

Jan. '09 Product Catalog

## Digital Video



a HEICO company

Engineering Design Team, Inc.



## You need it. We've got it.

- ▶ High-speed Camera Link and AIA image capture
- ▶ Long-range fiberoptic extension systems
- ▶ PCI, CompactPCI, PMC, and PCI Express form factors
- ▶ Unique solutions to meet your needs



a HEICO company



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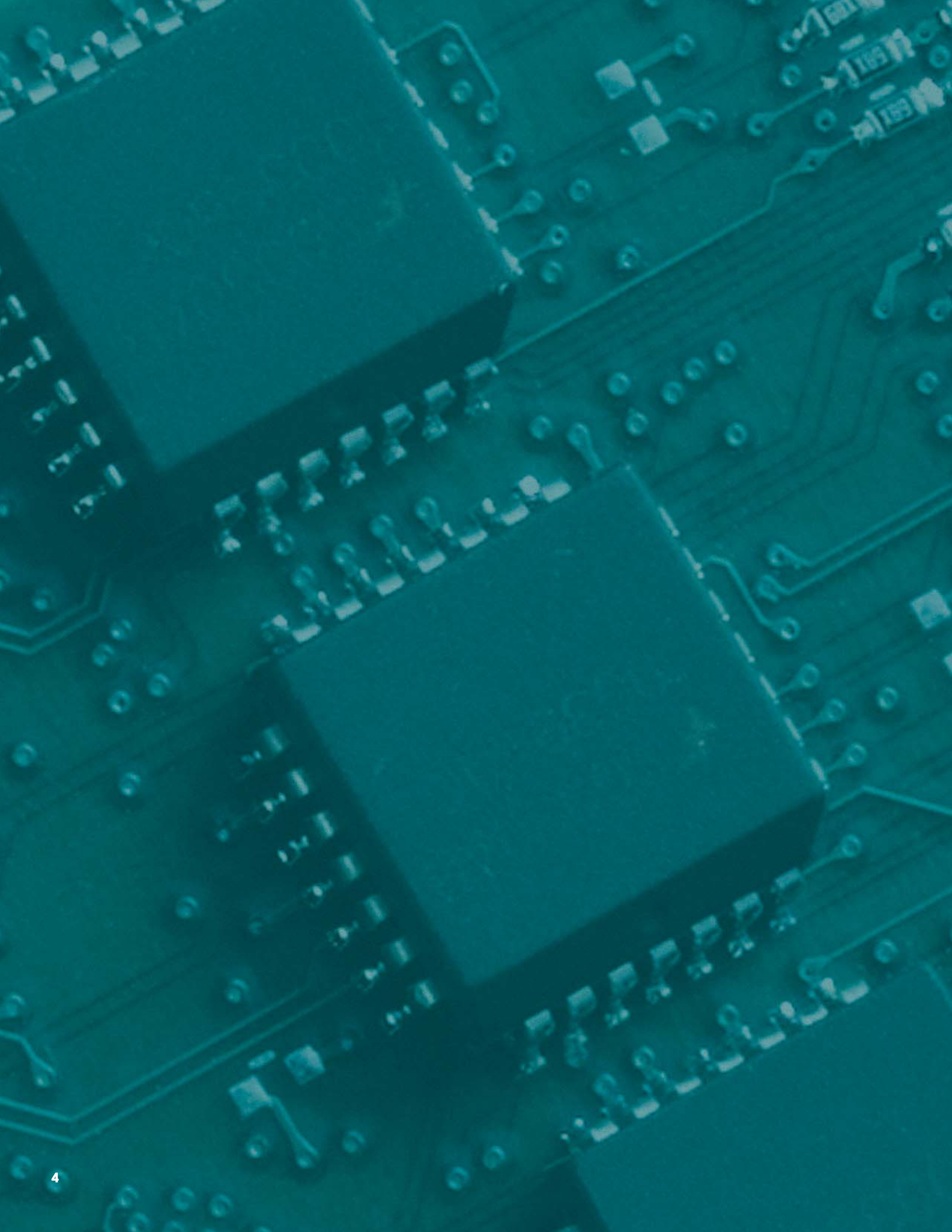
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*Use this section to look up various industry-related terms.*

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## Find What You Need

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EDT designs **Camera Link** and AIA interfaces for **long-range fiberoptic** and standard format. An interface for DVB-ASI/SMPTE is also available.

Use the **Compatibility Guide** on the following pages to find the right one for you.

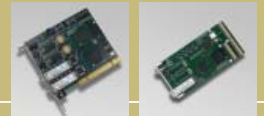
# Compatibility Guide

Digital video: Fiberoptic or standard Camera Link, AIA, or DVB-ASI/SMPTE

Find the right products for your needs.

PCI  
DV FOX

PMC  
DV FOX



## Fiberoptic Compatibility

For Camera Link

RCX C-Link adapter



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For AIA (LVDS or RS422)

RCX LVDS/RS422 adapter



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## Data Compatibility

Camera Link – input

Base mode  
Medium mode  
Full mode

●

●

●

●

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Camera Link – output (simulation)

Base mode  
Medium mode

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–

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–

AIA

LVDS  
RS422

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●

●

●

DVB-ASI

SMPTE

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–

## Bus Compatibility

PCI Express

8-lane  
4-lane

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–

PCI

32 bits, 66 MHz

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CompactPCI

32 bits, 33 MHz (3U or 6U)

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PMC

32 bits, 66 MHz

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PCIe8  
DV C-Link

PCIe4  
DV C-Link

PCI  
DV C-Link

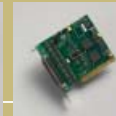
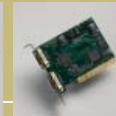
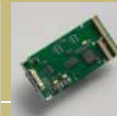
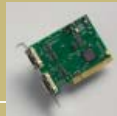
cPCI  
DV C-Link

