ADLINK TECHNOLOGY INC.

Machine Vision Solution



- Smart Cameras
- Embedded Vision Systems
- Frame Grabbers

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A Global Company

ADLINK, a manufacturer of embedded computing technology, leads the field with integration of computing power, rugged design, high availability, and industrial I/O. Dedicated to test & measurement, industrial automation, defense and aerospace, gaming, communications, medical, and transportation applications, ADLINK has made a name for itself providing reliable products of superior quality for cost-effective solutions, allowing our customers around the world to significantly reduce time-to-market burdens while increasing their competitive edge.

By providing leading-edge application-ready platforms and industrial building blocks, ADLINK empowers our customers, allowing them to minimize total cost of ownership (TOC) with customization and system integration advantages, keeping manufacturing costs low and extending product lifecycles.

ADLINK is a Premier Member of the Intel® Internet of Things Solutions Alliance and is active in several standards organizations, including the PCI Industrial Computer Manufacturers Group (PICMG), the PXI Systems Alliance (PXISA), and the Standardization Group for Embedded Technologies (SGET).

ADLINK is a global company with headquarters in Taiwan; manufacturing in Taiwan and China; R&D and integration in Taiwan, China, the US, and Germany; and an extensive network of worldwide sales and support offices. ADLINK is ISO-9001, ISO-14001, ISO-13485 and TL9000 certified and is publicly traded on the TAIEX Taiwan Stock Exchange (stock code: 6166). ADLINK products are currently available in over 40 countries across 5 continents, supported by worldwide distribution networks and offices and over 1600 employees.



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Products and Services

Measurement and Automation

ADLINK's is dedicated to providing reliable, top quality products for industrial I/O control, motion control, digital imaging, data acquisition, and modular instrument applications. Our comprehensive portfolio of measurement and automation products, application ready platforms, and easy-to-use software packages, with integrated value-added service, continually meet and exceed customer requirements for industrial automation systems, machine vision systems, and automated test and measurement equipment.

- PXI & Modular Instruments
- Data Acquisition
- GPIB & Bus Expansion
- Machine Vision
- Motion Control
- Distributed I/O
- Intelligent Computing Platforms



Mobile and Panel Computing

ADLINK is dedicated to providing rugged mobile and panel computing products for industrial applications, including industrial automation, logistics management and medical. We specialize in meeting the needs of harsh and demanding environments, as well as mobile deployments in industrial settings.

- Tablet PCs
- Handheld Computers
- Industrial Monitors and Panel Computers
- Medical Monitors and Panel Computers



Modular & SFF Computing

With the combined experience and technical knowledge of ADLINK, Ampro Computers and LiPPERT Embedded Computers, ADLINK is able to provide a wide range of Computer-on-Modules and Small Form Factor (SFF) Single Board Computers. Our Extreme Rugged™ product lines have wide operating temperature ranges and meet MILSTD shock and vibration specifications.

- Computer-on-Modules
  - COM Express
  - SMARC
  - Qseven
  - ETX
- Rugged Small Form Factor Single Board Computers
  - PC/104
  - PC/104-Plus
  - PCI/104
  - PCI/104-Express
  - Mini-ITX



Embedded Computing

ADLINK works closely with Intel® to ensure that we develop and introduce innovative computing technologies by implementing embedded computing roadmaps and selecting computer solutions that best fit our target markets. This enables ADLINK to provide the highest quality and performance products with the long life cycles required by our embedded computing customers.

- Network Appliances
- Outdoor Rugged Servers
- Media Cloud Servers
- AdvancedTCA
- 6U/3U CompactPCI Platforms
- VPX Blades and Development Kits
- Extreme Rugged Systems
- Embedded Flash Storage



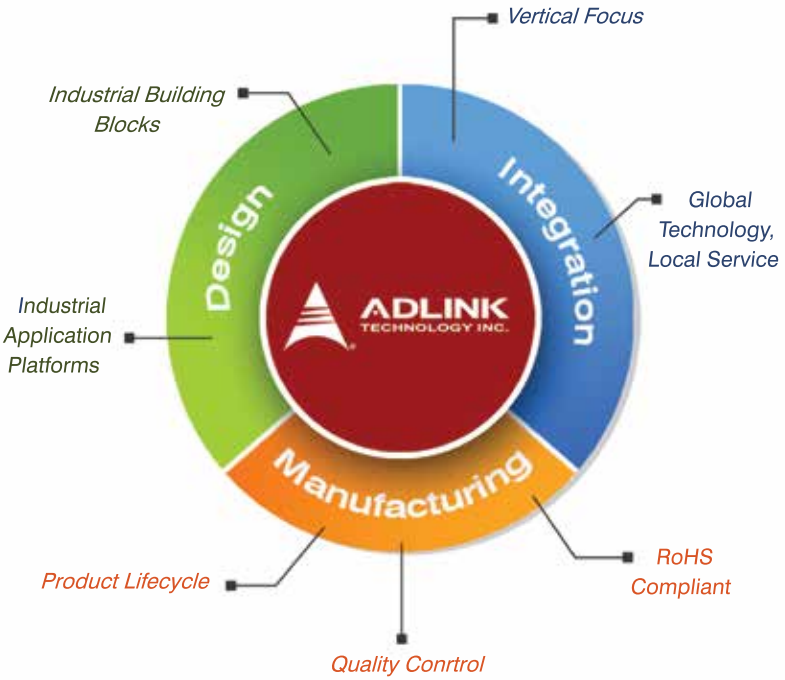
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Design and Manufacturing Services

To fulfill your requirement of high quality, cost-effective products, with quick time to market in product development, ADLINK has established and assembled an Design and Manufacturing Services team to cater to the specific demands that off-the-shelf products could not meet.

From embedded computers, data acquisition cards, and CompactPCI systems to related software packages, our DMS design team has the expertise to rapidly prototype upon the approval of finalized specifications. In addition, the winning of ISO-9001 certification ensures the exactitude of our research and development procedures with the highest product quality.

ADLINK owns and operates the manufacturing facilities in our Asia headquarters. Complete capabilities include our own PCB layout teams, SMT lines, system integration, and test capabilities. In short, ADLINK controls the whole manufacturing process, from layout and design to prototyping and volume production.









Customer Services

ADLINK is not only devoted to providing local service worldwide, but also to providing convenient online service, The following services are available around the clock on the Internet.

eRMA

ADLINK customers can send their RMA requests via our eRMA system. After obtaining an RMA number, you can track your RMA status online at any time.

Partner Center

The ADLINK Partner Center is specifically designed for worldwide sales and marketing support to allow our global sales representatives and distributors access to real-time product and marketing information and materials as soon as they are released at ADLINK headquarters. More than a resource database, the ADLINK Partner Center will also facilitate your business in serving customers.

Ask An Expert

This is the place to get help for ADLINK products. 'Ask an Expert' provides answers to commonly asked questions, or you can click on the 'Ask a Question' tab to contact ADLINK's knowledgeable staff about a specific product or issue. ADLINK AAE (Ask an Expert) is available 24/7 online and is staffed by dedicated professionals who are available to address customers' needs and answers question. All issues and comments are recorded into a database and can be tracked/reviewed at anytime. ADLINK customers are invited to access the AAE system at: http://www.adlinktech.com/AAE

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Environmental Protection Policy

ADLINK implemented a Green Product Policy in May 2004 to align the purchasing and use of green products meeting requirements from international environment protection statutes. Environmental protection is a top priority for the management at ADLINK. Measures have been taken to ensure that our products have little impact on the environment. In addition to planning a leadless process, the affect on the environment of components and raw materials will also be reduced. The Green Product concept has been built into our new product development system to ensure protection of the environment and continued business success.

RoHS Compliant Computing

ADLINK is committed to fulfill its social responsibility to global environmental preservation through compliance with the European Union's Restriction of Hazardous Substances (RoHS) directive, which restricts the use of harmful substances such as lead, mercury and cadmium in new equipment.

Most end-user applications in which ADLINK products are used do not require RoHS compliance. However, ADLINK will actively work with customers whose products are not RoHS exempt under category 8 or category 9 classifications. Our lead-free production line and process, including solder paste, solder bar and process control parameters, has been developed and standardized in our manufacturing system.

Conflict Free Minerals Policy

ADLINK TECHNOLOGY INC. will not knowingly procure material supplies and components that contain minerals that directly or indirectly finance or benefit armed groups in the Democratic Republic of Congo (DRC) or an adjoining country.

We urge our suppliers to support this policy in their own procurement guidelines and provide us with accurate country of origin information.

ADLINK shall:

- Comply fully with requests from EICC-GeSI.
- Conduct a reasonable country of origin inquiry to clarify the origins of the Gold, Tantalum, Tungsten and Tin used in our products.
- Establish reasonable objectives and targets with a goal of ascertaining and minimizing ADLINK's risk. With a goal of continuous improvement for our Conflict Free Minerals Program, develop a means to measure objectives and targets. ADLINK will also review, revise and report these measures, and overall program updates, on an annual basis.
- Empower all employees, suppliers, vendors and contractors to take ownership in complying with the Conflict Free Minerals Policy and to escalate risks in the supply chain to management's attention.
- Effectively communicate to all employees this Conflict Free Minerals Policy and our Conflict Free Minerals Program.

Management Flow

The management flow of ADLINK's Green Policy begins during the development stage of a product. Only parts and raw materials that meet RoHS requirements are sourced. Our engineers specifically design products using only qualified components. A lead-free process ensures that manufactured products are "green." Green products do not contain environmentally hazardous elements and can easily be recycled.

