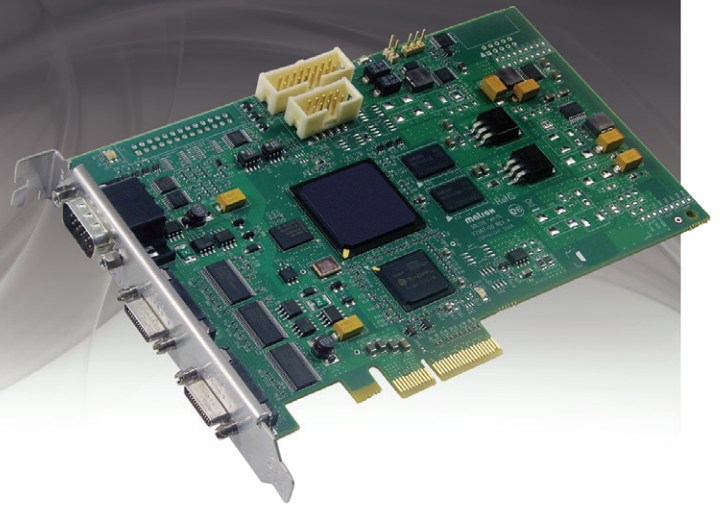


# Matrox Solios eV-CL

Value-packed Camera Link® frame grabber.



## Key features

**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) 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

**minimize space requirements and maximize PC compatibility** through a half-length design with mini Camera Link® connectivity (eV-CLB/CLF) 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)

**free valuable host CPU resources** by offloading pre-processing tasks: Bayer interpolation (eV-CLB/CLBL), color space conversion and look-up tables

**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) application development toolkit

**maintain flexibility and choice** by way of 32-bit Windows® XP, 32/64-bit Windows® 7/8.1/10 and 32/64-bit Linux® support

## 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 most high-performance, multi-megapixel area and line scan Camera Link® cameras on the market augmented with onboard Bayer interpolation (eV-CLB/CLBL), color space conversions and look-up tables. The Matrox Solios eV-CL provides all these capabilities at the most attractive price point yet.

### 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) has led to compatibility with small footprint PCs by enabling two Base mode Camera Link® interfaces with triggering and general purpose I/O in a single slot. Even the most spaced-constrained systems can now support dual Base or single Medium/Full configurations.

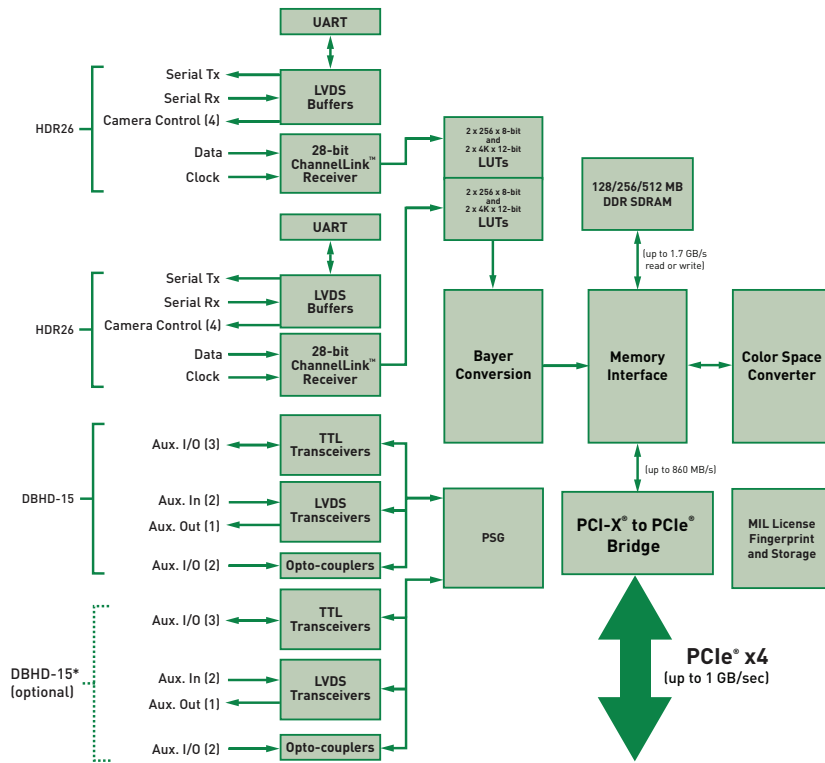
The Matrox Solios eV-CLB/CLBL is capable of simultaneously capturing from two completely independent Base Camera Link® cameras at up to 85 MHz. Fully supporting Power over Camera Link® (PoCL), the Matrox Solios eV-CLB/CLBL can reduce cabling complexity and eliminate the need for bulky and costly external 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 the Matrox Solios eV-CL 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.