PMC  
DV C-Link

PCI  
DV CLS

PCI  
DVa

PCI/PCIe  
MSDV



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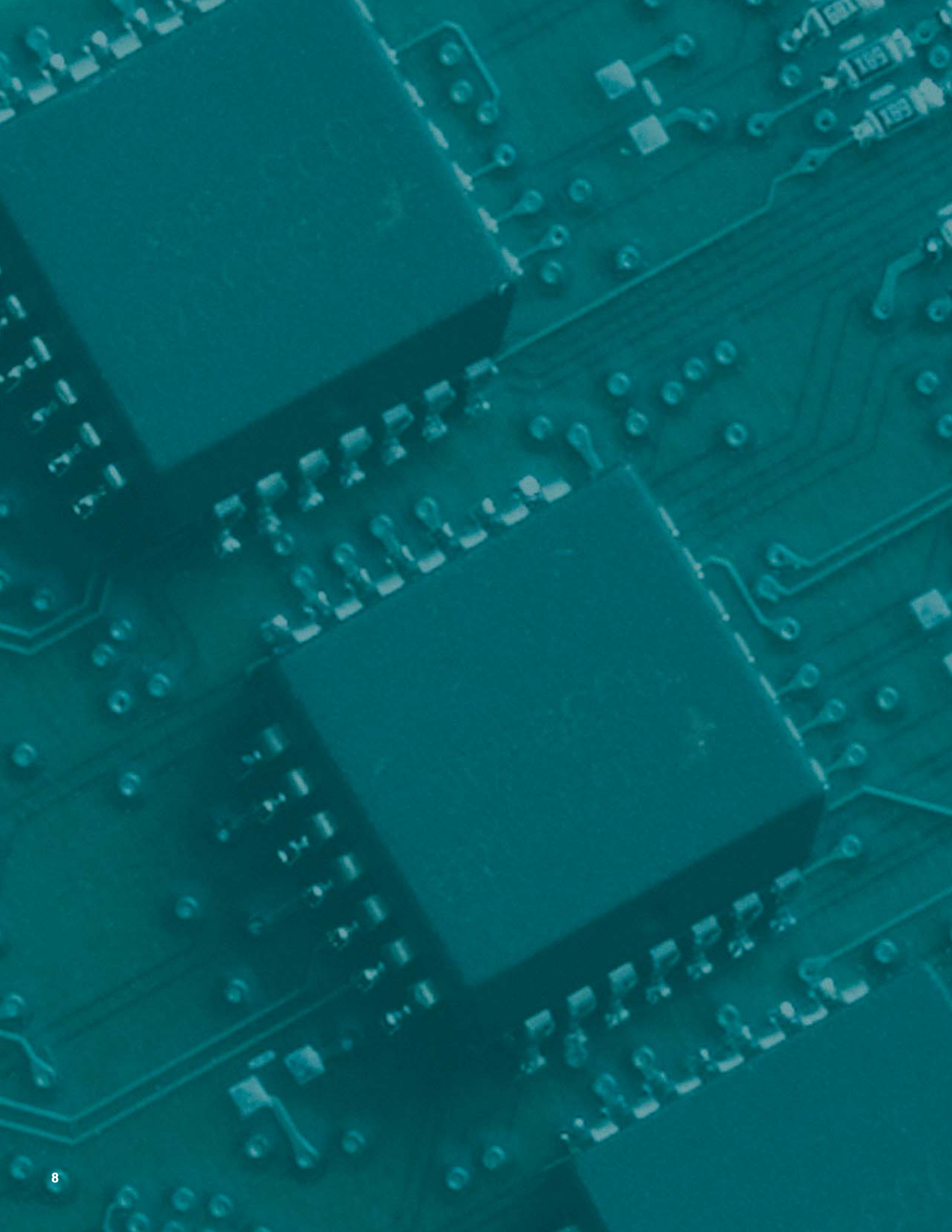
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## Product Overviews

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Now that you've found the **right products** for your needs, use the **Product Overviews** on the following pages to learn more about the products you selected.

# RCX C-Link

Remote camera extension adapter for Camera Link to fiberoptic



## Description

The RCX C-Link is a remote camera extension module that adapts Camera Link data from a digital video camera to fiberoptic cable. The camera can be located up to 10 kilometers from the host computer.

The RCX C-Link, similar in size to a Camera Link cable connector, attaches directly to the MDR-26 connector on the back of the camera. An LC duplex fiberoptic cable then attaches to the back of the module.

Module pairs can be used to create a long-range fiberoptic connection to an EDT or third-party Camera Link framegrabber. Alternately, an EDT direct-from-fiber (FOX) framegrabber can be used, eliminating the need for modules at the computer end.

All camera modes (base, medium, and full) are supported, and many configurations are possible.

## Features

- Module adapts Camera Link data to a fiberoptic interface
- Attaches to the camera's MDR-26 connector, replacing Camera Link cables
- Allows remote operation – camera can be located up to 10 km from host
- Provides electrical isolation of camera from host
- Supports data rates up to 240 MB/s (base mode) or up to 750 MB/s (full mode)
- Can connect directly to an EDT FOX board
- Can join with a second RCX C-Link module to form a fiberoptic extension cable

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Specifications

<b>Product Type</b>	RCX C-Link is a remote camera extension adapter for Camera Link to fiberoptic; typically it is used with a PCI or PMC DV FOX interface.		
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory		
<b>Data Rates</b>	Fiber operates at 1.25 or 2.5 Gb/s, passing video data at up to 120 or 240 MB/s for base mode, or up to 750 MB/s for full mode		
<b>Camera Link Compliance</b>	Modes supported	Base (one module) or medium or full (two modules – specially configured)	
	Pixel clock rate	20 to 80 MHz	
	Serial	9600 to 115,200 baud	
	CC1 - CC4	Discretely programmable for steady-state, trigger, and timed pulse	
	Connectors	One (MDR 26-pin) for data and control	
<b>EU Compliance</b>	CE	EMC directive 2004/108/EC and low voltage directive 73/23/EEC	
	RoHS	Contact EDT	
	WEEE	WEEE directive 2002/96/EC	
<b>Laser Safety</b>	Class 1		
<b>Noise</b>	0 dB		
<b>Transceivers</b>	One (wavelength 850 nm or optional 1310 nm), with duplex LC		
	<b>Wavelength</b>	<b>Cable</b>	<b>Range at 1.25 Gb/s</b>
	850 nm	62- $\mu$ MMF	300 meters
	850 nm	50- $\mu$ MMF	500 meters
	1310 nm	9- $\mu$ SMF	10 kilometers
<b>Range at 2.5 Gb/s</b>	150 meters		
	250 meters		
	5 kilometers		
<b>Triggering / Serial</b>	Via Camera Link, or externally via connector (optocoupled and optional 7-pin Lemo – mate to FGG.0B.307.CLAD.56)		
<b>Connectors</b>	Standard 2-pin, for power only – or 7-pin Lemo for power, external triggering, and external serial		
<b>Cabling</b>	Adapter cable	Purchased separately	Use if obstacles prevent the module from plugging into the camera.
	Fiber	Purchased separately	Consult EDT about options.
	Sync	For full mode only	40 MHz for camera input of 20 to 40 MHz
			66.6 MHz for camera input of 41 to 66.6 MHz
			80 MHz for camera input of 66.7 to 80 MHz
<b>Power</b>	Less than 3 W at 5 to 18 V		
<b>Physical</b>	Weight	4 oz. typical	
	Dimensions	2.4 x 1.6 x 0.75 in. (requires an additional 2.2 in. for a 90° bend for the LC)	
<b>Environmental</b>	Temperature	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only)	
		Non-operating -20° to 60° C	
	Humidity	Operating 20% to 80%, non-condensing at 40° C	
		Non-operating 95%, non-condensing at 40° C	
<b>System and Software</b>	System requirements and EDT-provided software driver packages are discussed in the specifications for your framegrabber.		

