PHOENIX

HIGH-SPEED DIGITAL FRAME GRABBER BOARDS

Featuring:

- **Speed – burst rate of 533Mbytes/s**
- **High bit depth – up to 36-bit LVDS capture for PHX-DIG36 variants and 48-bit Camera Link for PHX-DIG48 variants**
- **Versatility – supporting Linescan, Areascan and Datastream modes**
- **Adaptability – variable image size capture**
- **Ease of implementation – OEM software libraries**
- **Platform support – multiple OS and form factor support**

Active Silicon
COMPUTER IMAGING PRODUCTS

www.activesilicon.co.uk

Phoenix. The fast new frame grabber board from Active Silicon

Quality component

Whether a vision system is used for an industrial, medical or forensic application, it will only be as good as the images it acquires. It is essential to have an image-capture board that can cope. That's where Active Silicon's new Phoenix frame grabber comes into its own. OEMs and integrators need high-speed, high-quality image-acquisition boards to handle the increased image format and data output rates available from today's high-performance digital cameras and to work with a wide range of computers and software.

Designed to shorten development times, reduce production costs and enhance operating speeds in a broad array of applications, Phoenix rises above the crowd on every count.

Demanding specification

The Phoenix Series combines high-performance functionality with exceptional versatility and adaptability – giving OEMs and integrators the ultimate in flexibility and control. Available in PMC and PCI form factors with either LVDS or Camera Link options.

Functionality

Phoenix has impressive speed – processing up to 533Mbytes/s without host intervention.

The high-performance DMA engine is both scalable – supporting 32-bit/33MHz, 64-bit/33MHz and 64-bit/66MHz PCI – and has features designed specifically for customers' applications.

Phoenix can acquire asynchronously from 2 digital Areascan or Linescan cameras, halving the number of boards needed in some multi-camera machine-vision systems to reduce costs.

Versatility

Phoenix gives OEMs the ultimate in flexibility and control. Acquisition control, counter/timers, region-of-interest generators, DMA Scatter/Gather engine and PCI interface are all integrated into a single FPGA device.

Phoenix supports a wide range of Linescan, Areascan and Datastream cameras. Configured at run-time rather than with a fixed hardware design, it allows new hardware features to be provided through a simple software upgrade.

Specialised camera features, such as multiple tap, asynchronous reset, shutter & exposure control and serial communications are all easily handled through configuration files or library calls.

Triggers to start/stop or gate acquisition, generate strobes and control illumination can be set by the built-in Opto-isolated IO – or controlled directly by the application through the general TTL IO.
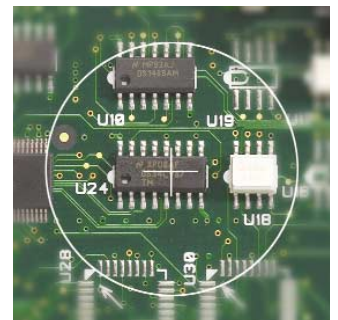
Phoenix DIG36 Block Diagram
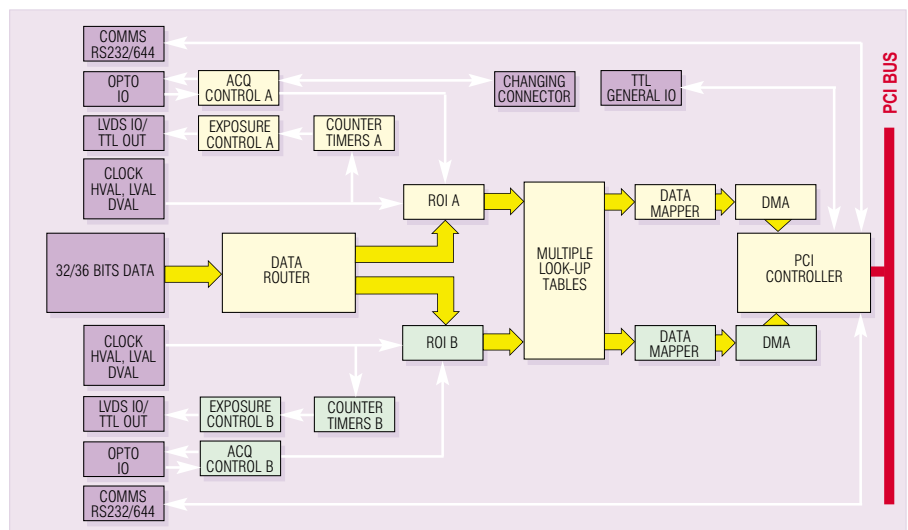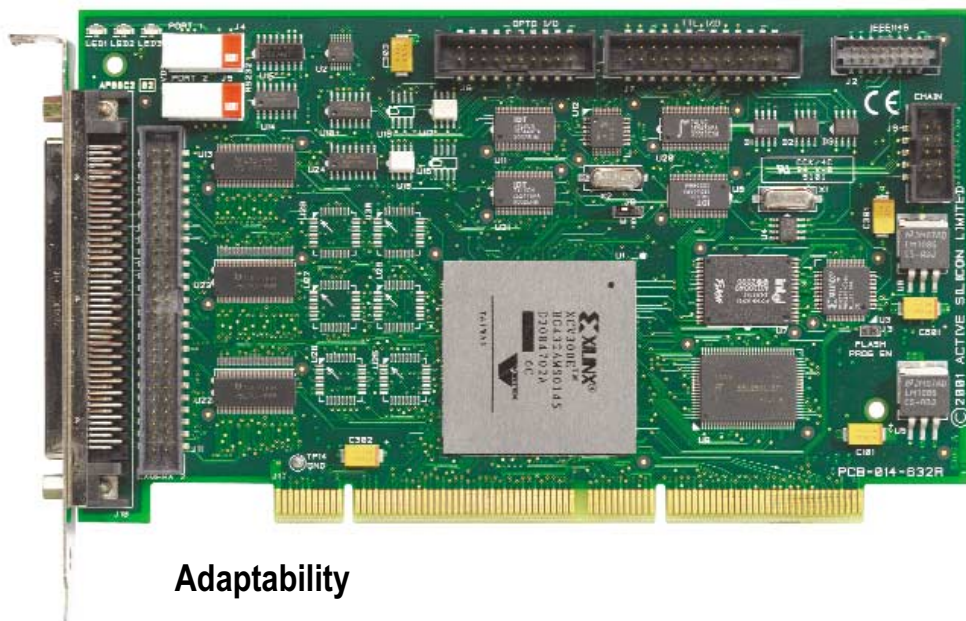
Adaptability

