CoaXPress™ Camera Simulator

Overview

The CoaXPress_CS is the industry's first Camera Simulator supporting CoaXPress standard. The CoaXPress_CS is capable of generating video streams and test patterns of up to 4 CoaXPress links in single, dual and quad modes. Each link supports standard CoaXPress bitrates up to 6.25 Gbps. This Camera Simulator is ideally suited for development of industrial, defense and aerospace Machine Vision Systems and applications. The CoaXPress_CS can easily transmit generic test patterns, customer's specific pre-processed data or custom video streams on the CoaXPress links. The CoaXPress_CS also provides GPIO for machine control signals, such as triggers, shaft encoders, exposure control and general I/O, which can be simulated together with the video streams. The simulator enables transmitting the video streams from onboard memory as well as run time uploading the streams from computer memory.

The CoaXPress_CS uses standard BNC connectors as an interface to the Frame Grabber board and standard headers for general purpose I/O. The simulator utilizes USB3 for communication with host PC for video uploading and configuration.

Applications

- ✓ Vision system testing
- ✓ Vision systems development
- ✓ Vision algorithm development
- ✓ Vision systems integration
- ✓ Reliability system testing

About CoaXPress

CoaXPress is a new digital transmission standard that allows high speed data from a device, such as a camera, to be transferred to a host, such as a frame grabber. Each CoaXPress link supports up to 6.25 Gbps data rates, along with device power up to 13W and device control at 20 Mbps – all on a single coax cable. For very fast devices, the links can be aggregated to provide multiples of the single coax bandwidth. Long cable lengths are supported – up to 40 meters at 6.25 Gbps and over 100 meters at 3.125 Gbps.
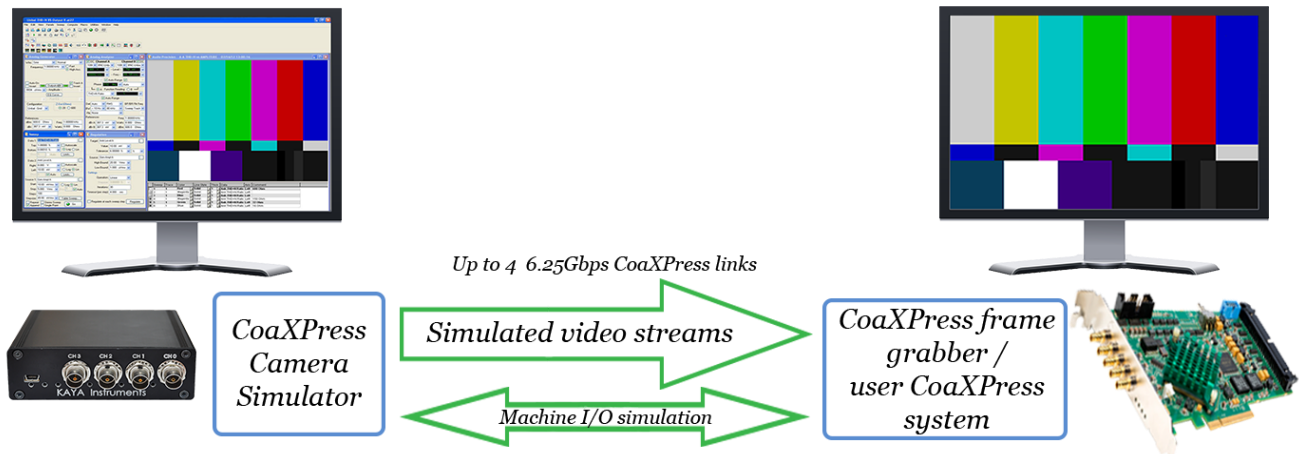
Features

- Video output modes:
  - Static and dynamic test patterns
  - BMP/RAW/JPEG image files
  - AVI/MPEG/RAW video files
  - Multiple pre-recorded video in sequential or loop modes
  - Fully programmable image timing
  - Fully programmable configuration parameters
  - 1, 2 and 4 links support
  - Multi-stream support
  - Emulation of Camera controls and triggers
  - Up to 4 CoaXPress device links
  - Frame and line scan formats support
- Flexible machine I/O
  - 12 TTL configurable I/Os
  - 4 LVDS inputs
  - 8 LVDS outputs
  - 8 opto-isolated outputs
  - 4 quadrature rotary encoder simulators

- CoaXPress compliant
- Up to 4 simulated cameras
- GUI interface
- Supporting Windows and Linux OS
- API for developing custom applications
- USB3 for communication with host PC
- Plug-ins modules for Matlab and LabVIEW
- Gen<i>Cam compliant
- Up to 8GB image buffer
- 4 BNC connectors for CoaXPress links
- data rates up to 6.25Gpbs per link
- 0°C to 55°C operating environment temperature

Deliverables

- CoaXPress Camera Simulator
- USB3 cable
- Hardware user manual
- Software installation CD
- Coax cables (optional)
- Power supply (optional)

System Block Diagram

Up to 4 6.25Gbps CoaXPress links

CoaXPress Camera Simulator → Simulated video streams → CoaXPress frame grabber / user CoaXPress system

Machine I/O simulation

* CoaXPress frame grabber image courtesy of BitFlow, www.bitflow.com.