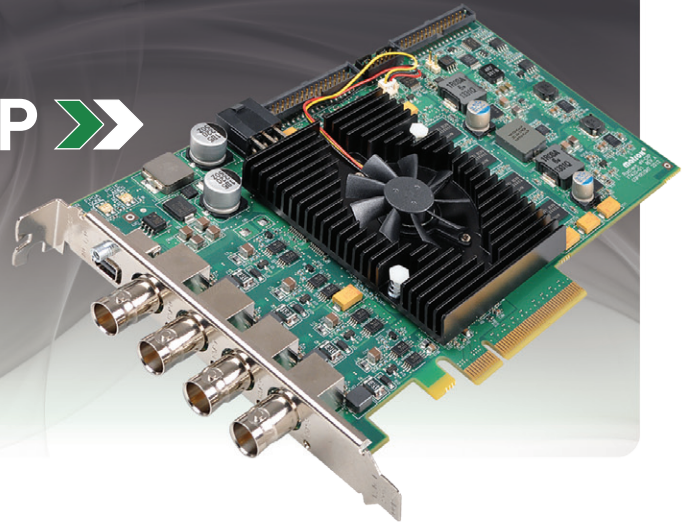


Matrox Radiant eV-CXP >>>

Value-packed high-performance CoaXPress frame grabber.



Benefits

Capture from the next generation of higher resolution and higher speed cameras using the CoaXPress (CXP) interface

Acquire from multiple independent cameras at once by way of four (4) CXP links each supporting up to 6.25 Gbps of input bandwidth

Interface to the highest performance cameras through the ability to combine the four (4) CXP links for up to 25 Gbps of input bandwidth

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 inputs and auxiliary I/Os on the same bracket¹

Reduce cabling complexity and eliminate power supplies by way of Power over CoaXPress (PoCXP) support

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 32-bit and 64-bit Windows® 7 and Linux®³

Value-packed high-performance CoaXPress frame grabber

The Matrox Radiant eV-CXP is a cost-effective CoaXPress (CXP) frame grabber derived from the original Matrox Radiant family. By combining a field proven design with the new CXP interface, the Matrox Radiant eV-CXP is a dependable high-performance image capture solution for today and into the foreseeable future.

Moving forward with CoaXPress

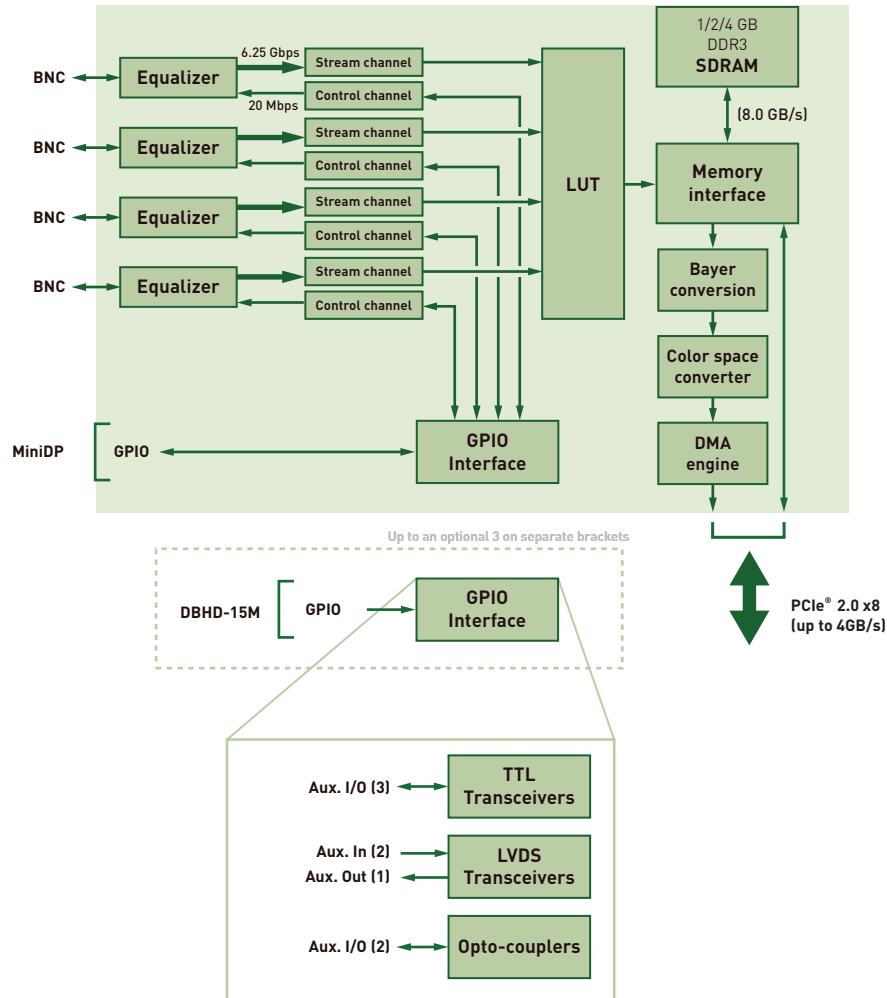
CoaXPress is a new camera interface standard that takes advantage of common coax cabling to transmit images at rates and distances above and beyond previous standards. With CXP, image data can be transmitted at up to 6.25 Gbps using a single coaxial cable and up to 25 Gbps using four cables to a maximum of 40 meters². CXP's high-bandwidth makes it the right match for a new generation of cameras with larger and faster image sensors.

