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Xcelera-HS PX8

PCI Express x8 Frame Grabbers for HS-Link Interface



Xcelera-HS PX8

Key Features

- HS-Link Interface - Next generation image acquisition interface
- Image acquisition at rates up to 1.5GByte/s
- Ultra compact, field proven CX4 cable and connector
- Dedicated communication channel supports data rates up to 300MByte/s (600MByte/s total)
- Built-in support for data forwarding for distributed processing
- Supports Windows® 32/64-bit , Windows 7®, Windows XP®, and Windows Vista®
- ROHS compliant

TRIGGER-TO-IMAGE RELIABILITY

Advanced PCIe x8 image acquisition

Building on the field proven technology and performance of Teledyne DALSA's Xcelera-CL frame grabbers, the Xcelera-HS Series leverages the PCI Express (PCIe) platform to bring traditional image acquisition and processing technology to new levels of performance and flexibility.

The PCIe host interface is a point-to-point host interface allowing simultaneous image acquisition and transfer involving little intervention from the host CPU. Designed with the requirements of the machine vision OEMs in mind, the Xcelera-HS PX8 combines HS-Link interface with onboard preprocessing functions such as shading correction, Bayer decoding etc.

Addressing the emerging needs of bandwidth-hungry machine vision applications, Teledyne DALSA's Xcelera HS Series is defining next generation frame grabber capabilities to deliver image acquisition bandwidth of 1.8GByte/sec and host transfer bandwidth of 2GByte/s over multiple-lane PCI Express implementations with room to grow.

The Xcelera-HS PX8 has been built within Teledyne DALSA's Trigger-to-Image Reliability technology framework. Trigger-to-Image Reliability leverages Teledyne DALSA's hardware and software innovations to control, monitor and correct the image acquisition process from the time that an external trigger event occurs to the moment the data is sent to the host, providing traceability when errors do occur and permitting recovery from those errors.

Software Support

All of the frame grabbers in the Xcelera series are supported by Teledyne DALSA's Sapera Essential software package. Sapera Essential, is a cost-effective machine vision software toolkit that bundles board level acquisition and control with advanced image processing capability, featuring a value added, all new geometric search tool.

Sapera Essential is designed to deliver the critical functionality needed to design, develop and deploy high-performance machine vision applications while at the same time significantly lowering deployment costs.

The HSLink[1] interface is a new machine vision connectivity interface pioneered by Teledyne DALSA. HSLink is designed specifically to meet the needs of all machine vision applications and therefore carries image data, configuration data and low jitter, real time triggering signals over a simple network topology supporting cameras, intermediate devices and frame grabbers. The interface has taken the key strengths of Camera Link, and added new features and functions. HSLink delivers scalable bandwidth of 300 to 6000 Mbytes/s, 1x to 20x configurations while using globally available, off-the-shelf components.

[1] For more details specifications download HSLink whitepaper at **www.teledynedalsa.com/hslink**

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Xcelera-HS PX8

PCI Express x8 Frame Grabbers for HS-Link Interface

Specifications

Function	Description
Card	Half-length PCIe card, compliant with PCIe Rev. 1.1
Acquisition	1 x camera based on CX4 cable technology Area scan and line scan Data rate up to 1.5 GB/sec
Resolution	Horizontal size: 8 bytes to 256 Kbytes Vertical size: 1 line to infinite for line scan, 1 line to 16 million lines in area scan Support variable frame length (up to 16 million lines)
On-Board Memory	256MB
Scanning	Progressive
Max Data Rate	Front End BW: 1.5 GB/sec Back End BW: 1.5 GB/sec
Pixel Format	Support for 8-bit. Future options: 10, 12, 14 and 16-bit mono, 24-bit RGB and Bayer
Post-processing (Future option)	1 x 8-bit in, 8-bit out; 1x 10-bit in, 10-bit out 1 x 12-bit in, 12-bit out; 3 x 8-bit in, 8-bit out for RGB cameras Flat-field/ flat-line correction Bayer decoding
Controls	Comprehensive event notification Timing control logic for EXSYNC, PRIN and strobe signals Communication Channel: Native Mode: 300MB/s uplink;300MB/s downlink Emulated serial port interface (9600 – 115200 baud) Line scan direction control (Programmable on CC1…CC4)

Function	Description
Connectors	1 x CX4 thumbscrew connector for incoming data from camera 1 x CX4 thumbscrew connector for outgoing data forwarding CMD15 for Board Trigger, Strobe and 1 General Output (main bracket) DB37 for Board Trigger, Strobe and General I/O (separate bracket)
LED	2 LEDs to report error conditions and acquisition status.
I/O (Main Bracket)	1 general opto-coupled output 1 opto-coupled dual-phase quadrature shaft encoder (TTL/RS-422) 1 opto-coupled external trigger inputs (5V/24V, switch selectable) 1 strobe output (TTL)
I/O (Auxiliary Bracket)	4 opto-coupled general inputs (5V/24V, switch selectable) 4 general opto-coupled outputs 1 opto-coupled dual-phase quadrature shaft encoder (TTL/RS-422) 2 opto-coupled external trigger inputs (5V/24V, switch selectable) 1 strobe output (TTL)
Certification	FCC Class A CE EU & China RoHS
Software	Supported by Sapera LT and Sapera++. Microsoft Windows 7, Windows XP and Windows Vista 32/64-bit
System Requirements	Intel Pentium 4 or higher class CPU, 1GB system memory, 100 MB free hard-drive space, one free PCIe x8 slot.

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