

ADLINK Solutions for Machine Vision

Overview

Machine Vision is a field of engineering that encompasses computer science, optics, mechanical engineering, and industrial automation. Industrial machine vision applications today offer higher productivity, flexibility, reliability, and are capable to perform more complicated inspection tasks.

ADLINK provides a series of PCI Express® (PCIe) products for industrial machine vision applications. The PCIe bus provides high-bandwidth and robust point-to-point interconnects, and complete software compatibility with the existing base of operating systems, PCI drivers, and software. The PCIe bus also provides a dedicated link for image data transmission.

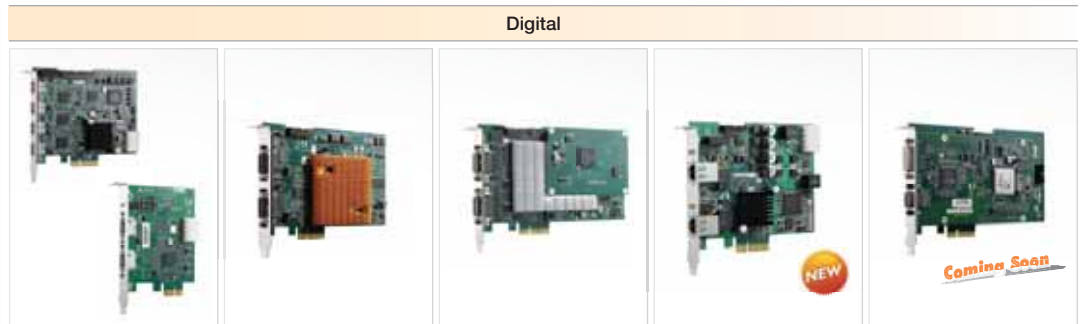
A typical computer-based machine vision system includes cameras, a frame grabber card, and the computer system. The camera interface is the transmission protocol between the camera and computer system. ADLINK provides several types of frame grabber cards, including:



CML64 / CPL64

- Noise Reduction: The minimal low voltage differential swing (LVDS) signal of the Camera Link® specification increases image throughput between the frame grabber, cable, and camera.
- Support for Line Scan Cameras: Camera Link® offers the absolute camera control, serial communication, and data streaming methods ideal for line scan applications. Most line scan cameras available today already support Camera Link®.

Frame Grabber Selection Guide



Model Name	FIW64 / FIW62	CPL64	CML64	GIE62+	HDV62
Standard	IEEE 1394b	PoCL (Power over Camera Link)	Camera Link	Power over Ethernet	HDTV
Connector Interface	IEEE 1394b	MDR26	MDR26 x 2	RJ45 x 2	DVI
Resolution (Pixels)	Depends on camera specification	Depends on camera specification	Depends on camera specification	Depends on camera specification	1920 x 1080p
Form Factor	PCIe x4 / PCIe x1	PCIe x4	PCIe x4	PCIe x4	PCIe x4
Max.Video Input	4 / 2	2	1	1	1
Max. Frame Rate	Depends on camera specification	Depends on camera specification	Depends on camera specification	Depends on camera specification	60
TTL I/O	√ (FIW64)	√	√	√	√
Area Scan Camera	√	√	√	√	√
Line Scan Camera	-	√	√	√	-
Color Camera	√	√	√	√	√
Camera Tap	-	-	8-tap	-	-
Pixel Depth	Depends on camera specification (FIW64) 8 to 10-bit (FIW62)	8-bit, 10-bit	8-bit, 10-bit, 12-bit, 24-bit	Depends on camera specification	8/10 bit per color
Page No.	11-3	11-4	11-5	11-6	11-7



FIW64/FIW62

- Plug-and-play operation and easy maintenance
- Power over cable for reduced wiring

Power over Ethernet

GIE62+

- Long Cable Length: Gigabit Ethernet cables up to 100 M
- Low Cabling Cost: RJ-45 Cat-5e cables provide a competitive price for vision applications

HDTV

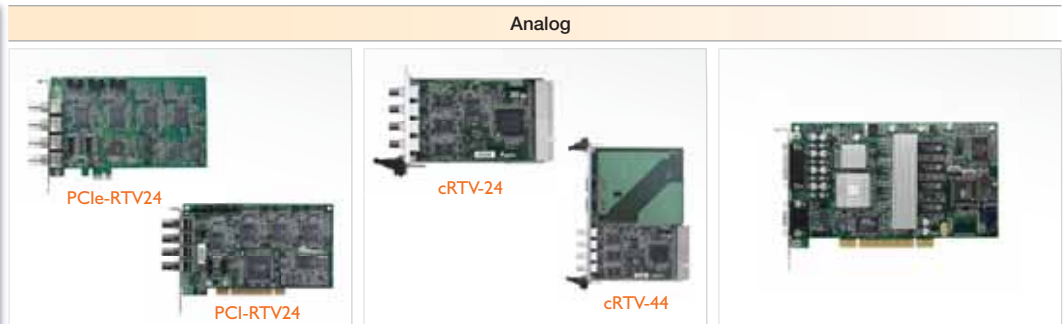
HDV62

- HDTV standards includes SMPTE 296M and SMPTE 274M, which are defined by the Society of Motion Picture and Television Engineers, SMPTE.
- Image Quality: HDTV improvements in image quality by providing up to five times higher resolution and twice the linear resolution compared to NTSC/PAL video.
- Wide Aspect Ratio: 16:9 aspect ratio is comfortable for human eye.