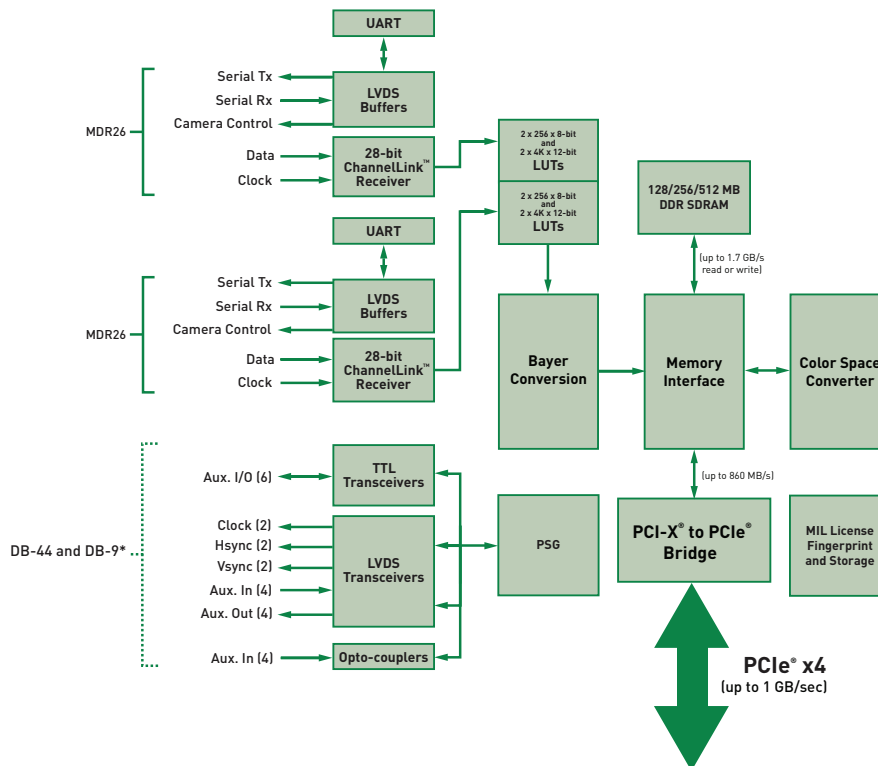


## Matrox Solios eV-CLB



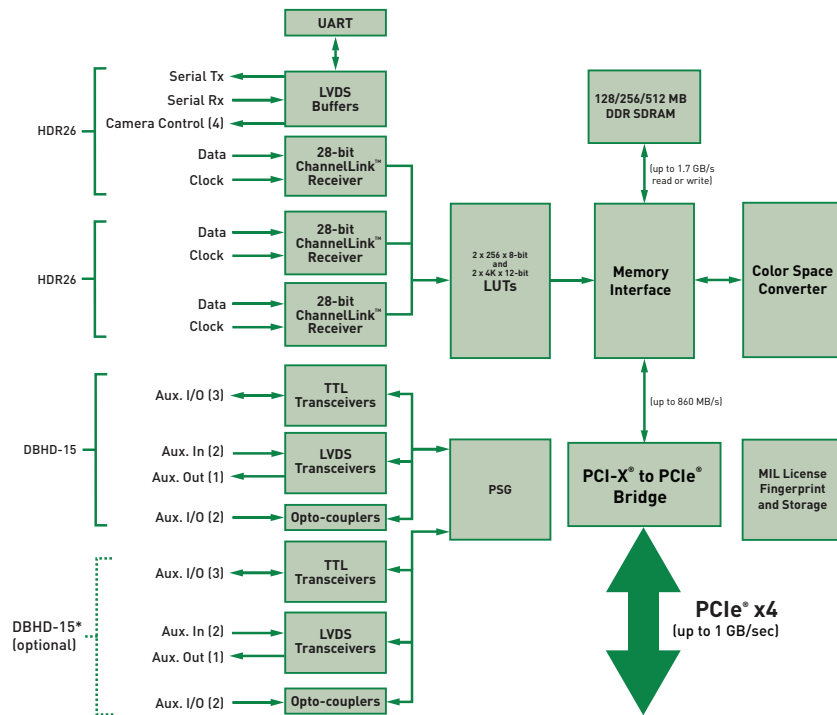
\* Present on a separate bracket

## Matrox Solios eV-CLBL



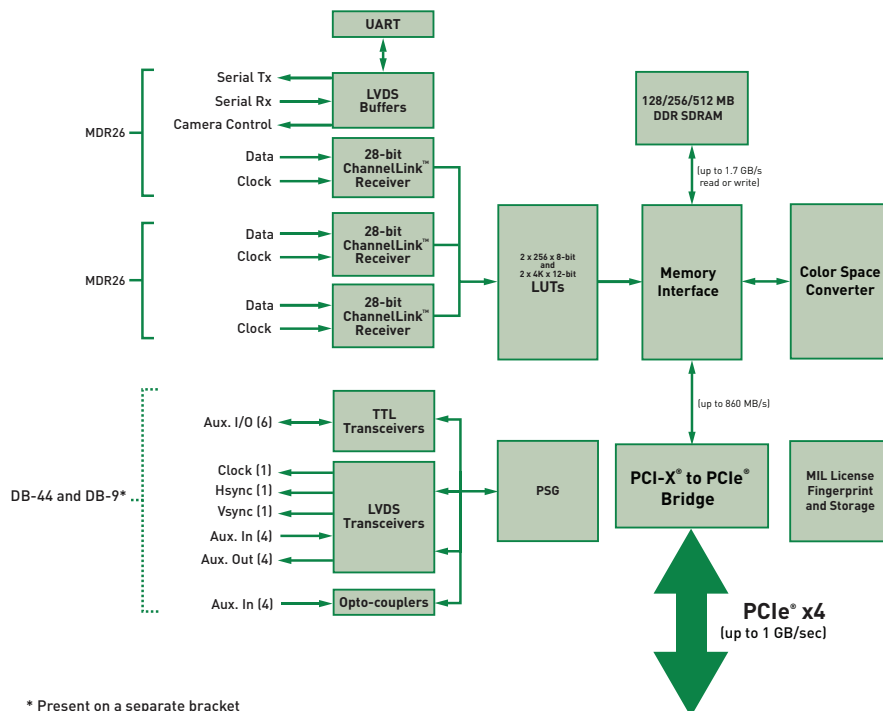
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## Matrox Solios eV-CLF



\* Present on a separate bracket

## Matrox Solios eV-CLFL



\* Present on a separate bracket

### **Offload repetitive tasks from the host CPU**

As image size continues to grow, frame rate steadily increases and applications are expected to do more, the demands for processing on the host system are escalating. Alleviating this pressure, the Matrox Solios eV-CL can offload repetitive CPU intensive tasks such as Bayer interpolation (eV-CLB/CLBL), color space conversions and look-up tables (LUTs), freeing valuable processing

### **Lifecycle managed for consistent long term supply**

Matrox Imaging not only carefully selected each component in the Matrox Solios eV-CL to ensure product availability in excess of five years, but also exercises strict change control to provide consistent supply. Longevity of stable supply lets OEMs achieve maximum return on the original investment without incurring the additional costs associated with the repeated validation due to constantly-changing products.

