FIREBIRD COAXPRESS
Dual CXP-6 Frame Grabber

- **CoaXPress Frame Grabber**
- **Two CoaXPress links, each at 6.25 Gbps**
- **RISC based ActiveDMA engine technology**
- **8-lane Gen2 PCI Express interface**

FEATURES

- CoaXPress gives high speed data, power, and camera control all over a single cable.
- High performance with 12.5 Gigabits per second input rate.
- Fast PCI Express 8-lane Gen2 interface.
- Active DMA engine guaranties zero CPU acquisition.
- Comprehensive I/O.
- Supports PoCXP (Power over CoaXPress).
- Standard half-length PCI form factor.
- Full GenICam support (including GenTL Producer).
- Supported by the proven ActiveSDK.

OVERVIEW

FireBird Dual CXP-6 is a 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 guaranties zero CPU intervention, high speed and low latency image data transfers.

CoaXPress is a leading transmission standard for high-speed imaging in professional and industrial applications. 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 faster devices, the links can be concatenated to provide multiples of the single coax bandwidth. Very long cable lengths are supported – up to 40m at 6.25 Gbps and over 100m at 3.125 Gbps. Active Silicon was one of the primary authors of the CoaXPress international standard, which is hosted by the JIIA (Japan Industrial Imaging Association). All our CoaXPress products are certified compliant to the specification through the JIIA CoaXPress Product Certification Program.

FireBird is supported by Active Silicon's software development kit, ActiveSDK, which allows easy migration for customers using Phoenix frame grabbers. ActiveSDK is available as a separate item, and allows rapid system development and integration. It provides comprehensive example applications and optimized libraries, and is available for a variety of operating systems via a common API, including Windows and Linux (32-bit and 64-bit environments) as well as QNX. Drivers for third party applications are also available such as Cognex VisionPro, HALCON, Common Vision Blox, StreamPix, LabVIEW etc. Full GenICam support is included in the drivers and this includes a GenTL Producer for data streaming as well as register accesses. As well as 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.

SPECIFICATION SUMMARY

CoaXPress Interface:	2 BNC connectors provide two links each operating up to 6.25 Gbps, and each providing up to 13W of power via Power over CoaXPress (PoCXP). These can support two individual cameras, or one camera requiring two links. LEDs built into each BNC show the link status according to the CoaXPress specification.
Buffer Memory:	512 MBytes of DDR3 memory is fitted for buffering between the CoaXPress interface and the PCI Express bus.
PCI Express:	8-lane Gen2 interface to support up to 40 Gbps transfer from **FireBird** to the PC.
I/O:	The following I/O lines are provided for triggers, shaft encoders, exposure control and general I/O: • 4 opto-isolated inputs. • 4 opto-isolated outputs. • 4 TTL inputs, 5V tolerant. • 4 TTL outputs, 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.
Power Input:	An 8 way PCI Express Graphics (PEG) connector is provided to connect to a 6 or 8 way PEG connector from the PC power supply. This is only needed for PoCXP.
Fan Controller:	The fan speed is linked to the temperature of the FPGA die for optimum cooling and noise level.

CONFORMANCE

PCI Express Interface:	PCI Express Bus eight lane Gen2 interface to Specification Revision 2.0, with a max payload size of 512 bytes. **FireBird Dual CXP-6** supports both Short (32-bit) and Long (64-bit) Address packets. It also generates Posted Writes for image data, thus achieving transfer rates in excess of 3.4 GBytes/sec, subject to host performance. The board requires 16 MBytes of address space.
CoaXPress:	**FireBird Dual CXP-6** conforms to v1.11 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 2004/108/EC. RoHS compliance to RoHS2 directive 2011/65/EU. USA EMC FCC Class A. The printed circuit board is manufactured by UL recognised manufacturers and has a flammability rating of 94-V0.

PHYSICAL AND ENVIRONMENTAL DETAILS

Dimensions:	PCB: 168mm by 111mm. Overall: 187mm by 111mm.		
Approximate weight:	162g.		
Power consumption (typical): *(Measured while acquiring from 2 CXP-6 links)*	+3.3 V 400mA	+12 V 900mA	+12V PEG Connector Up to 34W for PoCXP
Storage Temperature:	-15°C to +70°C.		
Operating Temperature:	0 °C to +70°C (ambient environment).		
Relative Humidity:	10% to 90% non-condensing (operating and storage).		

ORDERING INFORMATION

PART NUMBER	***DESCRIPTION***
AS-FBD-2XCXP6-2PE8	**FireBird Dual CXP-6** frame grabber.
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-VDM230-xM	BNC to BNC cable *x* metres in length for use with CoaXPress video sources. Made from Gepco VDM230 cable. Standard stock lengths are 1m, 3m, 5m, 10m and 20m. High-flex rating and longer length cables also available – contact your distributor for details.

THE FIREBIRD RANGE

The following products are also available in the range:

- High performance CoaXPress frame grabbers in single, dual and quad configurations.
- Camera Link frame grabbers: Base, Medium, Full, 80-bit (Deca), Dual 80-bit.
- HD-SDI frame grabbers.

Some variants in the range are also available in non-PC form-factors such as PC/104-Express and CompactPCI Serial.

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