REACH Declaration

The Registration, Evaluation, Authorization and Restriction of Chemicals Regulation 1907/2006, commonly referred to as "REACH", is Europe's new chemicals legislation. The products that we supply are non-chemical products and under normal and reasonable use, they will not release harmful substance. Furthermore, we will immediately inform you in correspondence to REACH-Article 33 if any substance of content (as from a content of >0.1%) in our products will be classified alarming by the European Agency for Chemicals ECHA.

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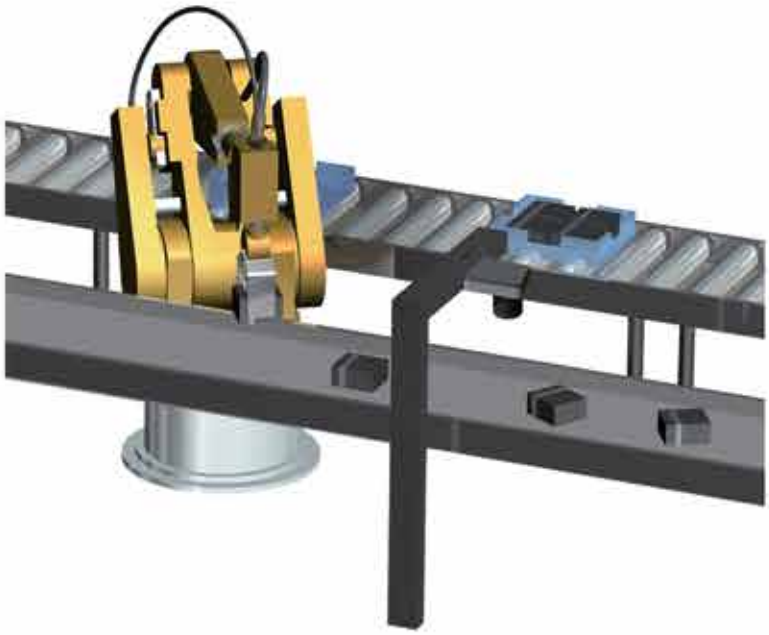
Vision Guidance Robotics

Application

Pick and Place

Robotics have been implemented in factory automation for applications such as assembly and pick/place operations, boosting accuracy, productivity and cost-effectiveness. Without vision guidance, however, considerable teaching time and tooling expense are required to guarantee correct, accurate, and speedy function, but the system can also lack the flexibility to meet a full range of production demands.

High resolution and frame rates delivered by vision guidance systems provide enhanced accuracy and speed. Robotics integrating image processing such as pattern matching can acquire necessary object position and orientation. ADLINK's NEON-1040 x86 smart camera provides high performance imaging capability, global shutter sensor, frame rates up to 60 fps and up to 4 MP resolution with Intel® quad-core Atom processor.



ADLINK's Solution

NEON-1040 Intel® Atom™ Quad-Core Processor E3845 1.9 GHz-Based Smart Camera with 4MP, 60fps, Global Shutter Sensor

page 1-3

ADLINK' s new generation x86 NEON-1040 features 4MP 60fps global shutter sensor and the Intel® Atom™ quad core 1.9 GHz processor, with minimal footprint and rugged IP67-rated construction. The quad core CPU increases computing power and FPGA coprocessors and GPU deliver advanced image processing, both beyond the capabilities of conventional smart cameras. Rich software support and API compatibility enable easy migration from original x86 platforms, eliminating software and development language burdens across the platform, reducing time to market.

Advantages & Features

- 4MP/60 fps
- 1.9 GHz quad-core Intel Atom processor E3845
- x86 open architecture platform
- FPGA imaging coprocessor
- Small form factor
- GenTL supports easy integration with various machine vision applications
- IP67-rated housing

Customer Benefits

- High performance imaging efficiency
- Easy deployment
- Easy development
- Reduced total cost of ownership

Sample **Applications**



Automotive Electronic



Pharmaceutical Inspection



Food Inspection



CNC Machine

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High Speed Pharmaceutical Inspection

Application

Pharmaceutical Manufacturer

Pharmaceutical inspection, including inspection for visual defects, package labels, pattern matching or scanning barcodes on a high-speed folding machine or product line, demands high resolution captures with powerful processing to manage large image data. Global shutter sensors deployed in a fast moving product line provide clear and stable images for image. To manage the variety of inspection methods used, a flexible and programmable inspection platform is ideally suited to pharmaceutical applications.





ADLINK's Solution

NEON-1040: Intel® Atom™ Quad-Core Processor E3845 1.9 GHz-based smart camera with 4MP, 60fps, global shutter sensor

page 1-3

The NEON-1040 features a 4 MP 60 fps, 1-inch global shutter sensor, ideal for precise high-speed moving object inspection, ideal for verification of pill or tablet quality, blister pack contents, and label information and/or bar codes. With IP67-rated housing and M12 connectors, the NEON-1040 resists harsh environments, withstanding damage from moisture and contaminants. With powerful quad core computing and FPGA image pre-processing, the NEON-1040 can process multiple complex inspection tasks simultaneously, and its open architecture x86 based application ready platform simplifies programming of customized inspection applications and use of existing x86 software without requiring new coding language expertise.

Advantages & Features

- 4MP/60 fps
- 1.9 GHz quad-core Intel Atom processor E3845
- x86 open architecture platform
- FPGA imaging coprocessor
- GenTL support easy to integrate with various machine vision software
- Small form factor
- IP67 rated housing

Customer Benefits

- High performance and excellent imaging efficiency
- Easy to deploy
- Easy to development
- Reduced total cost of ownership

Sample **Applications**



Automotive



Produce



Robot Guidance

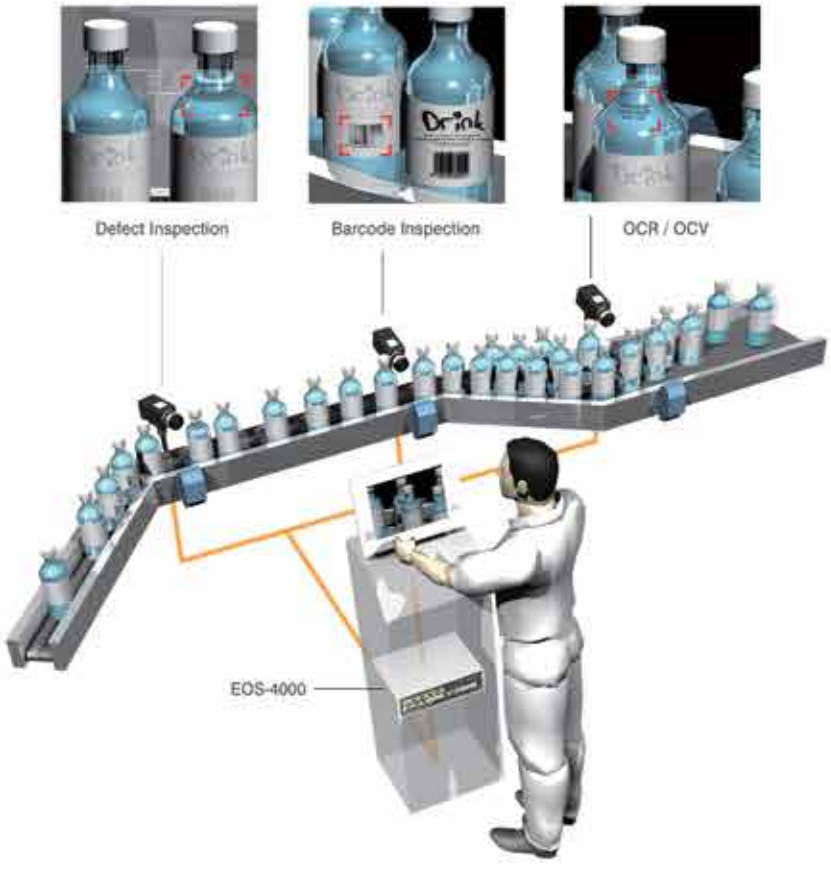


Machine Tooling

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Food and Beverage Inspection



Application

Barcode, OCV/OCR and Defect Inspection

Success in the food and beverage industry relies on productivity and quality, and machine vision plays an increasingly important role in increasing productivity and quality assurance. Manufacturing processes utilizing machine vision technology such as 2D code readers, label inspection, OCV (optical character verification), and pattern matching are significantly advantageous, improving production yield and automatic identification and resolution of manufacturing problems on the line. Simultaneous multi-camera execution of these tasks delivers a cost-effective solution, reducing total cost of ownership. As environments grow, effective production and quality control management benefit considerably from ready-to-deploy systems providing quick and worry-free inspection access to all areas, and efficient synchronization of the multi-camera array.

ADLINK's Solution

EOS-4000: Powerful 2-CH Camera Link (PoCL) Embedded Vision System with 3rd Generation Intel® Core™ i5/i7 Processor

page 2-3

The EOS-4000 is a high performance, Camera Link embedded vision system, streaming raw image data over dedicated point-to-point link topology, with no network latency or protocol overhead, and implementing direct memory access (DMA) solutions and rearranging data for efficiency. Transmission of image data from cameras to the system memory is executed without utilizing any CPU resources, and the EOS-4000 supports 64-bit memory addressing, encoder input, and RAID technology (dual SATA interface), benefiting vision applications with large address space, such as defect inspection and line scan.
The EOS-4000 additionally offers 64 optocoupler isolated digital I/Os, and supports software configurable digital filter function (0.25 μs-131 ms) securing recognition of input signals carrying noise or chatter, ideally suiting demanding industrial environments.

