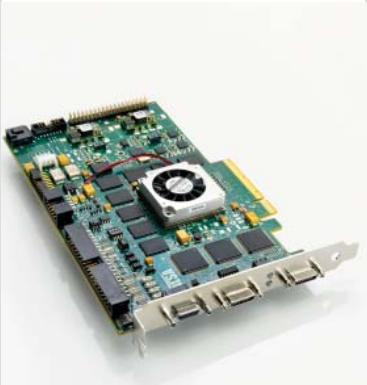
Xcelera-CL+ PX8 Full (Preliminary)[1]

PCI Express x8 Frame Grabbers



Xcelera-CL+PX8

Key Features

- Half-length PCI Express x8 Board
- Acquires images from one Base, Medium or Full Camera Link® camera
- Rapid image acquisition and transfer rates beyond 1GB/s
- Supports Camera Link operations up to 85MHz
- Extended feature set supports non-Camera Link pixel/tap configurations
- Windows® XP, Vista and Windows 7 (32/64-bit) compatible
- ROHS compliant
- On-board FPGA based real-time Bayer decoding and shading correction
- Power Over CameraLink (PoCL) Compliant
- DALSA Platform Development Advantage – Free Run-time Licensing[2]

TRIGGER-TO-IMAGE RELIABILITY

Advanced PCIe x8 image acquisition

Building on the field proven technology and performance of DALSA's X64 frame grabbers the new X64 Xcelera 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 without loading the system bus and involving little intervention from the host CPU. Designed with the requirements of the machine vision OEMs in mind, the Xcelera Series will range from entry level frame grabbers, to high-performance image acquisition boards, to embedded vision processors.

Addressing the emerging needs of bandwidth-hungry machine vision applications, DALSA's Xcelera Series is defining next generation frame grabber capabilities with the ability to deliver bandwidth beyond 1GByte/s over multiple-lane PCI Express implementations with room to grow.

The X64 Xcelera-CL+ PX8 Full is a Camera Link frame grabber that is based on the PCI Express x8 interface. Compatible with a Base, Medium or Full Camera Link® camera, the X64 Xcelera-CL+ PX8 Full supports a wide variety of multi-tap area and line scan colour and monochrome cameras. For greater versatility, the X64 Xcelera-CL+ PX8 Full board can interface with camera pixel depths and tap configurations not covered by the Camera Link standard. For example, the Xcelera-CL+ PX8 Full can support 10-taps or higher with 8-bits per tap.

The X64 Xcelera-CL+ PX8 Full has been built within DALSA's Trigger-to-Image Reliability technology framework. Trigger-to-Image Reliability leverages 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 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.

DALSA Platform Development Advantage - Free Run-Time Licensing

The Sapera Essential standard processing tool run-time license is offered at no additional charge when combined with the DALSA frame grabbers. This software run-time license[1] includes access to over 400 image processing functions, area-based (normalized correlation based) template matching tool, blob analysis and lens correction tool.

[1] Available Q1, 2010

[2] Some conditions and limitations apply, contact DALSA sales for details.

DALSA

X64 Xcelera-CL+ PX8 Full (Preliminary)

PCI Express x8 Frame Grabbers

Specifications

Function	Description
Board	Camera Link Specifications Rev 1.10 compatible Half length PCI Express 1.1 x8 compliant ROHS Compliant
Acquisition	Supports one Base, Medium or Full Camera Link area and line scan camera Acquisition pixel clock rates from 33MHz to 85MHz
Resolution	Horizontal Size (min/max): 8 byte/256K bytes Vertical Size (min/max): 1 line/infinite lines for line-scan cameras 1 line/16million lines/frame for area-scan cameras Variable length frame size from 1 to 16 million lines for area-scan cameras 256MB onboard frame buffer memory Integrated advanced tap reversal engine allows independent tap formatting
Pixel Format and Tap configuration	Supports Camera Link tap configurations for 8, 10, or 12-bit mono, and RGB: For Base cameras in any of the following combinations: 3x8-bit/tap, 2x10-bits/tap, 2x12-bit/tap, 1x14-bit/tap, 1x16-bits/tap, & 1x24-bit/RGB For Medium camera - 4x8-bit/tap, 4x10-bits/tap, 4x12-bit/tap, 1x30-bit/RGB, & 1x36-bits/tap For Full—8x 8-bit/tap Camera Link ; 10x8-bit non-Camera Link configuration
Transfers	Real-time transfers to system memory Intelligent Data-Transfer-Engine automatically loads scatter-gather and tap description tables from the host memory without CPU intervention
On-board Processing	
Bayer Mosaic Filter	Hardware Bayer Engine supports one CameraLink Base 8, 10 or 12-bit Bayer Bayer output format supports 8 or 10-bit RGB/pixel Zero host CPU utilization for Bayer conversion
Shading Correction	On the fly Flat-line and Flat-field correction with dead-pixel replacement Supports Camera Link Base, Medium or Full cameras User programmable calibration gain/offset maps
Output Lookup Tables	
Monochrome	Each input port has one 256x8-bit, 1024x10-bit, 1024x8-bit, 4096x12-bit, 4096x10-bit or 4096x8-bit OLUTs
Colour	Each input port has one 8-bit in/out, 10-bit in 8 or 10-bit out, 12-bit in 12, 10 or 8-bit/out Lookup table

Function	Description
Controls	Comprehensive event notification includes end/start-of-field/frame/transfer Camera control signals for external event synchronization Optically isolated TTL/LVDS trigger inputs programmable as active high or low (edge or level trigger) TTL Strobes outputs PC independent serial communications ports provide support 9600 to 11500K baud Appear as system serial ports enabling seamless interface to host applications
Shaft-Encoder Input	Optically isolated quadrature (AB) shaft-encoder inputs for external web synchronization Supports up/down scaling
On-board I/Os[3]	4-optically general purpose inputs tolerate 5V and 24V DC signals 4 general purpose outputs
Power Output	PoCL Compliant (4W max) Power-on-reset fused +12V output @ 1.5A +5V DC output at 1.5A
Software	Device driver supports: Micrsoft Windows XP, Vista and Windows 7 (32/64-bit) compatible Full support of DALSA DIGITAL IMAGING's Sapera Essential, Sapera LT and Sapera Processing software libraries Application development using C++ and .Net languages(C++, C# or Visual Basic)
System Requirements	PCI Express Rev 1.1 compliant with one x8 slot system with 1024MB or higher system memory
Dimensions	6.375" (16.1cm) Length X 4.20" (10.7 cm) Height
Temperature	0°C (32° F) to 55° C (131° F) Relative Humidity: up to 95% (non-condensing)
Markings	FCC Class B—Pending CE—Pending

[3] Requires a separate slot for the bracket assembly

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