## Ordering Options

- Camera Link mode: Base / medium / full
- Transceivers: **850** / 1310 nm
- Triggering (external): 7-pin Lemo
- Cabling: See options above
- Power adapter: **110** / 220 V
- Environmental: Extended temperature

**Bold** is default. **Ask about custom options.**

# RCX LVDS/RS422

Remote camera extension adapter for AIA to fiberoptic



## Description

The RCX LVDS/RS422 is a remote camera extension module that adapts AIA (LVDS or RS422) data from a digital camera to fiberoptic cable. The camera can be located up to 10 kilometers from the host computer.

The module has a 68-pin connector to support a wide range of AIA cameras.

A module pair can be used to create a long-range fiberoptic connection to an EDT or third-party framegrabber. Alternately, an EDT direct-from-fiber (FOX) framegrabber can be used, eliminating the need for a module at the computer end.

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Features

- Module adapts AIA (LVDS/RS422) data to a fiberoptic interface
- Accepts images of any resolution; sends data to a fiberoptic interface to send to host via DMA
- Allows remote operation – camera can be located up to 10 km from host
- Provides electrical isolation between camera and host
- Supports data rates up to 125 MB/s
- Can connect directly to an EDT FOX board
- Can join with a second RCX module to form a fiberoptic extension cable

## Specifications

Product Type	RCX LVDS/RS422 is a remote camera extension adapter for AIA to fiberoptic; typically it is used with a PCI or PMC DV FOX interface.		
Memory	FIFOs for up to several lines of data; no frame memory		
Data Rates	Fiber operates at 1.33 Gb/s, passing video data at up to 125 MB/s.		
AIA Compliance	Supports most AIA format (LVDS/RS422) cameras that provide line- and frame-valid signals and a continuous pixel clock. For a list of tested cameras, see <a href="http://www.edt.com/pcidv_cameras.html">www.edt.com/pcidv_cameras.html</a> .		
EU Compliance	CE RoHS WEEE	Contact EDT Contact EDT WEEE directive 2002/96/EC	
Laser Safety	Class 1		
Noise	0 dB		
Transceivers	One (wavelength 850 nm or optional 1310 nm), with duplex LC		
	<b>Wavelength</b>	<b>Cable</b>	<b>Range at 1.33 Gb/s</b>
	850 nm	62- $\mu$ MMF	300 meters
	850 nm	50- $\mu$ MMF	500 meters
	1310 nm	9- $\mu$ SMF	10 kilometers
Triggering / Serial	Via CC lines, or externally via connectors (opto-coupled and optional 7-pin Lemo – mate to FGG.OB.307.CLAD.56)		
Power	Less than 5 W at 24 V		
Cabling	Cabling is purchased separately; consult EDT for options.		
Physical	Weight Dimensions	10.1 oz. typical 4.5 x 2.7 x 1.0 in. (requires an additional 2.2 in. for a 90° bend for the LC)	
Environmental	Temperature Humidity	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C Operating 20% to 80%, non-condensing at 40° C Non-operating 95%, non-condensing at 40° C	
System and Software	System requirements and EDT-provided software driver packages are discussed in the specifications for your framegrabber.		

## Ordering Options

- Signal levels: **LVDS** or RS422
- Triggering (external): 7-pin Lemo
- Transceivers: **850** / 1310 nm
- Power adapter: **110** / 220 V
- Environmental: Extended temperature

**Bold is default. Ask about custom options.**

# PCI DV FOX

PCI digital video fiberoptic interface for Camera Link or AIA



## Description

The PCI DV FOX is a long-range fiberoptic interface that provides high-resolution image capture for Camera Link or AIA (LVDS/RS422) cameras. It supports one medium- or up to two base-mode cameras, at distances up to 10 kilometers from the host computer.

The board pairs with one or more EDT RCX C-Link or RCX adapter modules to convert data from most camera types to fiberoptic cable. Alternately, this fiberoptic interface can be incorporated in the camera.

The board fits in any PCI bus. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Features

- Fiberoptic interface fits in a PCI or PCI-X bus
- Supports up to two cameras (Camera Link, LVDS, or RS422) via EDT's RCX or RCX C-Link adapter module
- Accepts images of any resolution; sends data directly to host via DMA
- Allows remote operation – camera can be located up to 10 km from host
- Provides electrical isolation of camera from host
- Provides onboard region-of-interest control
- Supports data rates up to 220 MB/s, as supported by host

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Specifications

<b>Product Type</b>	PCI DV FOX is a PCI digital video fiberoptic interface; typically it is used with an RCX C-Link or RCX LVDS/RS422 adapter.		
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory		
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host	
<b>Camera Link Compliance (with RCX C-Link module)</b>	Modes supported Pixel clock rate Serial CC1 - CC4 For a list of tested cameras, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base – common configurations 20 to 80 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse	
<b>AIA Compliance (with RCX module)</b>	Supports most AIA format (LVDS/RS422) cameras that provide line- and frame-valid signals and a continuous pixel clock. For a list of tested cameras, see <a href="http://www.edt.com/pcidv_cameras.html">www.edt.com/pcidv_cameras.html</a> .		
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT Contact EDT WEEE directive 2002/96/EC	
<b>PCI Compliance</b>	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 (will work in a PCI-X bus) Yes 66 MHz / 32 bits	
<b>Laser Safety</b>	Class 1		
<b>Noise</b>	0 dB		
<b>Transceivers</b>	One or optional two (wavelength 850 nm or optional 1310 nm), with duplex LCs		
	<b>Wavelength</b>	<b>Cable</b>	<b>Range at 1.25 Gb/s</b>
	850 nm	62- $\mu$ MMF	300 meters
	850 nm	50- $\mu$ MMF	500 meters
	1310 nm	9- $\mu$ SMF	10 kilometers
<b>Triggering</b>	CC lines supported via fiber, or externally via connector (opto-coupled Berg or optional 7-pin Lemo – mate to FGG.0B.307.CLAD.56)		
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.		
<b>Physical</b>	Weight Dimensions	3.3 oz. typical 5.1 x 3.8 in.	
<b>Environmental</b>	Temperature Humidity	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C Operating 20% to 80%, non-condensing at 40° C Non-operating 95%, non-condensing at 40° C	
<b>System and Software</b>	System must have a PCI or PCI-X bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.		

## Ordering Options

- Fiberoptic adapter: RCX C-Link or LVDS/RS422
- Transceivers: **1 / 2 (850 / 1310 nm)**
- Triggering (external): 7-pin Lemo
- Environmental: Extended temperature

**Bold is default. Ask about custom options.**

# PMC DV FOX

PMC digital video fiberoptic interface for Camera Link or AIA



## Description

The PMC DV FOX is a long-range fiberoptic interface that provides high-resolution image capture for Camera Link or AIA (LVDS/RS422) cameras. It supports one medium- or up to two base-mode cameras, at distances up to 10 kilometers from the host computer.

The board pairs with one or more EDT RCX C-Link or RCX adapter modules to convert data from most camera types to fiberoptic cable. Alternately, this fiberoptic interface can be incorporated in the camera.

