



EureCard™ GRABLINK™ series

High-speed digital Camera Link image acquisition boards



GRABLINK Value™ – GRABLINK Expert 2™
Increased performances
GRABLINK Value™ cPCI – GRABLINK Expert 2™ cPCI

www.euresys.com
info@euresys.com

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EURESYS™
Excellence in vision

EureCard™ GRABLINK™ series

The Grablink series is a range of **high-speed** PCI and cPCI frame grabbers for **line scan 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 ideal 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 2 is a high-performance 64-bit, 66 MHz PCI bus board acquiring images in two Base configurations or one Medium configuration. Both frame grabbers are available in a Compact PCI version.

All Euresys frame grabbers offer an unprecedented **control over the memory allocation process** thanks to scatter-gather DMA transfer into user allocated memory. The Euresys boards come with the **MultiCam driver** available under **Windows and Linux**.

- **Support of line scan or area scan cameras in Base, dual Base or Medium Camera Link configurations**
- **Form factors: desktop PCI, 32-bit 33 MHz / 64-bit, 66 MHz bus
6U/4HP Compact PCI, 64-bit 66 MHz bus**
- **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**



GRABLINK™ series, frame grabbers for line scan and area scan applications

Line scan applications

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 applications

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 **multiplex tap** technique, several taps are interleaved over Camera Link as long as the combined data rate remains below 66 MHz.



Bus mastering

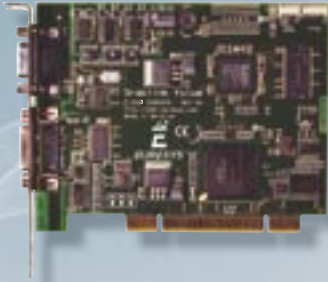
All EureCard frame grabbers are **PCI bus mastering** agents that directly store the acquired images into the PC physical memory without CPU involvement. As a **unique feature**, the EureCard automatically recovers the **scatter-gather** virtual memory mapping to present the data as a regular bitmap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

Interfaced cameras

The Grablink series interfaces many different cameras. An up-to-date list is available on www.euresys.com.

	GRABLINK Value	GRABLINK Expert 2	GRABLINK Value cPCI	GRABLINK Expert 2 cPCI
Form factor	Desktop PCI	Desktop PCI	6U/4HP cPCI	6U/4HP cPCI
Bus	32-bit, 33 MHz	64-bit, 66 MHz	64-bit, 66 MHz	64-bit, 66 MHz
CameraLink configuration	Base	Base, dual-Base, Medium	Base	Base, dual-Base, Medium
Gray scale	X	X	X	X
Color	X	X	X	X
Progressive scan	X	X	X	X
Max pixel-clock frequency	24 bits@66 MHz	48 bits@66 MHz	24 bits@66 MHz	48 bits@66 MHz
Area scan	X	X	X	X
Line scan	X	X	X	X





GRABLINK Value™

Cost effective digital acquisition

Base configuration

24 bits at 60 MHz

8-MByte on board memory

Form factors: desktop PCI, 32-bit 33 MHz bus
6U/4HP Compact PCI 64-bit 66 MHz bus



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 **60 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 CAMERAS	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

NEW Form factors

The EureCard Grablink Value is available in two form factors. **Grablink Value PCI** has a **32-bit 33 MHz PCI conventional bus**. **Grablink Value cPCI** benefits from a **64-bit 66 MHz cPCI bus**. This cPCI board serves the purpose of the **industrial applications**. This particular form factor brings a **high resistance to shocks and vibrations** thanks to the **rugged packaging** and the **high-density pin-and-socket connection to the PC**. Besides, cPCI PCs offer many more slots - in the 33 MHz configuration up to height slots are available-.



Serial control of camera

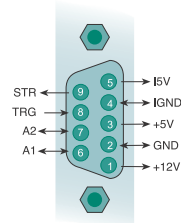
The EureCard Grablink Value supports the Camera Link pseudo **RS-232 serial line**. The application software can use the Camera Link API functions to control the camera. Alternatively, the serial line can be **configured as an additional PC COM port** ensuring interoperability with existing camera control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

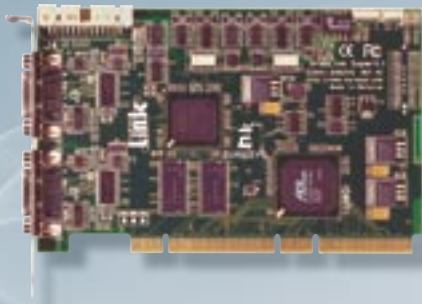
I/O lines

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**.



