FIREBIRD COAXPRESS
Dual CXP-6 Frame Grabber

Active Silicon
COMPUTER IMAGING PRODUCTS

- **CoaXPress Frame Grabber**
- **Two CoaXPress links, each at 6.25 Gbps**
- **RISC based DMA 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.
- RISC based DMA engine gives ultimate performance.
- Comprehensive I/O.
- Supports PoCXP (Power over CoaXPress).
- Standard half-length PCI form factor.
- Full GenICam support (including GenTL producer).
- Supported by the proven Phoenix software SDK.

OVERVIEW

FireBird Dual CXP-6 is a member of Active Silicon's new state-of-the-art FireBird frame grabber family.

FireBird is designed for ultimate performance providing the very fastest image acquisition without any CPU intervention using the latest FPGA families, DDR3 memory, and a fast Gen2 PCI Express interface.

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 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 specification which is now a JIIA (Japanese Industrial Imaging Association) standard.

FireBird is supported by Active Silicon's existing Phoenix SDK, allowing easy migration for existing customers using Phoenix frame grabbers. The Phoenix SDK 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 Mac OS X, VxWorks and QNX. Drivers for third party applications are also available such as Common Vision Blox, Image-Pro Plus, 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 the SDK 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.

PHYSICAL AND ENVIRONMENTAL DETAILS

Dimensions:	PCB:	168mm by 111mm.
	Overall:	187mm by 111mm.
Approximate weight:	162g.	
Power consumption (typical):	+3.3 V	+12 V	+12V PEG Connector
(Measured while acquiring	400mA	900mA	Up to 34W for PoCXP
from 2 CXP-6 links)			
Storage Temperature:	-15°C to +70°C.	
Operating Temperature:	0 °C to +55°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-PHX-SDK-xxx	Software Development Kit for *xxx* operating system. For a full list of all supported operating systems please refer to the SDK 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. Higher flex rating and longer length cables also available − contact your distributor for details.

THE FIREBIRD RANGE

The following products will be available in the range:

- High performance CoaXPress frame grabbers.
- Low cost CoaXPress frame grabbers.
- Camera Link frame grabbers, including deca and dual-deca support.
- 3G-SDI frame grabbers.

These will be available in various form factors including standard PC, PC/104-Express and XMC.

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