BitFlow™
IMAGING SUPPORT

Axion-CL

The Axion-CL is BitFlow's 6th generation Camera Link frame grabber. We have used years of experience to engineer the best CL frame grabber in existence.

Introducing The Axion

BitFlow has been making Camera Link frame grabbers since the specification was first released in 1999. At the time nobody was sure that the CL specification was going to succeed. In the many years since then, Camera Link has proved itself to be low cost, high speed, robust and adaptable. For true machine vision applications, it has become the market leading interconnect standard. BitFlow has continued to refine and improve its products, and is proud to introduce its 6th generation Camera Link frame grabber. Everything we have learned over the past years, including many refinements from the world of CoaXPress, has been rolled into the Axion.

Borrowing from the Cyton

The Cyton is BitFlow's latest line of CXP 1.1 frame grabbers, and this family was designed from scratch for the Machine Vision industry. Many of the new features introduced on the Cyton have been ported to the Axion. This includes a highly optimized DMA engine. The StreamSync acquisition engine and buffer manager have also been ported. The Timing Sequencer, I/O capabilities and Frame Sequencer have been moved over. This is an amazing amount of power at your finger tips, ready to solve your real world Machine Vision problems.

Camera Compatibility

The Axion-CL has been designed to work with all of the popular high speed Camera Link cameras. It's been design to handle all of the 80-bit cameras currently on the market. **In fact it can acquire from two 80-bit/85 MHz cameras simultaneously.** Of course, all base/medium/full Camera Link cameras are supported.

Application Support

Adding the Axion-CL to your application is simple with our SDK, which supports both 32-bit and 64-bit operating systems. Applications can be developed using C/C++/.NET and our sophisticated buffer management APIs. In addition, free drivers can be downloaded from our web site for most 3rd party machine vision packages. The Axion-CL is software compatible with all the other current BitFlow frame grabbers. This makes migrating applications to/from Camera Link, Analog, and CoaXPress simple and quick.

And of course...

Of course, the Axion-CL has all the encoders, triggers and generic I/O that you have come to expect from BitFlow. No Machine Vision challenge is too complicated for the Axion-CL.

Frame Grabbers

Machine Vision Software Support

Application Development Software
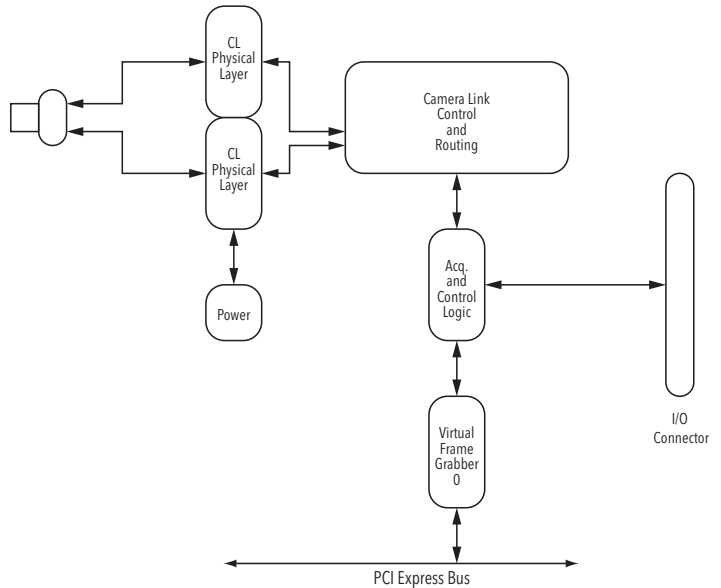
Axion-CL

