The Machine Vision and Imaging Specialists
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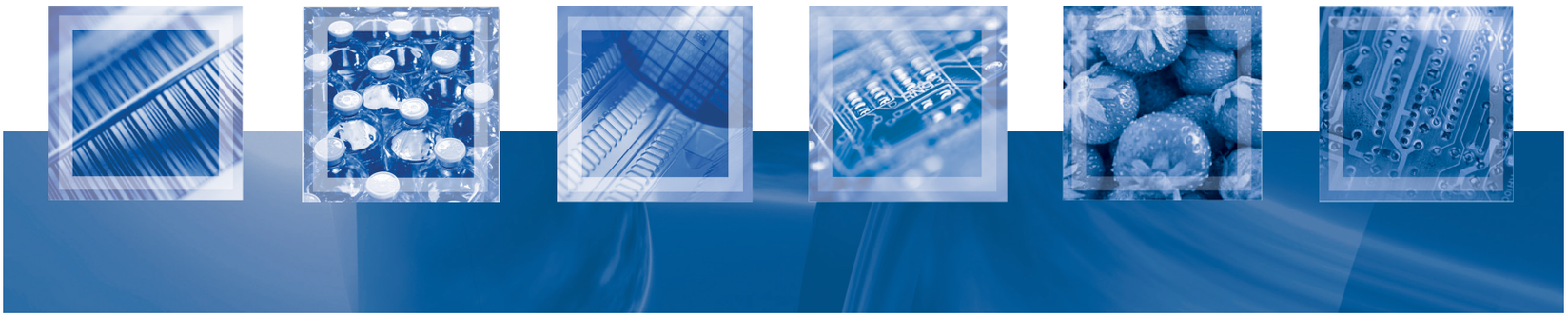
Sapera Vision Software

Sapera™ APF

A Graphical FPGA Development Environment



Key Features

Intuitive Graphical Programming

- Design simple, single pass or iterative FPGA based imaging algorithms
- Fully Automated Design Process interfaces to Sapera LT
- High level behavioral simulation
- Verify design to cuts down development time
- Supports Xilinx Virtex 5 family

FPGA based Embedded Image Processing Libraries

- Over 150 imaging functions
- Include bit accurate software implementation

Acquisition

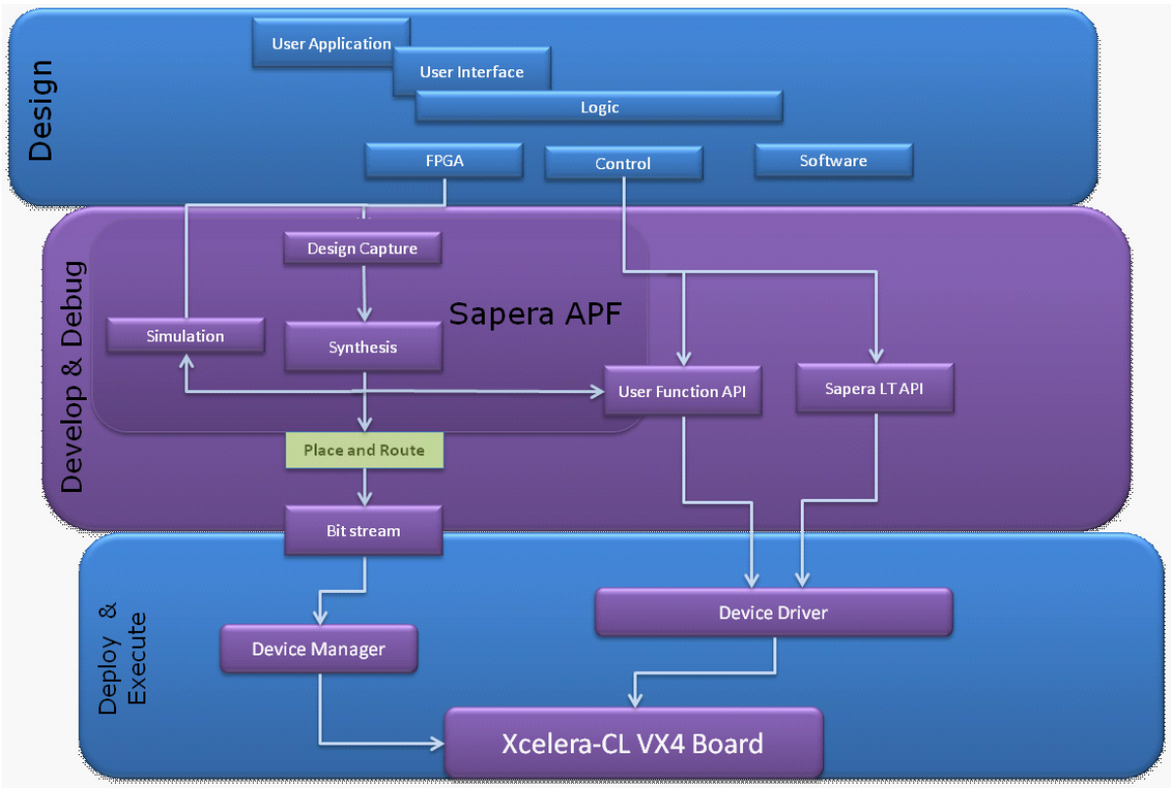
- Capture image from area or line scan cameras
- Color or monochrome processing
- Camera Link formats, including 10-taps

