

# Zebra **Radiant eV-CL** >>

Feature-packed high-performance Camera Link frame grabber series

# Overview

## Comprehensive Camera Link frame grabbers

Zebra® Radiant eV-CL is a series of Camera Link® frame grabbers with the most comprehensive features currently available in the industry. The frame grabber line-up offers reliable image acquisition, extended cable length support, and high frame-rate image capture that will extend the effectiveness of the Camera Link standard for years to come.

## Versatile high-performance image acquisition

The Zebra Radiant eV-CL series is capable of handling image capture from a single lowest data-rate Camera Link device to multiple maximum-bandwidth Camera Link cameras. With the possibility of interfacing up to four Base or two Full/80-bit mode Camera Link cameras at up to 85 MHz on a single board with PoCL support, the Zebra Radiant eV-CL provides users with the flexibility to configure systems to best match imaging needs while simplifying overall setup.

A PCIe 2.1 x4 or x8 host interface provides the throughput necessary to ensure the continuous flow of pixels to host memory while also giving flexibility in the choice of host computer. With a peak bandwidth of up to 2 or 4 GB/s, the host interface prevents pixels from inadvertently being discarded. Furthermore—via a programmable option—the Zebra Radiant eV-CL is capable of handling applications where image-capture rates exceed the tens of thousands of frames per seconds, all without host intervention. The Zebra Radiant eV-CL series is also designed to work at extended cable lengths, allowing cameras to be placed at distances previously not possible from the computer while maintaining the same maximum throughput.

## Lifecycle managed for consistent long-term supply

Each component on the Zebra Radiant eV-CL has been carefully selected to ensure product availability in excess of five years. The Zebra Radiant 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 repeated validation of constantly changing products.

### Zebra Radiant eV-CL at a glance

**Support the most high-performance Camera Link cameras** with available support for Full and 80-bit mode at up to 85 MHz

**Perform deterministic image acquisition** by way of the jitter-free Camera Link 2.1 interface

**Maximize system compatibility** with the choice of PCIe® 2.1 x4 or x8 connectivity

**Eliminate missed frames** with ample onboard buffering and PCIe bandwidth

**Optimize multi-camera applications** via support for up to four Base or two Full/80-bit Camera Link cameras per board

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

**Improve and simplify system connectivity** with Power-over-Camera-Link (PoCL) support at extended cable lengths

## Software Environment

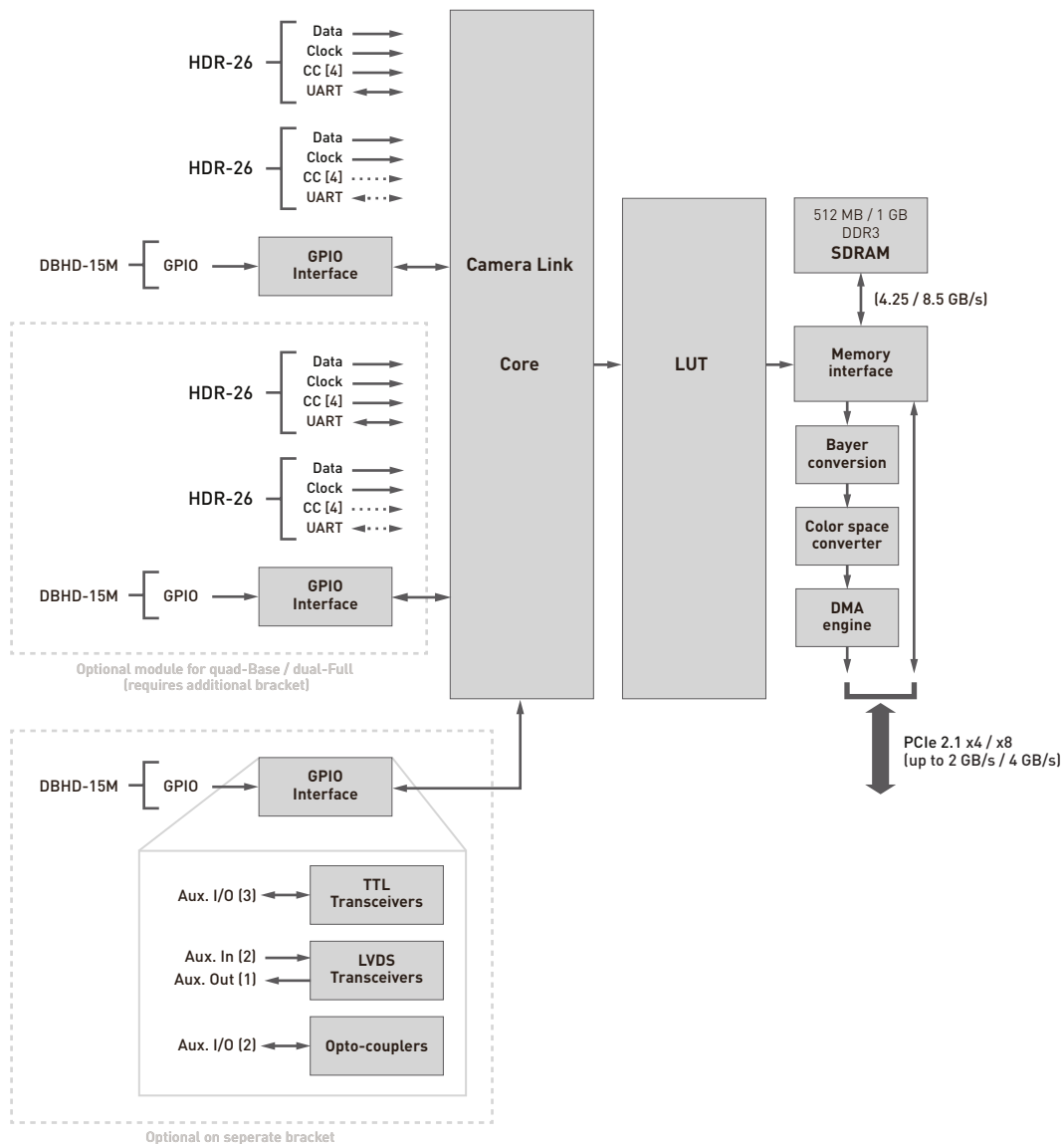
## Field-proven application development software