DB9 connector





GRABLINK Expert 2™

Increased Performances

Wide PCI, high-performance digital acquisition

Dual Base or Medium configurations

48 bits at 66 MHz

16-MByte on board memory

Form factors: *desktop PCI 64-bit 66 MHz bus*

Compact PCI 64-bit 66 MHz bus



The **EureCard Grablink Expert 2** is a Camera Link frame grabber for **demanding industrial applications**. Supporting the **Base or Medium configurations**, it can be connected to **one or two cameras**. The GrabLink Expert 2 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 configurations

Grablink Expert 2 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 2 also supports one camera in the **Medium configuration**. It supports various types of cameras:

NUMBER OF CAMERAS	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

NEW Form factors

The EureCard Grablink Expert 2 is available in two form factors, PCI and cPCI. Both are designed for high-speed acquisition with a 64-bit, 66 MHz PCI bus. The Compact PCI board (cPCI) serves the purpose of the **industrial applications**. This particular form factor brings a **high resistance to shocks and vibrations** thanks to the **rugged packaging** and the **high-density pin-and-socket connection to the PC**. Besides, cPCI PCs offer many more slots - in the 33 MHz configuration up to height slots are available-



Increased performances

The Grablink Expert 2 offers a high bandwidth allowing to transfer images from **even more demanding cameras**.

Serial control of cameras

The EureCard Grablink Expert 2 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 2 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 lines

Grablink Expert 2 PCI 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**. On the Grablink Expert 2 cPCI, the two I/O connectors, DB 25 and DB 9, are located directly on the front panel.

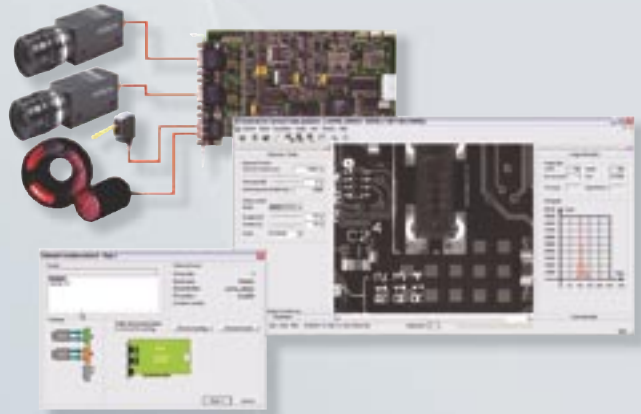


GRABLINK™ series software support

MultiCam™

The **MultiCam driver** enables 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 own **CAM files**. MultiCam complies with most development environments. The native API is **standard C. ActiveX controls** enable the use of Visual Basic.



MultiCam™ for Windows and Linux



The MultiCam driver runs under Windows 98SE, Me, NT, 2000 and XP and now Linux allowing Euresys customers to combine the ease-of use of the MultiCam driver and the eVision software tools with the cost-effectiveness of Linux. MultiCam is available under Linux RedHat 7.3 and RedHat 8.0.

EasyMultiCam™

Offered as a part of the **eVision** tools 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.

Ordering Information

PRODUCT

NAME PRODUCT DESCRIPTION

PART NUMBER

PCI capture boards

PRODUCT	NAME PRODUCT DESCRIPTION	PART NUMBER
EureCard GRABLINK Value	Digital 24-bit, 60 MHz Camera Link PCI frame grabber	1191
EureCard GRABLINK Value cPCI	Digital 24-bit, 60 MHz Camera Link cPCI frame grabber	1194
EureCard GRABLINK Expert 2	Digital 48-bit, 66 MHz Camera Link PCI frame grabber	1197
EureCard GRABLINK Expert 2 cPCI	Digital 48-bit, 66 MHz Camera Link cPCI frame grabber	1196

America, Euresys Inc.

7557 Rambler Road, suite 700, Dallas, Texas 75231, USA
Phone: 214-265-6563 / 1-866-EURESYS Fax: 214-265-6564

Asia, Euresys Singapore Representative Office

627A Aljunied Road, #08-09 BizTech Centre, Singapore 389837
Phone: +65 6748 0085 Fax: +65 6841 2137

Europe, Euresys Corporate Headquarters

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



www.euresys.com

info@euresys.com

Your distributor