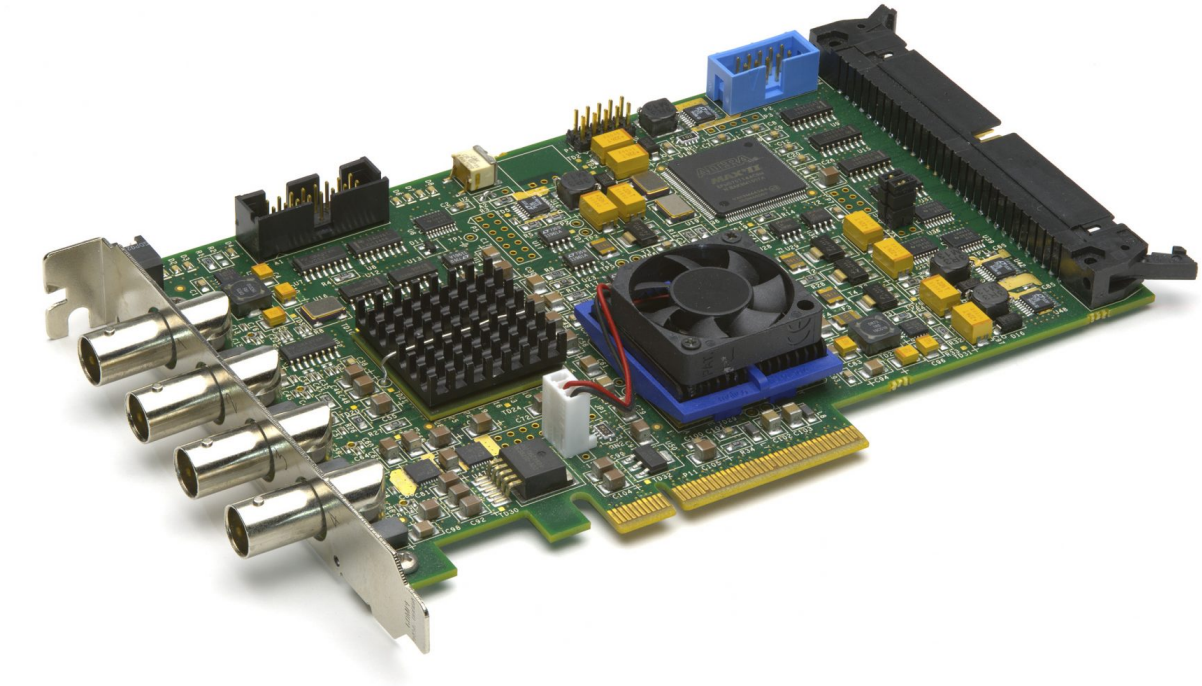
ADVANTECH BitFlow

Frame grabbers for machine vision



KARBON CXP4

Introducing CoaXPress

CoaXPress (CXP) is a simple yet powerful standard for moving high speed serial data from a camera to a frame grabber. Video is captured at speeds of up to 6.25 Gigabits/Second (Gb/S). Control commands and triggers can be sent simultaneously to the camera at rates up to 20 Mb/S (with a trigger accuracy of +/- 2 nanoseconds). Up to 13 W of

power can also supplied to the camera. All of this happens over a single piece of industry standard 75 Ohm coaxial cable.

Multiple CXP links can be aggregated to support higher data rates (e.g. four links provide 25 Gb/S of data).

The CXP standard opens the door to applications where cable cost, routing requirements, and long distances have prevented the move to high resolution, high speed digital cameras. In many cases, existing coaxial infrastructure can be repurposed for CXP with very low installation costs.

The Karbon Platform

The Karbon platform has been shipped with a Camera Link front-end for many years. The acquisition and DMA engines have been tested under harsh industrial conditions, running 24/7, and has proven to be robust and reliable.

The Karbon CXP4 supports four CXP cameras or two two-link CXP cameras running up to 3.125 Gb/S or slower.

Specifications

- Half-Size x8 PCI Express Board
- CoaXPress 1.0 compliant
- Supports one to four CXP cameras
- Supports multi-link CXP cameras (up to four CXP links)

- Supports CXP speeds from 1.250 to 6.250 Gb/S
- Provides power for all cameras (up to 13 Watts per camera)
- Provides Safe Power, full protection from all power line faults
- Cameras are Plug and Play with automatic link speed detection
- Cable lengths of up to 135 meters are supported
- Cameras can be accurately synchronized, or can be completely unsynchronized
- PCI Express x8 interface (also works in x16 slots)
- Separate I/O for each camera
- Highly deterministic, low latency frame grabber to camera trigger
- Supports simultaneous serial communications to all cameras
- Windows “sees” a separate frame grabber for each camera
- FlowThru technology means no on-board memory is needed
- Acquire variable length frames from line scan cameras
- Acquire image sequences well beyond the 4GB barrier
- No frame rate limit
- Triggers and encoders for external control of acquisition
- Programmable signal generator for camera control (independent for each camera)
- Quadrature encoder support including sophisticated triggering schemes
- Encoder divider/multiplier
- Drivers, utilities, and examples for Windows XP/Vista/Windows 7
- Supports 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 control and capture
- All models are “half size” PCIe cards
- RoHS compliant