



GRABLINK™ Value™ Avenue™ Express™

Affordable Base Camera Link Image Acquisition Boards



GRABLINK Value™



GRABLINK Avenue™



GRABLINK Express™

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The GRABLINK™ series Comparison Chart



	GRABLINK Value	GRABLINK Avenue	GRABLINK Express
Form factor	32-bit, 33 MHz PCI Full height, half length	64-bit, 66 MHz PCI Full height, half length	x1 PCI Express Full height, half length
Camera Link configurations	Base	Base	Base
PoCL SafePower compliant	-	-	✓
Tap demultiplexing incl. tap reversal	✓	✓	✓
Max. pixel-clock frequency	24 bits @ 60 MHz	24 bits @ 85 MHz	24 bits @ 85 MHz
Gray scale	✓	✓	✓
Color	✓	✓	✓
Area scan	✓	✓	✓
Line scan	✓	ADP	ADP
Max. delivery bandwidth	90 MB/s	240 MB/s	180 MB/s
On-board memory	8-MB	32-MB	32-MB
Pre-processing	LUTs 3x (8-bit x 8-bit) for R, G, B	-	-
I/O electrical style -system functions-	4 externally	9 internally & externally	9 internally & externally
Isol. multi-mode bidirectional I/O* & Isol. 5V power supply -IN (Trigger/Line trigger) OUT (Strobe)-	2	2	2
Non-isol. TTL input -Trigger/Line trigger-	1	-	-
Non-isol. TTL output -Strobe-	1	-	-
Non-isol. universal differential input** -Trigger/Line-	-	2	2
Isol. contact output -Strobe-	-	1	1
Non-isol. bidirectional TTL I/O -Trigger/Line trigger-	-	4	4
5V and 12 V Power supply	✓	✓	✓

*Input: isolated TTL, isolated 12V. Output: isolated TTL, isolated Open Collector, isolated Open Emitter. **LVDS and more



GRABLINK Express™

GRABLINK Avenue™

GRABLINK Value™

High-Performance LINE-SCAN and AREA-SCAN Applications

Flexible and Reliable LINE-SCAN Acquisition



Camera modes The 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 single line.

Successive object scanning In «**page mode**», a 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 of the Grablink boards 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.

ADR Technology™*

Simple and reliable LINE-SCAN acquisition with constant lighting sensitivity and line rate

In many applications, a **line-scan camera** has to be operated at a **constant cycling rate** in order to maintain a constant sensitivity. The **Grablink Avenue** and the **Grablink Express implement ADR***, a **unique downweb resampling feature**, yielding a defined aspect ratio irrespective of web speed variations, even without an electronic shutter on the camera.

A built-in rate converter accommodates an off-the-shelf motion encoder to control the line acquisition process, enabling any **programmable aspect ratio, including perfect square pixels**.

ADR* makes the most of the line-scan camera, as the sensitivity is not impaired by the shuttering.

► Download the “About ADR Technology” flyer from our web site: www.euresys.com.



Full Support of AREA-SCAN Acquisition



Camera modes Features such as **asynchronous reset, exposure control, strobe lighting** often required in industrial applications are available on the 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. The Grablink series is capable of consistently controlling the exposure time and the illumination.

Camera tap structure For any tap structure, a 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 the pixel clock frequency specified for the board.

Main Features

- **Acquisition:**
Up to 24-bit / 48-bit at maximum 85 MHz
Camera Link: Base configuration
Support of LINE-SCAN and AREA-SCAN cameras
Multiple taps, tap reversal, tap multiplex
- **Large on-board memory**
- **Asynchronous reset, exposure control and I/O lines -trigger & strobe-**
- **Camera Link serial line configurable as an additional PC COM port**
- **MultiCam drivers for Windows® and Linux**

These PCI and PCI Express Camera Link frame grabbers are optimal for cost-sensitive line-scan and area-scan single-camera applications. The Grablink series is ideal for industrial applications such as inspection of **high-speed moving objects**, **web inspection** or **high-resolution acquisition**.



Serial Control of Camera

The Grablink series 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.

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**, a Euresys board automatically recovers the **scatter-gather** virtual memory mapping to present the data as a regular bitmap image in a user allocated memory buffer.

Windows Of Interest (WOI) Support

The Grablink series seamlessly support the acquisition of a WOI rather than a full image.

Interfaced Cameras

The Grablink series interfaces an impressive choice of different cameras.

► An up-to-date list is available on the *Interfacing Cameras* page on www.euresys.com.