Advantages & Features

- Compact and rugged system
- Embedded 3rd generation Intel® Core™ i5/i7 Quad Core processors
- 2-CH PoCL, base Camera Link® configuration
- Dual storage capability (two SATA interfaces and CFast slot)

Customer Benefits

- Ready to deploy
- Reduced total cost of ownership

Sample Applications


Fruit Inspection


Beverage Inspection


Pharmaceutical Glass Inspection


Food Inspection

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Full HD Medical Imaging



Application

Digital OR

In contemporary operating room environments, medical practitioners require highly accurate video images with low latency during surgical procedures, such as X-ray, ultrasound, and endoscopy. Since the critical video data may be provided in different formats such as DVI, CVBS, and RGB, quick and efficient normalization of the various formats is essential. Digital OR systems are thus not only called upon to integrate the varied video inputs and displays but also record the collected data for future reference. ADLINK's highly integrated HDV62A is fully compatible with multiple video formats in a single unit for fast, efficient reception and archiving, making it a key component in a simple yet effective digital OR system.

ADLINK's Solution

PCIe-HDV62A: 1-CH PCI Express® HDMI Video & Audio Capture Card page 3-5

ADLINK's PCIe-HDV62A is a PCI Express x4 integrated video frame grabber which supports not only DVI/HDMI but also analog CVBS, S-video, RGB and YPbPr video signals, and delivers raw, 1080P 60fps 10-bit video streaming.
PCIe x 4 means the PCIe-HDV62A not only supports up to 1080P FHD @ 60fps but also YUV 4:4:4 color format, delivering high precision lossless data generating accurate color imaging for critical applications.

Advantages & Features

- Up to 1920x1080P, 60 fps, Raw video stream
- Supports Microsoft DirectX SDK
- Supports digital and comprehensive analog video image input

Customer Benefits

The system can integrate many kinds of video input with a single HDV62A unit, which can reduce the total cost of ownership and maintenance.

Sample **Applications**



MRI



Ultrasound



X-Ray Imaging



Laparoscopy

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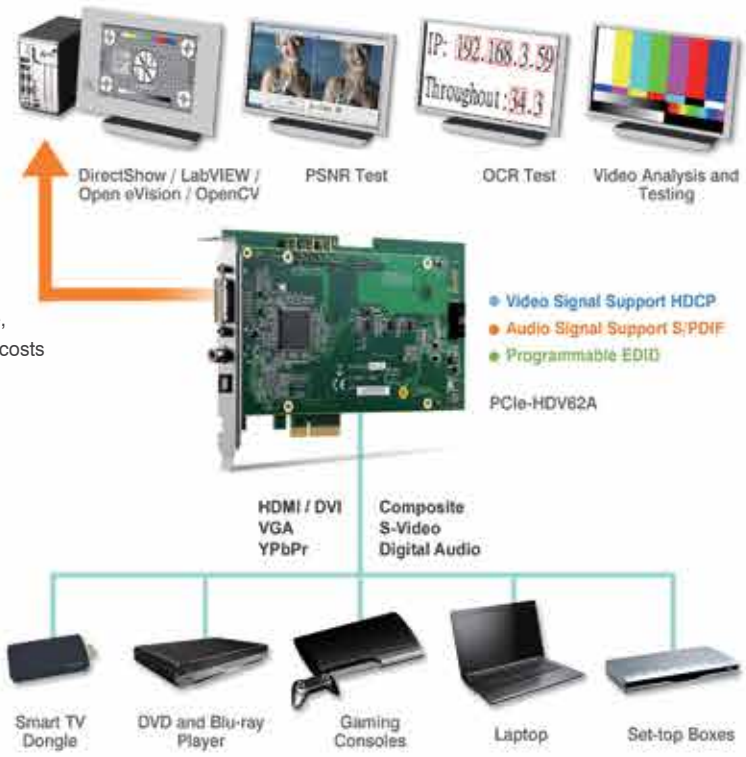
Video QA Testing in Smart Devices

Application

Multimedia Product Markets

Multimedia products must satisfy a full range of testing procedures, including input interface, display resolution, and color space adjustment. The application of automatic testing equipment allows manufacturers to adapt to vast and ever-changing markets with more economical, efficient and accurate testing environments.

The complexity of video and audio testing means that manual testing can lead to inconsistent results due to subjectivity, operator fatigue, and attention deficit, not to mention environments requiring detection too sensitive for the naked eye, like EDID and HDCP. Automating testing of multimedia devices can lower labor costs and reduce testing errors while enhancing efficiency and yield. The ADLINK PCIe-HDV62A features uncompressed 1920x1080p image support, and up to 60 fps streaming data capture, integrated multi-source digital audio data capture, HDMI, D-Sub, YPbPr, CVBS, SVideo, SPDIF, and AV terminal enriched all-in–one input interface, aligned for automatic multimedia testing. Connecting the PCIe-HDV62A to multimedia devices allows the user to utilize algorithms such as Pattern Match, PSNR (peak signal to noise ratio), OCR (optical character recognition) and FFT (fast Fourier Transform) to analyze acquired video and audio data, as well as modify EDID content of the PCIe-HDV62A to ensure the compatibility across multiple platforms, enhancing automation and accuracy.



ADLINK's Solution

PCIe-HDV62A: 1-CH PCI Express® HDMI Video & Audio Capture Card

page 3-5

ADLINK's PCIe-HDV62A enables single-card acquisition of full analog/digital video and digital audio signals. Featuring uncompressed full HD up to 1080p at 60 fps and 10-bit high-resolution ADC and HDCP support, the PCIe-HDV62A reduces TCO for applications requiring simultaneous capture from both video and audio sources, such as multimedia device testing.

Advantages & Features

- Up to 1920 x 1080p, 60 fps, uncompressed image streaming
- Support for comprehensive analog and HDMI/DVI video input
- Support for HDMI and SPDIF audio input
- Support for HDCP (High-Bandwidth Digital Content Protection)
- Support for Microsoft® DirectX SDK

Customer Benefits

The ADLINK PCIe-HDV62A provides a single card capture solution enabling acquisition of raw images and audio sources for analysis and measurement, significantly reducing costs of product line inspection.

Sample Applications



Blu-ray Disc Players



Set-top Boxes



Projectors



Gaming Consoles

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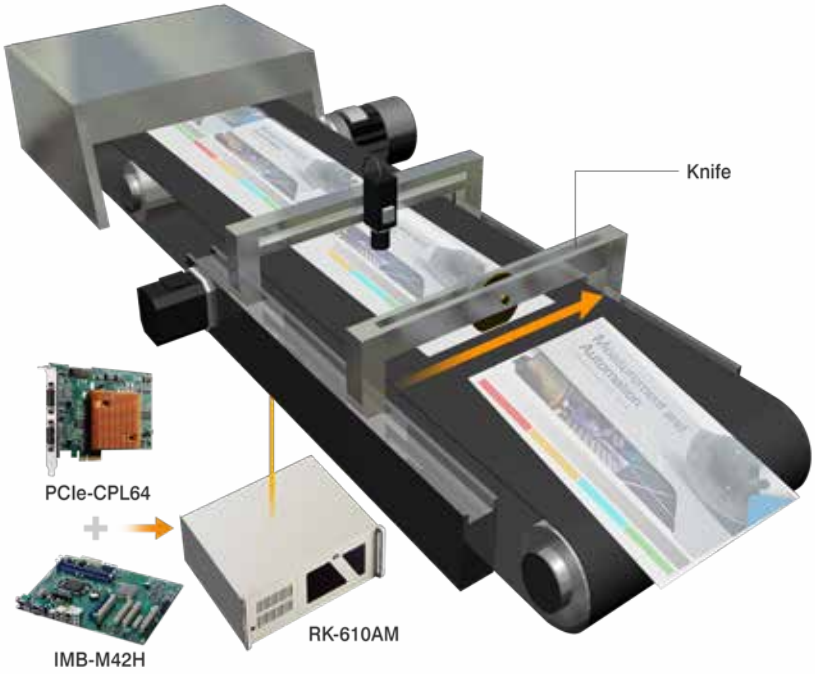
Printing Image Inspection

Application

With increases in complexity and varieties of materials, quality control in the print becomes more difficult to achieve. As a result, AOI (Automatic Optical Inspection) procedures are gaining popularity in textile, printing, medical, and food packaging applications.

Critical to such quality assurance measures is the identification andconfirmation of the existence of such material defects as ink smear/splash, hologram defects, pollutants, and barcode and stamping misprints, before cutting, and subsequent removal of the defects. AOI comprehensively verifies the integrity of all printed elements, including variable text, ID and other number components, and barcode fields, all on the fly, with no interruption of production cycle, a distinct improvement over more conventional verification processes in which production must be interrupted.

Solutions to this type of application can include electronic camera with unique light source and other precision functions to synchronize the image capture action with the motion of the conveyor in the required location. The timely image processing technology is also required to keep the conveyor rolling. When the inspection iscomplete, the image is stored for future inquiry.



ADLINK's Solution

PCIe-CPL64: 2-CH PCI Express® PoCL Frame Grabber

page 3-8

To ensure the integrity of work pieces during flying shear operation, ADLINK's high-speed vision solution, integrating our IMB-M42H and RK-610AM with the PCIe-CPL64 2-CH PCI Express® PoCL (Power over Camera Link®) frame grabber, provides an application-ready platform for machine vision applications featuring 4th generation Intel® Core™ i7 quad core processors, supporting up to 16 GB DDR3 1600 DRAM with one PCIe x16 Gen2, one PCIe x4 Gen2 and four PCI expansion slots.