The compact board fits in any PMC bus. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Features

- Fiberoptic interface fits in a PMC bus
- Supports up to two cameras (Camera Link, LVDS, or RS422) via EDT's RCX C-Link or RCX LVDS/RS422 adapter module
- Accepts images of any resolution; sends data directly to host via DMA
- Allows remote operation – camera can be located up to 10 km from host
- Provides electrical isolation of camera from host
- Provides onboard region-of-interest control
- Supports data rates up to 220 MB/s, as supported by host

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

# Specifications

<b>Product Type</b>	PMC DV FOX is a PMC digital video fiberoptic interface; typically it is used with an RCX LVDS/RS422 or RCX C-Link adapter.		
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory		
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host	
<b>Camera Link Compliance (with RCX C-Link module)</b>	Modes supported Pixel clock rate Serial CC1 – CC4 For a list of tested cameras, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base – common configurations 20 to 80 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse	
<b>AIA Compliance (with RCX module)</b>	Supports most AIA format (LVDS/RS422) cameras that provide line- and frame-valid signals and a continuous pixel clock. For a list of tested cameras, see <a href="http://www.edt.com/pcidv_cameras.html">www.edt.com/pcidv_cameras.html</a> .		
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT RoHS directive 2002/95/EEC WEEE directive 2002/96/EC	
<b>PCI Compliance</b>	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 Yes 66 MHz / 32 bits	
<b>PMC Compliance</b>	P1386.1		
<b>Laser Safety</b>	Class 1		
<b>Noise</b>	0 dB		
<b>MTBF</b>	Estimated at 200,000 hours		
<b>Transceivers</b>	One or optional two (wavelength 850 nm or optional 1310 nm), with duplex LCs		
	<b>Wavelength</b>	<b>Cable</b>	<b>Range at 1.25 Gb/s</b>
	850 nm	62- $\mu$ m MMF	300 meters
	850 nm	50- $\mu$ m MMF	500 meters
	1310 nm	9- $\mu$ m SMF	10 kilometers
			<b>Range at 2.5 Gb/s</b>
			150 meters
			250 meters
			5 kilometers
<b>Triggering</b>	CC lines supported via fiber, or externally via connector (opto-coupled Berg or optional 7-pin Lemo – mate to FGG.OB.307.CLAD.56)		
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.		
<b>Physical</b>	Weight Dimensions	2.9 oz. typical 6.0 x 2.9 in.	
<b>Environmental</b>	Temperature Humidity	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C Operating 20% to 80%, non-condensing at 40° C Non-operating 95%, non-condensing at 40° C	
<b>System and Software</b>	System must have a PMC bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.		

## Ordering Options

- Fiberoptic adapter: RCX C-Link or LVDS/RS422
- Transceivers: **1 / 2 (850 / 1310 nm)**
- Triggering (external): 7-pin Lemo
- Environmental: Extended temperature

**Bold is default. Ask about custom options.**

# PCIe8 DV C-Link

PCI Express 8-lane digital video Camera Link interface



## Description

The PCIe8 DV C-Link is a Camera Link interface that provides high-resolution image capture for digital video. It has two MDR 26-pin connectors to support one full-, one medium-, or up to two base-mode cameras.

The board fits in any 8- or 16-lane PCI Express bus. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Applications

Astronomy

Aerial mapping

Computer microscopy

Intelligent traffic systems

Manufacturing / inspection

Remote scientific monitoring

Medical and nuclear imaging

Image archiving

Machine vision

Multimedia

Security

## Features

Camera Link interface fits in an 8- or 16-lane PCI Express bus

Supports one full-, one medium-, or up to two base-mode cameras

Accepts images of any resolution; sends data directly to host via DMA

Provides onboard region-of-interest control

Supports data rates up to 1.4 GB/s, as supported by host

## Specifications

<b>Product Type</b>	PCIe8 DV C-Link is a PCI Express 8-lane digital video Camera Link interface.	
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory	
<b>Data Rates</b>	Peak Typical	Up to 1.4 GB/s Maximum supported by host
<b>Camera Link Compliance</b>	Modes supported Pixel clock rate Serial CC1 - CC4 Connectors For a list of cameras that have been tested, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base, medium, or full – common configurations 20 to 85 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse Two (MDR 26-pin) for data and control
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT RoHS directive 2002/95/EEC WEEE directive 2002/96/EC
<b>PCI Express Compliance</b>	PCIe version Direct memory access (DMA) Number of lanes	PCIe 1.1 Yes 8
<b>Noise</b>	0 dB	
<b>MTBF</b>	Estimated at 200,000 hours	
<b>Triggering</b>	Via CC lines, or externally via connector (opto-coupled Berg or optional 7-pin Lemo – mate to FGG.OB.307.CLAD.56)	
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.	
<b>Physical</b>	Weight Dimensions	3.3 oz. typical 4.8 x 4.8 x 0.7 in.
<b>Environmental</b>	Temperature  Humidity	Operating 10° to 40° C Non-operating -20° to 60° C Operating 1% to 90%, non-condensing at 40° C Non-operating 95%, non-condensing at 45° C
<b>System and Software</b>	System must have a PCI Express bus (8 or 16 lanes) that is not dedicated to display use only. Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.	