TELEDYNE DALSA
A Teledyne Technologies Company

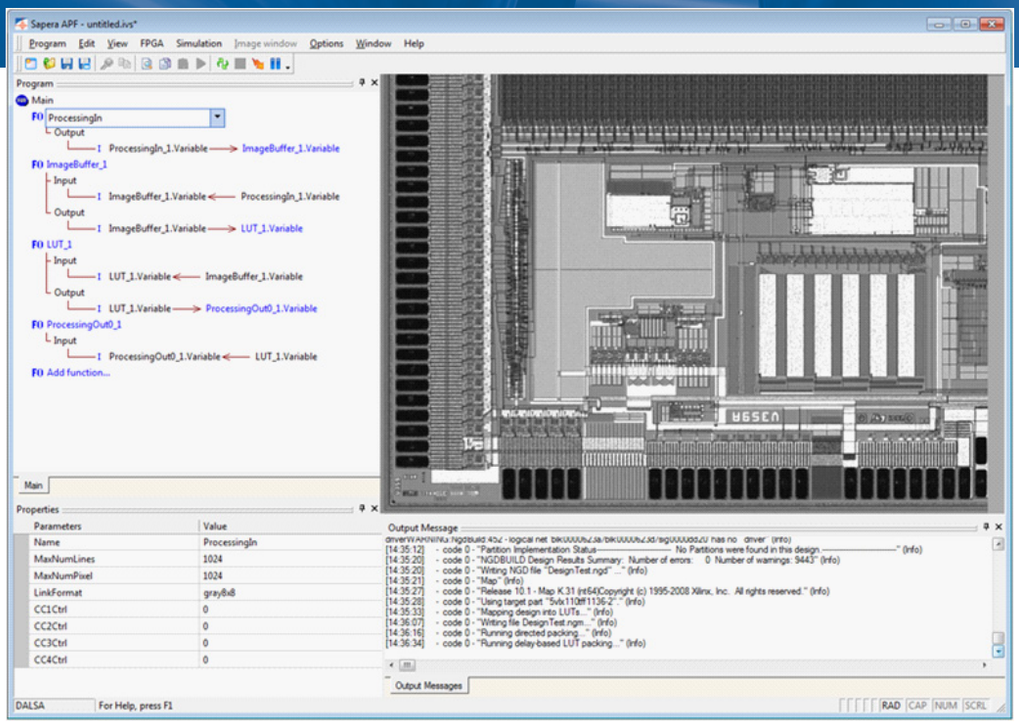
Sapera APF is designed for real-time imaging applications as such it not only offers extensive FPGA image processing functions but also includes libraries for image acquisition, control and auxiliary input/output controls.

Sapera APF's graphical user interface offers programming features of conventional software IDE like on the fly program editing, single stepping, variable watches to review intermediate results, etc. and combines them with hardware design rules check and resource verification. Users interact with Xilinx tools directly from within Sapera APF to generate FPGA bit streams.

When creating custom FPGA designs, for proper software control, it is necessary to plan and implement equivalent software control functions describing function prototypes and parameter. Sapera APF automates this crucial step of generating software interfaces for user defined FPGA designs. The user FPGA designs can thus be controlled from Sapera LT based host applications. Sapera APF also comes bundled with RTPro application allowing users to exercise their FPGA designs without having to write control application on the host.



