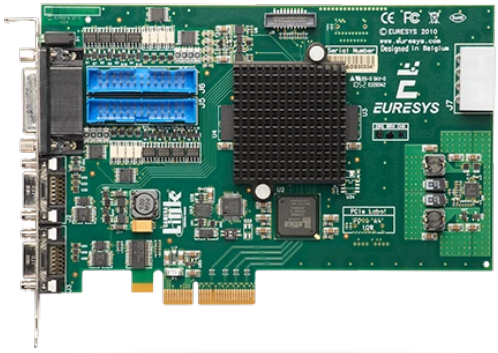
6/3/2024

Datasheet

Grablink DualBase

Frame grabber for two base-configuration Camera Link cameras

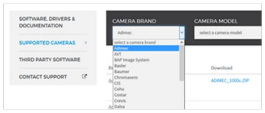


- For two Camera Link Base or Lite configuration cameras
- Directly compatible with hundreds of Camera Link cameras available on the market
- Supports PoCL, Power over Camera Link
- ECCO: Extended Camera Link cable length
- PCIe x4 bus: 850 MB/s sustained delivery bandwidth
- Feature-rich set of 20 digital IO lines
- Memento Event Logging Tool

Main benefits

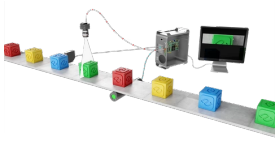
ECCO: Extended Camera Link Cable Operation

- Use longer, up to 15 meters long, Camera Link cables!



Directly compatible with hundreds of Camera Link cameras available on the market

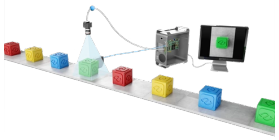
Check out our Camfiles page (in the Support menu)



Line-scan triggering capabilities

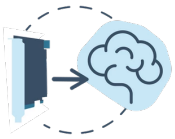
Euresys' frame grabbers offer many capabilities to synchronize line-scan or 1D cameras, sensors and lighting controllers. Frame grabbers can control the camera scanning rate based on the signals received from a motion encoder.

They support continuous web scanning (to inspect infinite, continuously moving surfaces without losing a single line) and discrete object scanning (to acquire the image of objects moving in front of the camera).



Area-scan triggering capabilities

Euresys' frame grabbers offer many capabilities to synchronize area-scan or 2D cameras, sensors and lighting controllers, for stationery or moving objects in the field of view, or moving cameras.



High-performance DMA (Direct Memory Access)

- Direct transfer into user-allocated memory
- Hardware scatter-gather support

Windows and Linux drivers available

- Windows and Linux drivers available

Other benefits

General purpose I/O lines

- Compatible with a wide range of sensors and motion encoders.
- High-speed differential inputs: Quadrature motion encoder support up to 5 MHz.
- Isolated current-sense inputs: 5V, 12V, 24V signaling voltages accepted, up to 50 kHz, individual galvanic isolation up to 250VDC and 170VAC RMS.
- Isolated contact outputs.
- High-speed 5V-compliant TTL inputs/ LVTTL outputs.

Flexible line-scan camera operation with the rate converter

- The rate converter is a smart, programmable frequency multiplier/divider.
- Used with motion encoders and line-scan cameras, it allows the user to choose the aspect ratio of the pixels in the image.
- It provides a way to calibrate the acquisition chain to easily reach square (1:1 aspect ratio) pixels.

Specifications

Mechanical

Form factor

PCI Express card

Format

Standard profile, half length, 4-lane PCI Express card

Cooling method

Air-cooling, fanless

Mounting

For insertion in a standard height, 4-lane or higher, PCI Express card slot

Connectors

'A' on bracket:

- 26-position Shrunk Delta Ribbon (SDR) socket
- Camera Link Camera A

'B' on bracket:

- 26-position Shrunk Delta Ribbon (SDR) socket
- Camera Link Camera B

'EXTERNAL I/O' on bracket:

- 26-pin 3-row high-density female sub-D connector
- I/O lines and power output

'INTERNAL I/O A on PCB:

- 26-pin 2-row 0.1" pitch pin header with shrouding
- I/O lines of camera A and power output