The Phoenix Series' many features include variable image size capture (useful for document inspection), real-time LUT selection (for enhancing images under variable lighting) and trigger delays.

Fast implementation

The Phoenix Series boards are designed to be quick and easy to integrate.

Software Development Kit

Designed to shorten development times and make future developments transparent, the libraries make writing imaging applications easy – and fast. A powerful suite of image-capture functions and camera-configuration files is accessed through an easy-to-use interface.

Just one or two function calls are all it takes to set up such features as Sequence capture, Capture to a rolling set of image buffers, DMA to other devices, exposure control and synchronisation with external devices.

Multiple OS support is available including Win98/NT/2000/XP, Mac Os X, Linux, VxWorks, Solaris. Built-in third-party image-analysis software drivers – including Image-Pro Plus, Twain, WinVFG, WiT and Halcon – facilitate even shorter development times.

APPLICATIONS

Industrial
Wafer inspection
Wire bonding
Pick and place
Print inspection

Medical
Ultrasound
CT and MRI
Ophthalmology
Genetics

Security
X-ray scanners
Fingerprint acquisition
Military

Scientific
PIV

Feature List

	D32-PCI32	D36-PCI32	D36-PCI64U	D36-PCI64	D24CL-PCI32-L	D48CL-PCI64U	D48CL-PCI64
PCI (32-bit/33MHz)	✓	✓	-	-	✓	-	-
PCI (64-bit/33MHz)	-	-	✓	-	-	✓	-
PCI (64-bit/66MHz)	-	-	✓	✓	-	✓	✓
LVDS Input	32-bit	36-bit	36-bit	36-bit	-	-	-
Camera Link Base	-	-	-	-	1	2	2
Camera Link Medium	-	-	-	-	-	1	1
Max Pixel Clock	40MHz	40MHz	60MHz	60MHz	40MHz	60MHz	60MHz
LVDS IO	2	4	4	4	2	4	4
Camera Link Controls	-	-	-	-	4	8	8
24V Opto-isolated IO	-	4	4	4	-	4	4
TTL IO	-	16	16	16	-	16	16
Serial Ports	1	2	2	2	1	2	2
Stereo Cameras	-	✓	✓	✓	-	✓	✓
Max Num Taps	2	4	4	4	2	6	6
DMA to Host or Display	✓	✓	✓	✓	✓	✓	✓
DMA to Host and Display	-	✓	✓	✓	✓	✓	✓
Max DMA Speed (Burst)	132Mb/s	132Mb/s	264Mb/s*	533Mb/s	132Mb/s	264Mb/s*	533Mb/s

Implementation

Full technical support is available from Active Silicon's highly skilled and widely experienced staff.

Phoenix Specification

- Single, reconfigurable FPGA device
- 36-bit LVDS Digital or dual Base/single Medium Camera Link input from a wide range of cameras
- Fast, futureproof 64-bit 66MHz PCI bus
- Up to 533Mbytes/s DMA image transfer
- Linescan, Areascan and Datastream modes
- Support for multiple-tap cameras and multiple boards
- Sequence capture or Continuous capture to multiple image buffers
- Asynchronous acquisition from 2 separate digital cameras – or one stereo camera**
- Built-in third-party image analysis drivers such as Image-Pro Plus
- Cross-platform support – Win98/NT/2000/XP, Mac OS X, Linux, VxWorks, Solaris.

For the latest list of supported cameras please visit our website.

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*At the intended 64-bit/33MHz bus speed

**Dependant upon camera specification