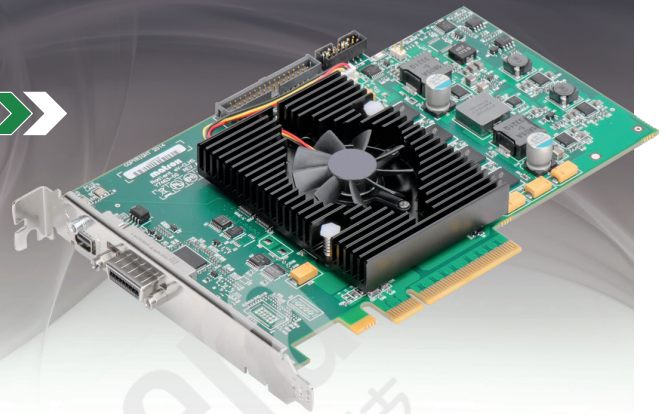


# Matrox Radiant eV-CLHS

Value-packed high-performance Camera Link HS™ frame grabber



## Benefits

**Capture from the next generation of higher resolution and higher speed cameras** using the Camera Link HS M-Protocol interface.

**Ensure reliable delivery to host memory** by way of PCIe® 2.0 x8 host interface and ample on-board buffering.

**Maximize PC compatibility and minimize slot usage** through a half-length design with video input and auxiliary I/Os on the same bracket.

**Offload host processing** with on-board Bayer interpolation, color space conversion and look up tables.

**Simplify application development** using the Matrox Imaging Library (MIL) toolkit on 64-bit Windows® 7/8.1/10 and Linux®¹.

## High-performance Camera Link HS frame grabber

The Matrox Radiant eV-CLHS is one of the first frame grabbers in the industry to support the new Camera Link HS camera interface standard. As a new addition to the Radiant eV-series, the Radiant eV-CLHS continues to build on the family's tradition as a cost-effective frame grabber while providing reliable high-performance image acquisition for demanding machine vision applications.

### A major step with Camera Link HS

Camera Link HS (CLHS) brings improvements to the field-proven Camera Link² standard by offering upgraded performance, higher data bandwidth and longer cable reach, to ensure its longevity as a leading camera interface standard for the foreseeable future. CLHS is designed to support copper connections encoded using 8b/10b technology (M-Protocol). This delivers data transmission rates of up to 2.1 GB/s per cable at up to 15m with a copper cable. In addition to data transmission, CLHS also embeds trigger signals, GPIOs and a command channel between the camera and frame grabber into the same single cable to simplify system connectivity. These new features provide CLHS with the means and flexibility to adapt to the needs of differing and demanding imaging applications.

### Reliable high-performance image acquisition

The Matrox Radiant eV-CLHS offers a single CX4 (copper) connector as per CLHS's M-protocol specification, supporting 7 data lanes and 1 command channel, each running at 3.125 Gbit/s. This enables image acquisition from CLHS cameras at up to 2.1GB/s at distances of up to 15m.

To reliably handle these high data rates, the Matrox Radiant eV-CLHS uses a PCIe® 2.0 x8 host interface – with a peak transfer rate of up to 4GB/s – combined with up to 2GB SDRAM of on-board buffering. The frame grabber can also offload the host CPU from having to perform image pre-processing task (i.e., Bayer interpolation, color space conversion, and LUT mapping).

Maximizing PCIe® slot efficiency, The Matrox Radiant eV-CLHS provides a set of auxiliary I/Os on the same bracket as the CX4 connector for interfacing with rotary encoders, photoelectric sensors and strobe controllers, all in a true single PCIe® slot solution.



