

EureCard GrabLink series

Image acquisition from digital Camera Link cameras



New

The **GrabLink series** is a range of **high-speed** PCI frame grabbers for line- or area-scan digital Camera Link cameras. State-of-the-art cameras are **easily connected** with off-the-shelf Camera Link compliant cables. The GrabLink series is featured for industrial applications such as inspection of **high-speed** moving objects, web inspection or **high-resolution** acquisition.

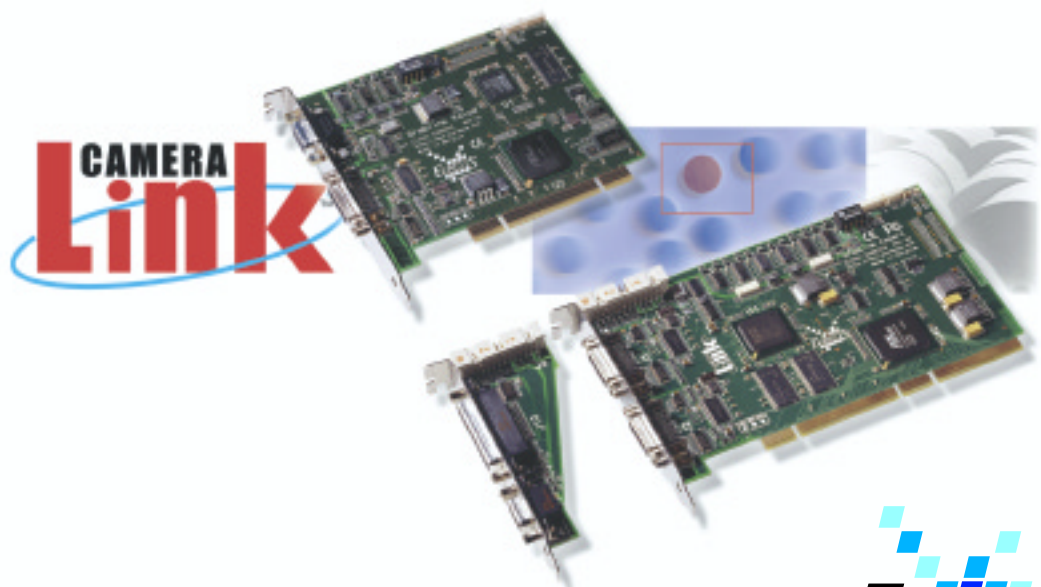
The EureCard **GrabLink Value** is a **cost-effective** board acquiring images from one camera in the Camera Link Base configuration. The EureCard **GrabLink Expert** is a **high-performance 64-bit, 66 MHz PCI bus** board acquiring images in two Base or one Medium configurations.

All Euresys frame grabbers offer an unprecedented **control over the memory allocation process** thanks to scatter-gather DMA transfer into user allocated memory.

GrabLink comes with the **MultiCam driver** and is compatible with **eVision**, the image analysis tools from Euresys. This drastically simplifies the design of machine vision applications.

- Support of line- or area-scan cameras in Base, dual Base or Medium Camera Link configurations
- PCI bus: 32 bits, 33 MHz / 64 bits, 66 MHz
- Acquisition: up to 24 bits / 48 bits at maximum 66 MHz
- On board memory: 8 / 16 Mbytes
- Asynchronous reset, exposure control and I/O lines (trigger & strobe)
- Camera Link serial line configurable as an additional PC COM port
- Multiple taps, tap reversal, tap multiplex, dynamic windowing

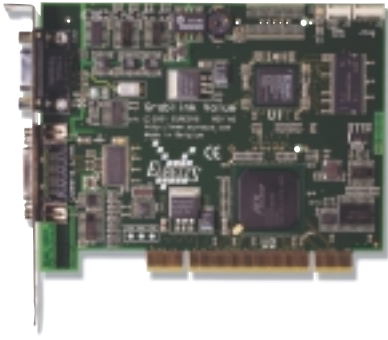
C, C++ and
ActiveX libraries
Included



www.euresys.com
info@euresys.com

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EURESYS
Excellence
in vision



GrabLink Value



Cost effective digital acquisition

- Base configuration**
- 24 bits at 66 MHz**
- 8-MByte on board memory**
- PCI bus 32 bits, 33 MHz**

The **EureCard GrabLink Value** is an affordable Camera Link frame grabber for **cost-effective** industrial applications. GrabLink Value is recommended for **single-camera systems**.

It acquires images at a maximum camera speed of **66 MHz** over the data path towards the on board memory.