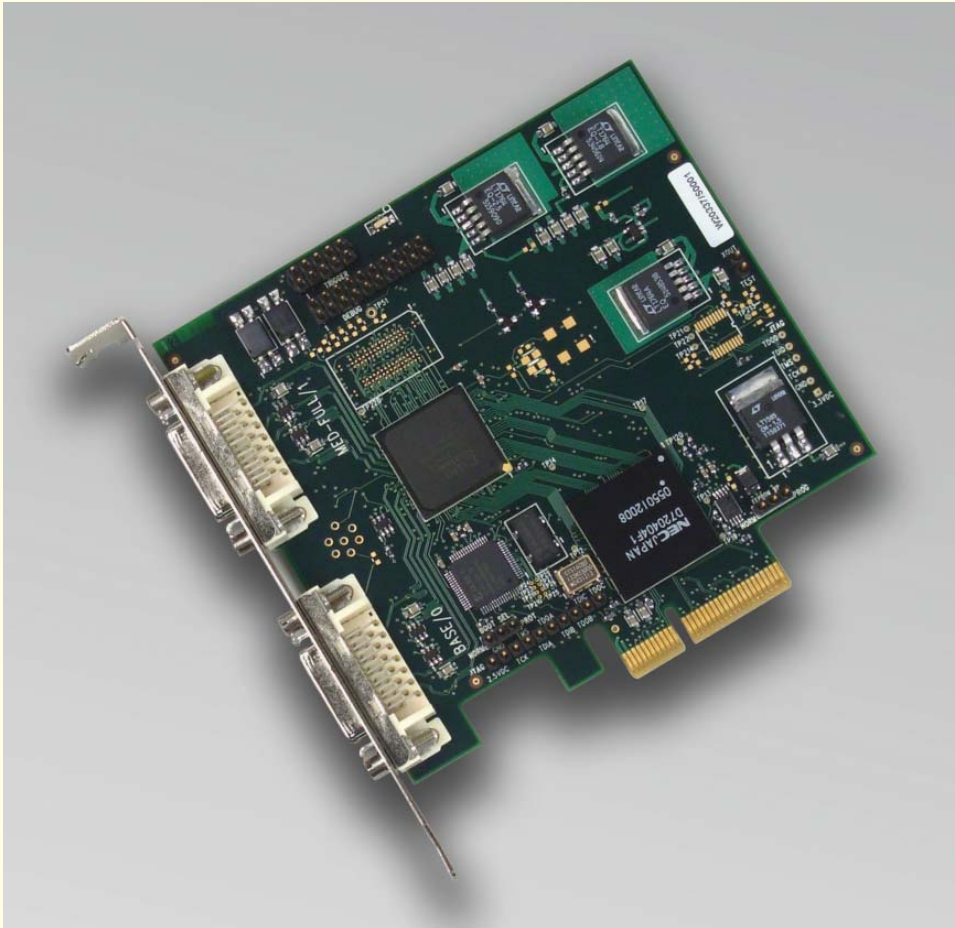
## Ordering Options

- Triggering (external): 7-pin Lemo

**Ask about custom options.**

# PCIe4 DV C-Link

PCI Express 4-lane digital video Camera Link interface



## Description

The PCIe4 DV C-Link is a Camera Link framegrabber that provides high resolution image capture for digital video. It has two MDR 26-pin connectors to support one medium- or up to two base-mode cameras.

The board fits in any 4-, 8-, or 16-lane PCI Express slot. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Applications

Astronomy

Aerial mapping

Computer microscopy

Intelligent traffic systems

Manufacturing / inspection

Remote scientific monitoring

Medical and nuclear imaging

Image archiving

Machine vision

Multimedia

Security

## Features

Camera Link interface fits in a 4-, 8- or 16-lane PCI Express bus

Supports one medium- or up to two base-mode cameras

Accepts images of any resolution; sends data directly to host via DMA

Provides onboard region-of-interest control

Supports data rates up to 220 MB/s, as supported by host

## Specifications

<b>Product Type</b>	PCIe4 DV C-Link is a PCI Express 4-lane digital video Camera Link interface.	
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory	
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host
<b>Camera Link Compliance</b>	Modes supported Pixel clock rate Serial CC1 - CC4 Connectors For a list of cameras that have been tested, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base or medium – common configurations 20 to 80 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse Two (MDR 26-pin) for data and control
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT RoHS directive 2002/95/EEC WEEE directive 2002/96/EC
<b>PCI Express Compliance</b>	PCIe version Direct memory access (DMA) Number of lanes	PCIe 1.1 Yes 4
<b>Noise</b>	0 dB	
<b>MTBF</b>	Estimated at 200,000 hours	
<b>Triggering</b>	Via CC lines, or externally via connector (opto-coupled Berg or optional 7-pin Lemo – mate to FGG.OB.307.CLAD.56)	
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.	
<b>Physical</b>	Weight Dimensions	3.3 oz. typical 4.8 x 4.8 x 0.7 in.
<b>Environmental</b>	Temperature  Humidity	Operating 10° to 40° C Non-operating -20° to 60° C Operating 1% to 90%, non-condensing at 40° C Non-operating 95%, non-condensing at 45° C
<b>System and Software</b>	System must have a PCI Express bus (4, 8, or 16 lanes). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.	

## Ordering Options

- Triggering (external): 7-pin Lemo

**Ask about custom options.**

# PCI DV C-Link

PCI digital video Camera Link interface



## Description

The PCI DV C-Link is a Camera Link interface that provides high-resolution image capture for digital video. It has two MDR 26-pin connectors to support one medium- or up to two base-mode cameras.

The board fits in any PCI or PCI-X bus. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Features

- Camera Link interface fits in a PCI or PCI-X bus
- Supports one medium- or up to two base-mode cameras
- Accepts images of any resolution; sends data directly to host via DMA
- Provides onboard region-of-interest control
- Supports data rates up to 220 MB/s, as supported by host

## Specifications

<b>Product Type</b>	PCI DV C-Link is a PCI digital video Camera Link interface.	
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory	
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host
<b>Camera Link Compliance</b>	Modes supported Pixel clock rate Serial CC1 - CC4 Connectors For a list of cameras that have been tested, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base or medium – common configurations 20 to 80 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse Two (MDR 26-pin) for data and control
<b>PCI Compliance</b>	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 (will work in a PCI-X bus) Yes 66 MHz / 32 bits
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT RoHS directive 2002/95/EEC WEEE directive 2002/96/EC
<b>Noise</b>	0 dB	
<b>MTBF</b>	Estimated at 200,000 hours	
<b>Triggering</b>	Via CC lines, or externally via connector (opto-coupled Berg or optional DB 9-pin subpanel – CTG DB9M 09480)	
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.	
<b>Physical</b>	Weight Dimensions	2.8 oz. typical 5.0 x 3.6 x 0.5 in.
<b>Environmental</b>	Temperature  Humidity	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C Operating 1% to 90%, non-condensing at 40° C Non-operating 95%, non-condensing at 45° C
<b>System and Software</b>	System must have a PCI or PCI-X bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.	

## Ordering Options

- Triggering (external): DB 9-pin subpanel
- Environmental: Extended temperature

**Ask about custom options.**

# cPCI DV C-Link

CompactPCI digital video Camera Link interface



## Description

The cPCI DV C-Link is a Camera Link interface that provides high-resolution image capture for digital video. It has two MDR 26-pin connectors to support one medium- or up to two base-mode cameras.

The board comes in a 3U or 6U CompactPCI form factor. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Features

- Camera Link interface fits in a CompactPCI 3U or 6U bus
- Supports one medium- or up to two base-mode cameras
- Accepts images of any resolution; sends data directly to host via DMA
- Provides onboard region-of-interest control
- Supports data rates up to 220 MB/s, as supported by host

## Specifications

<b>Product Type</b>	cPCI DV C-Link is a CompactPCI digital video Camera Link interface.		
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory		
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host	
<b>Camera Link Compliance</b>	Modes supported Pixel clock rate Serial CC1 - CC4 Connectors For a list of cameras that have been tested, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base or medium – common configurations 20 to 80 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse Two (MDR 26-pin) for data and control	
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT Contact EDT WEEE directive 2002/96/EC	
<b>PCI Compliance</b>	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 Yes 66 MHz / 32 bits	
<b>cPCI Compliance</b>	PICMG 2.0 R3.0		
<b>Noise</b>	0 dB		
<b>MTBF</b>	Estimated at 200,000 hours		
<b>Triggering</b>	Via CC lines, or externally via connector (opto-coupled Berg for 3U or 6U, or DB15 for 6U only)		
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.		
<b>Physical</b>		<b>3U</b>	<b>6U</b>
	Weight	5.2 oz. typical	8.9 oz. typical
	Dimensions (not including back panel / connectors)	4.0 x 6.3 x 0.4 in.	9.2 x 6.3 x 0.4 in.
<b>Environmental</b>	Temperature	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C	
	Humidity	Operating 1% to 90%, non-condensing at 40° C Non-operating 95%, non-condensing at 45° C	
<b>System and Software</b>	System must have a 3U or 6U CompactPCI bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.		

