23.
10
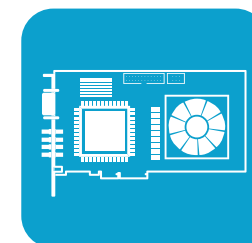
euresys

USB3 Windows *macOS*
Linux *DVI* **OCR** *GENICAM*
QRCode .net Fiber Optics
Recorder Gauge MATCH **C++**
PAL/NTSC **CoaXPress**
FPGA Deeplearning GigE
CameraLink **3D . . . .**

Who are we?

Euresys is a leading and innovative high-tech company, designer and provider of image and video acquisition components, frame grabbers, FPGA IP cores and image processing software. Euresys is active in the computer vision, machine vision, factory automation and medical imaging.

The company's image acquisition expertise covers analog and digital video acquisition, FPGA programming, high-frequency electronics, video compression and also camera control. Recently strengthened by the acquisition of the company Sensor to Image, its 30 years of imaging know-how includes GigE Vision, USB3 Vision, CoaXPress, Camera Link and GenICam.

In terms of image analysis, Euresys' skills apply to blob detection, sub-pixel measurement, pattern matching, color analysis, optical character recognition, barcode reading and verification, 3D inspection and classification using deep learning.

Euresys is a TKH Technology company.

CoaXPress over-Fiber

What is CoaXPress-over-Fiber?

CoaXPress-over-Fiber is a light but significant extension of the existing CoaXPress specification to support transport over fiber optics.

CoaXPress (CXP) is the de-facto standard for high-bandwidth computer vision applications. CoaXPress 2.0, the latest version of the specification, specifies the CXP-12 speed, a 12.5 Gbps (Gigabit per second) link over a coaxial copper cable. As link aggregation is common with CoaXPress, bandwidths of 50 Gbps (12.5 x 4) are easily achievable with four CXP-12 links. The CoaXPress specification is hosted by the JIIA (Japan Industrial Imaging Association).

CoaXPress-over-Fiber has been designed as an add-on to the CoaXPress 2.0 specification. It provides a way to run the CoaXPress protocol, as it is, unmodified, over a standard Ethernet connection, including fiber optics. As such, CoaXPress-over-Fiber uses standard electronics, connectors and cables designed for Ethernet, but the protocol is CoaXPress, not Ethernet, not GigE Vision.

Memento
Event Logging Tool

CustomLogic
Your Own FPGA Logic

CoaXPress over-Fiber

Coaxlink QSFP+
FOUR-CONNECTION
COAXPRESS-OVER-FIBER FRAME GRABBER

AT A GLANCE
- One QSFP+ port compliant with 40 Gbps optical modules
- 5,000 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x8 bus: 6,700 MB/s bus bandwidth
- Feature-rich set of 20 digital I/O lines
- Exnctions
- Ml

sensor to image

CoaXPress-over-Fiber Bridge IP Core
COAXPRESS-OVER-FIBER BRIDGE IP CORE FOR FPGA

AT A GLANCE
- Available as CXP to nGMII (device) or nGMII to CXP (host) Bridge IP Cores
- Compatible with AMD 7 Series (and newer), Intel Cyclone/Arria 10/Agilex
- Compatible with S2I and third-party CoaXPress IP Cores
- Delivered with a working reference design (when licensed with the S2I CoaXPress IP Core) and extensive simulation testbench
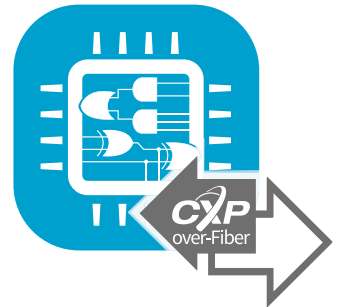
PRELIMINARY

Coaxlink CXP-12 to QSFP+ Converter
FOUR-CONNECTION COAXPRESS CXP-12 TO COAXPRESS-OVER-FIBER CONVERTER

AT A GLANCE
- Provides easy cable length extension using CoaXPress-over-Fiber
- Allows connecting a CXP-12 camera to a Coaxlink QSFP+ frame grabber
- Four CoaXPress CXP-12 connections on the camera side
- One QSFP+ port compliant with 40 Gbps optical modules on the frame grabber side
- 5,000 MB/s camera bandwidth
- PoCXP camera power supply

LONG CABLE SUPPORT

CoaXPress over-Fiber

150 meters on multimode fibers at CXP-12 speed

40 kilometers on single mode fibers at CXP-12 speed

Coaxlink series

ULTIMATE IN PERFORMANCE WITH SUPERIOR VALUE COAXPRESS FRAME GRABBERS

AT A GLANCE
- PCIe frame grabbers with up to eight CoaXPress connections
- PCIe 3.0 (Gen 3) or PCIe 2.0 (Gen 2) bus
- Feature-rich set of up to 20 digital I/O lines
- Extensive camera control functions
- Memento Event Logging Tool