The platform's dedicated PCIe bandwidth, together with integrated PCIe-CPL64 Camera Link®-based frame grabber, ensures high image data transition with no frame loss. Maximized computing performance shortens inspection times while automatically recording all data, resulting in an ideal solution for AOI mission-critical tasks.

Advantages & Features

- PoCL (Power over Camera Link®) compliant with auto detection
- 2-CH Camera Link® Base or 1-CH Medium Configuration
- Acquisition Pixel clock rates up to 85 MHz
- 4 TTL Digital Input/Output, and 2 trigger Input
- Support for Microsoft® Windows 32/64 bit

Customer Benefits

- PoCL allows one-cable solution to save space and money
- Optimize multi-camera applications via support for two independent camera per board
- Reduce development and validation costs
- PCB/FPD/Wafer/Solar Cell surface inspections
- Speedy time-to-market with reliable application control

Sample Applications


Steel


Printing


Food Package


Textile

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New Generation x86 Quad-Core Smart Camera

Overview

ADLINK's new generation x86 NEON-1040/1020 features 4MP 60fps global shutter sensor and the Intel® Atom™ quad core 1.91 GHz processor, featuring minimal footprint and rugged IP67-rated construction. The quad core CPU increases computing power and FPGA coprocessors and GPU deliver advanced image processing, both beyond the capabilities of conventional smart cameras. Rich software support and API compatibility enable easy migration from original x86 platforms, eliminating software and development language burdens across the platform, reducing time to market.



ADLINK New Generation
x86 Smart Camera
NEON-1040/1020

Breaking the boundaries of smart camera and embedded vision systems

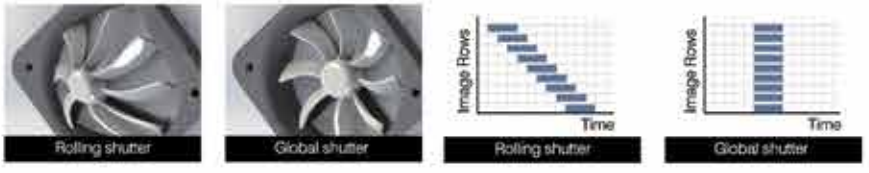
High performance increases speed and capture complexity

High end quad core processor

Intel® Atom™ processor E3845 at 1.91GHz improves dramatically on the performance of existing smart cameras. The high end processor provides up to 6 times the computing power of conventional smart cameras.

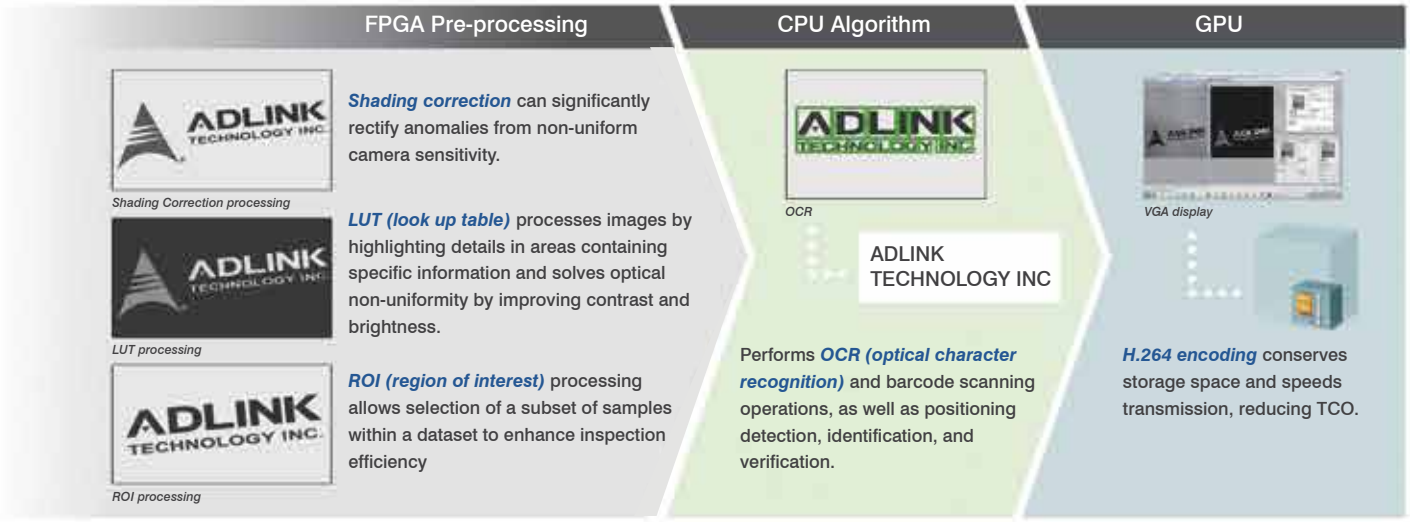
Improved detection sensitivity

The 4 MP 60 fps 1-inch global shutter sensor improves on rolling shutter sensors with improved raw image clarity, for high speed inspection precision.



Coordination among CPU, GPU and FPGA co-processor

The NEON-1040/1020's FPGA accelerates image pre-processing and reduces CPU loading, making it ideal for complex acquisitions like those in LUT (look up table), ROI (region of interest), and shading correction . Thanks for FPGA, the CPU resource can focus on algorithm and make inspection tasking more efficiency.



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Open architecture and easy development dramatically reduce time to market

In a real application environment, different development languages and software tools are required in machine vision, motion controller, smart camera and line scan camera stations . A platform allowing development in a single language, with easy deployment from existing platforms, conserving manpower costs and reducing time to market.

Programming in the x86 architecture

NEON-1040/1020 is based on x86 architecture, with all development environments familiar to users, for motion/HMI/IO solutions, seamless migration from the original x86 platform.

x86

Rich third party software support

The NEON-1040/1020 provides flexible software support for MVTec HALCON, STEMMER IMAGING Common Vision Blox, Adaptive Vision, Cognex VisionPro, Open CV, Open CL and more. As well, GeniCam and GenTL compatibility simplify communication with devices and allow third party software to control cameras and acquire image data.





Area scan camera | Line scan camera | ADLINK NEON-1040

64-bit computing

As image analyses software have to deal with great bulk of data, most mainstream software products in this segment support 64-bit instructions. Therefore, it is better for implementers to choose a vision system that supports 64-bit computing environment.

Maximum integration reduces TCO

Built-in PWM lighting control

The NEON-1040/1020's built-in PWM lighting control module eliminates the need for additional lighting controller equipment, reducing TCO.

Compact footprint

Small footprint enables easy integration into existing lines, saving space and simplifying configuration

GigE port enhances flexibility

With built-in GigE port, the NEON-1040/1020 can connect to multiple cameras via external hub. As well, existing CODESYS users can easily and quickly connect to other motion controllers via EtherCAT.

Versatile I/O for external device connection

NEON-1040/1020 provides 4x isolated inputs, 4x isolated outputs, USB 2.0 port, and RS-232 ports, supporting connection to a monitor, USB mouse and keyboard, enabling program and application development directly in smart camera.



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NEON-1040/1020

Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera



Introduction

ADLINK's new generation x86 NEON-1040/1020 features 4MP 60fps/2MP 120fps global shutter sensor and the Intel® Atom™ quad core 1.91 GHz processor, featuring minimal footprint and rugged IP67-rated construction. The quad core CPU increases computing power and FPGA coprocessors and GPU deliver advanced image processing, both beyond the capabilities of conventional smart cameras. Rich software support and API compatibility enable easy migration from original x86 platforms, eliminating software and development language burdens across the platform, reducing time to market.

The NEON-1040/1020 is a powerful new generation x86 smart camera that features Intel® Atom™ quad core Processor E3845 1.91 GHz, global shutter image sensor (4 MP at 60 fps for the 1040, 2 MP at 120 fps for the 1020), and PWM lighting control support. The NEON-1040/1020 stands out with its minimal footprint, and superior computing power. Rugged construction with IP67-rated housing and M12 connectors enables the NEON- 1040 to withstand the harshest industrial environments.
High-end quad-core processor with FPGA coprocessors, GPU and up to 32GB storage for image processing, programs, and archiving, all provide advanced image processing ability that" s ideally suited to high-speed, high-resolution industrial imaging applications.

Optimal I/O including one additional slave GigE Vision camera connection, 4x isolated inputs, 4x isolated outputs, and VGA output maximize integration with external devices. Additionally, flexible software development support, including GenTL support for image acquisition and Open CV and Open CL programming, significantly benefits developers by easing migration from x86 platforms.

