHz, Camera Link PCIe x4 frame grabber with 256 MB DDR SDRAM and MDR26 (original Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
SOL 2M EV CLF*	Matrox Solios eV-CLF Single Medium / Full, up to 10-taps at 70 MHz, Camera Link PCIe x4 frame grabber with 256 MB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
SOL 2M EV CLFL*	Matrox Solios eV-CLFL Single Medium / Full, up to 10-taps at 70 MHz, Camera Link PCIe x4 frame grabber with 256 MB DDR SDRAM and MDR26 (original Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
Software	
Refer to MIL X datasheet.	
Accessories	
SOLEVAACC01PAK*	Accessory kit for SOL 2M EV CLB* and SOL 2M EV CLF*. Includes one panel mount DB-9-based trigger cable and full-height bracket.
Cables	
Camera Link cables are available from camera manufacturers, 3M Interconnect Solutions (www.3m.com), Intercon1 (www.intercon-1.com), Components Express, Inc. (www.componentsexpress.com), or other third parties. Cables for I/O connectors are available from third parties.	

Endnotes:
1. Present on a separate bracket.
2. When using optional DB-9 male connector, the on-board DBHD-15 is unavailable.
3. Power consumption does not include PoCL camera power requirements, which are drawn from the 12 V supply.
4. Refer to MIL X datasheet for supported distributions.

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.

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