Memento Event Logging Tool

CoaXPress

NEW

Coaxlink Quad CXP-12 Value

FOUR-CONNECTION COAXPRESS CXP-12 FRAME GRABBER

CXP-12

AT A GLANCE
- Four CoaXPress CXP-12 connections: 5,000 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x8 bus: 6,700 MB/s bus bandwidth
- Feature-rich set of 20 digital I/O lines

PRELIMINARY

Coaxlink Quad CXP-12 DF

FOUR-CONNECTION COAXPRESS CXP-12 FRAME GRABBER WITH DATA FORWARDING

CXP-12

AT A GLANCE
- Four CoaXPress CXP-12 connections and four Data Forwarding outputs: 5,000 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x8 bus: 6,700 MB/s bus bandwidth
- Feature-rich set of 10 digital I/O lines

LONG CABLE SUPPORT

40 meters at CXP-12 Speed (12.5Gbps)

72 meters at CXP-6 Speed (6.25Gbps)

100 meters at CXP-3 Speed (3.125Gbps)

Coaxlink Quad CXP-12

FOUR-CONNECTION COAXPRESS CXP-12 FRAME GRABBER

CustomLogic Your Own FPGA Logic   **CXP-12**

AT A GLANCE
- Four CoaXPress CXP-12 connections: 5,000 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x8 bus: 6,700 MB/s bus bandwidth
- Feature-rich set of 20 digital I/O lines
- Compatible with CustomLogic: Your own FPGA logic

Coaxlink Quad CXP-12 JPEG

FOUR-CONNECTION COAXPRESS CXP-12 FRAME GRABBER WITH JPEG COMPRESSION

CXP-12

AT A GLANCE
- Four 250 MPixels/s JPEG encoders
- Compatible with 8-bit/pixel Bayer CFA cameras
- Two streams per camera: JPEG stream and RGB preview stream
- Four CoaXPress CXP-12 connections: 5,000 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x8 bus: 6,700 MB/s bus bandwidth

Coaxlink Duo CXP-12

TWO-CONNECTION COAXPRESS CXP-12 FRAME GRABBER

CXP-12

AT A GLANCE
- Two CoaXPress CXP-12 connections: 2,500 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x4 bus: 3,300 MB/s bus bandwidth
- Low-profile card. Delivered with standard and low-profile brackets.
- Fan-cooled heatsink
- Feature-rich set of 10 digital I/O lines

Coaxlink Mono CXP-12

ONE-CONNECTION COAXPRESS CXP-12 FRAME GRABBER

CXP-12

AT A GLANCE
- One CoaXPress CXP-12 connection: 1,250 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x4 bus: 3,300 MB/s bus bandwidth
- Low-profile card. Delivered with standard and low-profile brackets
- Passive (fanless) heatsink
- Feature-rich set of 10 digital I/O lines

Coaxlink Octo

PCIE 3.0 EIGHT-CONNECTION COAXPRESS FRAME GRABBER

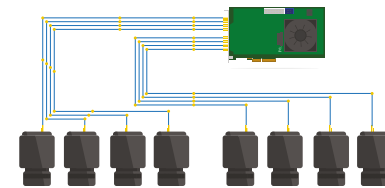**CustomLogic** Your Own FPGA Logic

CXP-6

AT A GLANCE

- Eight CoaXPress CXP-6 connections: 5,000 MB/s camera bandwidth
- Connect up to eight CoaXPress cameras to one card
- PCIe 3.0 (Gen 3) x8 bus: 6,700 MB/s bus bandwidth
- Feature-rich set of 10 digital I/O lines
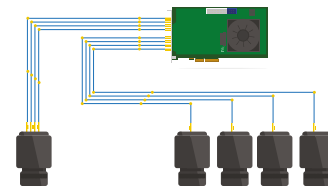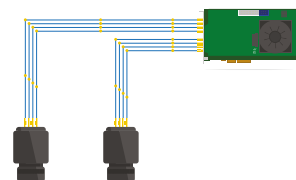- Compatible with CustomLogic: Your own FPGA logic

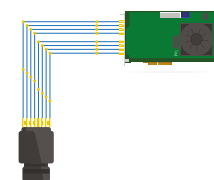Multi-camera applications for Coaxlink Octo
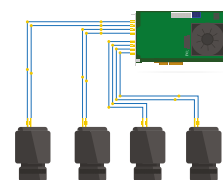
Eight 1-connection cameras

