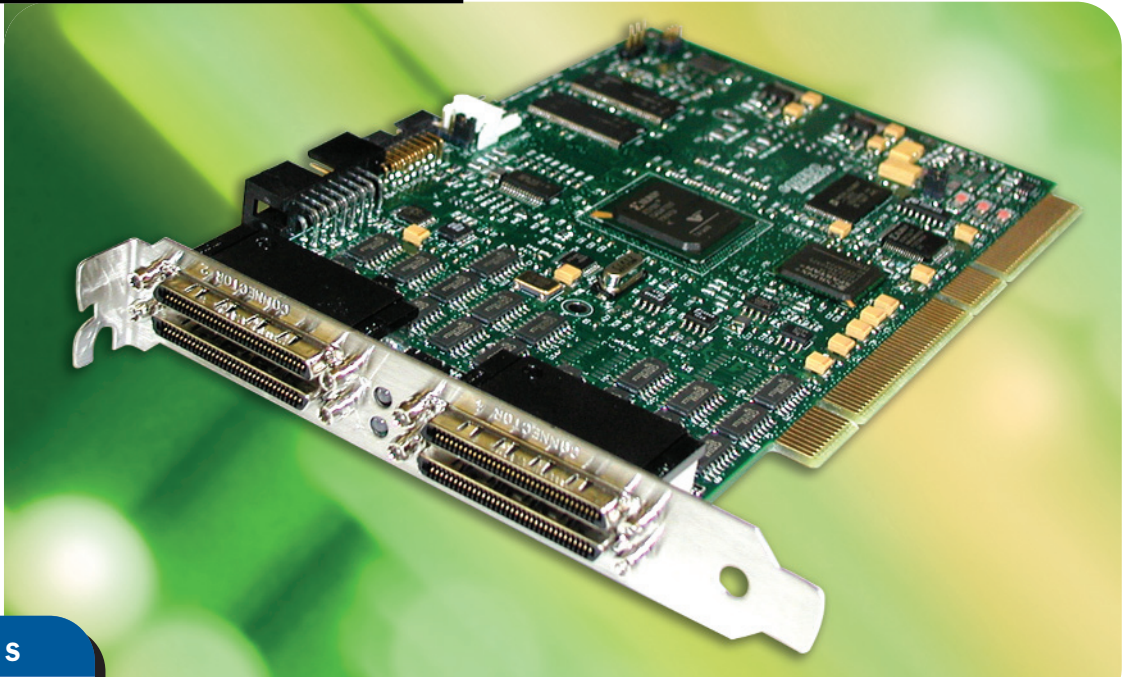


# X64-LVDS™



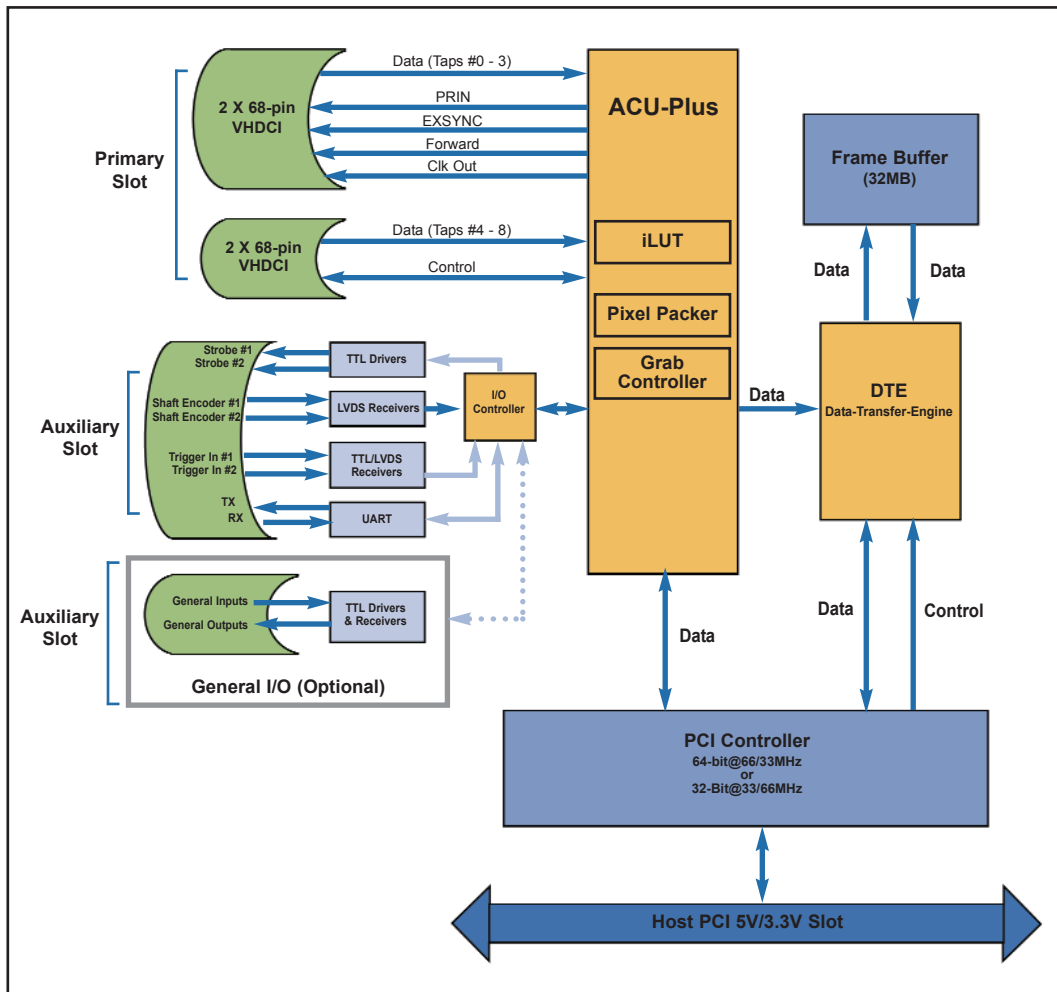
## KEY FEATURES

- Single slot solution for up to 8 taps
- Legacy support for area and linescan, monochrome and RGB digital cameras
- Rapid image acquisition rates up to 600MB/s and image transfer to host memory at 538MB/s
- Pixel clock up to 75MHz
- Supported by Coreco Imaging's Sopera™ LT and Sopera™ Processing development libraries

## OVERVIEW

### High performance 64-bit LVDS frame grabber

The X64-LVDS is a high performance image acquisition board for parallel output digital area and linescan cameras compatible with the LVDS (EIA-644) and RS-422 standards. Universal PCI slot compliant (32/64-bit 33/66MHz 3.3/5V), the X64-LVDS supports multiple tap area scan and linescan monochrome and RGB cameras. In addition to supporting infinite vertical length frames from a linescan camera, the X64-LVDS also supports fixed and variable size frames ranging up to 256KB horizontal pixels per line and up to 16 million vertical lines per frame for area scan cameras. Precise timing controls allow frame size adjustments in steps of eight pixels/step for horizontal lines and in steps of one line/step vertically. Up to 32MB of local buffer memory facilitates concurrent transfer operations at different rates yielding optimal utilization of system bandwidth.



X64-LVDS - Functional Block Diagram

## Trigger-to-Image Reliability

The X64-LVDS has been built within Coreco Imaging's Trigger-to-Image Reliability technology framework. Trigger-to-Image Reliability leverages Coreco Imaging'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 PCI bus. Trigger-to-Image Reliability enables more efficient and reliable machine vision inspections by securing the image acquisition process, providing traceability when errors do occur and permitting recovery from those errors.