The Zebra Radiant eV-CL series is supported by Aurora Imaging Library, formerly Matrox Imaging Library (MIL), a comprehensive collection of software tools for developing industrial imaging applications. Aurora Imaging Library 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 [Aurora Imaging Library datasheet](#) for more information.

## Connectivity

## Zebra Radiant eV-CL block diagram



## Specifications

Zebra Radiant eV-CL	
Hardware	
Host interface	
Interconnect	PCIe 2.1 x4 / x8
Camera/video interface	
Standard	Camera Link 2.1
Configuration	Two (2) independent Base Camera Link ports (dual-Base)
	One (1) Medium/Full Camera Link port (single-Full)
	Up to 80-bit mode
	Four (4) independent Base Camera Link ports (quad-Base)
	Two (2) independent Medium/Full Camera Link ports (dual-Full)
	Up to 80-bit mode
Speeds	20 MHz to 85 MHz Camera Link clock
Connectors	HDR26 (mini Camera Link)
Power output	PoCL with SafePower
Miscellaneous	Extended Camera Link cable length support
	Supports frame and line scan sources
Memory	
Type	DDR3 SDRAM
Quantity	512 MB or 1 GB
Purpose	Image buffering and preprocessing
Image processing capabilities	
Onboard look-up tables (LUTs)	8-/10-/12-bit support
Onboard Bayer interpolation	GB, BG, GR, and RG pattern support
Onboard color space conversion	Input formats: 8-/16-bit mono/Bayer, 24-/48-bit packed BGR
	Output formats: 8-/16-bit mono, 24-/48-bit packed/planar BGR, 16-bit YUV, 32-bit BGRa
I/Os	
Types	Three (3) TTL configurable auxiliary I/Os per connector
	Two (2) LVDS auxiliary inputs per connector
	One (1) LVDS auxiliary output per connector
	Two (2) opto-isolated auxiliary inputs per connector
Connectors	One (1) / two (2) DBHD-15 male GPIO connector(s) (dual-Base and single-Full / quad-Base and dual-Full)
	One (1) / two (2) optional additional DBHD-15 male GPIO connector(s) (dual-Base / quad-Base)
I/Os synchronization	One (1) quadrature rotary encoder per Camera Link port
	Four (4) 16-bits timer
Physical	
Form factor	Half-length, full-height, PCIe add-in card
Dimensions (L x W x H)	167.6 x 111.1 x 18.7 mm (6.6 x 4.38 x 0.74 in)
	Additional Camera Link module for quad-Base / dual-Full: 45.0 x 106.65 x 18.7 mm (1.77 x 4.20 x 0.74 in)

## Specifications (cont.)

Zebra Radiant eV-CL	
Environmental	
Operating temperature	0°C to 55°C (32°F to 131°F)
Relative humidity	Up to 95% (non-condensing)
Certifications	
Electromagnetic compatibility	FCC Class A
	CE Class A
	RoHS-compliant
Software	
Compatible software	Aurora Imaging Library
Software drivers	Aurora Imaging Library drivers for Windows 7 (32-/64-bit)
	Aurora Imaging Library drivers for Windows 10 (32-/64-bit)
	Aurora Imaging Library driver for Linux (64-bit)
Camera communication	GenICam CLProtocol 1.2
	GenICam GenCP 1.3
Licensing provisions	Aurora Imaging Library license fingerprint and storage

## Ordering Information

Part number	Description
Hardware	
RAD EV 5M CLDB	Zebra Radiant eV-CL dual-Base Camera Link PCIe 2.1 x4 frame grabber with 512 MB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
RAD EV 5M CLSF	Zebra Radiant eV-CL single-Full Camera Link PCIe 2.1 x4 frame grabber with 512 MB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
RAD EV 1G CLDB	Zebra Radiant eV-CL dual-Base Camera Link PCIe 2.1 x8 frame grabber with 1 GB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
RAD EV 1G CLSF	Zebra Radiant eV-CL single-Full Camera Link PCIe 2.1 x8 frame grabber with 1 GB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
RAD EV 1G CLQB	Zebra Radiant eV-CL quad-Base Camera Link PCIe 2.1 x8 frame grabber with 1 GB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).
RAD EV 1G CLDF	Zebra Radiant eV-CL dual-Full Camera Link PCIe 2.1 x8 frame grabber with 1 GB DDR SDRAM and HDR26 (mini Camera Link) connectors. Includes cable adaptor (auxiliary I/O).



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