One 4-connection plus four 1-connection cameras

Two 4-connection cameras

One 8-connection camera

Four 2-connection cameras

Coaxlink Quad G3 DF

PCIE 3.0 FOUR-CONNECTION COAXPRESS FRAME GRABBER WITH DATA FORWARDING
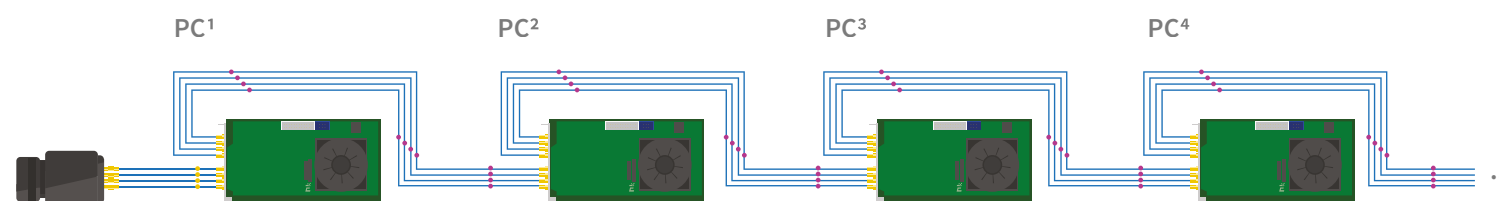
CXP-6

AT A GLANCE

- Four CoaXPress CXP-6 connections and four Data Forwarding outputs: 2,500 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x4 bus: 3,300 MB/s bus bandwidth
- Feature-rich set of 10 digital I/O lines

CoaXPress Data Forwarding
Allows to distribute the image processing workload among several host PCs

PC[1]   PC[2]   PC[3]   PC[4]

Coaxlink Quad G3

PCIE 3.0 FOUR-CONNECTION
COAXPRESS FRAME GRABBER (FAN-COOLED HEATSINK)

CXP-6   **CXP-6**

AT A GLANCE

- Four CoaXPress CXP-6 connections: 2,500 MB/s camera bandwidth
- PCIe 3.0 (Gen 3) x4 bus: 3,300 MB/s bus bandwidth
- Feature-rich set of 20 digital I/O lines
- Fan-cooled or passive heatsink

Coaxlink Quad 3D-LLE

QUAD CXP-6 FRAME GRABBER WITH
ON-BOARD LASER LINE EXTRACTION FOR 3D PROFILING

CXP-6

AT A GLANCE

- Laser line extraction with zero host CPU usage
- Single and Dual Laser Line Extraction into a depth map
- Real-time generation of 16-bit 3D height maps
- Choice of algorithms: Maximum, Peak, Center of Gravity (COG)
- Precision: up to 1/256 pixel (with Peak and COG algorithms)
- Performance: 19,000 profiles/s from 1024 x 128 images. 38,000 profiles/s from 1024 x 64 images

Coaxlink Quad 3D-LLE

Open eVision Image Analysis Software Tools
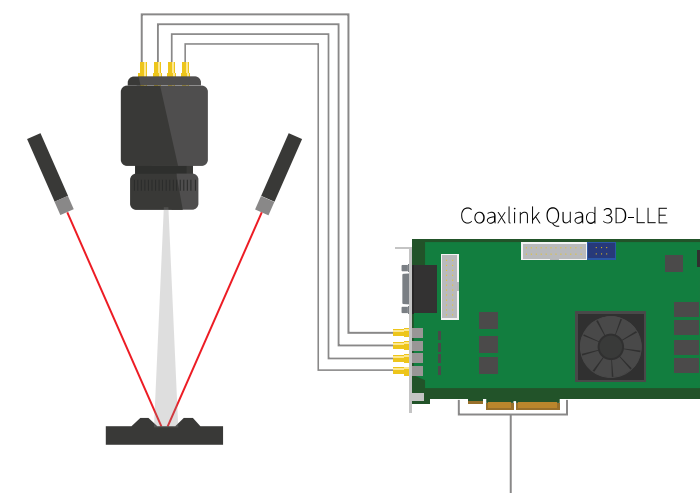
Easy3D

Easy3DObject

Easy3DLaserLine

CustomLogic
Your Own FPGA Logic
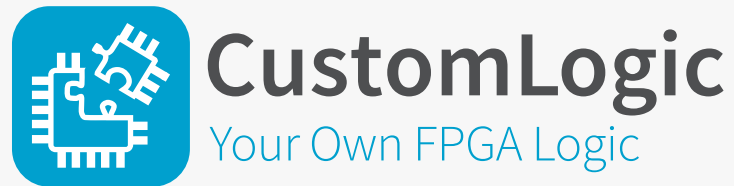
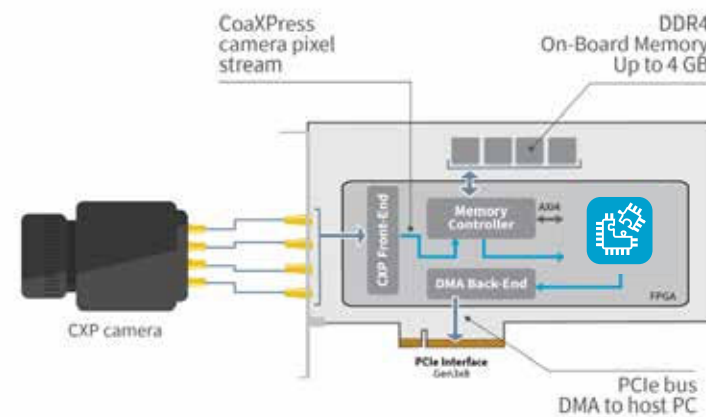**CUSTOM ON-BOARD FPGA PROCESSING FOR COAXLINK FRAME GRABBERS**