Support of the Base configuration

Fitted with **one Camera Link connector**, the EureCard GrabLink Value supports the Base configuration of the Camera Link standard. GrabLink Value **supports various types of cameras**:

NUMBER OF CAMERA	Monochrome single-tap	Monochrome dual-tap	RGB triple-tap	Monochrome quad-tap
Base configuration	one (8 to 16 bits)	one (8 to 12 bits)	one (8 bits)	
Extended Base configuration*				one (8 to 12 bits)

* Multiplex tap. Preliminary feature

Serial control of camera

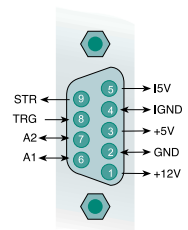
The EureCard GrabLink Value supports the Camera Link pseudo **RS-232 serial line**. The application software can use the Camera Link API functions to control the camera. Alternatively, the serial line can be **configured as an additional PC COM port** ensuring interoperability with existing camera control software.

On board memory

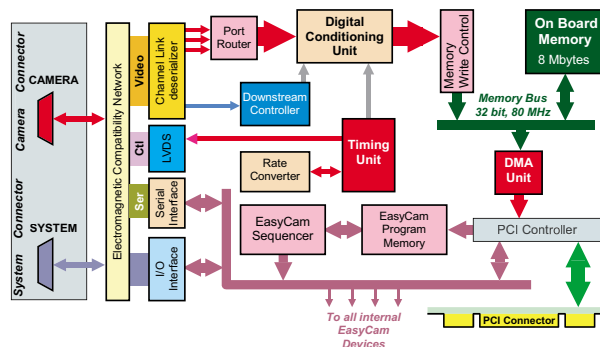
GrabLink Value incorporates an **8-Mbyte** on board memory. Used as a huge image FIFO, it is clocked at 80 MHz and provides a peak bandwidth of 320 Mbytes/s.

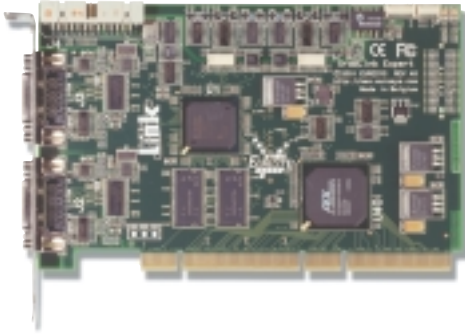
I/O lines

The EureCard GrabLink Value is fitted with a **female DB9 connector**. It implements the **trigger and strobe** facilities offered by the MultiCam driver. System components such as motion encoder benefits from **isolated I/O lines and power supply**.



Block diagram





GrabLink Expert

NEW

Wide PCI, high-performance digital acquisition

Dual Base or Medium configuration

48 bits at 66 MHz

16-MByte on board memory

PCI Bus 64 bits, 66 MHz



The **EureCard GrabLink Expert** is a Camera Link frame grabber for **demanding industrial applications**. Supporting the **Base or Medium configuration**, it can be connected to **one or two cameras**. The GrabLink Expert is a **64-bit, 66 MHz PCI bus** frame grabber. Each camera delivers images at a maximum speed of 66 MHz over the data paths towards the on board memory.

Support of dual Base or Medium configuration

GrabLink Expert is a Camera Link compatible frame grabber fitted with **two Camera Link connectors**. It acquires images simultaneously and independently from two line-scan or area-scan digital cameras in a **dual Base configuration**. GrabLink Expert also supports one camera in the **Medium configuration**. It supports various types of cameras:

NUMBER OF CAMERA	Monochrome single-tap	Monochrome dual-tap	RGB triple-tap	Monochrome quad-tap	Monochrome octal-tap
Base configuration	two (8 to 16 bits)	two (8 to 12 bits)	two (8 bits)		
Extended Base configuration*				two (8 to 12 bits)	
Medium configuration			one (10 to 12 bits)	one (8 to 12 bits)	
Extended Medium configuration*					one (8 to 12 bits)

* Multiplex tap. Preliminary feature

64-bit, 66 MHz PCI Bus

GrabLink Expert is designed for high-speed acquisition with a 64-bit, 66 MHz PCI bus. The data rate peaks at an impressive **528 Mbytes per second!**

Serial control of cameras

The EureCard GrabLink Expert supports two Camera Link pseudo **RS-232 serial lines**. The application software can use the Camera Link API functions to control the camera. Alternatively, the serial lines can be **configured as additional PC COM ports** ensuring interoperability with existing camera control software.

