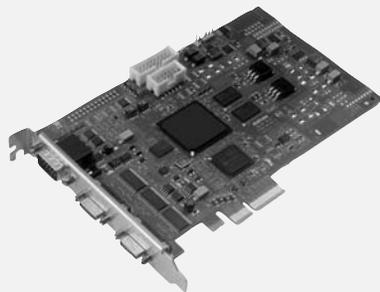# Matrox **Solios eV-CL** ≫

Value-packed Camera Link® frame grabber

Preliminary

Benefits

➤ **perform deterministic image acquisition** by way of the jitter-free Camera Link® interface

➤ **eliminate missed frames** through a x4 PCIe® host interface and ample on-board buffering

➤ **use the most high-performance cameras** with available support for 10-taps (eV-CLF) at 85 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 (eV-CLB)

➤ **minimize space requirements and maximize PC compatibility** through a half-length design with mini Camera Link® connectivity for true single slot operation

➤ **reduce system cabling and eliminate camera power supplies** by way of Power over Camera Link® (PoCL) support

➤ **free valuable host CPU resources** by offloading pre-processing tasks: Bayer interpolation, 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 and 64-bit Windows® XP, Windows® Vista® and 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, 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 (HDR) has lead 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 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 can reduce cabling complexity and eliminate the need for bulky and costly external camera power supplies. Alternatively the Matrox Solios eV-CLF, supporting a single Medium/Full camera with up to 10-taps at up to 85 MHz, can acquire and reconstruct images from the most advanced multi-tap high-performance area and line scan cameras.

High-performance host interface
A x4 PCIe® 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.
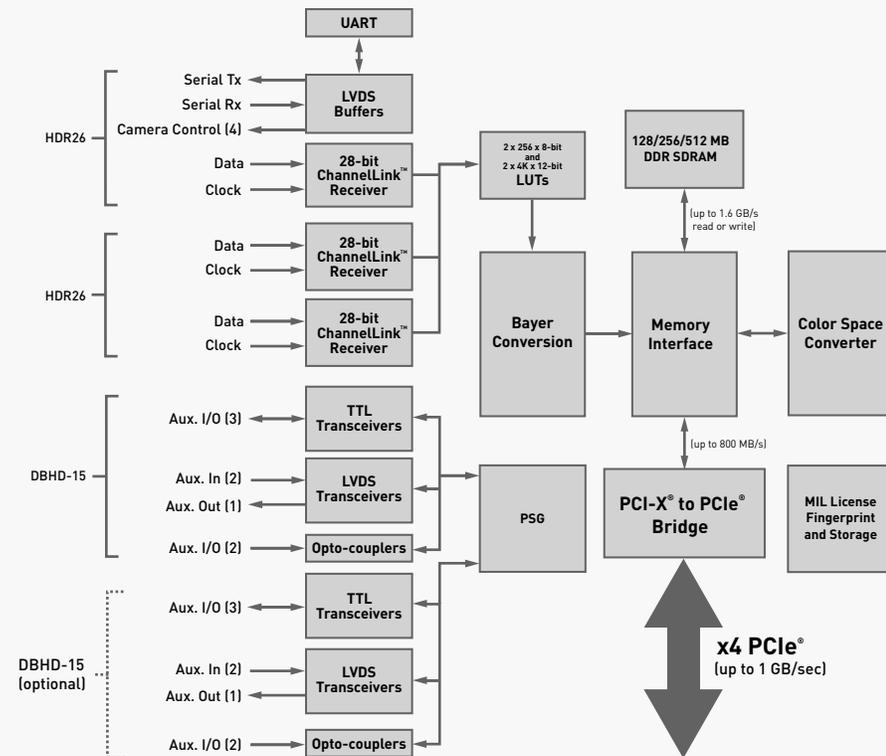
MATROX
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Matrox Solios eV-CLB
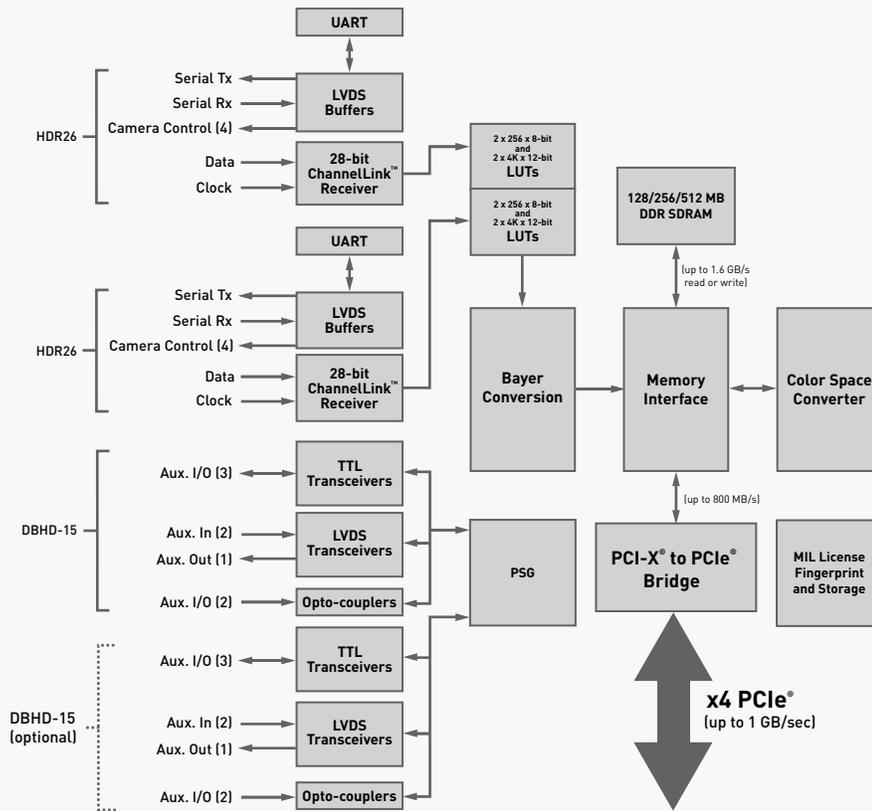
Matrox Solios eV-CLF