- FPGA design kit enabling the design and upload of FPGA code to a Coaxlink board
- Supported by AMD Vivado development tool
- Compatible with Coaxlink Octo, Coaxlink Quad CXP-12 and Coaxlink QSFP+:
  70% of AMD Kintex Ultrascale XCKU035 FPGA resources available
- Access to CoaXPress camera pixel stream, on-board DDR4 memory and PCIe Gen3 connectivity
- Memento Event Logging messaging

eGrabber
Powerful Image Acquisition

IMAGE ACQUISITION SOFTWARE

- Set of tools for image acquisition and recording
- Compatible with CoaXPress cameras (with the Coaxlink cards)
- Compatible with Camera Link cameras (with Grablink Duo)
- Compatible with GigE Vision cameras (with the optional Gigelink library)
- Recording to hard drives (with the optional Recorder library)

GEN<i>CAM

WHAT IS CUSTOM LOGIC?

CustomLogic is an FPGA design kit enabling the design and upload of FPGA code to a Coaxlink board. It is compatible with the Coaxlink Octo, Coaxlink Quad CXP-12 and Coaxlink QSFP+. Typ. up to 70% of their AMD Kintex Ultrascale XCKU035 FPGA Logic is available. The design phase uses the AMD Vivado development tools (Available free of charge from AMD-Xilinx).

RESOURCE	TOTAL	AVAILABLE TO THE USER (%)
LUT	203,128	73
FF	406,256	81
BRAM (36KB)	540	56
DSP	1,700	90

DATA (PIXEL) STREAM INTERFACE

The Data Stream interface is based on the AMBA AXI4-Stream protocol. On the source side, this interface provides the user logic with images acquired from a CoaXPress Device (for example a CoaXPress camera). On the destination side, the Data Stream interface transfers the resulting images/data generated by the user logic to the PCI Express DMA Back-End channel.

eGrabber Gigelink
GIGE VISION IMAGE ACQUISITION LIBRARY

- Image acquisition from GigE Vision cameras within eGrabber
- Universal, compatible with any GigE Vision camera
- Hardware independent
- Compatible with Windows and Linux platforms

eGrabber Recorder
HIGH-PERFORMANCE VIDEO RECORDING LIBRARY

- Highly optimized video recording to disk
- Recording at bandwidth compatible with fast cameras
- Long term recording, limited only by the disk size
- Includes UTC timestamping
- Export to standard TIFF and MKV files
- Compatible with Windows and Linux platforms

DDRA4 MEMORY INTERFACE

The DDR4 Memory interface is based on the AMBA AXI4 protocol.

MEMENTO EVENT INTERFACE

The Memento Event interface allows the User Logic to send timestamped events to the Memento Logging tool with a precision of 1 µs. Along with the timestamped event, two 32-bit arguments are reported in Memento.

CONTROL/STATUS INTERFACE

The Control/Status interface allows the user to read and write registers inside the user logic via the Coaxlink Driver API.

REFERENCE DESIGN

The Coaxlink CustomLogic SDK is delivered with a reference design intended to be used as a template. The reference design exposes all interfaces available to the user.

DEBUGGING

Using CustomLogic does not require any additional hardware. The 3613 AMD JTAG Adapter for Coaxlink (which can be purchased separately) allows connecting the AMD programmer to the Coaxlink FPGA for debugging purposes.
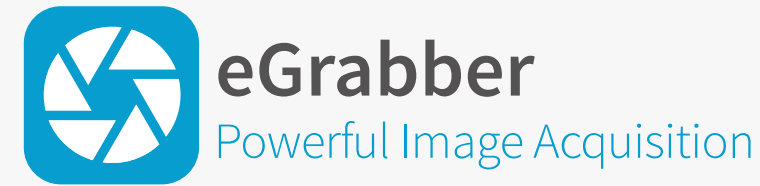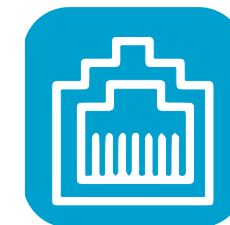
eGrabber Driver
COAXLINK AND GRABLINK DUO DRIVER