On board memory

GrabLink Expert incorporates a **16-Mbyte** on board memory. Clocked at 100 MHz, it provides a throughput of 800 Mbytes/s implementing a **huge FIFO for each camera**.



I/O board

GrabLink Expert is delivered with an auxiliary I/O board implementing the trigger and strobe facilities. The bracket is fitted with two connectors. On the female DB9 connector, system components (such as a motion encoder) benefit from **isolated I/O lines and power supply**. **TTL trigger and strobe lines** are available on a female DB25 together with **16 fully programmable general-purpose I/O lines**.

EureCard GrabLink series

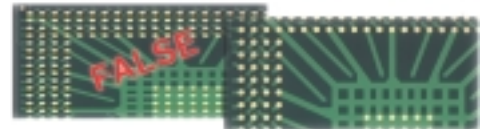
Line-scan systems

Camera modes. The EureCard GrabLink series interfaces to **state-of-the-art Camera Link line-scan cameras** with **line rate** and **exposure control**. Free running cameras are supported as well.

Continuous web scanning. The "**web mode**" allows inspecting a continuously moving surface without losing a line.

Successive object scanning. In "**page mode**", GrabLink acquires a set of consecutive lines constituting a 2D image. The acquisition starts when the object enters the camera field of view, as signaled by an external trigger.

Motion Encoder. When the observed web or object moves at a variable speed, the frame grabber imposes a camera scanning rate derived from a motion encoder. This **guarantees a fixed pixel aspect ratio**. **Perfect square pixels** are achievable. A built-in rate converter defines any ratio between the camera scanning rate and the encoder pulse rate with 1/1000 resolution. Thus, an off-the-shelf encoder can serve several applications. The exposure control feature guarantees a **constant sensitivity** despite the speed variation.



Area-scan systems

Camera modes. Features such as **asynchronous reset**, **exposure control**, **strobe lighting** often required in industrial applications are available on GrabLink series. The synchronous mode is also supported.

Trigger and exposure control. An external signal can be sent to the frame grabber to trigger the acquisition. GrabLink series is capable to consistently control the exposure time and the illumination.

Camera tap structure. For any tap structure, GrabLink delivers a **re-ordered bitmap image** to the PC memory. **Tap-reversal** is supported. With the **multiplexed tap** technique, several taps are interleaved over Camera Link as long as combined data rate remains below 66 MHz.

Bus mastering

All Euresys frame grabbers are **PCI bus mastering** agents that directly store the acquired images into the PC physical memory without CPU involvement. As a **unique feature**, the EureCard automatically recovers the **scatter gather** virtual memory mapping to present the data as a regular bitmap image in a user allocated memory buffer.

MultiCam

The **MultiCam driver** enable the consistent control of several Euresys frame grabbers, using an arbitrary number of cameras, from one or several software applications. MultiCam allows defining **channels** linking cameras to buffers in the PC memory. The MultiCam channel identifies all parameters ruling the acquisition process from a camera. Every camera feature, such as its type, resolution or image format, is described and controlled through simple parameters, considerably easing the camera control task. For each channel-controlled camera, a set of dedicated parameters is created from a **CAM file**. Euresys delivers pre-defined files for many popular cameras; still the user can customize its CAM files. MultiCam complies with most development environments. The native API is **standard C**. **ActiveX controls** enable the use of Visual Basic.

EasyMultiCam

Offered as a part of the **eVision** tool suite, EasyMultiCam is a set of powerful **C++ classes** embedding the whole MultiCam functionality. The **object oriented** eVision functions define image containers suitable for image processing and analysis. The image objects inherit acquisition methods from EasyMultiCam. Implementing the image capture code into a machine vision application is now straightforward.

Cameras interfaced

The GrabLink series interfaces many different cameras. An up-to-date list is available on the web site www.euresys.com.

Ordering Information

PRODUCT NAME	PRODUCT DESCRIPTION	PART NUMBER
EureCard GrabLink Value	Digital 24-bit, 66 MHz Camera Link frame grabber	1191
EureCard GrabLink Expert	Digital 48-bit, 66 MHz Camera Link frame grabber	1192

Euresys USA

7557 Rambler Road, Suite 700, Dallas, Texas 75231, USA
Phone: 514-684-3993 Toll free: 877-684-3993

Euresys Asia

627A Aljunied Road, #08-09 BizTech Centre, Singapore 389837
Phone: +65 748 0085 Fax: +65 841 2137

Euresys Europe, Corporate Headquarters

14, Avenue du Pré-Ailly, B-4031 Angleur, Belgium
Phone: +32 4 367 72 88 Fax: +32 4 367 74 66



www.euresys.com

info@euresys.com

Your distributor