FIREBIRD COAXPRESS
Single CXP-12 Frame Grabber

- CoaXPress 2.1 Low-Profile Frame Grabber
- Supports CoaXPress speeds up to CXP-12
- RISC based ActiveDMA engine technology
- PCI Express 3.0 (Gen3) 4-lane interface

CoaXPress®

FEATURES

- CoaXPress gives high speed data, power, and camera control all over a single cable.

- High performance CXP 2.1 with up to 12.5 Gigabits per second input rate.

- Fast PCI Express 3.0 4-lane interface.

- ActiveDMA engine – acquisition with zero CPU usage.

- Comprehensive I/O including end bracket I/O.

- Supports PoCXP (Power over CoaXPress).

- HD-BNC (also known as Micro-BNC) connector.

- Half-length low-profile PCI form-factor.

- Fanless design, with heatsink.

- Full GenICam support (including GenTL Producer).

- Supported by the proven ActiveSDK.

OVERVIEW

The **FireBird Single CXP-12** low profile frame grabber is the latest member of Active Silicon's state-of-the-art FireBird frame grabber family.

FireBird is designed for ultimate performance using Active Silicon's proprietary DMA Engine technology, "ActiveDMA". This technical innovation applies RISC based processor techniques and guarantees high speed and low latency image data transfers and zero CPU intervention.

CoaXPress is a leading transmission standard for high-speed imaging in professional and industrial applications, now including the faster CXP-10 and CXP-12 speeds. The CoaXPress connection supports up to 12.5 Gbps data rates, along with device power up to 13W and device control at up to 42 Mbps – all on a single coax cable. Very long cable lengths are supported – up to 35m at 12.5 Gbps and 100m at 3.125 Gbps using Belden 1694A cable – or even longer lengths using thicker cables. Active Silicon was one of the primary authors of the international CoaXPress standard, which is hosted by the JIIA (Japan Industrial Imaging Association).

FireBird is supported by Active Silicon's software development kit, ActiveSDK. This is available as a separate item and allows rapid system development and integration. It provides comprehensive example applications and optimized libraries and supports a variety of operating systems via a common API, including Windows, Linux (64-bit environments) and QNX. Drivers for third party applications are also available such as Cognex VisionPro, HALCON, Common Vision Blox, StreamPix, LabVIEW etc.

Full GenICam support is provided with the drivers and this includes a GenTL Producer for data streaming as well as register accesses. Additional to functions that control the hardware, the libraries include general purpose functions for the manipulation and display of images. A separate datasheet describes ActiveSDK in detail.

The **FireBird Single CXP-12** low profile frame grabber can be purchased with either a full height PC card bracket for use in regular PCs or with a low-profile PC card bracket to fit into small embedded PC enclosures and 2U rack mount cases.

SPECIFICATION SUMMARY

CoaXPress Interface:	One 75 Ohm HD-BNC connector (also known as Micro-BNC) operating at all CXP speeds up to 12.5 Gbps. To power a camera, up to 17W is available via the HD-BNC connector using Power over CoaXPress (PoCXP), with 13W available at the camera according to the CoaXPress specification. **FireBird Single CXP-12** supports one CXP-12 camera. An LED on the end bracket shows the link status according to the CoaXPress specification.
Buffer Memory:	Up to 2GBytes of DDR4 memory is fitted for buffering between the CoaXPress interface and the PCI Express bus.
PCI Express:	Four-lane PCIe 3.0 (Gen3) interface to support up to 3.4 Gbytes/sec transfer from **FireBird** to the PC.
I/O:	The following I/O lines are available for triggers, optical shaft encoders, exposure control and general I/O: • 4 opto-isolated inputs. • 4 opto-isolated outputs. • 4 TTL inputs, 5V tolerant. • 4 TTL I/O, 5V logic. • 4 RS-422 inputs. • 4 RS-422 outputs. All these I/O signals are provided on a 50-way header on the **FireBird** board. A 15-way D-Type connector is located on the end bracket and allows access to a subset of the above I/O: • 2 opto-isolated inputs. • 3 TTL I/O, 5V logic. • 2 RS-422 inputs. • 1 RS-422 output.

CONFORMANCE

PCI Express Interface:	PCI Express 3.0 (Gen3) four-lane interface to Specification Revision 3.1, with a max payload size of 512 bytes.
	FireBird Single CXP-12 supports both Short (32-bit) and Long (64-bit) Address packets. It also generates Posted Writes for image data, thus achieving transfer rates up to 3.4 Gbytes/sec, subject to host performance.
CoaXPress:	**FireBird Single CXP-12** conforms to v2.1 of the CoaXPress specification.
Approvals:	EU C€ mark for compliance with EMC EN 55022:2010 (class A) and EN 55024:2010 in accordance with EU directive 2014/30/EU. RoHS compliance to RoHS3 directive 2015/863/EU. USA EMC FCC Class A. The printed circuit board is manufactured by UL recognised manufacturers and has a flammability rating of 94V-0.

PHYSICAL AND ENVIRONMENTAL DETAILS

Dimensions:	PCB: 168mm by 69mm. Overall: 181mm by 69mm.	
Approximate weight:	TBA g.	
Power consumption (typical):	+3.3 V	+12 V
	TBA mA	Up to 25W with PoCXP
Storage Temperature:	-15°C to +85°C.	
Operating Temperature:	0°C to +60°C (ambient environment).	
Relative Humidity:	10% to 90% non-condensing (operating and storage).	

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
AS-FBD-1XCXP12-3PE4L-L	**FireBird Single CXP-12** low profile frame grabber with four-lane PCIe 3.0 interface and low profile PC card bracket.
AS-FBD-1XCXP12-3PE4L-F	**FireBird Single CXP-12** low profile frame grabber as above, but with full height PC card bracket.
AS-ACTIVESDK-xxx	Software Development Kit for *xxx* operating system. For a full list of all supported operating systems please refer to the ActiveSDK datasheet or contact your distributor.
AS-CBL-1MM-0010-xM	HD-BNC (Micro-BNC) to HD-BNC cable *x* metres in length for use with CoaXPress video sources. Made from Belden 4855R cable rated to CXP-12. The standard stock length is 3m. High-flex rating and much longer length cables also available – contact your distributor for details.
AS-CBL-1BM-0010-xM	As above, but HD-BNC to BNC.
AS-CBL-1DM-0001-xM	As above, but HD-BNC to DIN1.0/2.3 and made from Belden 1855A cable rated to CXP-6 (DIN connectors are only supported in CXP up to CXP-6 speeds).

THE FIREBIRD RANGE

The following products are also available in the range:

- High performance CoaXPress CXP-12 and CXP-6 frame grabbers in single, dual and quad configurations.
- Camera Link frame grabbers in Base, Medium, Full and 80-bit (Deca) configurations.

CONTACT DETAILS

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9-Aug-2024

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