Features

- **Quad core Intel® Atom™ processor E3845 1.91GHz**
- **4M 60fps/2M 120fps monochrome global shutter CMOS sensor**
- **IP67-rated housing and M12 connectors thoroughly protect against dust & moisture**
- **Advanced image processing support**
- **Additional GigE Vision 1 slave camera support reduces TCO**
- **Built-in PWM lighting control**
- **4x digital inputs, 4x digital outputs, USB 2.0 and RS-232 ports**
- **Flexible software support with STEMMER Common Vision Blox, MVTec HALCON, COGNEX VisionPro, Teledyne Dalsa Sherlock, Adaptive Vision Studio, Euresys Open eVision, and many others**
- **GeniCam , GenTL, Open CV and Open CL compatible with image acquisition**
- **VGA output, max. 2560x1600 @60 Hz**



Applications

- **Industrial automation**
- **Robot guidance**
- **3D vision**
- **Medical imaging**
- **Machine Tooling**

Software Support

OS Information

- **Windows® 7, Embedded Standard 7**



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Specifications

Model Name		NEON-1020	NEON-1040
Processing & Memory			
Processor		Intel® Atom™ E3845 Processor, Quad Core @ 1.91 GHz	
Display		VGA output, max. 2048 x 1152 at 60 Hz	
RAM		4 GB DDR3L	
Storage		16 to 32 GB solid state drive	
Advanced Processing		ROI, LUT, Shading Correction	
Sensor			
Image Sensor		CMOSIS CMV2000	CMOSIS CMV4000
Resolution		2048 x 1088	2048 x 2048
Sensor Size		2/3"	1"
Format		Monochrome	
Pixel Size (μm)		5.5	
Frame Rate (fps)		120	60
Shutter		Global	
Trigger Mode		External trigger, software trigger, free run	
I/O Interface			
Trigger Input		1x Opto-isolated trigger input	
Digital Output		4x sink type output, max sink 100mA sink voltage max 30VDC	
Digital Input		4x TTL level input	
PWM Lighting Control	Drive Method	Constant current 500mA	
	Applicable Light Units	24 VDC illuminators	
	Dimming Resolution	1000:1	
Ethernet		1 x GbE	
Serial Communication		1 x RS-232 (TX and RX only)	
USB		1 x USB 2.0	
Mechanical			
Dimensions		68.5mm W x 110mm D x 52.7 mm H / 2.70" W x 4.33" D x 2.08" H (68.5mm x 110mm x 42.7mm reduced size option)	
Lens mount		C mount	
Connectors		1 x M12 8-pin (Female), 1xM12 17-pin (Male), 1x M12 12-pin (Male)	
Software Support			
Operation System		Windows 7, Windows Embedded Standard 7	
Environmental & Electrical			
Power Consumption		24 VDC +/-10%, 13W (Typical)	
Operating Temperature		Standard: 0°C to 50°C (32°F to 122°F) Extended temperature option: 0° to 60 °C (32° F to 140° F) (w/ industrial SSD)	0° to 50 °C (32° F to 122° F)
Vibration		Operating, 5 Grms, 5-500 Hz, 3 axes	
Certification		IP67, CE, FCC Class A	

Ordering Information

Model Name	Description
NEON-1040/M4G/SSD32G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 4MP, 60fps, global shutter sensor with 32G SSD
NEON-1040/M4G/SSD16G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 4MP, 60fps, global shutter sensor with 16G SSD
NEON-1020/M4G/SSD32G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 2MP, 120fps, global shutter sensor with 32G SSD
NEON-1020/M4G/SSD16G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 2MP, 120fps, global shutter sensor with 16G SSD

Optional Accessories

GigE cable 5m	5m Ethernet cable with shielded and AWG 26 stranded. M12 to RJ45 plug
Power & DI/O cable 3m	3m cable for NEON to connect power, DI/O and UART cable. M12 to free cable end.
VGA & USB cable 3m	3m cable for NEON to connect VGA and USB. M12 plug to VGA female and USB-type A female plug.
IP67 kits lens protector	Lens protector for NEON to achieved IP67 rated
DIN-1040 terminal board	Terminal board for DI/O, RS-232, GigE, USB and power input for NEON series.
16mm C-mount lens	16mm 4Mega pixels resolution C-mount lens for 1" sensor
LED lighting	15" high-density white LED arrays in ring shape.
NEON Starter Kit	ADLINK Smart Camera Starter Kit with NEON-1040/1020 and accessories package

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ADLINK Embedded Vision Systems

GiGE VISION



- Compact Design
- High Computing Power
- Multi-channel Connectivity
- Ready to Deploy

Introduction

Embedded vision systems, also referred to as compact vision systems, offer an alternative to Smart cameras and computer-based systems. The ADLINK EOS series is a complete embedded vision system that offers image acquisition, processing, archiving, and display capabilities. It is equipped with a multi-core CPU, ideal for applications requiring high computing power and multi-camera imaging, such as 3D vision and robotics guidance.

Featuring rich I/O connectivity with factory-floor networks, including RS-232/422/485, USB, and isolated digital I/O, as well as onboard storage, ADLINK's embedded vision system is ready to deploy.

A system monitoring feature, feeding back temperature and voltage data, combines with a watchdog timer to maximize robustness and reliability of the ADLINK EOS series in mission critical applications.

Highlights

Compact and Rugged Design

EOS series is a compact-size 230 (W) x 206 (D) x 82 (H) mm (9 x 8.3 x 3.2 in.) embedded vision system. Designed for mission critical applications, the EOS series underwent harsh vibration and shock testing during its design to ensure durability. While in operation, the EOS series can tolerate vibrations of up to 5 G.



Multi-Camera Support

Simultaneous vision inspection is commonly required on a production line as a cost-effective solution. The ADLINK EOS series provides multi-camera support through up to 4 channels, making it ideal for use in industrial automation, improving overall product quality and increasing efficiency.

Precision Time Protocol (IEEE1588)

Precise time information is especially important for industrial automation. With the Precision Time Protocol (PTP) described in IEEE1588, it is possible to synchronize several cameras with an accuracy of less than 1 μs via Ethernet networks. IEEE1588 PTP technology allows a single Ethernet cable to deliver both synchronization and image data.

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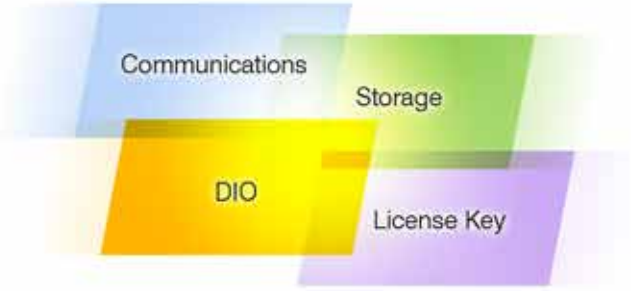
Power over Cable Support

PoE (Power over Ethernet) technology provides power through a single Ethernet cable up to 100 m. This PoE solution simplifies system installation and lowers maintenance costs. The ADLINK EOS series also provides auto-detection to ensure compatibility with both PoE and conventional non-PoE devices. The camera power is automatically on when the PoE connection is established. With the smart PoE function in EOS-1200, users can program power status (PoE on, or power off) easily, delivering significant energy efficiency, especially when cameras are idle.



Ready to Deploy

A complete vision system includes software, digital I/O, storage, communication, and peripheral devices. The EOS series features rich I/O capability, including four serial ports, two USB 3.0 ports, 32 PNP/NPN isolation digital I/Os, dual storage (two SATA interface, and one CFAST slot), an internal USB port, and 1 kbit programmable EEPROM, which make EOS series ideal to integrate, deploy, and manage copy protection or authentication of software licenses for system development, and further accelerate time to market.



Easy Maintaintance

The ADLINK EOS series enables significant ease of system installation. The upper cover is easily opened by removal of a single screw. Hot-swappable filter design also reduces MTTR (Mean-Time-to-Repair) and increases system reliability.



▲ Open the top cover with easy thumbscrew, no tools needed!



◀ Hot swappable filter for easy replacement

Dual Data Storage

Most vision applications require two forms of data storage: one during operation and the other to archive gathered data or house a backup operating system. This system architecture of independent dual storage devices strongly enhances reliability and flexibility of the ADLINK EOS series.



CFast socket



Up to two HDD/SDD installation

Applications

Industrial Automation

- Robot guidance
- AOI machinery
- Pick and place machinery
- Bonding machinery



Medical and Life Sciences

- In Vivo imaging
- X-Ray imaging
- Microscope
- Endoscope



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EOS-4000

2-CH Camera Link (PoCL) Embedded Vision System with 3rd Generation Intel® Core™ i5/i7 Processor



Introduction

ADLINK's EOS-4000 is a rugged, compact embedded vision system, with 3rd Generation Intel® Core™ i5/i7 processor, dual independent PoCL (power over Camera Link) ports with data transfer up to 2.56 Gb/s, and pixel clock rates up to 85 MHz for high speed capture of large images. Computing power and connectivity are significantly enhanced, with minimal footprint.

The EOS-4000 supports a 2-CH PoCL Camera Link® base configuration, reducing cabling burdens and eliminating the need for external power adapters. In addition, the EOS-4000 supports 64-bit memory addressing, benefiting large address space vision applications.

The EOS-4000's rich I/O capability includes trigger and encoder input and two independent RS-232 serial communication ports, reducing host computer loading. 64 isolated digital I/O connectors, digital filter, dual storage, internal USB port, and 1 kbit programmable EEPROM all ideally equip the EOS-4000 to integrate, deploy, and manage copy protection or authentication of software licenses for system development, further accelerating time to market.

Combining increased computing power with multi-channel connectivity and a ready-to-deploy application platform, the EOS-4000 delivers embedded vision ideally suited for high-speed and large image machine vision applications.