Analog

PCIe-RTV24/PCI-RTV24/PCI-MPG24/cRTV-24/cRTV-44

- Real-time Signals: No network latency or protocol overhead
- Reduced CPU Workload: The frame grabbers implement direct memory access (DMA) solutions that rearrange data for efficiency. The transmission of image data from the frame grabber to the memory of the host PC is executed without utilizing any CPU resources of the host system.



Model Name	PCIe-RTV24 / PCI-RTV24	cRTV-24 / cRTV-44	PCI-MPG24
Standard	Color (PAL/NTSC), Monochrome (CCIR/EIA (RS-170))	Color (PAL/NTSC), Monochrome (CCIR/EIA (RS-170))	Color (PAL/NTSC), Monochrome (CCIR/EIA (RS-170))
Connector Interface	BNC x 4	BNC x 4	BNC x 4 (extension cable)
Resolution (Pixels)	640 x 480 (NTSC/RS170), 768 x 576 (PAL/CCIR)	640 x 480 (NTSC/RS170), 768 x 576 (PAL/CCIR)	Full D1: 720 x 480 (NTSC), 720 x 576 (PAL)
Form Factor	PCIe x1 / PCI	3U/6U cPCI	PCI
Max.Video Input	4 - 16*	4	4
Max. Frame Rate	120 fps	120 fps	120 fps
TTL I/O	√	√	-
Area Scan Camera	√	√	√
Line Scan Camera	-	-	-
Color Camera	√	√	√
Camera Tap	Single-tap (PCIe-RTV24)	Single-tap (cRTV-44)	Single-tap
Pixel Depth	8-bit	8-bit	8-bit
Note	-	-	MPEG4
Page No.	11-8	11-9	11-10

* RTV-E4 four channels extension board (optional)

- 1 Software & Utilities
- 2 DAQ
- 3 PXI
- 4 Modular Instruments
- 5 GPIB & Bus Expansion
- 6 PAC
- 7 Motion
- 8 Real-time Distributed I/O
- 9 Remote I/O
- 10 Communications
- 11 Vision
- 12 Fanless I/O Platforms
- 13 cPCI & Industrial Computers
- 14 Accessories

FIW64 / FIW62

4-CH/2-CH PCI Express® IEEE 1394b Frame Grabbers



FIW62

FIW64



Introduction

The FIW64 / FIW62 are IEEE 1394b (FireWire 800) interface cards designed for high speed computer-based machine vision applications. The FIW64 / FIW62 support up to four 1394b (FireWire 800) ports for multiple 1394b device connections with data transfer rates up to 3.2 Gb/s, as found with most IEEE 1394b cameras.

The FIW64 / FIW62 provide four/two direct-connect IEEE 1394b connectors with a screw-lock mechanism. These screw-lock connectors provide a reliable connection between FIW64 / FIW62 and up to four IEEE 1394b cameras.

A 4-pin ATX power connector on the FIW64 / FIW62 support IEEE 1394b cameras that draw power directly from the frame grabbers. Each port has a green LED on the front panel that will illuminate when the FIW64 / FIW62 are connected to a IEEE 1394b camera for convenient identification of channel connection status.

The FIW64 provides four isolated digital inputs and outputs to connect to external devices such a position sensor. The FIW64 also includes four isolated programmable trigger output pulses to manage trigger events such as activating a strobe light.

Features

- Industrial screw lock connector
- Channel status LEDs
- Power supplied to the IEEE 1394b connectors

FIW64

- PCI Express® x4 compliant
- High-speed image transfer rates up to 3.2 Gbps
- Four isolated digital inputs/outputs
- Four isolated TTL level programmable trigger output pulses

FIW62

- PCI Express® x1 compliant
- High-speed image transfer rates up to 800 Mb/s

Applications

- Machine vision inspection systems
- Automatic optical inspection machineries
- Scientific research instrumentations
- Medical research instrumentations

Software Support

- Windows® Platform
- Available for Windows® XP/Vista/Server 2008

Ordering Information

FIW64

4-CH PCI Express® x4 IEEE 1394b interface card

FIW62

2-CH PCI Express® x1 IEEE 1394b interface card

Accessories

Cabling

1394b Cable

4.5 M IEEE 1394b 9-pin cable with screw-lock connector

Specifications

	FIW64	FIW62
Form Factor	PCI Express® x4 compliant	PCI Express® x1 compliant
IEEE 1394b Port	Fully support provisions of IEEE P1394b-2002 Fully compliant with provisions of IEEE std 1394-1995 for a high performance serial bus and IEEE std 1394a-2000	
Operating Environment	Temperature: 0°C to +55°C Humidity: 5% to 90%	
Storage Environment	Temperature: -20°C to +85°C Humidity: 0 to 95% RHNC	
Power Requirements	Four isolated digital inputs/outputs Four isolated trigger inputs/outputs	-
Digital and Trigger I/Os	+12 V max @ 0.2 A +3.3 V max @ 2.5 A	+3.3 V max @ 0.22 A Power provided to IEEE 1394 connection +12 V / per port, 1 A (over current protection)
Isolated Voltage	1000 V @ 60 seconds	-
Dimensions	129.5 x 111.15 mm (W x L)	78.6 x 111.15 mm (W x L)

CPL64

2-CH PCI Express® PoCL Frame Grabber



Overview

CPL64 is a PoCL (Power over Camera Link®) frame grabber that is based on the PCI Express® x4 interface, and supports two-channel Camera Link “base” configurations, multi-tap area and line scan cameras. The CPL64 frame grabber strikes a perfect balance between performance and cost. It is capable of simultaneously image acquisition from two completely independent Camera Link base configuration cameras, and supports image transfers rates up to 512 MB/s.

