BitFlow™
IMAGING SUPPORT

Claxon-Fiber

The CoaXPress standard now supports fiber optic connections between the camera and the frame grabber. This opens the door to applications that require long distances between the PC and the camera.

Introducing The Claxon-Fiber

BitFlow has been shipping CoaXPress frame grabbers since 2012. The standard has not stood still and BitFlow has continued to advance its products. The committee has recently announced support for fiber optic connections between the camera and the frame grabber. This addition adds all of the advantages of fiber on top of all the existing reliability and flexibility of CoaXPress.

All currently CoaXPress data rates are supported, up to 12 Gb/S. And the future looks bright, 25 Gb/S over fiber is coming soon.

CoaXPress

CoaXPress (CXP) is an established Machine Vision designed camera to frame grabber interconnect standard. CXP supports a high speed downlink for video data, a low speed uplink for camera control, and power, all over standard coaxial cables. Multiple CXP connections can be aggregated to even higher speed cameras. All this holds true for CXP over Fiber except, of course, it does not provide power to the camera.

Fiber Advantages

Fiber has a number of advantages over copper. Primarily fiber cables support transmission over very long distances. Different fiber types are used for different distances. Off the shelf cables of 100 meters are reliable and readily available from a number of vendors. Distances well beyond a kilometer are supported with standard cables and no need for repeaters.

Further, fiber optic cables are completely immune to electrical noise, and offer full electrical isolation between the camera and the frame grabber.

Surprisingly Affordable

Traditionally fiber has had the reputation of being an expensive option. However, the telecoms industry adopted high speed fiber for both backbone and data center applications, causing the price to plummet and availability to sky-rocket. For short distances, copper can be cheaper, but as soon as you get to multiple links or distances over about 20 meters, fiber is the lower cost solution. Fiber is also much smaller in diameter than coax, and for multi-link cables, fiber has a huge size advantage.
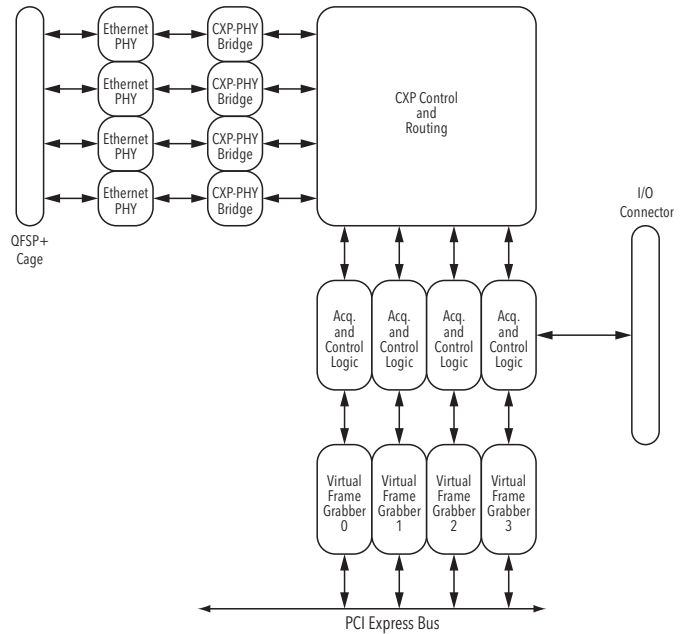
Surprisingly Available

Again, because of the mass adoptions of the telecoms industry, QFSP+ compatible fiber assemblies with 1, 2 or 4 fibers (in each direction) are available off-the-shelf from a wide range of vendors at very competitive prices.

Frame Grabbers

Machine Vision Software Support

Application Development Software

Claxon CXP-Fiber Features

- Half size x8 PCI Express Gen 3.0 frame grabber
- CoaXPress 1.1/2.0 compliant
- Supports one quad link camera, two dual link cameras and four single link cameras
- Supports CXP speeds from 1.25 to 12.50 Gb/S
- Fiber connection always runs at 10 Gb/S (which supports 12.5 Gb/S CXP)
- No firmware change needed to go from multi-link cameras to multiple cameras
- Supports all QFSP+ compatible cable assemblies
- Supports cables lengths well over a kilometer
- Cameras are Plug and Play with automatic link speed and camera parameter detection
- Cameras can be accurately synchronized, or can be completely independent
- Compatible with all PCIe x8/x16 slots Gen 1.0/2.0/3.0
- Separate I/O for each camera
- Highly deterministic, low latency uplink camera trigger
- Windows "sees" a separate virtual frame grabber for each camera
- StreamSync technology maximizes data through-put while minimizing image latency
- Acquire variable length frames from line scan cameras
- Triggers and encoders for external control of acquisition
- Drivers, utilities and examples for Windows and Linux
- Supported on both 32-bit and 64-bit platforms
- Drivers for most 3rd party processing environments (e.g. HALCON, LabView, VisionPro, MATLAB, etc.)
- Full GenICam support for camera control and capture
- Programmable signal generator for camera control (independent for each camera)
- Quadrature encoder support including sophisticated triggering schemes
- Encoder divider/multiplier
- Supports BitFlow BitBox
- RoHS compliant
- REACH compliant

Claxon CXP-Fiber Block diagram

This cable carries the equivalent of four 12 Gb/S coax cables and four up-links for camera control

---

All specifications are subject to change without notice. All trademarks or registered trademarks are the property of their respective owners.