## Camera Support

The X64-LVDS is compatible with 8, 10, 12-bit LVDS (EIA-644) and RS422 digital area or linescan monochrome or RGB cameras and supports up to 8-taps of 8-bits each. The X64-LVDS also supports on-the-fly tap correction to facilitate image processing and analysis.

## General Purpose I/Os

The X64-LVDS offers optional opto-coupled input modules for demanding industrial environments. These interrupt-driven, general-purpose input and output controls allow X64-LVDS boards to react to external inputs more rapidly and predictably to increase the quality of acquired images.

## External Event Synchronization

The X64-LVDS features a trigger input, along with strobe and exposure control output signals, to synchronize image captures with external events.

## Serial Communications Port

The X64-CL Full features an onboard RS-232 serial port that provides integrated support for camera control and setup for machine vision applications. PC-independent in nature, this communication port can be used with off-the-shelf communication utilities such as HyperTerminal to control and configure digital cameras with ease and without requiring additional external cabling.

## **Software Support**

### ***Acquisition, processing and analysis***

The X64-LVDS is fully supported by Coreco Imaging's Sapera™ LT software development libraries enabling applications to be developed under Windows NT® , Windows® 2000, and Windows® XP. Sapera LT allows users to develop applications with C language DLLs, C++® classes or Active X® controls for Microsoft® Visual C/C++® 6.0 (or higher) or Visual Basic® 6.0 (or higher) development platforms.