PoCL Technology

The PoCL (Power over Camera Link®) standard allows the camera link cable to supply power to the camera through the Camera Link connector without losing backward compatibility with the previous Camera Link® standard, this solution is particularly suitable for a small camera.

Benefits of PoCL

- Easy installation
- Reduce wiring (Single cable for digital I/F, and power)
- Reduce camera size

Features

- PCI Express® x4 compliant
- Supports 2-CH Camera Link® Base configuration
- Acquisition pixel clock rates up to 85 MHz
- PoCL (Power over Camera Link®) safe power compliant with auto detection
- 128 MB of 200 MHz DDR SDRAM for acquisition
- 4 TTL Digital Input/Output, and 2 trigger Input
- Supports 64-bit memory addressing
- Two serial communication ports

Applications

- PCB/FPD/Wafer/Solar Cell surface inspections
- Medical research instrumentations

Software Support

Windows® Platform

- Available for Windows® Vista (64/32-bit)/XP

CamCreator™

- CamCreator assists developers in quickly evaluating initial tests and functions.

Ordering Information

CPL64

2-CH PCI Express® x4 PoCL frame grabber

Accessories

Cabling

- **PoCL Cable**
5 M, power over Camera Link cable
- **Camera Link Cable**
5 M, robot type

Specifications

Form Factor	PCI Express® x4 compliant
Video Input	Camera Link® LVDS differential signals Dual Base Configuration: Using two MDR26 pins connectors Maximum camera link data rate: 85 MHz Supports PoCL and standard Camera Link interface and auto detect
Camera Control	LVDS camera control: CCI to CC4 control signal in two MDR26 pins connectors
External Signal Input	External RS422 level A, B, Z phase differential signal for encoder input 2 channels TTL level Line /Area trigger input 2 channels TTL level Line trigger start input 2 channels TTL level exposure output Line trigger bypass output (encoder mode only) 4 channels digital input; 4 channels digital output
Power over Camera Link® (PoCL)	Power line output per channel : DC +12 V max @ 1 A Over-current Protection function, auto detect non-PoCL cable or PoCL camera connected.
Operating Environment	Temperature: 0°C to +50°C Humidity: 5% to 90% RHNC
Storage Environment	Temperature: 0°C to +70°C Humidity: 0 to 95% RHNC
Power Requirements	+12 V max @ 0.5 A +3.3 V max @ 1.6 A
Dimensions	167.65 x 111.15 mm (W x L)

1

Software & Utilities

2

DAQ

3

PXI

4

Modular Instruments

5

GPIB & Bus Expansion

6

PAC

7

Motion

8

Real-time Distributed I/O

9

Remote I/O

10

Communications

11

Vision

12

Fanless I/O Platforms

13

cPCI & Industrial Computers

14

Accessories

CML64

Single Channel PCI Express® Camera Link® Frame Grabber



Introduction

The CML64 is a PCI Express® x4 compliant Camera Link® frame grabber that supports one channel base/medium/full configuration, multi-tap area, and line scan color and monochrome Camera Link cameras.

The CML64 series utilizes an FPGA design for greater image acquisition flexibility, higher performance, and improved pre-processing functionality (such as pixel gain/offset correction).

The CML64 provides a 128 MB frame buffer to buffer and rearrange pixel data from the camera, before passing it to the PCI Express® bus DMA, a feature ideal for industrial machine vision applications, such as high speed inspection and high resolution acquisition.

Scanning modes supported by the CML64 include using a linescan camera in the following modes:

- Page trigger – triggered events trigger the acquisition of a given number of lines (an area acquisition system)
- Line trigger – the system continuously acquires and transfers lines from the camera based on the line trigger signal (no lines are skipped)
- Free-run – image acquisition is controlled by software, without any trigger input

Features

- PCI Express® x4 compliant
- Supports one channel Camera Link® in base/medium/full configuration
- High-speed image transfer rates up to 680 MB/sec
- Acquisition pixel clock rates up to 85 MHz
- 128 MB DDR SDRAM on-board memory
- 2 TTL I/O, differential/TTL trigger input
- Serial communication via Camera Link®

Applications

- PCB/FPD surface inspections
- Medical research instrumentations

Software Support

Windows® Platform

- Available for Windows® Vista (64/32-bit)/XP
- Recommended programming environments: C#/ .NET/ VC++ 6.0/VB 6.0/BCB 6.0

CamCreator™

- CamCreator assists developers in quickly evaluating initial tests and functions.

Ordering Information

CML64

PCI Express® x4 Camera Link® frame grabber

Accessories

Cabling

Camera Link Cable

5 M, robot type

Specifications

Form Factor	Half length PCI Express® x4 compliant
Video Input	Camera Link® LVDS differential signals Base configuration: via a Data1 MDR26 26-pin connector Medium and full configuration: via Data1 and Data2 MDR26 26-pin connectors Maximum Camera Link® data rate: 85 MHz
Camera Control	RS-422 signal: CCI-CC4 control signals in the Data1 MDR26 26-pin connector
External Signal Input	RS-422 signal: external A, B, Z phase differential signal inputs, maximum frequency: 1 MHz External page trigger One channel digital input; one channel digital output
Camera Support	Base cameras: 3 x 8-bit/tap, 1 x 16-bit/tap, 2 x 12-bit/tap Medium cameras: 4 x 8-bit/tap, 4 x 12-bit/tap Full cameras: 8-bit/tap
Power Consumption	0.6 A @ +12 V, 2 A @ +3.3 V
Dimensions	174.62 x 111.15 mm (W x L)

GIE62+

2-CH Gigabit Ethernet Frame Grabber Supporting Power over Ethernet



Introduction

ADLINK's GIE62+ is a PCI Express® x4 lane, PoE (Power Over Ethernet) frame grabber which supports two independent Gigabit Ethernet ports for multiple Gigabit Ethernet Vision device connections with data transfer rates up to 1000 Mb/s, as found with most Gigabit Ethernet Vision cameras. The GIE62+ features a single cable solution through the combination of power and data lines, simplifying installation, lowering maintenance, and reducing total cost of ownership.