'INTERNAL I/O B on PCB:

- 26-pin 2-row 0.1" pitch pin header with shrouding
- I/O lines of camera B and power output

'POWER INPUT' on module:

- 4-pin MOLEX power socket
- 12 VDC power input for PoCL cameras and I/O power

Dimensions

PCB L X H: 167.65 mm x 111.15 mm, 6.6 in x 4.38 in

Weight

Net weight: 142 g [5 oz]

Gross weight: 242 g [8.5 oz]

Host bus

Standard

PCI Express 1.0

Link width

4 lanes

Link speed

2.5 GT/s (PCIe 1.0)

Maximum payload size

1024 bytes

DMA

32- and 64-bit

Peak delivery bandwidth

1,024 MB/s

Effective (sustained) delivery bandwidth

Up to 833 MB/s for a PCI Express payload size of 256 bytes and 64-bit addressing

Up to 844 MB/s for a PCI Express payload size of 256 bytes and 32-bit addressing

Up to 754 MB/s for a PCI Express payload size of 128 bytes and 64-bit addressing

Up to 780 MB/s for a PCI Express payload size of 128 bytes and 32-bit addressing

Power consumption

Max.7.2 W; Typ. 6.0 W (0.47 A @ 3.3V, 0.37 A @+12V)

Camera / video inputs

Camera interface standard

Camera Link

Interface standard(s)

Camera Link 2.0

Maximum link speed

85 MHz

Maximum link width

24-bit (BASE)

Camera powering

PoCL

Connectors

Two Shrunk Delta Ribbon (SDR) Miniature Camera Link (MiniCL)

ECCO - Extended Camera Link Cable Operation

ECCO

Number of cameras

Two Base or Lite cameras

Maximum number of cameras

2

Line-scan cameras supported

Yes

Maximum aggregated camera data transfer rate

4.08 Gbps (510 MB/s)

Camera Link configuration

Base or Lite

Camera Link clock frequency

From 20 MHz up to 85 MHz

PoCL (Power over Camera Link)

Two independent PoCL SafePower compliant controllers with overload, over-voltage and short-circuit protection

Camera types

Grayscale and color (RGB and Bayer) area- and line-scan cameras

Area-scan camera control

Trigger

Precise control of asynchronous reset cameras, with exposure control.

Support of camera exposure/readout overlap.

Support of external hardware trigger, with optional delay and trigger decimation.

Strobe

Accurate control of the strobe position for strobed light sources.

Support of early and late strobe pulses.

Line-scan camera control

Scan/page trigger

Precise control of start-of-scan and end-of-scan triggers.

Support of external hardware trigger, with optional delay.

Support of infinite acquisition, without missing line, for web inspection applications.

Line trigger

Support for quadrature motion encoders, with programmable noise filters, selection of acquisition direction and backward motion compensation.

Rate Converter tool for fine control of the pixel aspect ratio.

Rate Divider tool

Line strobe

Accurate control of the strobe position for strobed light sources.

On-board processing

On-board memory

128 MB (64 MB for image data)

Image data stream processing

Unpacking of 10-/12-/14-bit to 16-bit with selectable justification to LSb or MSb

Input LUT (Lookup Table)

Monochrome: 8-bit, 10-bit or 12-bit per pixel, up to 500 MPixel/s per camera

RGB: 3x8-bit per pixel, up to 125 MPixel/s per camera

Bayer CFA to RGB decoder

Advanced interpolation method using average and median functions on a 3x3 kernel

Up to 125 MPixel/s per camera

General Purpose Inputs and Outputs

Number of lines

2 sets of 10 I/O lines, each set including:

2 differential inputs (DIN)

4 isolated inputs (IIN)

4 isolated outputs (IOUT)

Usage

Each acquisition channel has a dedicated set of 10 I/O's

- The I/O set of INTERNAL IO CONNECTOR A is dedicated to the acquisition channel of CAMERA A
- The I/O set of INTERNAL IO CONNECTOR B is dedicated to the acquisition channel of CAMERA B

The input lines of an I/O set can be used by the corresponding acquisition channel as:

