FIREBIRD COAXPRESS
Dual CXP-12 Frame Grabber

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

FEATURES

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

- High performance CXP 2.1 with up to 25 Gigabits/s input rate.

- Fast PCI Express 3.0 (Gen3) 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 (Micro-BNC) connectors.

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

- Full GenICam support (including GenTL Producer).

- Supported by the proven ActiveSDK.

OVERVIEW

The **FireBird Dual 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. Each 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. For faster devices, the connections can be concatenated to provide multiples of the single coax bandwidth. 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 frame grabber 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 Dual CXP-12** low profile frame grabber can be purchased with either a full height PC card bracket (see main image) 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:	Two 75 Ohm HD-BNC connectors (also known as Micro-BNC), each operates at all CXP speeds up to 12.5 Gbps. To power cameras, up to 17W is available on each HD-BNC via Power over CoaXPress (PoCXP), with 13W available at the camera according to the CoaXPress specification. **FireBird Dual CXP-12** supports one camera using both connections, or two cameras each using each using one connection. LEDs on the end bracket show 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:	PCIe 3.0 (Gen3) 4-lane 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.
Power Input:	A 6-way PCI Express Graphics (PEG) connector is provided to connect to a 6-way PEG connector from the PC power supply. This is only needed for PoCXP.

CONFORMANCE

PCI Express Interface:	PCI Express Bus 3.0 (Gen3) 4-lane interface to Specification Revision 3.1, with a max payload size of 512 bytes.
	FireBird Dual 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 Dual CXP-12** conforms to v2.1 of the CoaXPress specification.
Approvals:	EU CE 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:	158g.		
Power consumption (typical):	+3.3 V	+12 V	+12V PEG Connector
(measured while acquiring from both CXP-12 connections)	TBA mA	TBA mA	Up to 17W for 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-2XCXP12-3PE4L-L	**FireBird Dual CXP-12** low profile frame grabber with four-lane Gen3 interface and low profile PC card bracket, supporting: • One dual-connection camera up to CXP-12 • Two single-connection cameras up to CXP-12
AS-FBD-2XCXP12-3PE4L-F	**FireBird Dual 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 (xxx standing for WIN, LIN or QNX).
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, 5m and 10m. 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 (Micro-BNC) to BNC. Standard stock length: 3m,10m.
AS-CBL-1DM-0001-xM	As above, but HD-BNC (Micro-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). Standard stock length: 3m,10m.

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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