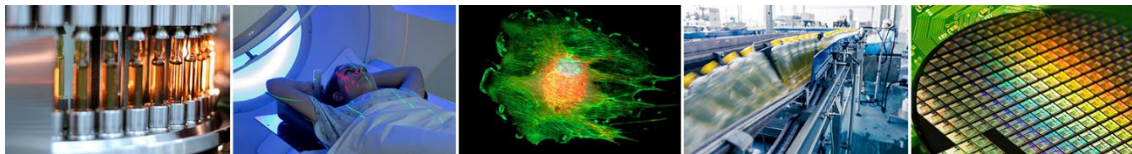**September 2023** - TECHNOLOGY FOCUS

Do you need to accelerate your vision system?

Industries and businesses are constantly seeking ways to optimize their processes and gain a competitive edge. In the realm of computer vision and machine vision systems, speed and accuracy are paramount. To boost the performance of your vision system, consider incorporating **CoaXPress** or **Camera Link** technology including a **frame grabber**.

Understanding the basics: What is a frame grabber?

A **frame grabber** is a critical component in a vision system that interfaces with cameras to capture and transmit images or video streams. It acts as an intermediary between the camera and the host computer, facilitating the transfer of data while also providing additional features for triggering, image preprocessing and control. It also frees up space on the CPU, allowing the computer to carry out multiple processing tasks with no additional latency.

GPU acceleration with NVIDIA and AMD

GPUs (Graphics Processing Units) are well-known for their parallel processing capabilities. By pairing a frame grabber with a GPU, you can offload the image processing tasks from the CPU to the GPU, dramatically accelerating the overall system performance.

All **Active Silicon frame grabbers** can be used in combination with GPUs. The two major GPU manufacturers, **NVIDIA** and **AMD**, provide specific APIs to aid integration with our FireBird acquisition cards.

GPUs are particularly adept at handling complex image processing tasks such as deep learning, object detection, and image recognition.

This allows for real-time analysis of images and video streams, enabling your vision system to make quick, accurate decisions.

GenICam support

GEN<i>CAM

GenICam is a global standard which provides a universal software interface for vision-related hardware. Interoperability is one of the key benefits with using the GenICam standard. All **FireBird frame grabbers**, including CoaXPress and Camera Link, are all fully GenICam compliant. For example, our Camera Link frame grabbers seamlessly support any CLProtocol and GenCP camera to provide immediate compatibility with GenICam-compliant software packages.

Read more about accelerating processing using a GPU

Benefits of CoaXPress frame grabbers

High Data Transfer Rates: CXP frame grabbers offer data transfer rates of up to 12.5 Gbps over a single coaxial cable.

Scalability: CXP supports multi-connection configurations, allowing for the use of multiple cameras with a single frame grabber.

Long Cable Lengths: CXP cables can extend up to around 35m at 12.5 Gbps without signal degradation.

Future-Proofing: Ensures your vision system can keep up with future demands for higher resolutions and frame rates.

FireBird Quad CXP-12 3PE8

Benefits of Camera Link frame grabbers

Compatibility: Camera Link is compatible with a wide range of cameras, making it suitable for various vision system setups.

High Frame Rates: It supports high frame rates, making it ideal for applications where rapid image capture is essential.

Proven Reliability: Camera Link is a well-established standard known for its reliability in industrial environments.

Versatility: Camera Link offers different image resolutions as well as frame and pixel rates.

FireBird Camera Link 80-bit (Deca)

View our full range of frame grabbers

Accelerating imaging with FireBird

Integrating a FireBird frame grabber into your vision system can result in improved efficiency and more accurate decision-making, bringing a competitive edge to your processes.

Our portfolio includes low profile cards for embedded and rackmount PCs. FireBird CXP-12 frame grabbers support the latest version of CoaXPress, and we're constantly working on developing new models to lead the way in high-speed image processing.

These technologies are the driving force behind some of the most advanced vision systems in the world, and they might just be the solution your business needs to stay ahead of the competition.

Contact us for more details, or view our full **product portfolio**.

Active Silicon is a leading manufacturer of imaging products, embedded systems and custom solutions. If you would like to stay informed of upcoming events, products and news in general, then please follow us on one of our social media channels below.

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