

CoaXPress Multi-Link Multi-Stream Device IP

Xilinx & Intel FPGA Core IP

CoaXPress Device IP from EASii-IC enables the transmission of video streams from multiple cameras on single or multiple coaxial cables over 40 meters at a maximum transfer rate of 50 Gbps or 200 meters at a maximum transfer rate of 10 Gbps. Each coaxial cable provides a high-speed downlink connection video transfer rate from 1.25 Gbps to 6.25 Gbps and a low-speed uplink connection at 20.83 Mbps for communication and control.

ABOUT COAXPRESS

CoaxPress standard defines a cost effective and easy interfacing between video devices and acquisition hardware over RG59 and RG6 coaxial cables. It enables hot-plug of devices and 24V power-over-cable with up to 13 Watts per cable.

A device can support multiple cameras of many video stream formats. Video streams are sent to a host at a selectable high-speed downlink connection rate from 1.25 Gbps to 6.25 Gbps per cable, with up to 8 cables per device to increase the total bandwidth to 50 Gbps.

Device and cameras can be controlled from a host through the uplink connection at 20.83 Mbps. The standard also provides a low latency, accurate trigger interface between device and host.

CoaXPress supports GenICam international standard, providing a generic programming interface for all kinds of cameras regardless of the interface technology.

APPLICATIONS AND DOMAINS

Vision systems requiring

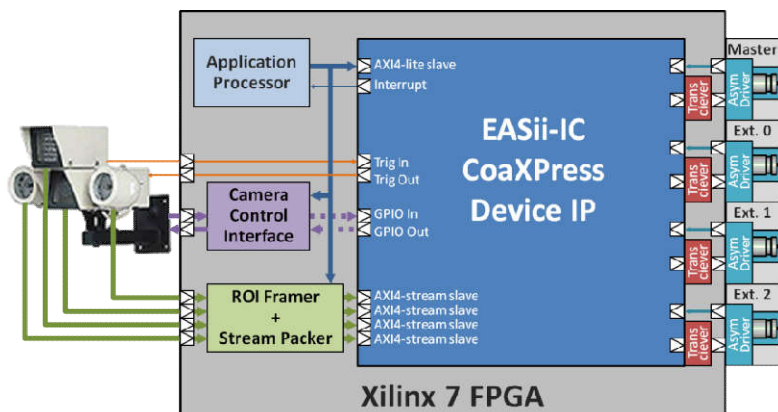
- High-resolution and high-speed digital cameras
- Real-time image acquisition
- Pixels on target
- Long distance cables with excellent EMI/EMC performance

Domains

- Machine vision
- Military and aerospace
- Aerial mapping and traffic management
- Security

TYPICAL USE CASE

EASii-IC Device Core IP can be embedded in a Xilinx 7 FPGA with its application processor, camera control interface and pixel stream packer.



EASII IC CXP DEVICE CORE IP FEATURES

- **JIAA CXP-001-2013 CoaXPress 1.1** compliant
- **Selectable downlink connection rates**, from 1.25 Gbps to 6.25 Gbps, up to 8 coaxial connections per Device IP
- **Supports multiple video-streams**, up to 256 independent stream IDs
- **Supports all GenICam compliant image formats**: rectangular and arbitrary shaped, area and line scan, single and multi tap, multiple regions of interest, all standard pixel formats
- **Trigger in/out** interface with uplink latency of 3.4µs
- **Optional 8in/8out GPIO** interface compliant with JIAA NIF-001-2010 CoaXPress 1.0 standard
- **AXI4-lite slave processor interface** for application specific control between host and cameras (optional)
- **Up to 4 AXI4-stream slave interfaces** for video streams
- **Xilinx 7-Series/UltraScale compatible, Intel 10-Series compatible, IP-XACT support**

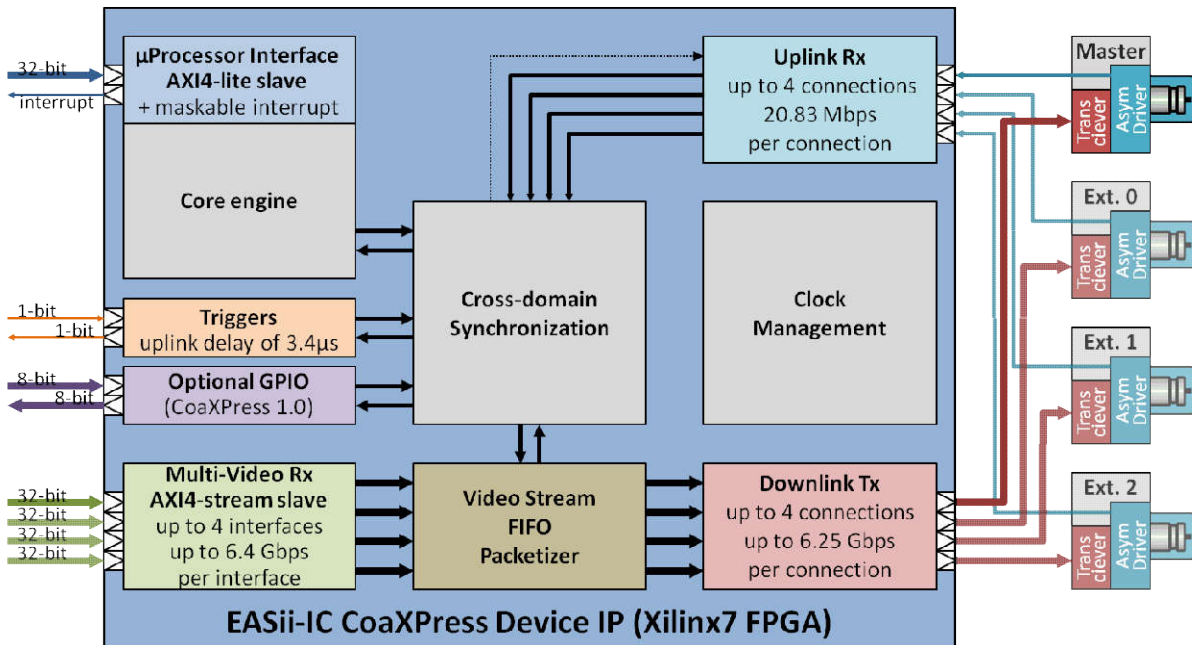
PRODUCT DETAILS

- Master connection with up to 7 extension connections
- Embedded connection management: sync, init, soft-reset
- Dynamic reconfiguration: bit-rate, number of connections
- Embedded CRC management and error correction
- Video-stream data packet size up to 4096 bytes
- Up to 4 video-stream interfaces AXI-stream slave 256-bit, running at up to 200 MHz (independent from system-clock)
- Embedded management of triggers and optional GPIOs
- Embedded bootstrap registers
- µProcessor interface AXI4-lite slave 32-bit

DELIVERABLES

- Single or multi-use license
- Encrypted source code: VHDL RTL with synthesis scripts for Xilinx Vivado or Intel Quartus
- Comprehensive documentation package: specification, integration, IP-XACT component, etc.
- Integration test-suite

CORE IP ARCHITECTURE



CORE IP RESOURCES

Core IP Resources on Xilinx 7-series				
Number of CoaXPress links	1	1	4	4
Number of AXI4-stream interfaces (32-bit wide)	1	4	1	4
Flip-Flops	7057	10481	11284	15812
LUT	7383	13440	13298	21299
BRAM 36Kb	10	13	16	28
DSP48	1	1	1	1

CONTACT US

For more information on EASii-IC CoaXPress products, technical support or ordering:

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