### **Field-proven application development software**

Matrox Solios eV-CL is supported by the Matrox Imaging Library (MIL), a comprehensive collection of software tools for developing industrial imaging applications. MIL 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 your solution to market. Refer to the MIL datasheet for more information.

## Specifications

### Hardware

- PCIe® x4 host interface
- 128/256/512 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)
    - Power over Camera Link® (PoCL) with SafePower
  - one (1) Medium Camera Link® port
  - one (1) Full Camera Link® port (eV-CLF/CLFL)
    - 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
  - mono 8/16-bit
  - color 8/16-bit
- output formats
  - mono 8/16-bit
  - RGB 8/16-bit planar
  - BGRa 32-bit packed
- on-board Bayer conversion (eV-CLB/CLBL)
  - GB, BG, GR and RG pattern support
- on-board look-up tables (LUTs) per port
  - two (2) 256 x 8-bit look-up tables (LUTs)
  - two (2) 4K x 12-bit look-up tables (LUTs)
- support for one (1) quadrature rotary encoder per port
- MIL license fingerprint and storage

### Connectivity (eV-CLB/CLF)

- 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<sup>4</sup>
  - 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 DB-9<sup>1</sup> female connector<sup>4</sup>
  - one (1) TTL configurable auxiliary I/O
  - one (1) LVDS auxiliary input
  - two (2) opto-isolated auxiliary inputs

## Specifications (Cont.)

### Connectivity (eV-CLBL/CLFL)

- two(2) Camera Link® (MDR) connectors
- one DB-44 and DB-9 connector<sup>5</sup>
  - 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

### Dimensions and environmental information

- 167.6 mm L x 98.4 mm H x 15.6 mm W (6.60" x 3.87" x 0.61")
- 1.5 A @ 3.3V, 100 mA @ 12V or 6.15 W total<sup>2</sup> power consumption
- operating temperature: 0°C to 55° C (32° F to 131° F)
- relative humidity: up to 95% (non-condensing)
- FCC class A
- CE class A
- RoHS-compliant

### Software Drivers

- Matrox Imaging Library (MIL) drivers for 32-bit Windows® XP and 32/64-bit Windows® 7/8.1/10
- MIL drivers for 32/64-bit Linux<sup>3</sup>
- Implements GenICam™ 2.3.1 [CLProtocol 1.1] and GenICam GenCP 1.0 under Windows/Linux

## Ordering Information

### Hardware

#### Part number & Description

<b>SOL 2M EV CLB*</b>	Single Medium / Dual-Base, up to 85 MHz, Camera Link® PCIe® x4 frame grabber with 256 MB DDR SDRAM and HDR26 (mini CL) connectors. Includes cable adaptor (aux. I/O).
<b>SOL 2M EV CLBL*</b>	Single Medium / Dual-Base, up to 85 MHz, Camera Link® PCIe® x4 frame grabber with 256 MB DDR SDRAM and MDR26 (original CL) connectors. Includes cable adaptor (aux. I/O).
<b>SOL 2M EV CLF*</b>	Single Medium / Full, up to 10-taps at 70 MHz, Camera Link® PCIe® x4 frame grabber with 256 MB DDR SDRAM and HDR26 (mini CL) connectors. Includes cable adaptor (aux. I/O).
<b>SOL 2M EV CLFL*</b>	Single Medium / Full, up to 10-taps at 70 MHz, Camera Link® PCIe® x4 frame grabber with 256 MB DDR SDRAM and MDR26 (original CL) connectors. Includes cable adaptor (aux. I/O).
<b>SOLEVAACC01PAK*</b>	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.

### Software

Refer to MIL 9 datasheet for more details.

### Cables

- Camera Link® cables are available from camera manufacturers, 3M Interconnect Solutions ([www.3m.com](http://www.3m.com)), Intercon1 ([www.nortechsys.com/intercon](http://www.nortechsys.com/intercon)), Components Express Inc. ([www.componentsexpress.com](http://www.componentsexpress.com)) or other third parties.
- Cables for I/O connectors are available from third parties.

#### Notes:

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



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