Designing with Sapera APF – An overview



FPGA processing functions

Basic Operations

Arithmetic operations
Logic operations
Pixel operations
Neighborhood operations
Statistics
Camera I/O control

Color Space Conversion
Bayer conversion
Streams
Memory access
GPI/O control

Advanced Operations

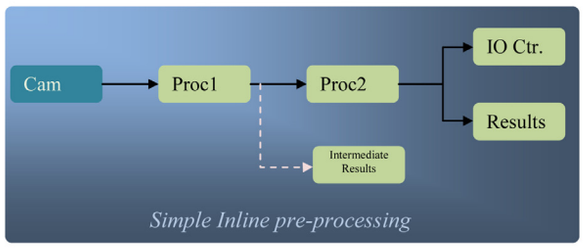
Rotation by arbitrary angle
Loss-less compression
RLE
Image compression

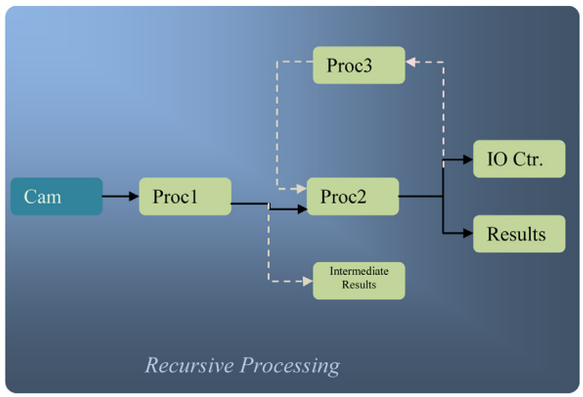
Upcoming Functions[1]

Warping
Wavelet Encoding
Blob Analysis
JPEG Compression

[1] *Contact Teledyne DALSA Sales for availability*

Processing Topologies



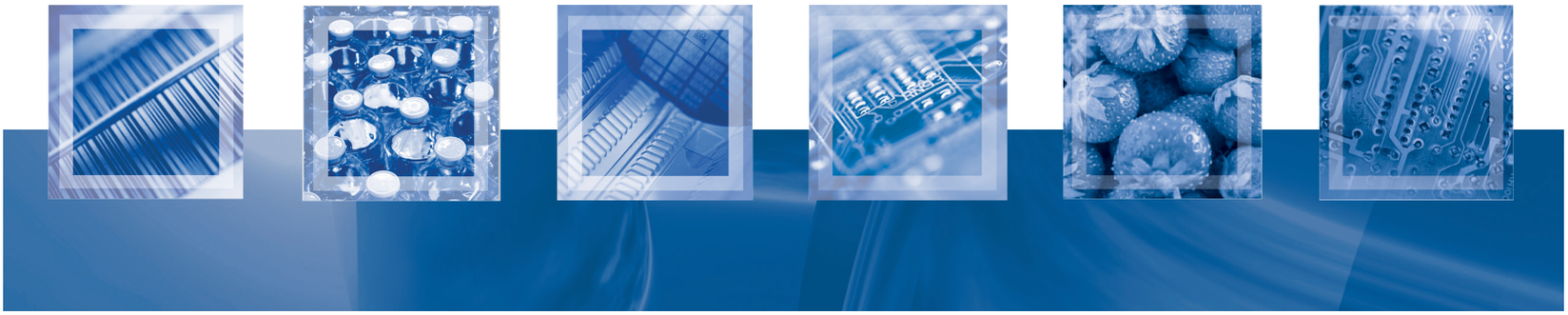


Development Requirements:

Microsoft Windows XP, Windows 7 32/64-bit
Intel Core2 Duo class CPU
2GB of RAM
1GB of Hard drive space
Xilinx ISE 10.1 or higher
Microsoft Visual Studio 2005 or higher (for software control projects)

Deployment Requirements:

Teledyne DALSA Xcelera-CL VX Series vision processors
Microsoft Windows XP, Windows 7 32/64-bit



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Teledyne DALSA is an international leader in digital imaging and semiconductors and has its corporate offices in Waterloo, Ontario, Canada.

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