GRABLINK Value™

Cost-Effective Camera Link Base Acquisition

Base configuration -24-bit at 60 MHz-
8-MB on-board memory

Form factor: Conventional PCI 32-bit 33 MHz bus

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

Support of the Base Configuration

CAMERA COMPATIBILITY		Monochrome or Bayer		Color RGB
		single-tap	dual-tap	single-tap
Tap configuration		Base_1T8, Base_1T10, Base_1T12, Base_1T14, Base_1T16	Base_2T8, Base_2T10, Base_2T12	Base_1T24
Camera Link configuration	Base	1 tap x (8-10-12-14-16 bits)	2 taps x (8-10-12 bits)	1 tap x (24 bits)

4 I/O Lines Available on an External DB9 Connector

I/O electrical style

- 2 isolated multi-mode bidirectional I/O and associated isolated 5V power supply
 - Input: isolated TTL, isolated 12V
 - Output: isolated TTL, isolated open collector, isolated Open Emitter
- 1 non-isolated TTL input
- 1 non-isolated TTL output
- 5V and 12V power supplies

I/O electrical style and function

- TTL trigger or page trigger input
- Opto-isolated trigger or page trigger input
- TTL strobe output
- Opto-isolated strobe output
- TTL line trigger or encoder input
- Opto-isolated line trigger or encoder input



GRABLINK Avenue™

Fast Camera Link Base Acquisition

Base configuration -up to 24-bit at 85 MHz-

Full support of AREA-SCAN cameras -asynchronous reset and exposure control-
Simple and reliable LINE-SCAN acquisition -ADR Technology™-

32-MB on-board memory

Form factor: Conventional PCI 64-bit, 66 MHz bus, 3V/5V signaling



The **Grablink Avenue** is a 85 MHz PCI frame grabber for **line-scan or area-scan Camera Link cameras** for Base configuration single-camera systems.

Support of the Base Configuration

CAMERA COMPATIBILITY		Monochrome or Bayer			Color RGB
		single-tap	dual-tap	quad-tap	single-tap
Tap configuration		Base_1T8, Base_1T10, Base_1T12, Base_1T14, Base_1T16	Base_2T8, Base_2T10, Base_2T12, Base_2T14B2, Base_2T16B2	Base_4T8B2	Base_1T24, Base_1T24B3, Base_1T30B2, Base_1T36B2, Base_1T36B3, Base_1T42B2, Base_1T42B3, Base_1T48B2, Base_1T48B3
Camera Link configuration	Base	1 tap x (8-10-12-14-16 bits)	2 taps x (8-10-12 bits)	-	1 tap x (24 bits)
	Extended Base*	-	2 taps x (14-16 bits)	4 taps x (8 bits)	1 tap x (24-30-36-42-48 bits)

*Multiplex tap

9 Various I/O Lines available on an external HD26 connector and on an internal 26-pin header connector

I/O electrical style

- 2 isolated multi-mode bidirectional I/O and associated isolated 5V power supply
 - Input: isolated TTL, isolated 12V
 - Output: isolated TTL, isolated open collector, isolated open emitter
- 2 non-isolated universal differential inputs (LVDS and more)
- 1 isolated contact output
- 4 non-isolated bidirectional TTL I/O
- 5V and 12V power supplies

I/O electrical style and function

- TTL trigger or page trigger input
- LVDS trigger or page trigger input
- Opto-isolated trigger or page trigger input
- TTL strobe output
- Opto-isolated strobe output
- Fast opto-isolated strobe output
- TTL line trigger or encoder input
- Opto-isolated line trigger or encoder input





GRABLINK Express™

PCI Express Camera Link Base Acquisition

- Base Camera Link 1.2 configuration** -24-bit at 85 MHz-
- Power over Camera Link compliant -PoCL-
- Full support of AREA-SCAN cameras** -Asynchronous reset and exposure control-
- Simple and reliable LINE-SCAN acquisition** -ADR Technology™-
- 32-MB on-board memory**
- Form factor: PCI Express Full-height, half-length, x1**



The **Grablink Express** is compliant with the Camera Link **standard 1.2 including PoCL** - Power over Camera Link-. It allows a single Camera Link cable to supply power to the camera, on top of transferring high-speed images and controlling the camera. The Grablink Express PoCL frame grabber interfaces the **smallest and fastest cameras** on the market while still being **safely compatible** with cables and cameras from the previous Camera Link standards.

Support of Camera Link 1.2 Base Configuration –Including PoCL–

The Grablink Express supports the same type of cameras as the Grablink Avenue -see the chart on page 6-.



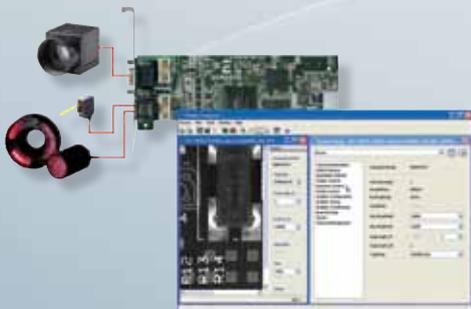
The **Power over Camera Link standard** specifies how to supply power to the camera through the Camera Link connector without losing backward compatibility with the previous Camera Link standard.

- Conventional and PoCL cameras and cables supported
- Over-Current Protection and Over-Voltage Protection circuits
- “SafePower” feature

9 Various External and Internal I/O Lines identical to the Grablink Avenue I/O lines

*Patent granted

MultiCam™ Drivers



The **MultiCam driver** enables the consistent control of several Euresys frame grabbers, tusing 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 his **CAM files**.

➤ An up-to-date list is available on the *Interfacing Cameras* web page.

Multicam drivers available

- MultiCam for Windows 32-bit and 64-bit
- MultiCam for Linux 32-bit and 64-bit

Ordering Information

PRODUCT CODE	DESIGNATION	PRODUCT CODE	DESIGNATION
1191	GRABLINK Value	1621	GRABLINK Express
1198	GRABLINK Avenue		

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