PoE Technology

The PoE (Power over Ethernet) technology in the GIE62+ provides automatic detection for stable, and reliable connection between PoE or non-PoE cameras and frame grabbers.

Benefits of PoE

- Simplified installation
- Lowered maintenance
- Reduced total cost of ownership

Features

- PCI Express® x4 compliant
- Supports two independent Gigabit Ethernet ports
- Supports PoE (Power over Ethernet), IEEE 802.3af compliant
- Supports jumbo frames (9 KByte)
- Supports Link aggregation
- Powered Device (PD) auto detection and classification
- Provides industrial screw lock connector

Applications

- Machine vision inspection systems
- Scientific research instrumentations
- Medical research instrumentations
- Intelligent transportation systems

Software Support

- Windows® Platform
- Available for Windows® Vista (32-bit)/XP

Ordering Information

GIE62+
2-CH Gigabit Ethernet frame grabber supports Powering over Ethernet

Specifications

Form Factor	PCI Express® x4
Ethernet Port	Two fully-integrated Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports.
	Power over Ethernet, IEEE 802.3af Compliant, support class 0, 1, 2, 3, and 4, and provides up to 15.4 watts
	9 kB jumbo frame support
Isolated Voltage	1000 V @ 60 seconds
Operating Environment	Temperature: 0°C to +55°C
	Humidity: 5% to 90% RHNC
Power Requirements	+12 V max @ 0.2 A, +3.3 V max @ 1.5 A
Dimensions	129.5 x 111.15 mm (W x L)

1

Software & Utilities

2

DAQ

3

PXI

4

Modular Instruments

5

GPIB & Bus Expansion

6

PAC

7

Motion

8

Real-time Distributed I/O

9

Remote I/O

10

Communications

11

Vision

12

Fanless I/O Platforms

13

cPCI & Industrial Computers

14

Accessories

HDV62

Full HD 1080p Video Capture Card



Coming Soon



Overview

The HDV62 is a full high-definition frame grabber that is based on the PCI Express[®] x4 interface and supports digital DVI or SDI inputs.

ADLINK's HDV62 delivers superior quality of high-definition video to medical imaging, video surveillance, and multimedia applications. Equipped with an FPGA (Field Programmable Gate Array) and 512 MB memory buffer, the HDV62 provides graphical overlays features and the ability to stream imaging of a specified area to the host PC without any additional CPU loading.

Features

- Resolutions up to 1920 x 1080p, 60 fps
- PCI Express[®] x4 interface
- 16:9 wide aspect ratio video format
- Supports standard definition and high-definition video input
- Supports RGB, YUV, and monochrome pixel output formats
- 512 MB of DDR2 SDRAM frame buffer
- Supports graphical overlays and stream imaging of a specified area
- Configurable EDID
- Supports 64-bit memory addressing
- 4 TTL digital inputs/outputs and 1 trigger output

Applications

- Medical imaging
- Scientific imaging
- Broadcast
- Military & defense
- Video surveillance

Software Support

Windows[®] Platform

- Windows[®] Vista/XP (64/32-bit)
- Microsoft[®] DirectX

Linux[®] Platforms

- Ubuntu 8.04 LTS (64/32-bit)
- V4L2

ViewCreatorPro[™]

- ViewCreatorPro assists developers in evaluating initial tests and functions.

Ordering Information

HDV62

I-CH Full HD 1080p video capture card, DVI input

HDV62S

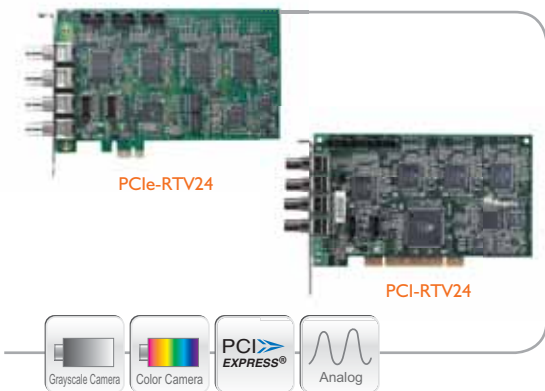
I-CH Full HD 1080p video capture card, HD-SDI input