- C++, C# and Python APIs
- Support for single-thread and multi-thread callbacks for real-time event handling
- Support for script files to configure the frame grabber and camera
- Compatible with GenICam, GenApi and GenTL
- Compatible with Windows, Linux and macOS

eGrabber Studio
POWERFUL IMAGE ACQUISITION

- eGrabber's evaluation and demonstration application
- Compatible with GigE Vision cameras (with the optional Gigelink library), CoaXPress cameras (with the Coaxlink cards) and Camera Link cameras (with Grablink Duo)
- Recorder pane giving access to image recording with the optional eGrabber Recorder library
- Compatible with Windows, Linux, and macOS

eGrabber Memento
Event logging tool

AT A GLANCE
- Accurate logging of events related to the camera, the frame grabber and its driver as well as the host application
- Graphical representation of time-stamped events on a precise timeline with context information
- Logic analyzer feature to help users analyze selected system events
- Support for setting up, debugging and profiling the system
- Availability with all Coaxlink and Grablink cards in the PC
- Non-intrusive tool requiring low CPU usage
- Compatible with Windows, Linux, and macOS

WHAT IS MEMENTO?
In high-end inspection machines using vision, the frame grabber is responsible for acquiring images in synchronization with numerous external devices such as motion or lighting controllers, not to mention the camera itself. Debugging these systems often requires complex equipment, for example, oscilloscopes and logic analyzer, which are used along with software profilers. The problem is even more acute with the latest cameras available, which allow for very fast frame rates exceeding several hundred, even thousand frames per second. Memento has been designed to simplify that process. During the operation, Memento records a very detailed log of events related to the camera, the frame grabber and its driver, as well as the host application.

ACTIVITY PLOT

MESSAGE PLOT
(Events displayed on a timeline)

ANALYZER PLOT
(Logic analyzer view)

MESSAGE LIST
(Detailed text of the displayed events)

HOW DOES MEMENTO WORK?
The Memento driver records events such as driver function calls, callbacks, triggers received by the frame grabber, strobe signals sent to the light controller or camera control signals, along with precise time stamps and detailed context information. In the Memento application, you can display a list of these events with their associated time stamp and useful context information. The events listed are also displayed in a timeline. Different levels of verbosity are used to filter and display only the most crucial messages or to provide much more detailed log information. Additional display and highlighting options are available based, among others, on the origin or nature of the messages. Search features also allow you to find back messages based on their content. Memento assists developers during application development and debugging, as well as system operation. It helps them understand the behavior of the machine and pin down the cause of issues such as missed triggers or lost images.

NON-INTRUSTIVE AND POWERFUL TOOL
Memento runs in the background and builds logs that can be saved and sent back to the support team in case of machine failure. Memento relies on software resources implemented inside the driver of the cards as well as hardware resources on the cards themselves. Memento has been designed to be extremely efficient. It is non-intrusive as the required CPU load is extremely low. Memento is very powerful as it can collect extremely diverse logging information and provide extensive filtering capabilities, at several levels, based on the nature of logging information or on the requested verbosity level.

MEMENTO ANALYZER
Memento provides a logic analyzer tool, called Memento Analyzer, that receives detailed, sequenced and timing information to help measure latencies and detect defects during acquisition. The Memento Analyzer displays system events (trigger, strober, DMA, ...) on a timeline. It analyzes how buffer queues are used and how acquired images are delivered to the application. It also displays detailed info on incoming protocol data (CoaXPress, ...).

Grablink series
CAMERA LINK FRAME GRABBERS

AT A GLANCE
- PCIe frame grabbers for Camera Link 80-bit, Full, Medium, Base and Lite configuration cameras
- Directly compatible with hundreds of Camera Link cameras available on the market
- ECCO+ / ECCO: Extended Camera Link Cable Operation
- Feature-rich set of digital IO lines
- Memento Event Logging Tool

Memento Event Logging Tool

NEW

Grablink Duo
FRAME GRABBER FOR ONE FULL- OR TWO BASE-CONFIGURATION CAMERA LINK CAMERAS

AT A GLANCE
- For two independent Camera Link Base configuration cameras or one Camera Link Base, Medium, Full, 72-bit or 80-bit camera
- Directly compatible with hundreds of Camera Link cameras available on the market
- PoCL, Power over Camera Link
- ECCO: Extended Camera Link cable length
- PCIe Gen 2 x4 bus
- Feature-rich set of 20 digital IO lines
- Compatible with eGrabber driver and Memento Event Logging Tool
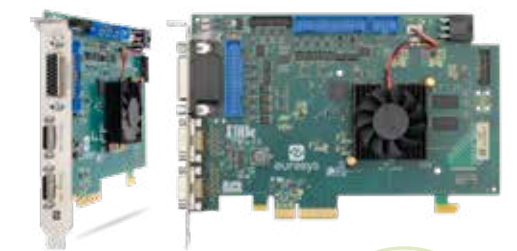
Grablink Full XR
FRAME GRABBER FOR ONE FULL-CONFIGURATION CAMERA LINK CAMERA WITH SUPPORT FOR EXTRA LONG CABLES