## Ordering Options

- Triggering (external): 7-pin Lemo
- Environmental: Extended temperature
- System: 3U / 6U form factor

**Ask about custom options.**

# PMC DV C-Link

PMC digital video Camera Link interface



## Description

The PMC DV C-Link is a Camera Link interface that provides high-resolution image capture for digital video. It has one MDR-26 pin connector to support one base-mode camera.

The compact board fits in any PMC bus. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, camera configuration files, and Camera Link standard DLL for camera control.

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Features

- Camera Link interface fits in a PMC bus
- Supports one base-mode camera
- Accepts images of any resolution; sends data directly to host via DMA
- Provides onboard region-of-interest control
- Supports data rates up to 220 MB/s, as supported by host

## Specifications

<b>Product Type</b>	PMC DV C-Link is a PMC digital video Camera Link interface.	
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory	
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host
<b>Camera Link Compliance</b>	Modes supported Pixel clock rate Serial CC1 - CC4 Connectors For a list of cameras that have been tested, see <a href="http://www.edt.com/pdvcl_cameras.html">www.edt.com/pdvcl_cameras.html</a> .	Base – common configurations 20 to 80 MHz Via API or serial DLL (9600 to 115,200 baud) Discretely programmable for steady-state, trigger, and timed pulse One (MDR 26-pin) for data and control
<b>EU Compliance</b>	CE RoHS WEEE	Contact EDT Contact EDT WEEE directive 2002/96/EC
<b>PCI Compliance</b>	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 Yes 66 MHz / 32 bits
<b>PMC Compliance</b>	P1386.1	
<b>Noise</b>	0 dB	
<b>MTBF</b>	Estimated at 200,000 hours	
<b>Triggering</b>	Via CC lines, or externally via connector (opto-coupled Berg or optional front panel – mate to Kings 1075-1)	
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.	
<b>Physical</b>	Weight Dimensions	2.9 oz. 6.0 x 2.9 in.
<b>Environmental</b>	Temperature  Humidity	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C Operating 1% to 90%, non-condensing at 40° C Non-operating 95%, non-condensing at 45° C
<b>System and Software</b>	System must have a PMC bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.	

## Ordering Options

- Triggering: Kings front panel
- Environmental: Extended temperature

**Ask about custom options.**

# PCI DV CLS

PCI digital video Camera Link simulator



## Description

The PCI DV CLS is a Camera Link simulator that generates simulated image data. It uses an easily modified text-based configuration script that describes the timing parameters of the camera to be simulated.

C language libraries allow the user to define appropriate responses to UART commands from the interface.

Known image data allows easy debug of interface application code, and system debug when target camera is unavailable.

The PCI DV CLS does not include frame buffer memory; image data is DMA'd from host memory as required by the application. Alternatively, internal counters may be chosen as a source of image data.

## Applications

Astronomy

Aerial mapping

Computer microscopy

Intelligent traffic systems

Manufacturing / inspection

Remote scientific monitoring

Medical and nuclear imaging

Image archiving

Machine vision

Multimedia

Security

## Features

Camera Link simulator fits in a PCI or PCI-X bus

Simulates Camera Link digital cameras, base-mode and 32-bit medium-mode

Direct memory access (DMA) from host memory for image data

Internal counters may be chosen as alternate source of image data

Supports data rates up to 220 MB/s, as supported by host

Allows emulation of camera UART commands

Supports triggering by line or frame from camera control lines

Supports Camera Link clock from 20 to 85 MHz in increments of 0.250 MHz

## Specifications

<b>Product Type</b>	PCI DV CLS is a PCI digital video Camera Link simulator.	
<b>Memory</b>	FIFOs for up to several lines of data; no frame memory	
<b>Data Rates</b>	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host
<b>Camera Link Compliance</b>	Modes supported Pixel clock rate Serial CC1 - CC4 Connectors	Base or medium – common configurations 20 to 85 MHz 9600 to 115,200 baud Discretely programmable for steady-state, trigger, and timed pulse Two (MDR 26-pin) for data and control
<b>EU Compliance</b>	CE RoHS WEEE	EMC directive 2004/108/EC and low voltage directive 73/23/EEC Contact EDT WEEE directive 2002/96/EC
<b>PCI Compliance</b>	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 (will work in a PCI-X bus) Yes 66 MHz / 32 bits
<b>Noise</b>	0 dB	
<b>MTBF</b>	Estimated at 150,000 hours	
<b>Cabling</b>	Cabling is purchased separately; consult EDT for options.	
<b>Physical</b>	Weight Dimensions	3.3 oz. typical 5.0 x 4.2 in.
<b>Environmental</b>	Temperature  Humidity	Operating 10° to 40° C; extended -40° to 60° C (33 MHz bus only) Non-operating -20° to 60° C Operating 20% to 80%, non-condensing at 40° C Non-operating 95%, non-condensing at 40° C
<b>System and Software</b>	System must have a PCI or PCI-X bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.	

