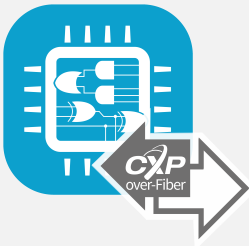**euresys**
Empowering Computer Vision

New

CoaXPress-over-Fiber Bridge IP Core

CoaXPress-over-Fiber Bridge IP Core for FPGA

At a Glance

- Available as CXP to XGMII (device) or XGMII to CXP (host) Bridge IP Cores
- Compatible with Xilinx Ultrascale Series (and newer) and Intel/Altera Cyclone/Arria 10 devices
- Compatible with S2I and third-party CoaXPress IP Cores
- Delivered with a working reference design (when purchased with the CoaXPress IP Core)

Benefits

A Sensor to Image product

CoaXPress-over-Fiber Bridge IP Core Description

The CoaXPress-over-Fiber Bridge IP Core allows to connect a CoaXPress IP Core to an XGMII (10 Gbps Media Independent Interface) bus inside an FPGA. XGMII, as defined in IEEE Std 802.3 Clause 46, is the main access to the 10G Ethernet physical layer. The generic nature of this interface facilitates mapping the CoaXPress signaling into the PCS/PMA Ethernet sublayers.

S2I's CoaXPress-over-Fiber Bridge IP Core is available as a device or host version. In a camera (device), it converts CoaXPress packets to XGMII packets going towards an Ethernet PCS/PMA block. In a frame grabber (host), it converts XGMII packets to CoaXPress packets.

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. CoaXPress2.0, 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.

Read more about CoaXPress-over-Fiber on our technology page.

What are the benefits of using CoaXPress-over-Fiber for my application?

- Ultra-high data/frame rates
- Many accessory and cabling options to cover any length requirement
- Low CPU overhead, low latency, low jitter image acquisition
- Highest camera count per PC performance
- Very competitive cost/performance ratio
- Wide industry acceptance due to JIIA and IEEE standardization

What is the status of the CoaXPress-over-Fiber standard?

As of October 2020

Euresys and Sensor to Image have started the development and demonstration of CoaXPress-over-Fiber in 2018. Since early 2020, Euresys and the CoaXPress Workgroup, which includes most major vision manufacturers, are working within the JIIA on the review of the specification as an add-on to the CoaXPress standard.

The publication of the final specification is expected in the coming months.

Meanwhile, an "Optical Interface Guideline for CoaXPress" which details fiber optics connector options for CoaXPress has been published by the JIIA in January 2020.

Specifications

Ordering Information

Product code - Description	• 7025 - CoaXPress-over-Fiber Bridge IP Core

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