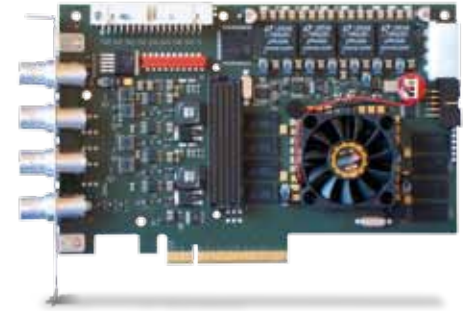**SILICONSOFTWARE**

A-Series CoaXPress

microEnable 5 AQ8-CXP6B

High-speed quad port PCIe frame grabber for CoaXPress

CoaXPress (CXP) is an asymmetric high speed point to point serial communication standard for the transmission of video and still images, scalable over single or multiple coaxial cables. It has a high speed downlink of up to 6.25Gbps per cable for video, images and data, plus a lower speed, 20Mbps uplink for communications and control. Power is also available over the cable ("Power-over-Coax") and cable lengths of greater than 100m may be achieved [www.coaxpress.com].

The new frame grabber series microEnable 5 supports the so-called next-generation interfaces. With its PCIe eight lanes interface and double frequency support (Gen 2), a bandwidth of up to 3,6 GBytes/sec is supported to transfer the image data to the host RAM.
microEnable 5 AQ8-CXP6B is an advanced frame grabber for one single high speed CoaXPress camera or up to four single channel ones. The board supports state of the art features like "Power-over-CoaXPress", Gen<i>Cam, long cable length and many more, and combines high bandwidth performance with easy-to-install system setups - over a single cable.
Combined with SIlicon Software's runtime environment (current version 5.2), CoaXPress camera and framegrabber bundles benefit from the ease of software handling, powerful acquisition and pre-processing features, and a comprehensive SDK environment.

Product Features

- Acquisition Buffer
  - ▶ 1 GB DDR3-RAM
- FPGA System Processor
- FPGA Vision Processor
- Sustainable Transfer Rate (max.)
  - ▶ 3,6 GBytes/sec.
  - ▶ DMA3600 Technology

Camera Interface

- Camera Link HS
- Power over Camera Link
- ✓ CoaXPress
- ✓ Power over CoaXPress (PoCXP)

CoaXPress Standards

- ✓ Gen<i>Cam support
- ✓ CXP-1, CXP-2, -CXP 3, CXP-5, CXP-6
- ✓ Board bandwidth of up to 25 Gbps
- ✓ Support of >100 m cable length

Camera Connector Interface

- Camera Link HS Connectors
  - CX4
  - SFP+
- ✓ CoaXPress Connectors
  - 4 BNC with PoCXP Support
  - DIN 1.0/2.3 with PoCXP Support

PC Interface

- ✓ PCI Express
  - PCIe x4 (Gen 2)
  - PCIe x8 (Gen 1)
  - ▶ PCIe x8 (Gen 2)

Connectivity Features

- ✓ Trigger/GPIO Connector
- ✓ Power Connector (PoCXP)

Acquisition Features

- ✓ CoaXPress Bandwidth Support
  - ▶ From CXP-1 up to CXP-6 (6,25 Gbps)
- ✓ CoaXPress Camera Support
  - ▶ From 1*BNC up to 4*BNC
- ✓ Area Scan Cameras
  - ▶ 16k * 64k max. image size
- ✓ Line Scan Cameras
  - ▶ 16k max. image width
- ✓ Grayscale Cameras
  - ▶ 8bit resolution
  - ▶ 16bit resolution
- ✓ Color Cameras
  - ▶ 24bit resolution (RGB)
  - ▶ 48bit resolution (RGB)
  - ▶ 24bit resolution (Bayer CFA)
  - ▶ 36bit resolution (Bayer CFA)
- ✓ Mixed Mode (requires VisualApplets)
  - ▶ Area Scan + Line Scan Cameras
  - ▶ Grayscale + Color Cameras
  - ▶ Arbitrary Combinations

AddOn Products

- ✓ Trigger/GPIO Boards
- ✓ Trigger/GPIO Boards, opto-isolated

Physical Board Properties

- ▶ 168 mm length x 111 mm height
- ▶ Operating temperature 0°C - 50°C

DS/mn201305

CoaXPress Interface Features

- High data rates with up to 6.25Gbps over a single coax cable and up to 25Gbps using four cables
- Long cable lengths in excess of 100m (without any hubs, repeaters etc.)
- Real time behavior through fixed, low latency with precise triggering capability
- Supports 1D and 2D shading correction with offset and gain settings, and hot pixels correction (interpolation)
- Flexible and reliable through use of standard coax, e.g. RG59 & RG6
- Ease of integration of video, communication, control and power over a single coax cable
- Hot pluggable
  ... and further ones