Axion-CL Features

- Half-Size x4 PCI Express Gen 2.0 Board
- Camera Link 2.0 compliant
- Supports one or two CL cameras
- Supports base/medium/full/80-bit CL cameras
- Supports CL speeds up to 85 MHz
- Supports simultaneous capture from two 80-bit/85 MHz cameras
- Uses SDR Camera Link connectors
- Supports PoCL and non-PoCL cameras
- Supports medium/full PoCL cameras
- Provides Safe Power, full protection from all power line faults
- Each camera has its own separate communication channel which can be simultaneously with other channels
- Cameras can be accurately synchronized, or can be completely independent
- Compatible with all PCIe x4/x8/x16 slots Gen 2.0/3.0
- Separate I/O for each camera
- Highly deterministic, low latency frame grabber to camera trigger
- Supports simultaneous command and control to all cameras
- StreamSync technology maximizes data throughput while minimizing image latency
- Acquire variable length frames from line scan cameras
- riggers and encoders for external control of acquisition
- Drivers, utilities and examples for Windows and Linux
- Windows "sees" a separate virtual frame grabber for each camera
- Supported on both 32-bit and 64-bit platforms
- Drivers for most 3rd party processing environments (e.g. HALCON, LabView, VisionPro, MATLAB, etc.)
- Programmable signal generator for camera control (independent for each camera)
- Quadrature encoder support including sophisticated triggering schemes
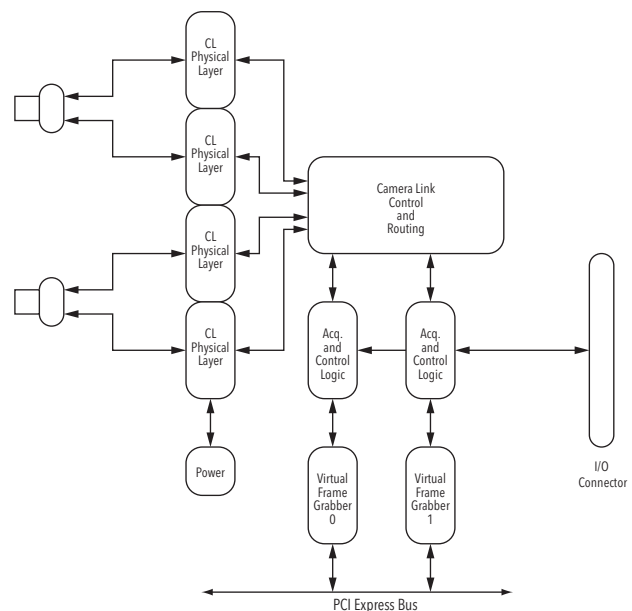- Encoder divider/multiplier
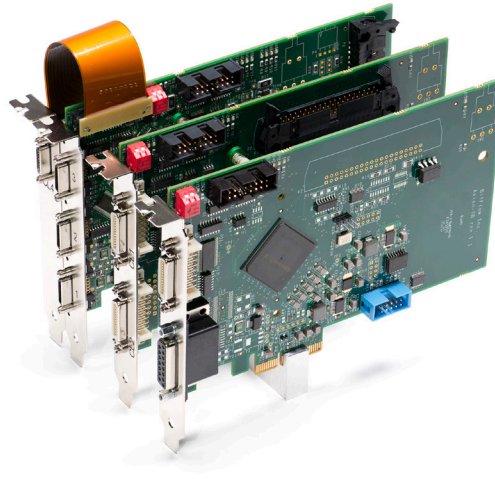- RoHS compliant

The Axion-CL Models

Model	Camera Type	Max Cameras
AXN-PC2-CL-1xE	CL 80-bit	1
AXN-PC2-CL-2xE	CL 80-bit	2

Axion 1xE Block diagram

Axion 2xE Block diagram

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The Axion xB Family

The Axion-CL is the most powerful Camera Link frame grabber BitFlow has ever manufactured. A natural addition to this family was obvious... A CL base version.

Introducing The Axion xB Family

BitFlow has been shipping Camera Link frame grabbers since the specification was first released in 1999. At the time nobody was sure that the CL specification was going to succeed. In the many years since then, Camera Link has proved itself to be low cost, high speed, robust and adaptable. For true machine vision applications, it has become the market leading interconnect standard. The Axion-CL is the most powerful Camera Link frame grabber BitFlow has ever manufactured. A natural addition to this family was obvious.. A CL Base version. The Axion xB series will be replacing the Neon series of CL frame grabbers.

Borrowing from the Cyton

The Axion xB also benefits from other products in BitFlow's line up. The Axion xB uses the Cyton-CXP's backend: The StreamSync DMA engine and buffer manager. A brand new PCIe Gen 2 interface, with DMA optimized for modern (fully loaded, fully busy) computers.

Moving from Neon to xB Family

Moving from the Neon family to the Axion family is simple. No need to make changes to your code, just recompile with the latest SDK. If you are using a 3rd party application, such as Cognex VisionPro or LabVIEW just download the latest driver and your program will already be supported. The same application can support both Axion and Neon families (as well as our CXP family line of frame grabbers).