AT A GLANCE
- For one Camera Link 80-bit, 72-bit, Full, Medium or Base configuration camera
- Directly compatible with hundreds of Camera Link cameras available on the market
- Supports PoCL, Power over Camera Link
- ECCO+: Double Camera Link maximum cable length
- PoCL SafePower compliant
- PCIe x4 bus: 850 MB/s sustained delivery bandwidth

Grablink Full
FRAME GRABBER FOR ONE FULL-CONFIGURATION CAMERA LINK CAMERA

AT A GLANCE
- For one Camera Link 80-bit, 72-bit, Full, Medium or Base configuration camera
- Directly compatible with hundreds of Camera Link cameras available on the market
- ECCO: Extended Camera Link cable length
- PCIe x4 bus: 850 MB/s sustained delivery bandwidth
- Feature-rich set of 10 digital IO lines

## Grablink DualBase
FRAME GRABBER FOR TWO BASE-CONFIGURATION CAMERA LINK CAMERAS

AT A GLANCE
- 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

Grablink Base
FRAME GRABBER FOR ONE BASE-CONFIGURATION CAMERA LINK CAMERA

AT A GLANCE
- For one Camera Link Base or Lite configuration camera
- 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 x1 bus: 200 MB/s sustained delivery bandwidth
- Feature-rich set of 10 digital IO lines

Picolo series

Picolo HD 3G DVI
3G 60FPS DVI HIGH-DEFINITION 1080P VIDEO CAPTURE CARD

AT A GLANCE
- Video and audio capture from DVI, Y/Pr/Pb, S-Video or CVBS video sources
- HD 1920x1080p50/60
- SD 525i60 and 625i50
- 16 general purpose IO lines
- PCIe (2.0) Gen2 x1 bus
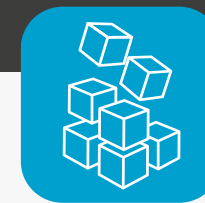
Open eVision
Image Analysis Software Tools

AT A GLANCE
- Hardware-independent image processing and analysis libraries for machine vision inspection applications
- Compatible with any image source, including frame grabbers, GigE Vision and USB3 Vision cameras
- Support the latest technologies such as Deep Learning and 3D
- Accurate sub-pixel measurement and calibration
- 64-bit libraries for C++ and .NET (C#, VB.NET, C++/CLI) under Windows (x86-64)
- 64-bit libraries for Linux (x86-64 or ARMv8-A)
- Easy to learn and use
- Robust, flexible and powerful

Inspection with Deep Learning

EasyClassify
DEEP LEARNING CLASSIFICATION LIBRARY

- Includes functions for classifier training and image classification
- Able to detect defective products or sort products into various classes
- Supports data augmentation, works with as few as one hundred training images per class

EasySegment
DEEP LEARNING SEGMENTATION LIBRARY

- Unsupervised mode: train only with "good" images to detect and segment anomalies and defects in new images
- Supervised mode: learn a model of the defects for better segmentation and detection precision
- Works with any image resolution
- Supports data augmentation and masks

EasyLocate
DEEP LEARNING LOCALIZATION AND CLASSIFICATION LIBRARY

- Localization and identification of objects/products/defects
- Counting of objects
- Axis Aligned Bounding Boxes : for precise annotation and localization of multiple objects and sizes
- Interest Point: for fast single point annotation and localization of objects of similar sizes
- Supports data augmentation and masks

Deep Learning Studio
DEEP LEARNING TRAINING AND EVALUATION APPLICATION

AT A GLANCE
- Ease the evaluation of Open eVision's Deep Learning tools
- Dataset creation and image annotation for classification, segmentation, and object localization
- Create and configure dataset splits to decide how your images are used
- Manage the data augmentation transformations
- Train your tools in succession thanks to the training queue
- Validation and analysis of the results of the trained tools
- Available on Windows and Linux
- Free of charge

- Compatible with CPU and GPU processing
- Includes the free Deep Learning Studio application for dataset creation, training and evaluation
- Only available as part of the Deep Learning Bundle

Download Open eVision DeepLearning Studio for free evaluation on **www.euresys.com**

