HawkEye-CXP

CoaXPress Frame Grabbing and Image Processing System

Key Features

- Grabbing from up to 4 CoaXPress (cXp-6) Channels
- Grabbing from 1, 2 or 4 cameras simultaneously
- Pixel formats supported: Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color)
- Acquisition bandwidth of up to 25 Gb/s
- Infrastructure for full Vision/Imaging system solution including image acquisition, real-time image processing and post-processing on host
- Huge frame buffers of up to 16 GB to enable high-acquisition capacity and to enhance image processing capabilities
- Ultra-high CPU-free data offload capability of up to 64 Gb/s enabling high-resolution post processing on host computer
- Support for area and line cameras
- Diverse I/O capabilities: RS422, opto-couplers, LVTTL and 30 V drivers/recievers
- Powerful tools for efficient development of both software and FPGA code

Target Application Examples

- Automotive and Inspection applications demanding real-time analysis and system response
- Military & Aerospace applications combining real-time and post-acquisition analysis
- Medical & Scientific applications requiring high-resolution imaging capabilities
- Traffic & Transportation applications processing high-volume data from multiple locations
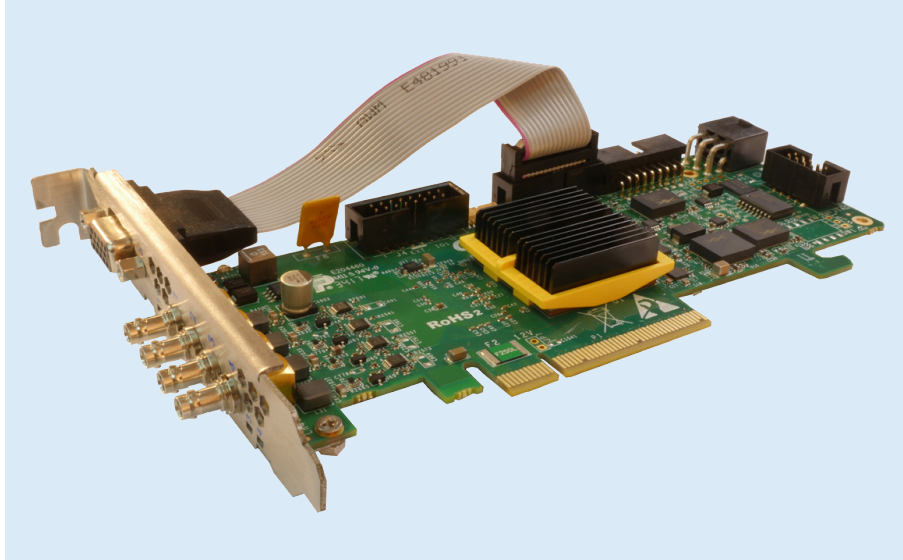
The Gidel HawkEye-CXP CoaXPress frame grabbing and real-time image processing system provides the core infrastructure required to realize the most demanding vision and imaging applications.

The HawkEye series offers a number of options to accommodate diverse application needs, from plug-and-play high-performance frame grabbers to a full system solution comprising acquisition, open-FPGA image processing, and flexible custom camera interface. Off-the-shelf HawkEye solutions include support for CoaXPress and Camera Link cameras.

The HawkEye-CXP is CoaXPress Version 1.1 compliant and supports up to four CoaXPress (cXp-6) channels. The HawkEye-CXP family is based on PCIe Gen. 3 x8, providing CPU-free ultra-fast offload capacity of up to 64 Gb/s. Huge data buffers of up to 16 GB fortify the acquisition bandwidth and the image processing capabilities on powerful Arria 10 FPGA.

The HawkEye-CXP is supported by Gidel's Proc Developer's kit, which is composed of the ProcFG GUI application, an API library and examples for developing a customized application, and the ProcWizard application for efficient development of image processing algorithms on FPGA. The HawkEye-CXP is also supported by Gidel's HLS application support package for compiling untimed C++ code to FPGA HDL code using Intel's HLS compiler.