Additional Features

- Lookup Table
- Basic Image Enhancement & Processing
- Reads Gen<i>Cam Configuration
- Dig I/O Signals
  ... and further ones

Software Products

- Device Drivers
- Firmware Flasher
- microDisplay
- microDiagnostics
- Gen<i>Cam Explorer
- microEnable SDK

Processing Libraries (V-Series)

incl.	Acquisition Applets
	SmartApplets Base
	SmartApplets Extended
	SmartApplets 3D
	VisualApplets Base
	VisualApplets Libraries

Processing Licenses (Base version, V-Series)

- SmartApplets enabled
- VisualApplets enabled

Operation Systems

Windows 7 / 8	32bit	64bit
Linux	32bit	64bit

Scematic layout of microEnable 5 AQ8-CXP6B
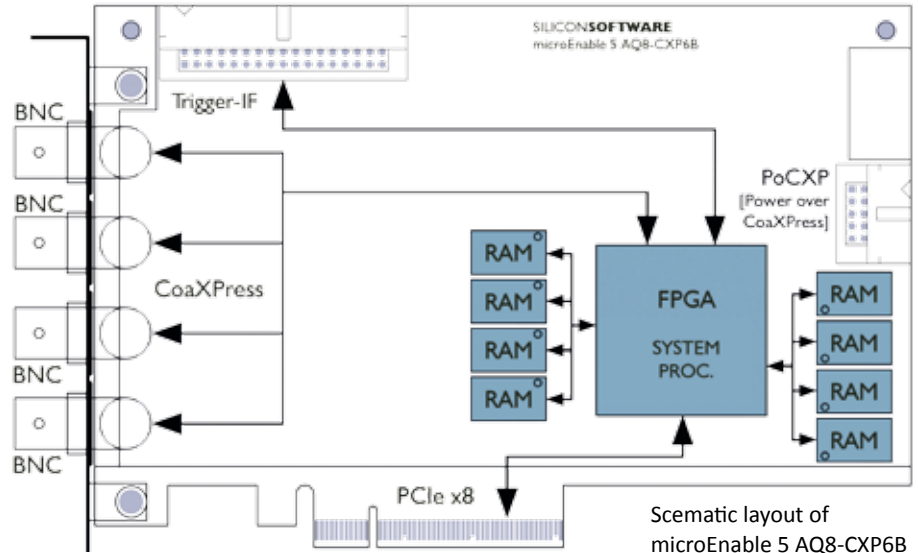
Supported Features Sorted by Acquisition Applets for microEnable 5 AQ8-CXP6B

(Planning status 05/2013)

		Quad Area Bayer 24	Quad Area Gray 16	Quad Area RGB 24	Quad Line Gray 16	Quad Line RGB 24	Dual Area Bayer 24	Dual Area Gray 16	Dual Area RGB 24	Dual Line Gray 16	Dual Line RGB 24	Single Area Bayer 24	Single Area Gray 16	Single Area RGB 24	Single Line Gray 16	Single Line RGB 24
Camera Support	CoaXPress	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Gen<i>Cam	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Multi-camera Support	1*BNC Camera (max. CXP-6)	4	1	4	4	4										
	2*BNC Camera (max. CXP-6)						2	1	2	2	2					
	4*BNC Camera (max. CXP-6)											1	1	1	1	1
Camera Type	Area Scan / Line Scan	A	A	A	L	L	A	A	A	L	L	A	A	A	L	L
	GrayScale / RGB / Bayer	BAY	G	RGB	G	RGB	BAY	G	RGB	G	RGB	BAY	G	RGB	G	RGB
Color Processing	White Balancing	■					■					■				
	High Quality Bayer Algorithm						■					■				
Image Pre-processing	Knee-LUT Table	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Image Enhancements	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Image Correction	Hot Pixel Correction	■	■	■			■	■	■			■	■	■		
	Area Shading Correction	■	■	■			■	■	■			■	■	■		
	Line Shading Correction				■	■				■	■				■	■
Singal Processing	Software trigger	■	■				■	■				■	■			
	Line Trigger				■	■				■	■				■	■
	Area Trigger	■	■	■			■	■	■			■	■	■		
	I/O Boards Opto/TTL available	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Performance	Max. width [in k pixels]	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Max. height [in k lines]	64	64	64	∞	∞	64	64	64	∞	∞	64	64	64	∞	∞
Image Formats	Gray8 (8bit output)		■		■			■		■			■		■	
	Gray16 (16bit output)		■		■			■		■			■		■	
	RGB 24 (3x8bit output)	■		■		■	■		■		■	■		■		■

DS/mn201305