Features

- **Compact, rugged system design**
- **Embedded 3rd Gen Intel® Core i5/i7 Quad Core CPU**
- **2-CH PoCL, base Camera Link® configuration**
- **One internal USB port and 1kbit EEPROM**
- **RAID system (Dual SATA interface)**
- **64-CH isolation DI/O with digital filter**
- **Support for wall and DIN rail mounting (optional)**
- **Hardware monitoring of temperature, voltage, and watchdog timer**

Applications

- **Industrial automation**
- **Robot guidance**
- **3D vision**
- **Medical imaging**

Software Support

OS Information

- Windows® 7, Embedded Standard 7

Specifications

CPU	Intel® Core™ i7-3610QE, i5-3610ME
Chipset	Intel® QM67 Express
System Memory	DDR3 SODIM x2, up to 16 GB
Video	VGA+DVI-D output by DVI-I connector, up to QXGA (2048 x 1536) resolution
Ethernet	2x GbE port
USB	4x external USB 2.0, 2x external USB 3.0, 1 x internal USB 2.0
EEPROM size	1 kbit programmable EEPROM
COM Ports	Two software-programmable RS-232/422/485 (COM1 & COM2), two RS-232 (COM3 & COM4)
Keyboard/Mouse	PS/2 type mini-DIN connectors
Camera Interface	2-CH Camera Link base configuration, up to 85 MHz
Digital I/O	32 DI, 32 DO COS interrupt for all digital input 2.5 kV isolation protection Configurable Digital Filter (0.25 μs-131 ms)
Trigger I/O	2 trigger input, 1 encoder input
Weight	3 kg (6.6 lbs)
Mounting	Wall and DIN rail mounting (optional)
Power Supply	DC: 10 to 30 VDC, ATX mode
Operating Temp.	0°C to 55°C (32°F to 122°F)
Humidity	0% to 90%
Dimensions	230 (W) x 206 (D) x 82 (H) mm (9 x 8.3 x 3.2 in.)
Power Consumption	110 W (with 4 GB DDRAM and 4 GB CFAST)
Storage	One CFAST slot, two 2.5" SATA interfaces
Random Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/CFAST or SSD)
Safety Compliance	CE/FCC, RoHS

Ordering Information

- **EOS-4000/M4G**
  2-CH PoCL embedded vision system equipped with Intel® Core™ i5-3610ME 2.7 GHz processor and 4 GB RAM
- **EOS-4000/M4G/HDD500G**
  2-CH PoCL embedded vision system equipped with Intel® Core™ i5-3610ME 2.7 GHz processor and 4 GB RAM , and 500 GB HDD
- **EOS-4010/M4G**
  2-CH PoCL embedded vision system equipped with Intel® Core™ i7-3610QE 2.3 GHz processor and 4 GB RAM
- **EOS-4010/M4G/HDD500G**
  2-CH PoCL embedded vision system equipped with Intel® Core™ i7-3610QE 2.3 GHz processor and 4 GB RAM, and 500 GB HDD

Optional Accessories

- **32 GB SSD option**
  Factory-installation of 32 GB SATA solid state drive (0 to 70°C)
- **4 GB CFAST option**
  Factory-installed 4 GB CFAST card (0 to 70°C)
- **150 W AC adapter**
  150 W industrial-grade AC adapter (-20 to 70°C)
- **DIN rail kit**
  DIN rail mount kit

Cabling

- COM port cable
  DSUB 62-pin male to 4 DSUB 9-pin male cable

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EOS-1200

4-CH GigE Vision Embedded Vision System with 2nd/3rd Generation Intel® Core™ i5/i7 Processor



GiGE VISION

Introduction

ADLINK's EOS-1200 is a rugged and compact embedded vision system equipped with the 2nd/3rd Generation Intel® Core™ i5/i7 processor. Four independent PoE (power over Ethernet) ports with data transfer rates up to 4.0 Gb/s offer greatly enhanced computing power and connectivity with minimal footprint.

The EOS-1200 supports not only PoE (power over Ethernet), combining power and signal supply into a single cable, but also IEEE 1588 (precise time protocol), enabling synchronization with multicamera acquisition. With the EOS-1200's significant cable reduction system installation is simplified, and maintenance burdens and total cost of ownership are notably lowered.

The EOS-1200 supports a rich I/O capability, including four serial ports, two USB 3.0 ports, 32 PNP/NPN isolated digital I/Os, dual storage, an internal USB port, and 1 Kbit programmable EEPROM, which make EOS-1200 ideal to integrate, deploy, and manage copy protection or authentication of software licenses for system development, and further accelerate time to market.

Combining more powerful computing with multi-channel connectivity and a ready-to-deploy application platform, the EOS-1200 delivers embedded vision ideally suited to machine vision applications.

Features

- **Compact and rugged system design**
- **Embedded Intel® Core i5/i7 Quad Core CPU**
- **Up to 4-CH Gigabit PoE (power over Ethernet), 4.0 Gb/s**
- **Support for IEEE 1588, PTP technology**
- **Support for two USB 3.0 ports**
- **Support for wall and DIN rail mounting (optional)**
- **One internal USB port and 1Kbit EEPROM**
- **RAID system (Dual SATA interface)**
- **32 PNP/NPN isolated digital I/O**

Software Support

OS Information

- Windows® 8/7/XP/XP Embedded/Embedded Standard 7

Specifications

CPU	Intel® Core™ i5-2510 3.1 GHz / Intel® Core™ i7-2710 3.0 GHz / Intel® Core™ i7-3610 3.3 GHz
System Memory	Up to 8 GB DDR3
Camera Interface	4-CH Gigabit power over Ethernet IEEE 802.3af compliant, total max. power output 32 W
Chipset	Intel® QM67 Express chipsets
VGA	VGA+DVI-D output by DVI-I connector, up to QXGA (2048 x 1536) resolution
USB	Four USB 2.0 ports, two USB 3.0 ports
Audio	AC97, mic in/speaker out
COM Ports	Two software-programmable RS-232/422/485 (COM1 & COM2), two RS-232 (COM3 & COM4)
Digital I/O (Option)	16-CH isolated digital input and output, PNP/NPN type
Keyboard/Mouse	PS/2 type mini-DIN connectors
Power Supply	DC: 10 to 30 V_{DC}, ATX mode
Operating Temp.	0°C to +55°C (32°F to 131°F)
Humidity	0% to 90%
Dimensions	230 (W) x 206 (D) x 82 (H) mm (9" x 8.3" x 3.2")
Power Consumption	110 W (with 4 GB DDRAM and 4 GB CFAST)
Storage	One CFAST slot, two 2.5" SATA interfaces
Random Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/CFAST)
Safety compliance	CE/FCC, RoHS

Ordering Information

EOS-1220/M4G
4-CH GigE Vision embedded vision system equipped with 3rd generation Intel® Core™ i7-3610 3.3 GHz quad core processor and 4 GB RAM

EOS-1200/M4G
4-CH GigE Vision embedded vision system equipped with 2nd generation Intel® Core™ i7-2710 3.0 GHz quad core processor and 4 GB RAM

EOS-1210/M2G
4-CH GigE Vision embedded vision system equipped with 2nd generation Intel® Core™ i5-2510 3.1 GHz dual core processor and 2 GB RAM

EOS-1210/M2G/HDD320G
4-CH GigE Vision embedded vision system equipped with 2nd generation Intel® Core™ i5-2510 3.1 GHz dual core processor, 2 GB RAM, and 320 G HDD

Optional Accessories

4 GB CFAST option
Factory-installed 4 GB CFAST card

150 W AC adapter
150 W industrial-grade AC adapter

DIN rail kit
DIN rail mount kit

Cabling

COM port cable
DSUB 62-pin male to 4 DSUB 9-pin male cable

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ADLINK Solutions for Machine Vision



Why ADLINK?

- Full product line support, including analog, GigE Vision, IEEE 1394b, Camera Link, HDMI, 3G-SDI and CoaXPress
- Compatible with most popular cameras and software
- Carefully selected embedded components ensure long term availability
- Highly integrated with ADLINK I/O cards and embedded computing platforms



Vision Interface

	CoaXPress	3G-SDI	HDMI	GigE Vision	IEEE 1394b	Camera Link	Analog
Max. Cable length (Meter)	Up to 100	100	5	100	4.5	Up to 15M (Depending on the Bandwidth)	100
Bandwidth (Mbps per Channel)	6500-25000	3000	216-2880	1000	800	2400-4800	216
Host CPU Loading	-	-	-	>5%	<5%	-	-
Realtime Signaling	v	v	-	-	-	v	v
Power over cable	13 (PoCXP)	-	-	13 (PoE only)	45	45 (PoCL)	-
Plug & Play *	v	v	v	v	v	-	v
Real time trigger	v	-	-	-	-	v	-
Standards	CoaXPress standard	SMPTE	DVI 1.0	AIA GigE Vision	Common IEEE 1394 Trade Association DCAM Standard	AIA Camera Link	-

Note: Driver installation is required for frame grabbers or cameras.

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ADLINK Machine Vision Software

ADLINK's powerful application tools, ViewCreatorPro™ and CamCreator™, provide simple and effective setup, configuration, testing, and debugging for vision systems. These utilities assist developers in evaluating initial test functions with ADLINK frame grabbers. Both ViewCreatorPro™ and CamCreator™ support 32/64-bit Windows® 8/7/XP operating systems. In addition, ViewCreatorPro™ and CamCreator™ provides continuous grab, pixel values, zoom in/out and console functionality to expedite a vision system installation.