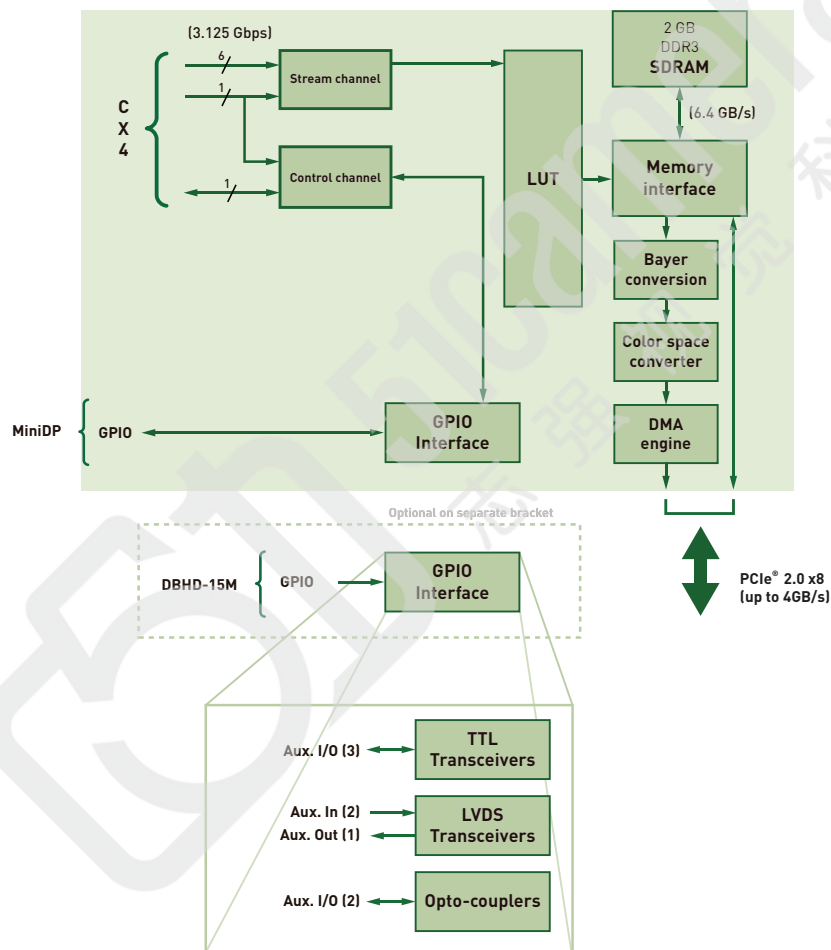
### Lifecycle managed for consistent long term supply

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

### Field-proven application development software

The Matrox Radiant eV-CLHS is supported by 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.

Matrox Radiant eV-CLHS block diagram



## Specifications

### Hardware

- Half-length, full-height board
- PCIe® 2.0 x8 host bus interface
- 2 GB of DDR3 SDRAM
- Camera Link HS™ (CLHS) 1.0- compliant
  - Single C2, 7M1
    - CX4 connector
    - M-protocol supporting up to 7 data lanes and 1 command channel
    - LED indicator of CLHS state
- Supports frame and line scan sources
- On-board image reconstruction
- On-board color space conversion
  - Input formats
    - Mono/Bayer 8-bit and 16-bit
    - BGR packed 24-bit and 48-bit
  - Output formats
    - Mono 8-bit and 16-bit
    - Mono/Bayer 8-bit and 16-bit
    - BGR packed 24-bit and 48-bit
    - BGR planar 24-bit and 48-bit
    - YUV 16-bit
    - BGRa 32-bit
- On-board look-up tables (LUTs)
  - 8/10/12 bit support
- On-board Bayer conversion
  - GB, BG, GR, RG pattern support
- One (1) DBHD-15 male GPIO connector (via mDP to DBHD-15 cable adaptor)
  - 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 additional DBHD-15 male GPIO connector (on separate brackets)
  - Three (3) TTL configurable auxiliary I/O's
  - Two (2) LVDS auxiliary inputs
  - One (1) LVDS auxiliary output
  - Two (2) opto-isolated auxiliary inputs
- Support for one (1) quadrature rotary encoder per GPIO connector
- MIL license fingerprint and storage

## Specifications (Cont.)

### Software

- Matrox Imaging Library (MIL) drivers for 64-bit Windows 7/8.1/10
- MIL drivers for 64-bit Linux<sup>1</sup>

### Dimensions and environmental information

- 167.6 mm L x 111.1 mm x 18.7 mm (6.6" x 4.38" x 0.74")
- 250m A @ 3.3V, 1.25 @ 12V or 15.8 W total power
- operating temperature: 0°C to 55°C (32°F to 131°F)
- FCC class A
- CE class A
- RoHS-compliant

## Ordering Information

### Hardware

#### Part number & Description

<b>RAD EV CS 2G 1C2</b>	Single C2, 7M1 (CX4) Camera Link HS™ PCIe® 2.0 x8 frame grabber with 2GB DDR3 SDRAM. Includes cable adaptor.
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#### Notes:

1. Ask for availability.
2. Camera Link and Camera Link HS are non-compatible standards.

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