Specifications

	HDV62	HDV62S
Form Factor	PCI Express [®] x4 compliant	
Video Input	DVI	HD-SDI/SDI
Video Input Format	HD: 720p@25 fps, 720p@30 fps, 720p@50 fps, 720p@60 fps 1080i@25 fps, 1080i@30 fps 1080p@25 fps, 1080p@30 fps, 1080p@50 fps, 1080p@60 fps	
Pixel Output Format	SD: 720 x 576@25 fps PAL 720 x 486@30 fps NTSC RGB: 32-bit RGB 30-bit RGB 24-bit RGB YUV: 24-bit 4:4:4 YCbCr 20-bit 4:2:2 YCbCr 16-bit 4:2:2 YCbCr Monochrome: 8-bit Y	
Frame Buffer	DDR2, 512 MB	
Digital Input/Output	4 TTL input, 4 TTL output (input with interrupt)	
Connector	DVI-I: DVI-D & RGB with sync input	BNC: HD-SDI/SDI
Operating Environment	Temperature: 0 to 55°C Humidity: 5% to 90% RHNC	
Storage Environment	Temperature: 0 to 70°C Humidity: 0 to 95% RHNC	
Power Requirements	+12 V max 0.8 A, +3.3 V max 2.5 A	
Dimensions	174.62 mm x 111.15 mm (W x L)	

PCIe-RTV24 / PCI-RTV24

4-CH PCI Express® / PCI Real-time Video Capture Cards for Standard Cameras



Introduction

General

The PCIe-RTV24/PCI-RTV24 acquisition board are designed without compromise for machine vision and video surveillance applications. They are the ideal devices for PC-based multiple-channel vision application.

The PCIe-RTV24 PCI Express® x1 lane frame grabber can capture simultaneously four analog video streams in real time. It accepts standard composite colors (PAL, NTSC) or monochrome video formats (CCIR, EIA).

The supported resolution is programmable and includes square-pixel (640 x 480 or 768 x 576) and broadcast resolution. Before captured images are transferred to the PC's memory, images can be scaled down using available selectable ratios.

Arbitrary cropping to regions of interest is possible. The PCIe-RTV24 generates bitmaps in all popular color formats such as RGB, YUV, planar, or packed.

System integrators also benefit from a watchdog for fault-tolerant applications and easy-to-use standard connectors.

Image Acquisition

- ◆ Frame Rate: 30 full-frame images acquired per second for each channel.
- ◆ Color Image: Color video format is compatible with the following composite video input formats: NTSC-M, NTSC-Japan, PCL-B, PALD, PAL-G, PAL-H, PAL-I, PAM-M, PAL-N and SECAM
- ◆ Monochrome Image: The monochrome video acquisition is compatible with CCIR and EIA (RS-170).
- ◆ Optional Scaling: The acquire images or portions of images can be optionally scaled:
 - Acquisition of a programmable area of interest
 - Scaling of the image (down to 1:16)
 - Adjustment of hue (for NTSC signals), contrast (0 to 200%), brightness and saturation (0 to 200% for U and V signals)
 - Automatic chrominance gain control

RTV-E4 Extension Board (Optional)

- ◆ Expandable up to 16 channels
- ◆ 10-pin ribbon cable to onboard 10-pin header connector for channel extension. Each header adds 4 video input channels.
- ◆ Three 10-pin header connectors onboard.



I/O Lines

The PCIe-RTV24/PCI-RTV24 is fitted with TTL compatible I/O lines, supporting 4 inputs, 4 outputs and 4 soft trigger lines with protection against overloads and electrostatic discharges.

Every line maybe configured as an input or output or can be used to trigger an acquisition or report an alarm condition.

RTV-I4 Isolated GPIO Board (Optional)

- ◆ General Purpose I/O Lines :
 - All I/Os are TTL compatible and support 4 inputs, 4 outputs, and 4 soft trigger lines.
 - Two on-board 10-pin header connectors.
 - The I/O lines are pulled high internally and have the following characteristics:



Voltage	Min.	Max.
Input High Voltage (20 μ A)	2.0 V	5.25 V
Input Low Voltage (-0.2 μ A)	0.0 V	0.80 V
Output High Voltage (-1.0 mA)	5.0 V	--
Output Low Voltage (100 mA)	--	0.50 V

Watchdog

A hardware watchdog is available on the PCIe-RTV24/PCI-RTV24. The watchdog is able to monitor the PC's application operation and will automatically reset the PC after a programmable inactivity time-out. This ensures a reliable operation of remote systems.

Features

- PCI Express® x1 compliant (PCIe-RTV24) , up to 120 fps
- Four color video digitizers operating in parallel
- Color (PAL / NTSC), monochrome (CCIR / EIA) camera supported
- Up to 16 channels extension
- On-board TTL I/O lines
- Built-in watchdog timer
- User-friendly ViewCreator utility
- Software trigger supported

Applications

- PC-based surveillance systems
- Digital Video Recorder (DVR)
- Factory monitoring systems
- Machine vision inspection systems
- Scientific research instrumentations
- Medical research instrumentations

Software Support

Windows® Platform

- Available for Windows® Vista (64/32-bit)/XP/XPe
- Available for Microsoft® DirectX®
- Recommended programming environments: C#/.NET/VC++/VB/C++ Builder/Delphi
- Sample programs included

LabVIEW® VIs

Angelo-LVIEW

Linux Platform

Fedora core 3, Kernel 2.6.22

ViewCreatorPro™

ViewCreatorPro assists developers in evaluating initial tests and functions.