Image Acquisition Tools for ADLINK Frame Grabbers

Easy image source access



Features

- Display, open and save image files
- A simple tool for trouble shooting or configuration test
- Direct access of general purpose I/Os
- Creation and modification of camera files (CamCreator™ only)
- Instantaneous modification of camera parameters (CamCreator™ only)

Software Selection Guide

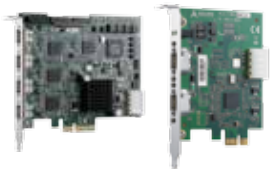
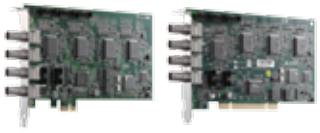
Products	Page	OS Information		Software Compatibility	Software Recommendations	
		Windows® Note(1)	Linux® Note(2)	LabVIEW™ Note(3)	ViewCreatorPro™	CamCreator™
PCIe-GIE64+	3-6	v		v		
PCIe-GIE62+	3-6	v		v		
PCIe-FIW64	3-7	v		v		
PCIe-FIW62	3-7	v		v		
PCIe-CPL64	3-8	v				v
PCIe-HDV62	3-5	v		v	v	
PCIe-HDV62A	3-5	v		v	v	
PCIe-RTV24/PCI-RTV24	3-9	v	v	v	v	
PCIe-2602	3-4	v			v	

Note:
(1) Windows Support for Windows® 8/7/XP x64/x86
(2) Linux Support for Ubuntu 11.0 &12.04 and Fedora Core 3
(3) Compatible with LabVIEW™ 2009 and above

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Frame Grabber Selection Guide

Signal Type	Digital			
				
Model No.	**PCIe-2602**	**PCIe-GIE64+**	**PCIe-GIE62+**	**PCIe-CPL64**
Standard	SDI	Power over Ethernet	Power over Ethernet	PoCL (Power over Camera Link)
Configuration	SDI	Gigabit Ethernet	Gigabit Ethernet	base, medium
Connector Interface	BNC x 2	RJ45 x 4	RJ45 x 2	MDR26
Resolution	1920 x 1080p	depends on camera specification	depends on camera specification	depends on camera specification
Interface Bus	PCIe x4	PCIe x4	PCIe x4	PCIe x 4
Max. Video Input	2	4	2	2
Max. Frame Rate	60	depends on camera specification	depends on camera specification	depends on camera specification
Audio Input	SDI embedded	–	–	–
TTL I/O	√	–	√	√
Area Scan Camera	√	√	√	√
Line Scan Camera	–	√	√	√
Monochrome Camera	√	√	√	√
Color Camera	√	√	√	√
Interlaced Scan	√	√	√	√
Progressive Scan	√	√	√	√
Camera Tap	–	–	–	1-tap, 2-tap, 3-tap, 4-tap
Pixel Depth	8, 10, 12-bit	depends on camera specification	depends on camera specification	8-bit, 10-bit
Max. Clock Frequency	–	–	–	85 MHz
On-board memory	–	–	–	128 MB
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Signal Type	Digital		Analog
			
Model No.	**PCIe-HDV62A/PXIe-HDV62A**	**PCIe-FIW64/PCIe-FIW62**	**PCIe-RTV24/PCI-RTV24**
Standard	HDMI	IEEE 1394b	Color: PAL/NTSC Monochrome: CCIR/EIA (RS-170)
Configuration	Full HD	–	-
Connector Interface	DVI-I	IEEE 1394b	BNC x 4
Resolution	1920 x 1080p	depends on camera specification	640 x 480 (NTSC/RS170), 768 x 576 (PAL/CCIR)
Interface Bus	PCIe x 4	PCIe x 4 / PCIe x 1	PCIe-RTV24: PCIe x 1 PCI-RTV24: PCI
Max. Video Input	1	4 / 2	4 to 16*
Max. Frame Rate	60	depends on camera specification	30fps/channel
Audio Input	√	–	–
TTL I/O	√	v (FIW64)	√
Area Scan Camera	√	√	√
Line Scan Camera	-	–	-
Monochrome Camera	√	√	√
Color Camera	√	√	√
Interlaced Scan	√	√	√
Progressive Scan	√	√	-
Camera Tap	–	–	1-tap (PCIe-RTV24)
Pixel Depth	8-bit, 10-bit	depends on camera specification (FIW64) 8 to 10-bit (FIW62)	8-bit
Max. Clock Frequency	–	–	-
On-board memory	512 MB	–	-
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PCIe-2602

2-CH 3G-SDI Video/Audio Capture Card





Introduction

The PCIe-2602 3G-SDI video/audio capture card, based on the PCI Express x4 interface, provides unparalleled features, enabling acquisition of 2 channels 3G-SDI for low latency, and uncompressed video data signals up to 1920x1080P/60fps (frames per second), and high accuracy color format support 4:4:4. The PCIe-2602, featuring 3G signal capture ability and support for highly accurate color formatting, is ideal for frame grab function in a wide variety of applications, including medical imaging and intelligent video surveillance or analytics.

Thanks to 3G-SDI signal capability, ADLINK's PCIe-2602 supports high accuracy color format, such as 12 bit 4:4:4 1080i/60fps or 10 bit 4:2:2 1080P/60fps, and when combined with a suitable 75Ω coaxial cable, 3G-SDI signals can be transmitted over 100 m, all with no need for changes to existing cabling, representing significant savings in construction costs.

The included ViewCreator Pro™ utility enables setup, configuration, testing, and system debugging without requiring any software programming. As well, ADLINK's drivers ate compatible with Microsoft DirectShow, reducing engineering efforts and accelerating time to market.

Features

- Support for 2-CH 3G-SDI video signal, up to 1920 x 1080P/ 60fps video stream
- Low latency, uncompressed video streaming
- High accuracy color format support, 12 bit 4:4:4 1080i/60fps or 10 bit 4:2:2 1080P/60fps
- Cabling distances up to 100m (w/ compatible 75Ω coaxial cable)
- Directshow support
- RS-485 and digital I/O provided
- PCI Express x4 compliant signal
- Connection status LED

Applications

- Medical imaging
- Military imaging
- Video analytics or IVS(Intelligent Video Surveillance)

Software Support

- OS Information
  - Windows® 7/XP
- Software Compatibility
  - Microsoft® DirectX
  - Visual C++, C#, VB. Net, C++ Builder

Ordering Information

PCIe-2602
2-CH 3G-SDI Video/Audio capture card

Specifications

Form Factor	PCI Express x4	
Connectors	BNC x2, D-SUB	
Video Input	8/10-bit 4:4:4	720p@24 fps, 720p@25 fps, 720p@30 fps, 720p@50 fps, 720p@60 fps 1080i@50 fps, 1080i@60 fps 1080p@24 fps, 1080p@25 fps, 1080p@30 fps
	12-bit 4:4:4	1080i@50 fps, 1080i@60 fps 1080p@24 fps, 1080p@25 fps, 1080p@30 fps
	8/10-bit 4:2:2	720p@24 fps, 720p@25 fps, 720p@30 fps, 720p@50 fps, 720p@60 fps 1080i@50 fps, 1080i@60 fps, 1080p@24 fps, 1080p@25 fps, 1080p@30 fps, 1080p@50 fps, 1080p@60 fps
	12-bit 4:2:2	1080i@50 fps, 1080i@60 fps, 1080p@24 fps, 1080p@25 fps, 1080p@30 fps
	8-bit 4:2:2	525i@30 fps, 625i@25 fps
Audio Input	2 channel embedded	
Digital I/O	4-CH digital input; 4-CH digital output	
COM Ports	2 RS-485	
Storage Environment	Temperature: -20°C to +80°C (-4°F to 176°F)	
	Humidity: 0 to 95% RHNC	
Operating Environment	Temperature: 0°C to +60°C (32°F to 140°F)	
	Humidity: 5% to 90% RHNC	
Power Requirements	+12 V max @ 1.2 A, +3.3 V max @ 1.5 A	
Dimensions	149 x 98.4 mm (5.96" x 3.93") (W x L)	

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PCIe-HDV62A/PXIe-HDV62A

One Channel PCI Express®/PXI Express® HDMI Video & Audio Capture Cards



PCIe-HDV62A



PXIe-HDV62A



Introduction

ADLINK's PCIe-HDV62A/PXIe-HDV62A series high definition video and audio capture cards enable single-card acquisition of full analog/digital video and digital audio signals. Featuring uncompressed full HD up to 1080p at 60 fps and 10-bit high-resolution ADC and HDCP support, the PCIe-HDV62A/PXIe-HDV62A series deliver serious benefits and reduced TCO for applications requiring simultaneous capture from both video and audio sources, such as multimedia device testing and medical imaging.

What's more, the PCIe-HDV62A/PXIe-HDV62A not only deliver uncompressed high-definition video data from DVI or HDMI, but also provide an analog video decoder comprehensively supporting RGB, CVBS, S-video and YPbPr, with an integrated audio decoder for HDMI and S/PDIF capture, providing a highly integrated solution.