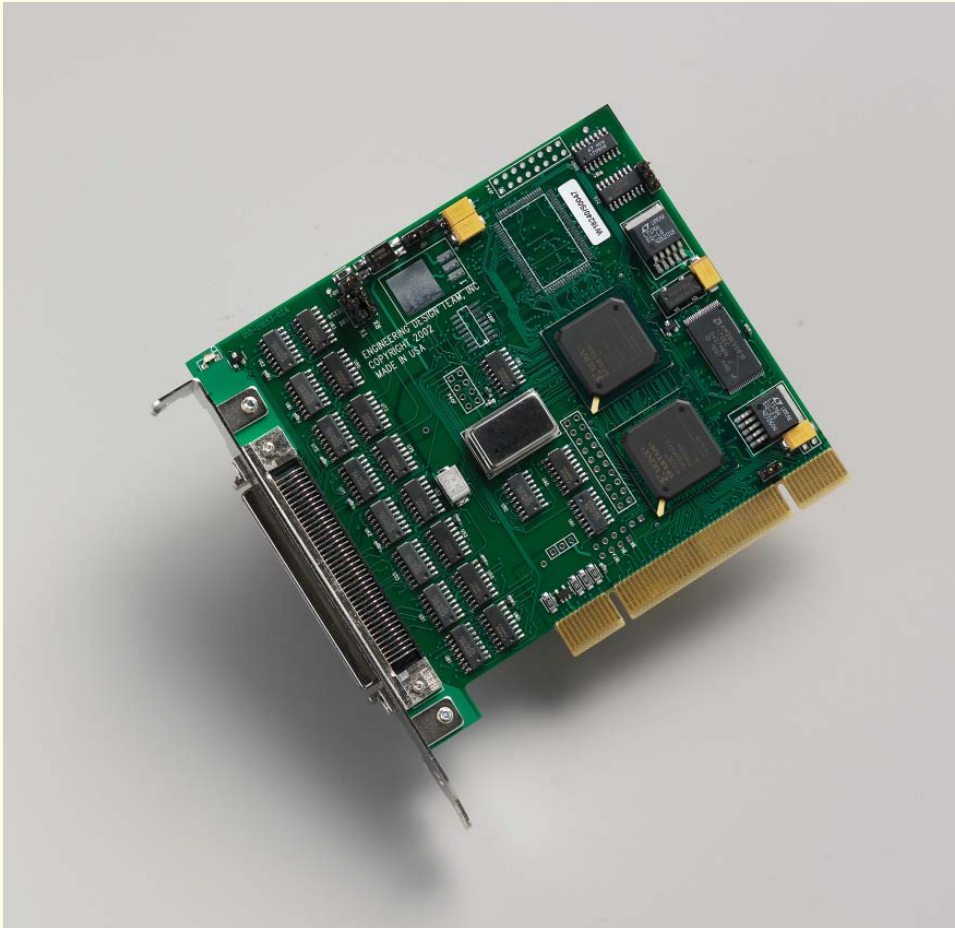
## Ordering Options

- Environmental: Extended temperature

**Ask about custom options.**

# PCI DVa

PCI digital video AIA interface (version a)



## Description

The PCI DVa is an AIA interface that provides high-resolution image capture for digital video. It uses an 80-pin connector to support a wide variety of cables and cameras.

The board fits in any PCI or PCI-X bus. Images are captured and displayed in real time, and camera speed, resolution, and number of buffers are limited only by host bandwidth and memory.

Provided with the board are drivers for supported operating systems and a software development kit that includes C language libraries, examples, utilities, image capture and display GUI, and camera configuration files.

## Applications

- Astronomy
- Aerial mapping
- Computer microscopy
- Intelligent traffic systems
- Manufacturing / inspection
- Remote scientific monitoring
- Medical and nuclear imaging
- Image archiving
- Machine vision
- Multimedia
- Security

## Features

- AIA interface fits in a PCI or PCI-X bus
- Accepts images of any resolution; sends data directly to host via DMA
- Provides onboard region-of-interest control
- Supports data rates up to 220 MB/s, as supported by host

## Specifications

Product Type	PCI DVa is a PCI digital video interface for AIA (LVDS or RS422).	
Memory	FIFOs for up to several lines of data; no frame memory	
Data Rates	Peak Typical	Up to 220 MB/s 190 MB/s or maximum supported by host
AIA Compliance	Supports most AIA format (LVDS or RS422) cameras that provide line- and frame-valid signals and a continuous pixel clock. For a list of tested cameras, see <a href="http://www.edt.com/pcidv_cameras.html">www.edt.com/pcidv_cameras.html</a> .	
EU Compliance	CE RoHS WEEE	Contact EDT RoHS directive 2002/95/EEC WEEE directive 2002/96/EC
PCI Compliance	PCI version Direct memory access (DMA) Clock rate / data width	PCI 2.3 (will work in a PCI-X bus) Yes 66 MHz / 32 bits
Noise	0 dB	
MBTF	Estimated at 150,000 hours	
Triggering	Via CC lines, or externally via connector (opto-coupled Berg or optional DB 9-pin subpanel – CTG DB9M 09480)	
Serial	RS232 or RS422, transmit/receive lines in 80-pin data/control connector, onboard UART programmable from 9600 to 115,200 baud	
Connectors	AMP high-density 80-pin – mate to AMP 749621-8, backshell 749196-2	
Cabling	Cabling is purchased separately; consult EDT for options.	
Physical	Weight Dimensions	3.3 oz. typical 5.0 x 4.2 in.
Environmental	Temperature  Humidity	Operating 10° to 40° C Non-operating -20° to 60° C  Operating 20% to 80%, non-condensing at 40° C Non-operating 95%, non-condensing at 40° C
System and Software	System must have a PCI or PCI-X bus, 66 MHz or faster (33 MHz will work, but at reduced data rates). Software is included for Windows, Solaris, Linux, and Mac OS X and can be requested for VxWorks; for versions, see our website.	

## Ordering Options

- Signal levels: **LVDS** or RS422
- Triggering (external): DB 9-pin subpanel

**Bold is default. Ask about custom options.**

# PCI/PCIe MSDV

Multi-rate serial digital video interface for DVB-ASI/SMPTE



## Description

The MSDV is a mezzanine board that pairs with an EDT main board (for PCI or PCI Express) for high-speed data transfer. It has four BNC connectors to support up to four serial digital video signals in DVB-ASI/SMPTE format.

The MSDV includes a programmable Xilinx Virtex 5 FPGA and a time code input, which receives a signal in 1 pps or IRIG-B format. This feature provides precise timestamp data for a variety of purposes.

EDT provides FPGA configuration files that perform multi-rate decoding and framing, making it possible to acquire raw, decoded, or framed transport stream data. Custom configuration files can be requested.

The main board supplies high-speed DMA, plus additional memory and programmable FPGA resources. Main board options and specifications are described in EDT's telemetry/telecom catalog.

## Features

Mezzanine board – pairs with an EDT main board (in a PCI, PCI-X, or PCIe bus), which adds high-speed DMA, programmable FPGA resources, and memory

Channels 0, 1, 2, 3: Four bidirectional BNCs, each supporting serial digital video (DVB-ASI/SMPTE)