Camera Compatibility

The Axion-CL has been designed to work with all of the popular high speed Camera Link cameras. The Axion xB series is compatible with all Base CL cameras.
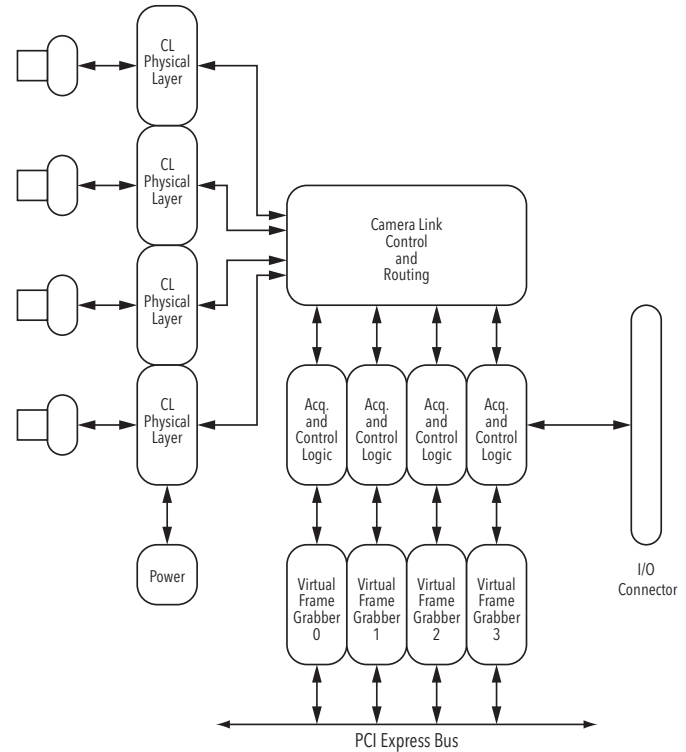
Application Support

Adding the Axion xB to your application is simple with our SDK, which supports both 32-bit and 64-bit operating systems. Applications can be developed using C/C++/.NET and our sophisticated buffer management APIs. In addition, free drivers can be downloaded from our web site for most 3rd party machine vision packages. The Axion xB is software compatible with all the other current BitFlow frame grabbers. This makes migrating applications to/from Camera Link, Analog, and CoaXPress simple and quick.

Frame Grabbers

Machine Vision Software Support

Application Development Software

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The Axion xB Family

The Axion xB Features

- Base Camera Link interface
- All Camera Link tap formats are supported
- Supports 1 to 4 Base CL cameras
- Supports both PoCL and non-PoCL cameras
- Provides Safe Power - full protection from all CL power line faults
- Fully backwards compatible with non-PoCL cameras and cables
- Half-Size x4 Gen 2 PCI Express board
- Acquire up to 24 bits at 85 MHz
- Both CL and I/O connector on one bracket (only one slot needed on the 1xB)
- MDR Camera Link connectors on Axion 1xB and 2xB
- SDR Camera Link connectors on Axion 3xB and 4xB
- StreamSync technology means that no on-board memory is needed, even with the fastest cameras
- DMA at data rates up to 1.8 GB/S
- Supports images up to 32K pixels x 16M lines
- No frame rate limit (tested to over 250K FPS)
- Triggers and encoders for external control of acquisition
- Sophisticated triggering modes for complex applications
- Acquire, trigger controlled, variable length frames with line scan cameras
- Quadrature encoder support including sophisticated triggering schemes
- Encoder divider/multiplier
- Two general purpose, on-board timing generators (exposure control, strobe, solenoids, etc.)
- Drivers, utilities, examples for Windows and Linux
- Supported on both 32-bit and 64-bit platforms
- Camera Link Specification compliant serial port support
- GenTL producer supplied for working the GenICam based applications
- GenICam based camera control application, Ximilon, available for free
- Acquire images sequences well beyond the 4GB barrier
- Drivers for most 3rd party processing environments (e.g. HALCON, LabVIEW, VisionPro, MATLAB, etc.)
- RoHS3 compliant
- REACH compliant

The Axion 4xB Block diagram

The Axion xB Family

Model	Camera Type	Max Cameras
AXN-PC2-CL-1XB	CL Base	1
AXN-PC2-CL-2XB	CL Base	2
AXN-PC2-CL-3XB	CL Base	3
AXN-PC2-CL-4XB	CL Base	4