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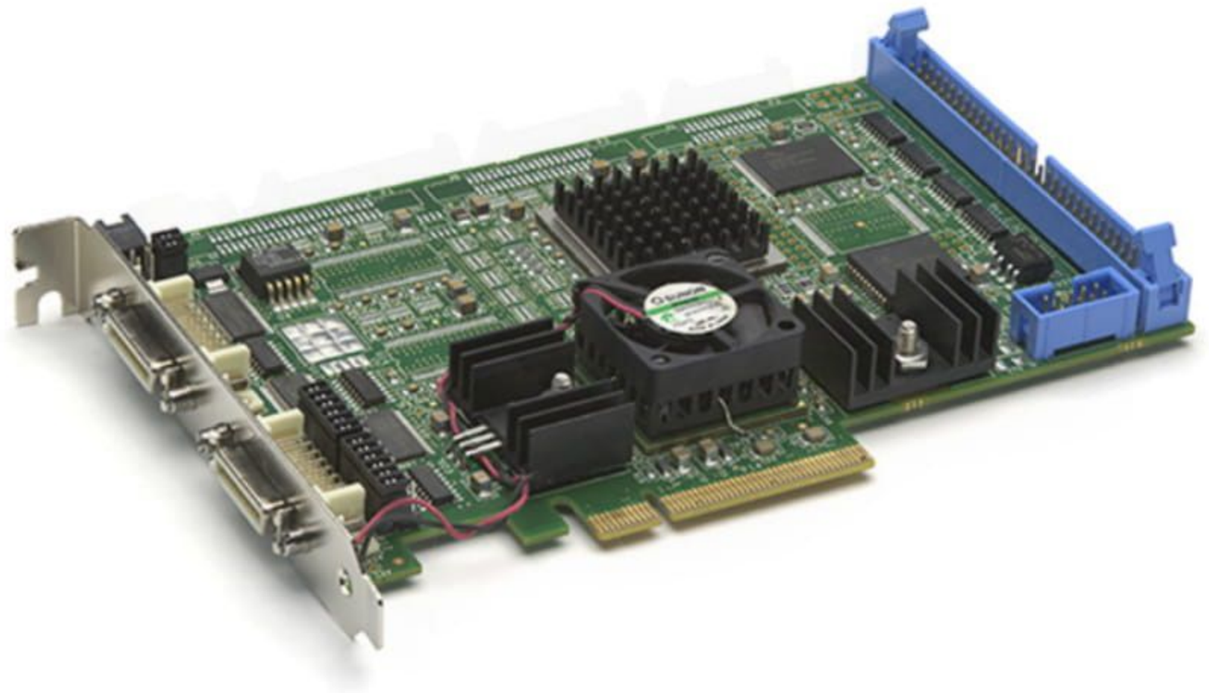
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Find the *BitFlow KBN-CL4* at our website: ***Click HERE***

BitFlow™



Karbon-CL is the world's first four-camera PCI Express frame grabber. It can simultaneously acquire from up to four Base CL cameras or two Full CL cameras. It is built on top of BitFlow's FlowThru technology which provides zero latency access to data, super low CPU usage, and unlimited DMA destination size. The Karbon-CL is the first member of BitFlow's Karbon family, a platform that will host a wide variety of virtual frame grabbers. These virtual frame grabbers can be customized to meet your specific needs.

The Karbon-CL has been designed with two main applications in mind. First, in situations where more than one camera is needed, the Karbon-CL can reduce both the system cost and the hardware footprint by its

ability to acquire from up to four cameras. Second, in situations where extremely high data rates and/or frame rates are required, the Karbon-CL has been designed to acquire up to 128 bits at 85 MHz pixel clock rate and DMA at data rates up to 2.0 GB/S.