Ordering Information

PCIe-RTV24

PCI Express® 4-CH real-time video capture card for standard cameras

PCI-RTV24

4-CH real-time video capture card for standard cameras

1

Software & Utilities

2

DAQ

3

PXI

4

Modular Instruments

5

GPIO & Bus Expansion

6

PAC

7

Motion

8

Real-time Distributed I/O

9

Remote I/O

10

Communications

11

Vision

12

Fanless I/O Platforms

13

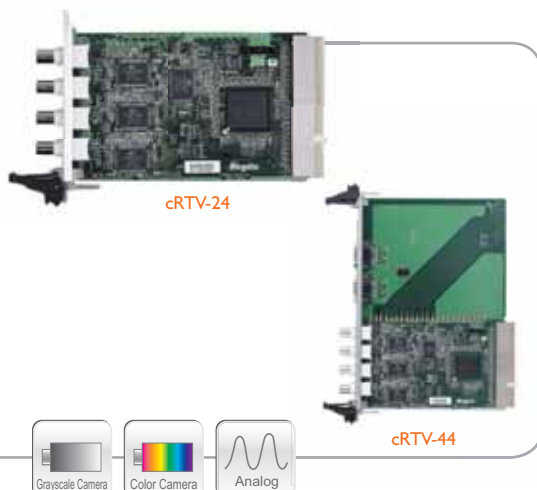
cPCI & Industrial Computers

14

Accessories

cRTV-24 / cRTV-44

3U/6U CompactPCI 4-CH Real-time Video Capture Boards



Introduction

General

The cRTV series is a CompactPCI acquisition board designed without compromise for security and video surveillance applications. It's the ideal device for PC based multiple-channel digital video recording.

This 64-bit, 66 MHz CompactPCI (including 32-bit and 33 MHz) frame grabber can capture simultaneously four analog video streams in real time. It accepts standard composite colors (PAL, NTSC) or monochrome video formats (CCIR, EIA).

The supported resolution is programmable and includes square-pixel (640 x 480 or 768 x 576) and broadcast resolution. Before captured images are transferred to the PC's memory, images can be scaled down using available selectable ratios.

Arbitrary cropping to regions of interest are possible. The RTV series generates bitmaps in all popular color formats such as RGB, YUV, planar or packed. System integrators also benefit from a watchdog for fault-tolerant applications and easy-to-use standard connectors.

Image Acquisition

- ◆ **Frame Rate:** 30 full-frame images acquired per second for each channel.
- ◆ **Color Image:** Color video format is compatible with the following composite video input formats: NTSC-M, NTSC-Japan, PCL-B, PALD, PAL-G, PAL-H, PAL-I, PAM-M, PAL-N and SECAM
- ◆ **Monochrome Image:** The monochrome video acquisition is compatible with CCIR and EIA (RS-170).
- ◆ **Optional Scaling:** The acquired images or portions of images can be optionally scaled:
 - Acquisition of a programmable area of interest
 - Scaling of the image (down to 1:16)
 - Adjustment of hue (for NTSC signals), contrast (0 to 200%), brightness and saturation (0 to 200% for U and V signals)
 - Automatic chrominance gain control

Channel Status LED

The cRTV series provide channel status is monitored by four dedicated LEDs.

I/O Lines (cRTV-44)

The cRTV-44 is fitted with TTL compatible I/O Lines, supporting 4 inputs, 4 outputs lines with protection against overloads and electrostatic discharges.

Features

- Four color video digitizers operating in parallel
- Up to 120 fps in 64-bit, 66 MHz CompactPCI bus
- Color PAL/NTSC, monochrome CCIR/EIA camera support
- On-board TTL I/O lines
- User-friendly ViewCreator utility
- Channel status report LEDs

Applications

- PC-based surveillance systems
- Digital Video Recorder (DVR)
- Factory monitoring systems
- Machine vision inspection systems
- Scientific research instrumentation
- Medical research instrumentation

Software Support

Windows® Platform

- Available for Windows® 2000/XP/XPe
- Available for Microsoft® DirectX®
- Recommended programming environments: C#/.NET/
VC++ +/VB/C++ + Builder/Delphi
- Sample programs included

LabVIEW® VIs

Angelo-LVIEW

Linux Platform

Fedora core 3, Kernel 2.6.22

ViewCreatorPro™

ViewCreatorPro assists developers in quickly evaluating initial tests and functions.

Ordering Information

cRTV-44

6U CompactPCI 4-CH real-time video capture board

cRTV-24

3U CompactPCI 4-CH real-time video capture board

PCI-MPG24

4-CH MPEG4 Hardware Real-time Video Compression Card



Features

- 4-CH MPEG4 hardware video encoder
- Real-time Full D1 video encoding up to 120 fps
- Supports real-time video raw data preview
- On-board 64 MB SDRAM memory buffer
- On-board TTL I/O lines
- Build-in watchdog timer
- Security protection circuit

Applications

- Digital Video Recorder (DVR)
- Intelligent traffic monitoring systems
- Remote surveillance systems
- Factory monitoring systems

Software Support

Windows® Platform

- Available for Windows® 2000/XP/XPe
- Available for Microsoft® DirectX®
- Recommended programming environments: C#/.NET/VC++/VB/C++ Builder/Delphi
- Sample programs included

Linux Platform

- Red Hat 9.0, Kernel 2.4.23

ViewCreator™

ViewCreator assists developers in evaluating initial tests and functions.



Ordering Information

PCI-MPG24

4-CH MPEG4 hardware real-time video compression card

Introduction

The PCI-MPG24 is a MPEG4 hardware video compression card that provides 4 channels of real-time Full D1 MPEG4 video encoding and decoding with a preview function for digital video surveillance applications. This 32-bit, 33 MHz PCI bus frame grabber simultaneously captures and encodes four video analog streams in real time. It accepts standard composite color (PAL, NTSC) or monochrome video formats (CCIR, EIA) cameras inputs. Each PCI-MPG24 card has a unique hardware ID number. System integrators can design protections to lock their system product. System integrators will benefit from a watchdog timer (for fault-tolerant applications) and easy-to-use standard connectors.