HDV62A I/O Bracket (Optional)

- D-SUB9 female for CVBS and S-Video
- BNC x3 for YPbPr



Features

- **Uncompressed 1920 x 1080p, 60 fps video stream**
- **Support for CVBS, S-video, RGB and YPbPr video input**
- **Support for HDMI/DVI video and HDMI, S/PDIF audio inputs**
- **Support for 24-bit RGB or YUV 4:4:4**
- **Support for HDCP (PCIe-HDV62A/PXIe-HDV62A only)**
- **32/64-bit Direct SDK support**

Applications

- **Medical imaging**
- **Multimedia video/audio testing**

Software Support

OS Information

- Windows® 8/7/XP

Software Compatibility

- Microsoft® DirectX
- LabVIEW™
- C#/.NET/VC++/VB/C++ Builder/Delphi

Software Recommendations

- ADLINK ViewCreatorPro™

Ordering Information

PCIe-HDV62
1-CH PCI Express® HDMI video capture card

PCIe-HDV62A
1-CH PCI Express® HDMI video / audio capture card

PXIe-HDV62A
1-CH PXI Express® HDMI video / audio capture card

Optional Accessories

HDV62A I/O bracket
YPbPr, S-video and CVBS I/O

DVI – DVI and VGA cable
DVI-I to VGA and DVI-D cable

HDV62A DB9F to S-Video & RCA
D-sub to S-video and RCA cable

HDV62 DB9F - RCA x 3
D-sub to YPbPr cable

Specifications

Form Factor	PCIe-HDV62/PCIe-HDV62A: PCI Express® x4 compliant
	PXIe-HDV62A: PXI Express® specification Rev. 1.0 compliant
Video Input	Digital: DVI 1.0, HDMI 1.3
	Analog: PCIe-HDV62: YPbPr and RGB
	PCIe-HDV62A/PXIe-HDV62A: RGB, YPbPr, CVBS, S-video
Video Input Format	HD: 720p@50 fps, 720p@60 fps
	1080i@25 fps, 1080i@30 fps
	1080p@25 fps, 1080p@30 fps
	1080p@50 fps, 1080p@60 fps
	SD: 720 x 576@25 fps PAL, 720 x 480@30 fps NTSC
	(PCIe-HDV62A/PXIe-HDV62A only)
Pixel Output Format	RGB: 32-bit RGB* , 30-bit RGB*, 24-bit RGB
	YUV: 4:4:4 or 4:2:2
	Monochrome: 8-bit Y
Audio Input	S/PDIF, HDMI (PCIe-HDV62A/PXIe-HDV62A only)
Connectors	DVI: DVI-D, HDMI & RGB with sync input
	D-SUB on I/O Bracket : CVBS, S-Video (PCIe-HDV62A only)
	BNC on I/O Bracket: YPbPr (PCIe-HDV62A only)
	Toslink & RCA: S/PDIF (PCIe-HDV62A/PXIe-HDV62A only)
Operating Environment	Temperature: 0 to 55°C (32°F to 131°F)
	Humidity: 5% to 90% RHNC
Storage Environment	Temperature: 0 to 70°C (32°F to 158°F)
	Humidity: 0 to 95% RHNC
Power Requirements	+12 V max @ 0.5 A, +3.3 V max @ 2 A
Dimensions (not including connectors)	174.62 x 111.15 mm (W x L) (6.81" x 4.33")
Slot Requirement	1 peripheral slot: PCIe-HDV62, PCIe-HDV62A
	2 peripheral slots: PCIe-HDV62A with I/O bracket, PXIe-HDV62A

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PCIe-GIE64+ / PCIe-GIE62+

4 / 2-CH PCI Express® Power over Ethernet Frame Grabbers



PCIe-GIE64+



PCIe-GIE62+

Grayscale Camera | Color Camera | PCI EXPRESS® | Digital | PoE

Introduction

ADLINK's PCIe-GIE64+/PCIe-GIE62+ are PCI Express® x4 lane, PoE (Power Over Ethernet) frame grabbers supporting 4/2 independent Gigabit Ethernet ports for multiple GigE Vision device connections with data transfer rates up to 1000 Mb/s, as found with most GigE Vision cameras.
In addition, the PCIe-GIE64+ provides smart PoE APIs allowing remote switching of PoE status. With this feature, camera power consumption is easily monitored and controlled, controlling camera temperature and extending lifetime.

PoE Technology

The PoE (Power over Ethernet) technology in the PCIe-GIE64+/PCIe-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**
- **Support for 4 / 2 independent Gigabit Ethernet ports**
- **Support for smart PoE function, enabling easy power status programming (PCIe-GIE64+ only)**
- **LED indicating connectivity status**
- **Up to 20 W PoE power supply from PCIe bus (PCIe-GIE64+ only)**
- **Support for IEEE 1588, PTP technology (PCIe-GIE64+ only)**
- **Support for IEEE 802.3af for PoE (Power over Ethernet)**
- **Support for link aggregation/jumbo frames (9 KByte)**

Applications

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

Software Support

OS Information

- Windows® 8/7/XP (Windows® 8 support available only on PCIe-GIE64+)

Ordering Information

PCIe-GIE64+
4-CH PCI Express® power over Ethernet frame grabber

PCIe-GIE62+
2-CH PCI Express® power over Ethernet frame grabber with digital I/O and trigger I/O

PCIe-POE
2-CH PCI Express® power over Ethernet frame grabber without digital I/O and trigger I/O

Specifications

Form Factor	PCI Express® x4
Ethernet Port	4/2 fully-integrated Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports.
	Power over Ethernet, IEEE 802.3af compliant, supporting 0, 1, 2, 3, and 4, and providing up to 15.4 watts
	9 kB jumbo frame support
Operating Environment	Temperature: 0°C to +60°C (32°F to 140°F)
	Humidity: 5% to 90% RHNC
Power Requirements	PCIe-GIE64+: +3.3 V max @ 2.5 A(1)
	PCIe-GIE62+: +12 V max @ 0.2 A, +3.3 V max @ 1.5 A(2)
Dimensions	PCIe-GIE64+: 145 mm x 101.26 mm (5.7" x 3.98") (W x L)
	PCIe-GIE62+: 129.5 mm x 101.26 mm (5.05" x 3.98") (W x L)

Note: (1) Additional +12 V max @ 7 A for PoE camera (w/4-pin connetors)
(2) Additional +12 V max @ 3 A for PoE camera

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PCIe-FIW64/PCIe-FIW62

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



PCIe-FIW62



PCIe-FIW64



Introduction

The PCIe-FIW64/PCIe-FIW62 are IEEE 1394b (FireWire 800) frame grabbers designed for high speed computer-based machine vision applications. The PCIe-FIW64/PCIe-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 PCIe-FIW64/PCIe-FIW62 provide four/two direct-connect IEEE 1394b connectors with a screw-lock mechanism. These screw-lock connectors provide a reliable connection between PCIe-FIW64/PCIe-FIW62 and up to four IEEE 1394b cameras.

A 4-pin ATX power connector on the PCIe-FIW64/PCIe-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 PCIe-FIW64/PCIe-FIW62 are connected to a IEEE 1394b camera for convenient identification of channel connection status.

The PCIe-FIW64 provides four isolated digital inputs and outputs to connect to external devices such a position sensor. The PCIe-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

OS Information

- Windows® 8/7/XP

Ordering Information

PCIe-FIW64
4-CH PCI Express® x4 IEEE 1394b frame grabber

PCIe-FIW62
2-CH PCI Express® x1 IEEE 1394b frame grabber

Specifications

	PCIe-FIW64	PCIe-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 (32°F to 131°F) Humidity: 5% to 90%	
Storage Environment	Temperature: -20°C to +85°C (-4°F to 185°F) Humidity: 0 to 95% RHNC	
Digital and Trigger I/Os	Four isolated digital inputs/outputs Four isolated trigger inputs/outputs	-
Power Requirements	+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 mm x 111.15 mm (5.05" x 4.33") (W x L)	78.6 mm x 111.15 mm (3.06" x 4.33") (W x L)

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PCIe-CPL64

2-CH PCI Express® PoCL Frame Grabber





Introduction

The PCIe-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 PCIe-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 transfer 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

OS Information
- Windows® 8/7/XP

Software Compatibility
- C#/.NET/VC++/VB/C++ Builder/Delphi
- Sample program included

Software Recommendations
- ADLINK CamCreator™

Ordering Information

PCIe-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

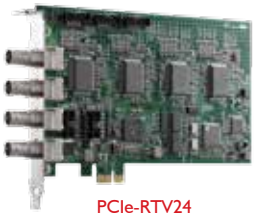
Specifications

Form Factor	PCI Express® x4 compliant
Video Input	Camera Link® LVDS deferential 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	Camera control: CC1 to CC4 control signal in two MDR26 pins connectors
External Signal Input	1 External RS422 level ABZ phase deferential 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 when non-PoCL cable or PoCL camera connected.
Operating Environment	0°C to +50°C (32°F to 122°F)
	Humidity: 5% to 90% RHNC
Storage Environment	Temperature: 0°C to 70°C (32°F to 158°F)
	Humidity: 0 to 95% RHNC
Power Requirements	+12 V max @ 0.5 A
	+3.3 V max @ 1.6 A
Dimensions	167.65 mm x 111.15 mm (6.53" x 4.33") (W x L)

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PCIe-RTV24 / PCI-RTV24

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



PCIe-RTV24



PCI-RTV24



Features

- **PCI Express® x1 compliant (PCIe-RTV24) , up to 30fps/channel**
- **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 ViewCreatorPro™ utility**
- **Software trigger supported**

Applications

- **Factory monitoring systems**
- **Machine vision inspection systems**
- **Scientific research instrumentations**
- **Medical research instrumentations**

Software Support

- OS Information
  - Windows® 8/7/XP
  - Linux
- Software Compatibility
  - Microsoft® DirectX
  - C#/.NET/VC++/VB/C++ Builder/Delphi
  - Sample program included
- Software Recommendations
  - ADLINK ViewCreatorPro™

Ordering Information

- **PCIe-RTV24**
  PCI Express® 4-CH real-time video capture card for standard cameras
- **PCI-RTV24**
  PCI 4-CH real-time video capture card for standard cameras

Introduction

General

The PCIe-RTV24/PCI-RTV24 acquisition board are designed without compromise for machine vision. 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 (at RGB16 mode)
- 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 (3.5 fps/channel at 16 channel inputs)
- 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.

Voltage	Min.	Max.
Input High Voltage (20 μA)	2.0 V	5.25 V
Input Low Voltage (-0.2 μA)	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.

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