Encoding: Raw, 8b/10b, or framed data collect

Time code: 1 pps, IRIG-B, or other input, with user-configurable output

FPGA: One programmable Xilinx Virtex 5 XC5VLX30T

## Applications

Acquisition of multiple DVB-ASI/SMPTE signals

Interface between computer and television satellite receivers

Serial digital video signal testing

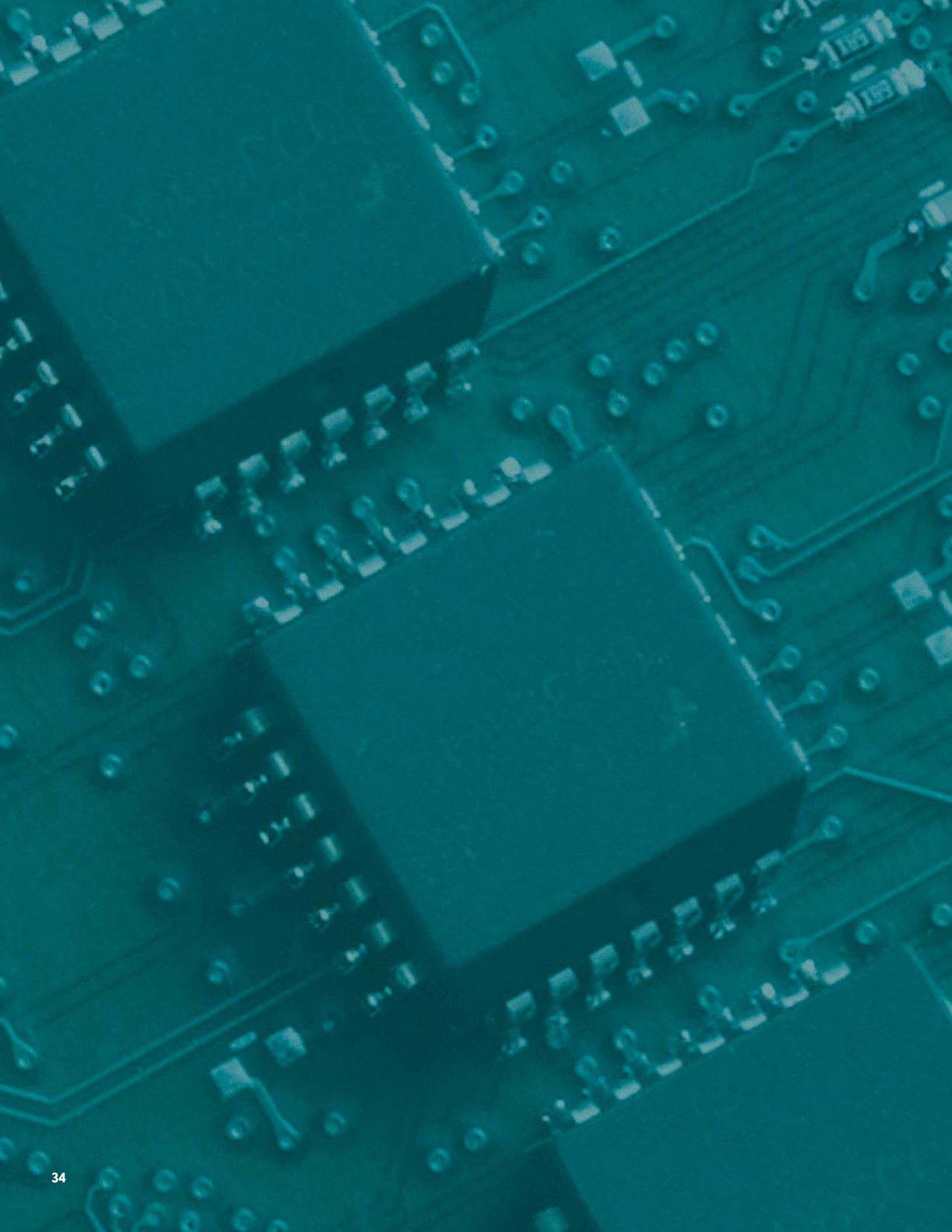
## Specifications

<b>Product Type</b>	MSDV is a multi-rate serial digital video mezzanine board for DVB-ASI/SMPTE; it requires a main board.	
<b>FPGA Resources</b>	One programmable FPGA (Xilinx Virtex 5 XC5VLX30T), plus FPGA on main board	
<b>Memory</b>	SRAM	See specifications for main board.*
	DRAM	See specifications for main board.*
	Block RAM (FIFO)	Four channels of 16 KB each (64 KB total)
<b>Bus Compatibility</b>	PCI or PCI Express; see specifications for main board.*	
<b>Clocks</b>	One, with jitter attenuation, set for DVB-ASI/SMPTE (also programmable to other frequencies)	
<b>Data Rates</b>	Data rates are dependent on data format and main board.	
<b>Data Format (I/O)</b>	Time code (from external receiver)	1 pps, IRIG-B, or other input, with user-configurable output
	Other	DVB-ASI/SMPTE
<b>Connectors</b>	One 7-pin Lemo for time code input Four 75-Ω BNCs for DVB-ASI/SMPTE	
<b>Cabling</b>	Consult EDT for purchase options: To 7-pin Lemo on board, from time code source	
		Via one DB9 (for 1 pps or IRIG-B) or BNC (for IRIG-B only)
<b>Physical</b>	Weight	5.0 oz. typical
	Dimensions	6.6 x 4.2 x 0.5 in. (with a main board)
<b>Environmental</b>	Temperature	Operating 0° to 40° C Non-operating -40° to 70° C
	Humidity	Operating 1% to 90%, non-condensing at 40° C Non-operating 95%, non-condensing at 45° C
<b>System and Software</b>	For details on system requirements and EDT-provided software driver packages, see specifications for your EDT main board.	
	* Main board options and specifications are described in EDT's telemetry/telecom catalog.	

## Ordering Options

- Main board: PCI SS / PCI GS / PCIe8 LX
- Cabling (for time code input): DB9 / BNC

For more options, see main board datasheet.  
**Ask about custom options.**



## Resources

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Use the following [Glossary of Terms](#) to look up brief definitions for some of the **names, acronyms, and abbreviations** used in this catalog.

# Glossary of Terms

Names, acronyms, and abbreviations

## A – L

AGP	Accelerated graphics port
AIA	Automated Imaging Association
Altera	A components manufacturer
AMP	A components manufacturer (under Tyco)
ANSI	American National Standards Institute
API	Application program interface
Base mode	A Camera Link mode (see Camera Link)
Camera Link	A newer AIA standard (see AIA and LVDS/RS422)
D/A, DAC	Digital-to-analog conversion or converter
dB, dBm	Decibels, decibels/milliwatt
DLL	Dynamic link library
DMA	Direct memory access
DRAM	Dynamic random-access memory
DV	Digital video
EIA	Electronic Industries Association
EIA-422	Formerly RS422 (see ANSI, EIA, TIA)
FIFO	First in, first out
FPGA	Field-programmable gate array
Full mode	A Camera Link mode (see Camera Link)
GB, Gb, Gb/s	Gigabytes, gigabits, gigabits per second
GPS	Global positioning system
IEEE	Institute of Electrical and Electronics Engineers
IRIG	Inter-Range Instrumentation Group
KB, Kb, Kb/s	Kilobytes, kilobits, kilobits per second
LC	Lucent connector
LED	Light-emitting diode
LVDS	Low voltage differential signaling
LVDS/RS422	An older AIA standard (see AIA and Camera Link)
LVTTTL	Low voltage transistor-(to)-transistor logic

## M – Z

MB, Mb, Mb/s	Megabytes, megabits, megabits per second
Medium mode	A Camera Link mode (see Camera Link)
MHz	Megahertz
Molex	A components manufacturer
MTBF	Mean time between failures
PCI	Peripheral component interconnect
PCIe	PCI Express (see PCI)
PLL	Phase-locked loop
PMC	PCI mezzanine card
pps	Pixels per second
RAM	Random-access memory
ROM	Read-only memory
RS	Recommended standard
RS422	Former term for ANSI/TIA/EIA-422 (see EIA-422)
SC	Standard connector
SMPTE	Society of Motion Picture and Television Engineers
SODIMM	Small outline dual inline memory module
SRAM	Static random-access memory
TI	Texas Instruments (a components manufacturer)
TIA	Telecommunications Industry Association
TTL	Transistor-(to)-transistor logic
UART	Universal asynchronous receiver/transmitter
Xilinx	A components manufacturer





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