Real-time Video Encoding

Supports real-time Full D1, quarter or downscale video size encoding. Full D1 video format:

- NTSC (720 x 480) at 30 fps per channel, 4-CH total up to 120 fps
- PAL (720 x 576) at 25 fps per channel, 4-CH total up to 100 fps

Adjustable Video Quality

Bit and frame rates are adjustable to fit variable bandwidths, as seen in remote Internet applications. I, IP, IBP, and IBBP GOP structures are programmable for enhanced video quality.

Real-time Video Encoding

- Single Channel: real-time preview at VGA resolution
- 4-CH: simultaneously real-time preview at quad resolution

Video Decoding

Enhanced software decodes video for playback or remote client monitoring. The PCI-MPG24 card is not needed for playback.

Video Saving

The PCI-MPG24 saves video in the AVI video file format, which can easily be viewed on standard video player software (such as Microsoft® Windows® Media Player®).

I/O Lines

TTL compatible I/O lines are provided, supporting 4 inputs, 4 outputs, and one +5 V output for device control.

Watchdog Timer

A hardware watchdog is available on the PCI-MPG24. The watchdog is able to monitor the PC's application operation and will automatically reset the PC after a programmable inactivity time-out. This ensures a reliable operation of remote systems.

Minimum System Requirements

- Platform: Intel® Pentium® III, 850 MHz CPU, and 512 MB SDRAM or above
- VGA Display: AGP 4X above (VIA or SiS VGA chipset solution not recommended)
- Display Setting: 800 x 600 above resolution, 16-bit above color format
- OS: Windows 2000 Professional with SP4 or Windows XP Professional with SP1
- Software Requirement:
 - For end users: Microsoft DirectX 9.0 End-User Runtime
 - For developers: Microsoft DirectX 9.0 SDK
 - DivX Video Decoder (Optional)

As software decoding consumes system resources, a system platform upgrade must be made for system decoding.

1

Software & Utilities

2

DAQ

3

PXI

4

Modular Instruments

5

GPIB & Bus Expansion

6

PAC

7

Motion

8

Real-time Distributed I/O

9

Remote I/O

10

Communications

11

Vision

12

Fanless I/O Platforms

13

cPCI & Industrial Computers

14

Accessories

GEME-X52000 / GEME-X43000

4-CH Real-time Video Capture Compact Vision Platforms



GEME-X52000 / GEME-X43000



GEME-W52000

Model Name		GEME-X52000	GEME-X43000
Computing Power	CPU	Low Voltage Intel® Pentium® M 1.4 GHz	Ultra Low Voltage Intel® Celeron® M 1.0 GHz
	Cache	1 MB/2 MB on-die Advanced Transfer Cache (ATC)	Zero Cache
	System Memory	One SODIMM socket for up to 1 GB DDR333	One SODIMM socket for up to 1 GB DDR333
	Chipset	Intel® 852GME Graphics and Memory Controller Hub (GMCH) Intel® I/O Controller Hub 4 (ICH4)	Intel® 852GME Graphics and Memory Controller Hub (GMCH) Intel® I/O Controller Hub 4 (ICH4)
	VGA	On-board VGA controller built-in AGP (3D hyper pipelined architecture) Up to 1600 x 1200 in 32-bit color at 85 Hz refresh rate Video memory sharing from main memory with Intel® Dynamic Video Memory Technology (DVMT) Up to 64 MB of dynamic video memory allocation	On-board VGA controller built-in AGP (3D hyper pipelined architecture) Up to 1600 x 1200 in 32-bit color at 85 Hz refresh rate Video memory sharing from main memory with Intel® Dynamic Video Memory Technology (DVMT) Up to 64 MB of dynamic video memory allocation
I/O	USB	2 USB ports, USB 2.0 compliant	2 USB ports, USB 2.0 compliant
	IEEE 1394 (Optional)	Texas Instruments TSB43AB23 1394a-2000 OHCI PHY/link-layer controller 2 IEEE 1394 ports	Texas Instruments TSB43AB23 1394a-2000 OHCI PHY/link-layer controller 2 IEEE 1394 ports
	Ethernet	Intel® 82562EM 10BaseT/100BaseT x 1	Intel® 82562EM 10BaseT/100BaseT x 1
	Super I/O Chipset	Chipset Winbond® W83627HF	Chipset Winbond® W83627HF
	Hardware Monitoring	Built-in Winbond® W83627HF, monitoring CPU temperature, voltage and battery, +3.3 V, +5 V, +12 V voltage	Built-in Winbond® W83627HF, monitoring CPU temperature, voltage and battery, +3.3 V, +5 V, +12 V voltage
	COM Port	COM1/COM2: 16550 UART compatible ports with RS-232 interface, COM2 also supports RS-422, RS-485	COM1/COM2: 16550 UART compatible ports with RS-232 interface, COM2 also supports RS-422, RS-485
	Parallel Port	One high-speed parallel port, SPP/EPP/ECP mode	One high-speed parallel port, SPP/EPP/ECP modes
	Keyboard/Mouse	Combined PS/2 type mini-DIN connectors	Combined PS/2 type mini-DIN connectors
	Watchdog Timer	Time-out timing selectable, 1-255 seconds	Time-out timing selectable, 1-255 seconds
	System	Power Supply	AC input: 100 V _{AC} to 220 V _{AC} , Max. output: +5 V, 11.5 A; +12 V, 3 A; -12 V, 0.5 A DC input (optional): 10 V _{DC} to 30 V _{DC} , Max. input current: 13 A at 10 V _{DC} , Max. output: +5 V, 10 A; +12 V, 1.5 A; -12 V, 0.3 A
Dimensions		183 x 140 x 95.36 mm (wall mount kit not included) [16.84 mm(H) for each extension kit]	183 x 140 x 95.36 mm (wall mount kit not included) [16.84 mm(H) for each extension kit]
Power Consumption		With 512 MB DDRAM +5 V, 4.0 A; +12 V, 300 mA Test conditions: (1) CPU 100 % loading (2) No HDD, CD ROM, extension module	With 512 MB DDRAM +5 V 4.0 A, +12 V 300 mA Test conditions: (1) CPU 100 % loading (2) No HDD, CD ROM, extension module
Storage		50-pin socket for CompactFlash Type I/II One 44-pin IDE HDD (optional)	50-pin socket for CompactFlash Type I/II One 44-pin IDE HDD (optional)
Operating System		Windows® XP/Vista (32-bit), Fedora 3 with kernel 2.6.9	Windows® XP/Vista (32-bit), Fedora 3 with kernel 2.6.9
Environment	Operating Temp.	-10°C to +50°C	-10°C to +50°C
	Humidity	0% to 90%	0% to 90%
Camera Interface	Video Format	Color: PAL/NTSC, Monochrome: CCIR/EIA, Interlaced	Color: PAL/NTSC, Monochrome: CCIR/EIA, Interlaced
	Resolution	VGA	VGA
	Frame Rate	30 fps	30 fps
	Video Input	BNC x 4	BNC x 4