HawkEye-CXP CoaXPress Frame Grabbing and Image Processing System

FEATURE	SPECIFICATIONS
Camera Interface	4x CoaXPress (cXp -6), PoCXP
Image Formats	Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color).
Resolution	Horizontal: 16 K pixels (64-bit) Vertical: 65 K lines
Max Acquisition Rate	Up to 25 Gb/s acquisition rate
Host Bus	PCIe x8 Gen. 3
Host Throughput	Up to 64 Gb/s
Frame Buffer	1-16 GB
Image Processing	For open FPGA grabber version, option for adding image processing code on Altera Arria 10 FPGA
Camera Types	Area and Line
MTBF	> million hours

FEATURE	SPECIFICATIONS
Form Factor	PCIe low-profile
Connectors	1, 2, or 4x DIN 1.0/2.3 VGA15-pin I/O
GPIO	RS422, opto-coupler, LVTTL and 30V at 0.9A
Advanced Features	Selective ROI acquisition
Software Support	ProcFG GUI, API and examples. For open FPGA grabber version, ProcWizard Developer's tool
OS Support	Win 7, 10 and Server 2012 (64-bit) and Linux (kernel 2.6.x- 3.10.x). Linux version doesn't include ProcFG GUI
Certifications	RoHS, Conflict Minerals, ISO
Operating Ambient Temperature	0 – 54 C, relative humidity up to 90% (non-condensing)
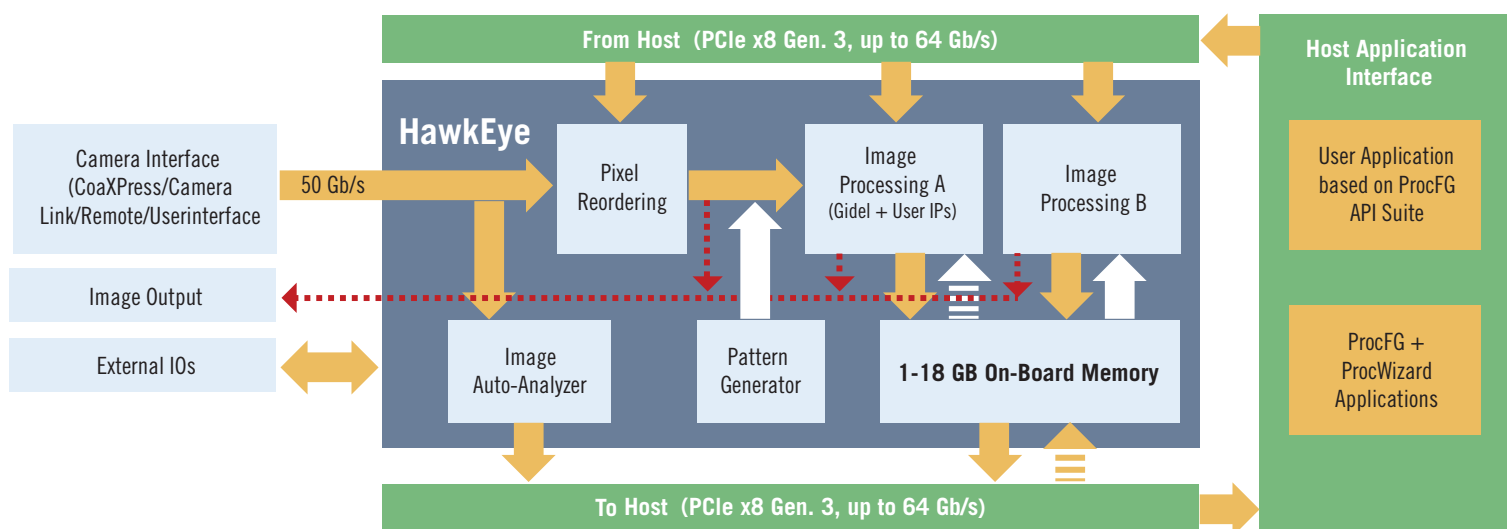
Typical HawkEye acquisition and processing system implementation