CXP's full duplex design enables the transmission of camera configuration and control along with image data on the same cable. The Power over CoaXPress (PoCXP) capability further simplifies cabling by providing a camera with up to 13W per cable. This unified cabling facilitates the upgrade of legacy imaging systems from analog to digital.

Reliable high-performance image acquisition

The Matrox Radiant eV-CXP provides four independent CXP links through the required BNC connectors. This allows for simultaneous capture from up to four cameras each running at different CXP speeds (i.e., 1.25, 2.5, 3.125, 5.0 or 6.25 Gbps). For high-bandwidth applications, the frame grabber can also capture from a single camera transmitting image data at up to 25 Gbps using link aggregation.

Matrox Radiant eV-CXP



Reliable high-performance image acquisition (cont.)

To reliably handle these high data rates, the Matrox Radiant eV-CXP uses a PCIe® 2.0 x8 host interface – with a peak transfer rate of up to 4GB/s – combined with up to 4GB SDRAM of on-board buffering. In cases with extremely high video frame rates (i.e., thousands of frames per second), users have the option of relying on the on-board MicroBlaze™ soft processor to offload image acquisition management from the host CPU. 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).

The Matrox Radiant eV-CXP further simplifies overall system integration by providing camera power, trigger and control over each CXP link, as well as four independent sets of auxiliary I/O for interfacing with rotary encoders, photoelectric sensors and strobe controllers. By having the primary set of auxiliary I/Os on the same bracket as the BNC connections, the Matrox Radiant eV-CXP offers a true single PCIe® slot solution for single camera applications⁴.

Lifecycle managed for consistent long term supply

Each component on the Matrox Radiant eV-CXP was carefully selected to ensure product availability in excess of five years. The Matrox Radiant eV-CXP 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-CXP 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

- half-length full-height board
- PCIe® 2.0 x 8 host bus interface
- 1/2/4 GB of DDR3 SDRAM
- CoaXPress (CXP) acquisition
 - four (4) independent CXP links (up to 6.25 Gbit/s)
 - BNC connector
 - Power over CXP (PoCXP) with Safe Power (up to 13W)
 - Auto link speed detection
 - LED indicator of link state
- supports frame and line scan sources
- on-board image reconstruction
- on-board 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
 - 16-bit YCbCr
 - 32-bit BGRa
- on-board look-up tables (LUTs)
 - 8/10/12 bit support
- on-board Bayer conversion
 - GB, BG, GR, RG pattern support
- Up to four (4) DBHD-15 male GPIO connectors (one (1) on main board through MiniDP adaptor cable and three (3) on separate brackets)
 - three (3) TTL configurable auxiliary I/Os
 - two (2) LVDS auxiliary inputs
 - one (1) LVDS auxiliary output
 - two (2) opto-isolated auxiliary inputs
- support for one (1) quadrature rotary encoder per CXP link
- MIL License fingerprint and storage

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

Software drivers

- Matrox Imaging Library (MIL) drivers for 32/64-bit Microsoft® Windows® XP/Vista®/7
- MIL drivers for 32/64-bit Linux®³

Ordering Information

Hardware

Part number	Description
RAD EV 1G 4C6*	Quad CXP-6 (6.25 Gbps) frame grabber with 1GB DDR3 SDRAM. Includes cable adaptor.
RADACCPAK01*	Accessory kit for RAD EV 1G 4C6*. Includes two (2) aux. I/O cable adaptors, each with two (2) DBHD-15 male connectors.

Software

Refer to MIL datasheet.

Cables

CoaXPress cables available from camera manufacturer, Components Express, Inc. (<http://www.componentsexpress.com>) or other third parties. GPIO cables available from third parties.

Notes:

1. Good for a single camera application. Multi-camera applications may require auxiliary I/Os located on additional brackets.
2. Distances of over 100m can be achieved at 3.125 Gbps.
3. Ask for availability.
4. Additional sets of auxiliary I/Os for multi-camera applications are available through additional adaptor brackets sold separately.

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