3D Processing

Easy3DMatch
3D ALIGNMENT AND INSPECTION LIBRARY
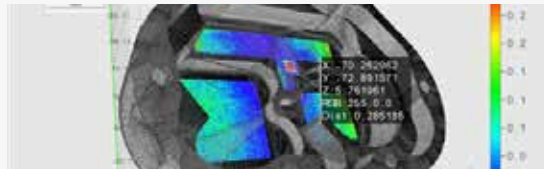
- Align a scanned 3D object with another scan or with a reference mesh
- Compute the local distances between 3D scans and a golden sample or reference mesh
- Detect anomalies such as misplaced features, geometric distortions, gaps, bumps,...
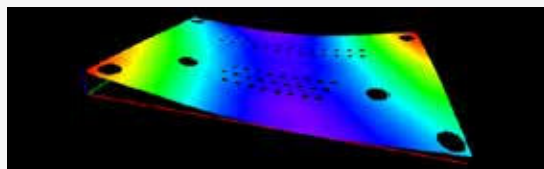- Compatible with all 3D sensors that produce point clouds, depth maps or height maps

Easy3DObject
3D OBJECT EXTRACTION AND MEASUREMENT LIBRARY
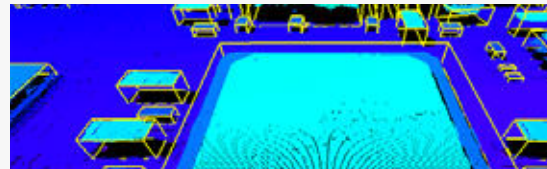
- Detection of 3D objects in point clouds or ZMaps
- Metric detection criteria
- Compatible with arbitrary regions
- Computation of precise 3D measurements, like size, orientation, area, volume…
- Automatic extraction of object local support plane
- 2D and 3D graphical display of the results
- Full-featured interactive demo application

Easy3DLaserLine
3D LASER LINE EXTRACTION AND CALIBRATION LIBRARY

- Single and Dual Laser Line Extraction into a depth map
- Convenient and powerful 3D calibration for laser triangulation setups
- Compatible with the Coaxlink Quad 3D-LLE frame grabber

Easy3D
3D IMAGE PROCESSING LIBRARY

- Point cloud processing and management
- Flexible ZMap generation
- 3D processing functions for cropping, decimating, fitting and aligning point clouds
- Compatible with many 3D sensors
- Interactive 3D display with the 3D Viewer

3D Studio
3D EVALUATION AND PROTOTYPING APPLICATION
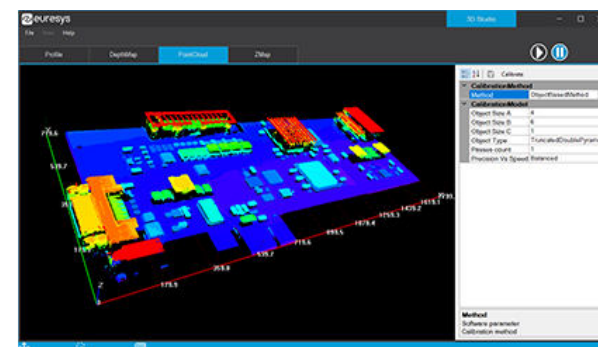
AT A GLANCE
- Ease the configuration and the setup of a laser triangulation scanner using the Coaxlink Quad 3D-LLE
- Simplify the calibration procedure
- Display interactive Depth Maps, 3D Point Clouds and Zmaps
- Free of charge

Download Open eVision 3D Studio for free evaluation on www.euresys.com

COMPATIBILITY WITH 3D SENSORS
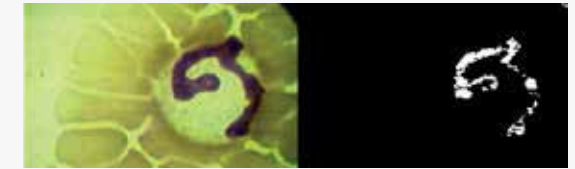

General Purpose

EasyImage
IMAGE PROCESSING LIBRARY

- Set of optimized fundamental image processing and analysis functions
- Convolution and morphology
- Geometric transformations
- Histogram computation and analysis
- Noise estimation and reduction
- HDR (High Dynamic Range) image fusion

EasyColor
COLOR IMAGE ANALYSIS LIBRARY

- Fast conversion of images between 11 color spaces
- Color segmentation: to identify objects based on their color
- Color verification: to verify the color of objects

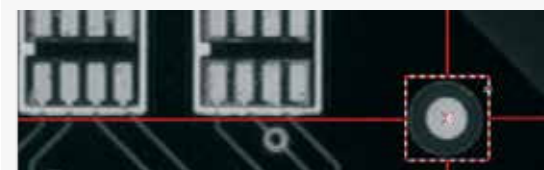## Matching and Measurement

EasyObject
BLOB ANALYSIS LIBRARY

- Image segmentation based on the gray scale of connected objects
- Object labeling
- Geometric feature extraction
- Flexible Masks
- High performance, especially for large images and images with numerous objects