Sapera LT's advanced image acquisition and control functions are an integral part of Coreco Imaging's stringent Trigger-to-Image Reliability technology framework. Sapera LT offers users a single API across Coreco Imaging's current and future hardware platforms, to deliver a comprehensive feature set including program portability, versatile camera controls, flexible display functionality and management, and easy to use application development wizards.

Sapera LT (ver. 5.0) comes bundled with Coreco Imaging's advanced CamExpert, a proprietary camera configuration utility specifically designed to leverage the power of Coreco Imaging's image acquisition boards. This Windows-based utility provides an interactive environment within which to create a new, or modify an existing, configuration file for area and linescan applications.

For image processing and analysis Coreco Imaging offers Sapera™ Processing. Fully integrated with Sapera LT functionality, Sapera Processing is a dynamic Windows-based comprehensive programming library. Hardware independent and designed to simplify vision application development, Sapera Processing is based on a set of high performance C++ classes and uses MMX, SSE (streaming SIMD Extensions), and SSE2 to meet the challenging operational requirements of today's imaging systems. Scalable in design, Sapera Processing offers a comprehensive set of optimized tools, available as a suite or standalone, including image processing, search (pattern matching), OCR, barcode decoding, and blob analysis.

Sapera LT and Sapera Processing combine seamlessly to deliver a powerful and easy to use development resources for advanced image acquisition, processing, and analysis.

## Specifications\*

<b>Board</b>	Half-slot PCI 2.1 64-bit 66MHz compliant 5V and 3.3V slot compatible
<b>Acquisition</b>	Interfaces to LVDS (EIA-644) and RS-422 format area and linescan cameras Acquisition rates up to 600MB/s Horizontal Size (min/max): 8 byte/256KB Vertical Size (min/max): Linescan cameras: 1 line to infinity Area scan cameras: 1 line to 16 million/frame variable length frames Pixel Clock 75MHz 32MB onboard frame buffer memory One 1024 x 1024 or 1024 x 256 input lookup table <sup>1</sup> Single slot solution supports cameras with 8 tap/8-bit interfaces to digital area scan or linescan color or monochrome cameras
<b>Pixel Formats</b>	Monochrome 8, 10, 12, 14, 16, or 36-bit/RGB
<b>Transfers</b>	Real-time transfers to system memory: PCI-32 bus: 32 bits @ 33MHz PCI-64 bus: 64 bits @ 66MHz PCI-X bus: 64 bits @ 66MHz On-the-fly tap adjustments for multiple tap area scan and linescan cameras
<b>Controls</b>	Complete set of camera controls: PRN, EXSYNC, Forward, Pixel Clock out Comprehensive event notification includes start/end-of-frame, sequence or N-line events One independent TTL/LVDS trigger input programmable as active high or low (edge or level trigger) One strobe TTL output for area scan and linescan cameras Quadrature (AB) shaft-encoder inputs for external web synchronization Up to 12 interrupt driven I/Os <sup>2</sup> permit external event synchronization PC independent RS-232 COM port provides seamless interface to MS Windows
<b>Power Output</b>	Power-on-reset fused +12V/+5V DC output at 1.5A
<b>Software</b>	Microsoft Windows NT 4.0, Windows 2000, and Windows XP compliant Fully supported by the Sopera LT and Sopera Processing programming libraries Application development using C/C++ DLLs or ActiveX controls
<b>System Requirements</b>	Microsoft Visual Studio® or Visual Basic version 6.0 or higher PCI-64 or PCI-32 compliant system and 64MB system memory
<b>Dimensions</b>	6.675" (16cm) Length x 4.20" (10.7cm) Height
<b>Temperature</b>	0° C (32° F) to 55° C (131° F)
<b>Relative Humidity</b>	Up to 95% (non-condensing)
<b>Markings</b>	FCC class B - Pending CE class B - Pending

\* Last updated August 2004

### Notes:

1. For 4 x 8-bit/tap or 4 x 10-bit/tap maximum
2. Optional I/O module requires auxiliary slot

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7075 Place Robert-Joncas, Suite 142, St-Laurent, Quebec, Canada H4M 2Z2

Tel: 514.333.1301 US Subsidiary: 978-670-2000 Email: info@corecoimaging.com

visit us online @ [www.imaging.com](http://www.imaging.com)