The Xcelera-CL VX4 is the next generation user programmable vision processor based on the PCI Express X4 platform. It features powerful embedded processing architecture for real-time high-performance machine vision applications. Combining high-speed image acquisition capability with user programmable FPGAs (Field Programmable Gate Array) and graphical FPGA development tools, our vision processors deliver unmatched power and flexibility in real-time image processing on the PCIe platform.

The X64 Xcelera-CL VX4 Full is a Camera Link vision processor that is based on the PCI Express x4 interface. Compatible with a Base, Medium or Full Camera Link® camera, the X64 Xcelera-CL VX4 Full supports a wide variety of multi-tap area and line scan colour and monochrome cameras. The X64 Xcelera-CL VX4 Full board can interface with advanced Camera Link cameras output formats including 10-taps of 8-bit at 85MHz pixel clock rates.

Sophisticated Embedded Processing Platform

The Xcelera-CL VX4 Full feature an FPGA hardware processing platform that combines ACU(Acquisition Control Unit), DTE (Data Transfer Engine) and IPU (Image Processing Unit) and state of the memory architecture. As a result, models such as our new Xcelera-CL VX4 are capable of handling variety of complex, real-time image processing topologies including iterative processing loops. While the FPGA technology provides ability to adapt to variety of high-speed, compute-intensive real-time processing applications, the Xcelera VX4 hardware design has been implemented using standard off-the-shelf components with long term availability.

Features

- Half-length PCI Express x4 Board
- Acquires images from one Base, Medium or Full Camera Link® camera
- Real-time FPGA based hardware processing
- User programmable FPGA tools
- Supports Camera Link operations up to 85MHz
- Extended feature set supports advanced Camera Link pixel/tap configurations
- Windows® XP and Windows 7 (32/64-bit) compatible
- Fully Supported by Sapera APF and Sapera Vision Software SDKs
- FCC, CE and ROHS compliant
## Xcelera-CL VX4 Full

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| **Board** | Camera Link Specifications Rev 1.2 compatible  
Half length PCI Express 1.1 x4 compliant  
ROHS Compliant |
| **Acquisition** | Supports one Base, Medium or Full Camera Link area and line scan camera  
Acquisition pixel clock rates from 20MHz to 85MHz |
| **Resolution** | Horizontal Size (min/max): 16 byte/64K 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  
2x512MB onboard frame buffer memory  
4x32MB image processing memory  
Integrated advanced tap reversal engine allows independent tap formatting |
| **Pixel Format and Tap configuration** | Supports Camera Link tap configurations for 8, 10, 12, 14 and 16-bit mono or 8, 10 or 12-bit 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; 10-tap/8-bit and 8-tap/10-bit configurations |

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| **Controls** | Comprehensive event notification includes start/end of frame/transfer  
Camera control signals for external event synchronization  
Optically isolated 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  
Appears as system serial ports enabling seamless interface to host applications |
| **Encoder Inputs** | Optically isolated quadrature (AB) shaft-encoder inputs for external web synchronization |
| **On-board GPI/Os** | 4-optically isolated general purpose inputs tolerate 5 and 24VDC signals 4 general purpose outputs  
Power-on-reset fused +12V output @ 1.5A |
| **Power Output** | +5V DC output at 1.5A |
| **Software** | Device driver supports:  
Microsoft Windows XP and Windows 7 (32/64-bit) compatible  
Fully supported Teledyne DALSA’s Sapera Vision Software packages  
Application development using C++ and .Net languages (C++, C# or Visual Basic) |
| **System Requirements** | PCI Express Rev 1.1 compliant with one x4 slot system with 1024MB or higher system memory |
| **Dimensions** | 6.375’ (16.1cm) Length X 4.20’ (10.7 cm)  
Height |
| **Temperature** | 10°C (50°F) to 50°C (122°F)  
Relative Humidity: up to 90% (non-condensing) |
| **Markings** | FCC Class B – Approved  
CE—Approved |

www.teledynedalsa.com

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1. Requires a separate slot for the bracket assembly

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For more information, please visit our website at www.teledynedalsa.com.

**Americas**

- **Boston, USA**  
  +1 978-670-2000  
  sales.americas@teledynedalsa.com

**Europe**

- **Krailling, Germany**  
  +49 89-89-54-57-3-80  
  sales.europe@teledynedalsa.com

**Asia Pacific**

- **Tokyo, Japan**  
  +81 3-5960-6353  
  sales.asia@teledynedalsa.com

- **Shanghai, China**  
  +86 21-3368-0027  
  sales.asia@teledynedalsa.com

Teledyne DALSA has its corporate offices in Waterloo, Canada.  
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