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/receivers
- 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

### Features

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<th><strong>Feature</strong></th>
<th><strong>Specifications</strong></th>
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<tr>
<td>Camera Interface</td>
<td>4x CoaXPress (cXp -6), PoCXP</td>
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<tr>
<td>Image Formats</td>
<td>Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color).</td>
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</table>
| 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                                                                  |

### Software Support

- ProcFG GUI, API and examples.  
- For open FPGA grabber version, ProcWizard Developer's tool

### Certifications

- RoHS, Conflict Minerals, ISO

### Operating Ambient Temperature

- 0 – 54 C, relative humidity up to 90% (non-condensing)

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**Typical HawkEye acquisition and processing system implementation**

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