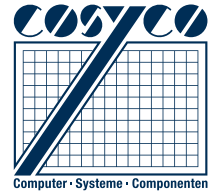


Neon-CLQ

4 Camera Link Cameras with PoCL



The Neon family has grown again. It started with the Neon-CLB, the world's first PoCL frame grabber that provided Base Camera Link acquisition on an OEM priced platform. Next came the Neon-CLD which supports two cameras on the same low cost x4 PCIe platform.

The newest member, the **Neon-CLQ**, supports capture from four cameras simultaneously. All cameras can be run **independently** with different resolutions, frame rates, triggering modes, etc.

Or all cameras can be perfectly **synchronized**. The Neon-CLQ is incredibly flexible and powerful, yet it can

substantially lower your system cost. The Neon-CLQ on requires a single PCIe slot, you provides interfaces for **four camera plus I/O**. This means the the Neon-CLQ provides the highest density of cameras per slot of any frame grabber on the market, while bringing the cost per camera down to unprecedented lows.



At low price per per camera, the Neon-CLQ can compete with main stream network cameras, while still providing all the robust industrial features expected when using a frame grabber.

Adding the Neon-CLQ to your application is simple with our SDK, which supports both 32-bit and 64-bit operating systems. Develop your application using our sophisticated buffer management APIs, or download our free drivers, available for most 3rd party machine vision packages. The Neon-CLQ is software compatible with the single camera Neon-CLB, thus making the number of cameras in a system a manufacturing time decision.

Features

- Supports four Base CL cameras
- Provides Power over Camera Link (PoCL) for all cameras
- Support both PoCL and non-PoCL cameras
- Provides Safe Power - full protection from all CL power line faults
- All cameras can be independently synchronized
- Separate I/O for each camera
- Support simultaneous serial communications to all four camera
- The Neon-CLQ appears to Windows as four separate frame grabbers
- Fully backwards compatible with non-PoCL cameras and cables
- Half-Size x4 PCI Express Board
- Acquire up to 24 bits at 85 MHz
- FlowThru technology means that no on-board memory is needed
- Supports images up to 256K x 128K
- No frame rate limit
- Triggers and encoders for external control of acquisition
- Programmable signal generator for camera control (independent for each camera)
- Quadrature encoder support including sophisticated triggering schemes
- Encoder divider/multiplier
- Drivers, utilities and examples for Windows XP/2003/Vista/Windows 7
- Supported on both 32-bit and 64-bit platforms
- Drivers for most 3rd party processing environments
- Acquire variable length frames with line scan cameras
- Acquire image sequences well beyond the 4GB barrier
- RoHS compliant
- Power over Camera Link

Power over Camera Link (PoCL) is an extension of the Camera Link specification that allows for frame grabbers to provide power to small cameras over the Camera Link cable. PoCL provides many advantages to the OEM. First, the cabling is vastly simplified as only a single cable is required for data, power and control to the camera. This provides all the convenience of Firewire or USB cables schemes with the addition of industrial cabling and much higher data rates. Another advantage is that, because only a single cable is required, the camera footprint can be greatly reduced. For the first time, the so called "dice camera" format factor is supported by an industrial, digital interconnect.

PoCL Safe Power

The baseline PoCL specification only outlines the basic requirement of the frame grabber providing power to the camera. However, without some protection, there are many situations that can occur where the frame grabber can be damaged and/or the PC the board is installed in. To overcome these problems, an ancillary provision was added to the PoCL standard called "Safe Power". The Safe Power specification takes into account every possible situation that might occur on the CL power lines, and protects the frame grabber and the PC. Safe Power also provides a path for backwards compatibility for non-PoCL cameras and non-PoCL cables. Because the risks are so great, it doesn't even make sense to buy a PoCL frame grabber unless it supports Safe Power

FlowThru Architecture

Since 1996 years, 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 Neon-CLQ 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 and can easily be adapted to the specific needs of your application.

Software Support

The Neon-CLQ is supported by the BitFlow Software Development Kit (SDK), which is available for both 32-bit and 64-bit Windows platforms. The SDK is board family generic, and will work with all of BitFlow's frame grabbers (making future migration to other families trivial). The kit provides drivers, DLLs and configuration utilities for people interested in using third party software. For customers interested in developing their own applications, the SDK provides header files, libraries and huge amounts of example code. The SDK provides a wide range of Application Programming Interfaces (API), from low-level direct hardware access, to high-level automatic buffer management (ring or sequence). Every line of code has been engineered for reliability under the toughest industrial conditions. At the same time, a priority has been put on ease of use and short development times. With the BitFlow SDK, you'll have the Neon-CLQ integrated with your application in no time.

PCI Express Interface

The Neon-CLQ uses a x4 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. This means the 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. Also, most motherboards 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, x8 and x4 slots, but also, as is becoming the trend, x1 slots that use x4 (or larger) connectors. Performance will be degraded in an x1 slot, 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 Neon 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 total camera and acquisition control. These signals are completely independent, although there are provision 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 Neon-CLQ 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.