GEME-W52000

4-CH Double-Speed, On-the-fly Inspection Compact Vision Platform



Introduction

Utilizes ADLINK's in-depth Experience in Vision Applications

- Machine vision, surveillance, intelligent transportation systems

Based on Extensive Research on Ideal System Requirements for Vision Applications

- Compact, fanless, anti-vibration and anti-shock

Flexible, and Expandable Design for Machine Automation, Factory Automation

- AC/DC power input, optional remote I/O, and motion control modules

Applications

GEME-X52000/GEME-X43000

- Off Line Inspection
- Digital Video Recorder
- Intelligent Transportation System
- Alignment

GEME-W52000

- In Line Inspection
- 2D Code Reader
- Edge Inspection
- Defect Inspection

Model Name		GEME-W52000	
Computing Power	CPU	Low Voltage Intel® Pentium® M 1.4 GHz	
	Cache	1 MB/2 MB on-die Advanced Transfer Cache (ATC)	
	System Memory	One SODIMM socket for up to 1 GB DDR333	
	Chipset		Intel® 855GME Graphics and Memory Controller Hub (GMCH)
			Intel® I/O Controller Hub 4 (ICH4)
	VGA		On-board VGA controller built-in AGP (3D hyper pipelined architecture)
			Up to 1600 x 1200 in 32-bit color at 85 Hz refresh rate
		Video memory sharing from main memory with Intel® Dynamic Video Memory Technology (DVMT)	
I/O		Up to 64 MB of dynamic video memory allocation	
	USB	2 USB ports, USB 2.0 compliant	
	IEEE 1394 (Optional)	Texas Instruments TSB43AB23 1394a-2000 OHCI PHY/link-layer controller 2 IEEE 1394 ports	
	Ethernet	Intel® 82562EM 10BaseT/100BaseT x 1	
	Super I/O Chipset	Chipset Winbond® W83627HF	
	Hardware Monitoring	Built-in Winbond® W83627HF, monitoring CPU temperature, voltage and battery, +3.3 V, +5 V, +12 V voltage	
	COM Port	COM1/COM2: 16550 UART compatible ports with RS-232 interface, COM2 also supports RS-422, RS-485	
	Parallel Port	One high-speed parallel port, SPP/EPP/ECP mode	
	Keyboard/Mouse	Combined PS/2 type mini-DIN connectors	
	Watchdog Timer	Time-out timing selectable, 1-255 seconds	
System	Power Supply	AC input: 100 V _{AC} to 220 V _{AC} , Max. output : +5 V, 11.5 A; +12 V, 3 A; -12 V, 0.5 A	
		DC input (optional): 10 V _{DC} to 30 V _{DC} , Max. input current: 13 A at 10 V _{DC} , Max. output: +5 V, 10 A; +12 V, 1.5 A; -12 V, 0.3 A	
	Dimensions	183 x 140 x 95.36 mm (wall mount kit not included) [16.84 mm(H) for each extension kit]	
Power Consumption		With 512 MB DDRAM +5 V, 4.0 A; +12 V, 300 mA	
		Test conditions: (1) CPU 100 % loading (2) No HDD, CD ROM, extension module	
Storage		50-pin socket for CompactFlash Type I/II	
		One 44-pin IDE HDD (optional)	
	Operating System	Windows® XP, Windows® Vista (32-bit)	
Environment	Operating Temp.	-10°C to +50°C	
	Humidity	0% to 90%	
Camera Interface	Video Format	Progressive or interlaced single-tap	
	Resolution	Up to SXGA (1028 x 1024)	
	Frame Rate	60 fps	
	Video Input	Hirose 12-pin female x 4	

- 1 Software & Utilities
- 2 DAQ
- 3 PXI
- 4 Modular Instruments
- 5 GPIB & Bus Expansion
- 6 PAC
- 7 Motion
- 8 Real-time Distributed I/O
- 9 Remote I/O
- 10 Communications
- 11 Vision
- 12 Fanless I/O Platforms
- 13 cPCI & Industrial Computers
- 14 Accessories