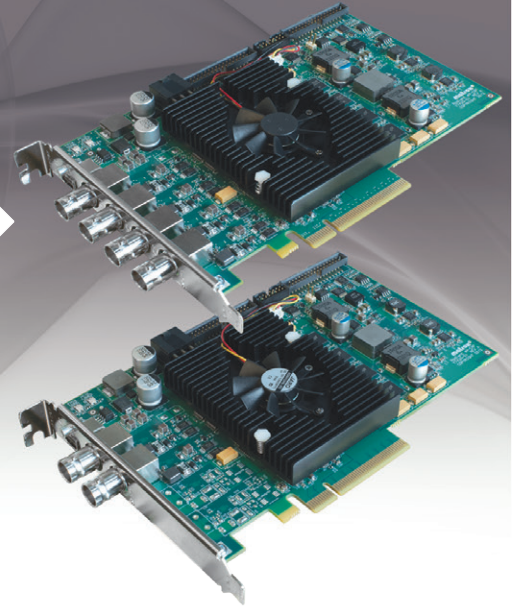


Matrox Radiant eV-CXP >>>

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 two (Dual) or four (Quad) CXP connections each supporting up to 6.25 Gbps of input bandwidth

Interface to the highest performance cameras through the ability to combine CXP connections 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 peak location for 3D profiling², 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® 7/8.1/10 and Linux®, and RTX64³ (RTOS)

Value-packed high-performance CoaXPress frame grabber

The Matrox Radiant eV-CXP is a cost-effective CoaXPress (CXP) frame grabber with specific models supporting up to two (Dual) or four (Quad) simultaneous connections. 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 meters⁴. CXP's high-bandwidth makes it the right match for a new generation of cameras with larger and faster image sensors.

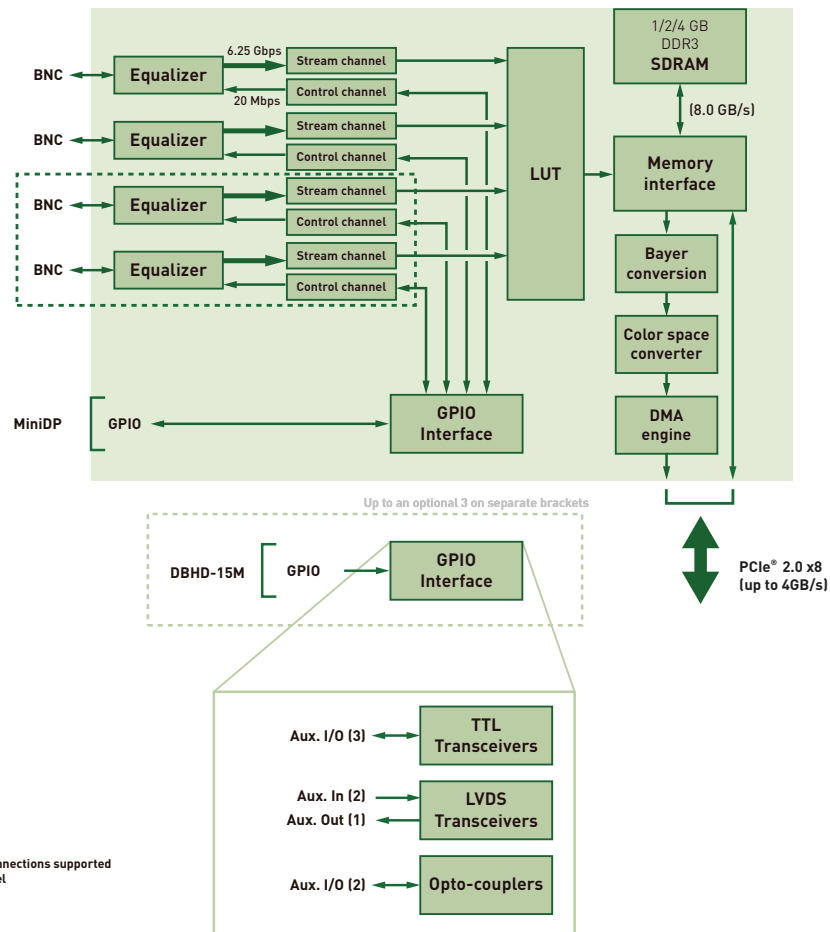
CXP's full duplex design enables the transmission of camera configuration and control along with image data on the same cable. The Power over CoaXPress (PoCXP) capability further simplifies cabling by providing a camera with up to 13W per cable. This unified cabling facilitates the upgrade of legacy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

Reliable high-performance image acquisition

The Matrox Radiant eV-CXP provides two (Dual) or four (Quad) independent CXP connections through BNC connectors. This allows for simultaneous capture from up to two (Dual) or four (Quad) 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 Radiant eV-CXP frame grabber can also capture from a single camera transmitting image data at up to 12.5 Gbps (Dual) or 25 Gbps (Quad) using connection 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. The frame grabber can also offload the host CPU from having to perform image pre-processing task (i.e., peak location for 3D profiling², 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 connection, as well as two (Dual) or four (Quad) 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 applications⁵.

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
 - J11A NIF-001-2010 Ver. 1.0 certified
 - two (Dual) or four (Quad) independent CXP connections (up to 6.25 Gbit/s)
 - BNC connector
 - Power over CXP (PoCXP) with Safe Power (up to 13W)
 - Auto connection speed detection
 - LED indicator of connection 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 and RG pattern support
- on-board peak location for 3D profiling²
 - up to 3 peaks per frame
 - maximum frame height of 512 lines
- 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 connection
- 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 Windows® 7/8.1/10
- MIL driver for RTX64³
- MIL drivers for 32/64-bit Linux®

Corporate headquarters:

Matrox Electronic Systems Ltd.
1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: +1 (514) 685-2630
Fax: +1 (514) 822-6273

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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Ordering Information

Hardware

Part number	Description
RAD EV 1G 2C6*	Dual CXP-6 (6.25 Gbps) frame grabber with 1GB DDR3 SDRAM. Includes cable adaptor.
RAD EV 1G 4C6*	Quad CXP-6 (6.25 Gbps) frame grabber with 1GB DDR3 SDRAM. Includes cable adaptor.
RAD EV 1G 4C6 /3D*	Quad CXP-6 (6.25 Gbps) frame grabber with 1GB DDR3 SDRAM for 3D profiling. Includes cable adaptor.
RADACCPAK01*	Accessory kit for RAD EV 1G 2C6*, RAD EV 1G 4C6*, and RAD EV 1G 4C6 /3D*. 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. Applies to single camera applications. Multi-camera applications may require auxiliary I/Os located on additional brackets.
2. With Radiant eV-CXP for 3D profiling (RADEV1G4C6/3D*) and MIL 10 Update 29 (or successor)
3. Ask for availability.
4. Distances of over 100m can be achieved at 3.125 Gbps.
5. Additional sets of auxiliary I/Os for multi-camera applications are available through additional adaptor brackets sold separately.

19 Avenue de Norvège
91140 Villebon sur Yvette
FRANCE

info@techway.fr
+33 (0)1 64 53 37 90

www.techway.fr

matrox®