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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, 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.

Application development with Matrox Imaging Library (MIL)

Complementing the Matrox Solios eV-CL is the Matrox Imaging Library (MIL) providing 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. The MIL API is not only intuitive and straightforward to use but it is also portable. It allows applications to be easily moved from one supported video interface or operating system to another, which provides platform flexibility and protects the original development investment.

Software maintenance, support and training

The purchase price of MIL gives registered users automatic enrollment in a maintenance program for one year[1]. This program entitles registered users to support from Matrox Imaging's highly qualified technical staff as well as free updates and upgrades.

Matrox Imaging's team of vision specialists is committed to providing customers with the assistance needed to take applications from concept to completion. A front-line support group is available to answer installation questions and provide immediate troubleshooting assistance, while our developers are ready to guide customers through the design, development and deployment phases of their projects.

Matrox Imaging offers our development community a variety of training programs ranging from instructor-led classroom session to live and pre-recorded webcasts. Refer to the support section at www.matrox.com/imaging/training/ for more information.

Specifications

Hardware
- x4 PCIe™ host interface
- 128/256/512 MB of DDR SDRAM
  - up to 1.6 GB/s
- Camera Link® Acquisition
  - two (2) mini-Camera Link® connectors
- two (2) Base Camera Link® ports (eV-CLB)
  - Power over Camera Link® (PoCL) with SafePower
- one (1) Medium/Full Camera Link® port (eV-CLF)
  - up to 10-tap support
- 20 MHz to 85 MHz Camera Link® clock
- serial ports(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-bit and 16-bit
  - BGR packed 24-bit and 48-bit
- output formats
  - mono 8-bit and 16-bit
  - 24-bit BGR/RGB packed and 32/48-bit BGRα/RGBα
  - YUV 16-bit
  - YCrCb
- on-board Bayer conversion
  - 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)
- one (1) DBHD-15 male connector
  - three (3) TTL configurable auxiliary I/O's
  - two (2) LVDS auxiliary inputs
  - one (1) LVDS auxiliary output
  - two (2) opto-isolated auxiliary inputs
- optional add on DBDHD-15 male connector
  - three (3) TTL configurable auxiliary I/O's
  - two (2) LVDS auxiliary inputs
  - one (1) LVDS auxiliary output
  - two (2) opto-isolated auxiliary inputs
- optional add on DB-9[2] male connector
  - one (1) TTL configurable auxiliary I/O
  - one (1) LVDS auxiliary input
  - two (2) opto-isolated auxiliary inputs
- support for one (1) quadrature rotary encoder per port
- MIL license fingerprint and storage

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[3] power consumption
- operating temperature: 0°C to 55° C (32° F to 131° F)
- relative humidity: up to 95% (non-condensing)
- FCC class A (pending)
- CE class A (pending)
- RoHS-compliant

Software Environment
- host drivers for 32/64-bit Microsoft® Windows® XP and Vista®
- host driver for 32/64-bit Linux[4]

Ordering Information

Hardware

Part number	Description
SOL 2M EV CLB*	Single-slot, dual Base, x4 PCIe® Camera Link® frame grabber with 256 MB DDR SDRAM.
SOL 2M EV CLF*	Single-slot, single Medium/Full, x4 PCIe® Camera Link® frame grabber with 256 MB DDR SDRAM.
SOL EV BACC01PAK*	Optional panel mountable DB9 male I/O connector on a PCI expansion bracket for legacy I/O compatibility.

Software

- Refer to MIL 9 datasheet for more details.

Cables

- Mini Camera Link® (HDR) cables are available from camera manufacturers, 3M Interconnect Solutions (www.3m.com), Intercon1 (www.nortechsys.com/intercon), Components Express Inc. (www.componentsexpress.com) or other third parties.

- Cables for I/O connectors are available from third parties.

Notes:

1. First year on the maintenance program begins from the software's original date of purchase.
2. When using optional DB-9 male connector is used, equivalent number and type of signals are not available on the onboard DBHD-15.
3. Power consumption does not include PoCL camera power requirements which are drawn from the 12V supply.
4. Refer to MIL datasheet for supported distributions.

For more information, please call: 1–800-804-6243 (toll free in North America) or (514) 822-6020 or e-mail: imaging.info@matrox.com or http://www.matrox.com/imaging

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