Features

Virtual Frame Grabber

One of the exciting new features of the Karbon-CL is the support for virtual frame grabbers. A virtual frame grabber, from the software and interface point of view, is identical to a normal frame grabber. The difference is that the Karbon architecture can support a wide variety of different virtual frame grabbers with no change in the hardware. This design can also support different numbers of frame grabbers on the same platform. For example, the Karbon-CL can be configured as two full Camera Link frame grabbers or as four base Camera Link frame grabbers. The software will see two or four (respectively) completely independent frame grabbers. The Karbon-CL could even look like one "double full" frame grabber (up to 160 bits) if and when the camera manufacturers come up with one. The board is also incredibly flexible and can be configured to interface with any completely non-standard device that you might be designing in your lab. Switching between the different virtual grabbers only requires a press of a button in our configuration tool. As the Karbon family expands, you'll see more new and exciting uses of this virtual frame grabber architecture.

FlowThru Architecture

For more than a decade, BitFlow's camera interface products have been built around our revolutionary FlowThru architecture. Comprised of a user-programmable Video Pipeline, a flexible Camera Control Unit, efficient high-speed video FIFOs, and a highly-optimized scatter/gather DMA engine, the FlowThru architecture allows the Karbon-CL to control, acquire, reformat, and transfer video data directly into the user's application at camera speeds with zero latency or CPU usage. Our FlowThru architecture has been continuously optimized and enhanced to support a wide variety of imaging applications such as document/package processing, semiconductor, continuous web inspection, sequence capture, and motion analysis. It can easily be adapted to the specific needs of your application.

PCI Express Interface

The Karbon-CL uses a x8 PCI Express bus interface. The PCI Express bus offers huge increases in DMA performance over the PCI bus. However, what is less well known is that the PCI Express bus is always peer to peer, which means that the Karbon-CL does not share the bus with any other devices. In most motherboard architectures, it will talk directly to the PCI chipset that is on the memory bus. This direct connection equates to higher sustained DMA bandwidths regardless of system load. Most motherboards also support concurrent full DMA speed on all of their PCI Express slots. The board will work in any slot that it fits in. This means not only x16 and x8 slots, but also, as is becoming the trend, x4 and x1 slots that use x16 connectors. Performance will be degraded in x1 and x4 slots, but the board will work fine in applications that don't require maximum data rate.

Camera Control and I/O

Supported by a GUI camera file editing utility (CamEd), the Karbon can acquire fixed or variable size images and features a programmable ROI (Region Of Interest) sub-windowing capability. The board provides a full set of camera control signals (CC1, CC2, CC3, CC4) and sync inputs (LVAL, FVAL, PCLK, trigger and encoder) for each camera connected to the board (up to four cameras can be connected). These signals are completely independent, although there are provisions for driving all cameras from a signal set up encoder/trigger signals. There is also a large number of programmable general purpose outputs and inputs that are not tied to the camera's timing. The Karbon-CL board, as with our past interface products, supports not only simple triggering modes, but also complicated, application-specific triggering and control interactions with your hardware environment.

Specifications

- Half-Size x8 PCI Express Board
- Up to 128 bits input at 85 MHz
- Acquire from four independent Base CL cameras
- Acquire from two independent Medium/Full CL cameras
- Acquire from two 10-tap CL cameras
- FlowThru technology eliminates the need for on-board frame buffers, even with the fastest cameras
- Hardware Bayer matrix decoding (optional)
- Multi-tap cameras rasterized on the fly
- Highly configurable acquisition engine
- DMA at burst rates up to 2.0 GB/S
- Supports images up to 256K x 128K
- No frame rate limit
- Quadrature encoder support including sophisticated triggering schemes
- Encoder divider/multiplier
- On board timing generator supports high-resolution exposure control
- Independent trigger and encoder inputs for each camera
- Independent CCs outputs for each camera
- General purpose I/O
- MDR Camera Link connectors
- Appears to software as four independently programmable frame grabbers
- Supported by the BitFlow SDK on 32 and 64-bit Windows
- Acquire image sequences well beyond the 4 GB barrier
- Drivers, utilities and examples for Windows XP/2003/Vista/Windows 7
- RoHS Complaint

Models

KBN-PCE-CL2-D

- One or two independent base CL cameras

KBN-PCE-CL2-F

- One base, medium or full CL camera

KBN-PCE-CL4-D

- Up to four independent base CL cameras

KBN-PCE-CL4-F

- Up to two independent base, medium or full CL cameras

KBN-PCE-CL4-SP

- One 80-bit 85 MHz camera

SDK 5.00 or later required

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