EasyGauge
SUB-PIXEL MEASUREMENT& DIMENSION CONTROL LIBRARY

- Sub-pixel point location and edge fitting
- Highly accurate and robust
- Advanced and automatic calibration
- Multiple gauge models
- Measurement of position, orientation, size, curvature, distance
- Interaction through graphical interface
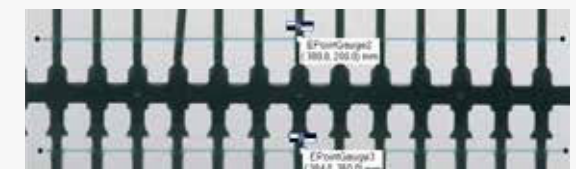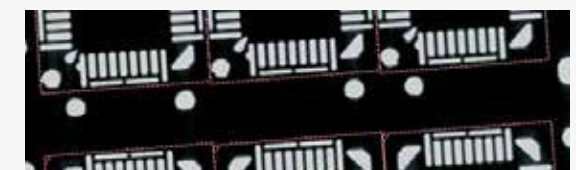
EasyFind
GEOMETRIC PATTERN MATCHING LIBRARY

- Pattern matching using a feature point technology
- Learn from image or DXF vector model
- Fully automatic, fast and robust
- Invariant to rotation and scaling
- High tolerance to pattern degradation
- Support of "don't care" areas

EasyMatch
PATTERN MATCHING LIBRARY

- Pattern matching using normalized correlation
- Sub-pixel accuracy
- Rotation and scaling support
- Detection of multiple pattern occurrences
- Support of gray scale and color images
- Support of "don't care" areas
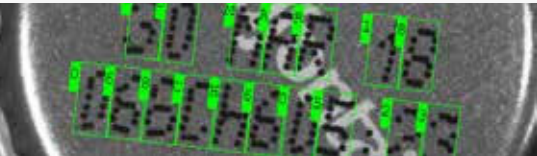
Text and Code Reading

EasyOCR
OPTICAL CHARACTER RECOGNITION LIBRARY

- Teachable character recognition for the most reliable and fastest recognition
- Invariant to character size
- Tolerant to poorly printed, broken characters
- "Connected" characters separation
- Pre-defined fonts included

EasyOCR2
INDUSTRIAL OPTICAL CHARACTER RECOGNITION LIBRARY

- Optimized for reading short texts such as part numbers, serial numbers, expiry dates, manufacturing dates, lot codes, …
- Innovative segmentation algorithm to automatically locate texts in the image based on expected character size and text topology
- Full support for text rotation (360 degrees)
- Able to read severely degraded characters: support for character fragmentation and uneven lighting
- Learning of character database from one or multiple TrueType Font or by your own sample images
- Assisted learning of character database from sample images
- Character database management: adding characters; saving, loading database
- Pre-trained classifier powered by deep learning technologies suitable for industrial text marking fonts

EasyQRCode
QR CODE READING LIBRARY

- Automatic detection of the code in the image
- Decodes model 1 and model 2 QR codes, all versions, all levels
- Decodes Micro QR codes
- Very fast operation
- Impressive robustness to noise, blur and distortion
- Error detection and correction
- Rotation and flipping invariant
- Print quality verification with grading standards
- Multiple codes reading

EasyMatrixCode
2D DATA MATRIX CODE READING LIBRARY
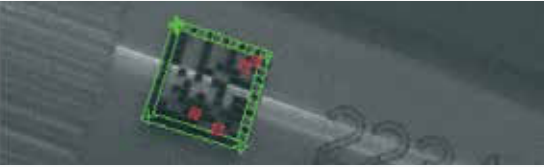
- Automatic detection of the code in the image
- Decodes ECC200, ECC000, ECC050, ECC080, ECC100 and ECC140 codes
- Computes quality indicators as per ANSI/AIM, ISO/IEC 15415, ISO/IEC TR 29158 and SEMI T10-0701 standards
- Very fast operation
- Impressive robustness to noise, blur and distortion
- Support of GS1 Data Matrix codes
- Efficient reading of codes in grid layout
- Multiple codes reading
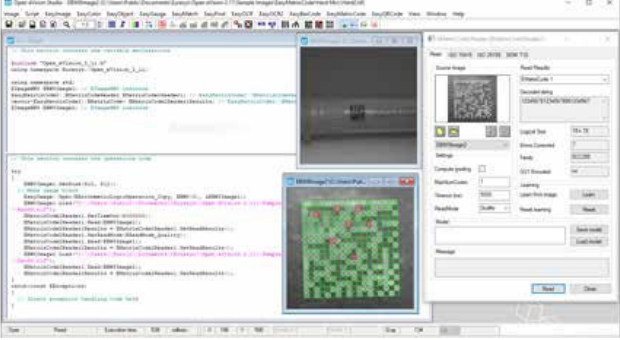
EasyBarCode
BAR CODE READING LIBRARY

- Automatic detection of the barcode in the image
- Automatic detection of the symbology
- Very fast and robust
- Full support of numerous symbologies
- Mail Barcode Reader
- Multiple codes reading
- Grading according to ISO/IEC 15416

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