- Camera frame trigger source (area-scan only)
- Acquisition sequence trigger source (area-scan only)
- Camera line trigger source (line-scan only)
- Page acquisition trigger source (line-scan only)
- Page acquisition end trigger source (line-scan only)
- (Quadrature) motion encoder input (line-scan only)

The IOUT 1 output line of an I/O set can be used by the corresponding acquisition channel, as:

- Illumination strobe output

All the input lines can be used as general purpose inputs

All the output lines can be used as general purpose outputs

Electrical specifications

DIN: High-speed differential inputs, up to 5 MHz, compatible with ANSI/EIA/TIA-422/485 differential line drivers and complementary TTL drivers

IIN: Isolated current-sense inputs with wide voltage input range up to 30V, compatible with totem-pole LVTTL, TTL, 5V CMOS drivers, RS-422 differential line drivers, potential free contacts, solid-state relays and opto-couplers

IOUT: Isolated contact outputs compatible with 30V / 100mA loads

NOTE: IIN and IOUT lines provide a functional isolation grade for the circuit technical protection. It does not provide an isolation that can protect a human being from electrical shock!

Filter control

Glitch removal filter available only on input lines used as trigger sources

Configurable with five time constants:

- 100 ns, 500 ns, and 2.5 μs for trigger / page trigger / page end trigger sources
- 40 ns, 100 ns, 200 ns, 500 ns, 1 μs, 5 μs, 10 μs for line trigger sources

Power output

Non-isolated, +5V, 1A and +12V, 1A, with electronic fuse protection

Software

Driver name

MultiCam

Current release

MultiCam 6.19

Host PC Operating System

Microsoft Windows 10, 8.1, 7 for x86 (32-bit) and x86-64 (64-bit) processor architectures

Linux for x86 (32-bit) and x86-64 (64-bit) processor architectures

Refer to release notes for details

APIs

MultiCam 32- and 64-bit binary libraries (Windows and Linux), for ISO-compliant C/C++ compilers

Memento supported

Yes

Environmental conditions

Operating ambient air temperature

0 °C to +50 °C / +32 °F to +122 °F

Operating ambient air humidity

10% to 90% RH non-condensing

Storage ambient air temperature

-20 °C to +70 °C/ -4 °F to +158 °F

Storage ambient air humidity

10% to 90% RH non-condensing

Certifications

EMC standards

European Council EMC Directive 2014/30/EU

United States FCC rule 47 CFR 15

EMC - Emission

EN 55022:2010 / CISPR 22:2008 Class B

EN 55032:2015 / CISPR 32:2012 Class B

FCC 47 Part 15 Class B

EMC - Immunity

EN 55024:2010 / CISPR 24:2010

EN 55035:2017 / CISPR 35:2016

EN 61000-4-2:2009

EN 61000-4-3:2006

EN 61000-4-4:2004

EN 61000-4-5:2014

EN 61000-4-6:2014

KC Certification

Korean Radio Waves Act, Article 58-2, Clause 3

Flammability

PCB compliant with UL 94 V-0

RoHS

European Union Directive 2015/863 (ROHS3)

REACH

European Union Regulation 1907/2006

WEEE

Must be disposed of separately from normal household waste and must be recycled according to local regulations

Ordering Information

Product status

Released

Product code - Description

PC1623 Grablink DualBase

Related products

PC1625 DB25F I/O Adapter Cable

PC3304 HD26F I/O Adapter Cable

Offices

- Europe, Middle East & Africa
  Euresys SA
  Contact support : support.europe@euresys.com

  Sensor to Image GmbH
  Contact support : support.europe@euresys.com

- China
  Euresys Shanghai Liaison Office
  Contact support : support.china@euresys.com

  Euresys Shenzhen Liaison Office
  Contact support : support.china@euresys.com

- Japan
  Euresys Japan K.K.
  Contact support : support.japan@euresys.com

- South Korea
  Euresys South Korea Liaison Office
  Contact support : support.korea@euresys.com

- Asia (other countries)
  Euresys Pte. Ltd.
  Contact support : support.asia@euresys.com

- North, Central & South America
  Euresys Inc.
  Contact support : support.usa@euresys.com

  TKH Vision Experience Center
  Contact support : support.usa@euresys.com