Proc10A-CXP-6

High-Bandwidth CoaXPress Grabbing and Image Processing

Key Features

- Grabbing from up to 8 cXp cameras via 8x cXp-6 links
- Acquisition bandwidth of up to 50 Gb/s
- Pixel formats supported: Mono, Bayer, RGBA and RGB
- 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 32GB to enable high-acquisition capacity and to enhance image processing capabilities
- Host interface: PCIe Gen. 3 x8
- Support for area and line scan cameras
- Diverse I/O capabilities:
  - ✓ RS422 inputs
  - ✓ Opto-couplers
  - ✓ Current sink drivers
  - ✓ Bi-directional GPIOs
- Powerful ecosystem:
  - ✓ ProcVision Kit for customization of Vision flow.
  - ✓ Image compression IPs
  - ✓ Tools for efficient development of both software and FPGA code
  - ✓ InfiniVision software for multi-camera acquisition and synchronization
  - ✓ Supports GenICam's GenTL API and third-party software, including **Halcon™** machine vision software

Target Application Examples

- High-end Machine Vision
- Industrial Inspection/Automation
- Broadcast
- Medical Imaging

The Proc10A_CXP-6 grabber and image processing family offers a number of options to accommodate diverse application needs, from plug-and-play high-performance frame grabbers to a full custom system solution comprising user-tailored acquisition path, on-FPGA image processing, real-time compression and more.

The Proc10A_CXP-6 is designed for ultra-high bandwidth combining 8x CXP-6 links for up to 50 Gb/s, PCIe Gen. 3 x8 host interface, huge image buffers of up to 32 GB, real-time compression and ability to offload Regions Of Interest (ROI) for additional bandwidth utilization. The Proc10A_CXP-6 enables the use of eight 500+ MPixels/s Gidel Lossless and JPEG encoders - twice the pixel frequency of any other available solution.

The Proc10A_CXP-6, based on Intel Arria 10 FPGAs, delivers tremendous processing capacity fortified with abundant memory resources enabling to implement real-time image processing and user algorithms.

The board is supported by the Gidel **ProcVision Kit**, which allows users to tailor their Vision flows in an intuitive and simple manner by customizing both the software and the FPGA design code for different frame grabbing flavors. The kit includes the ProcFG and InfiniVision GUIs, APIs and supporting libraries. **The Gidel Proc Dev Kit** enables automatic generation of Application Support Packages (ASPs), and includes Gidel's CamSim (camera simulator) as well as tools for debugging and verifying FPGA ISP IPs.

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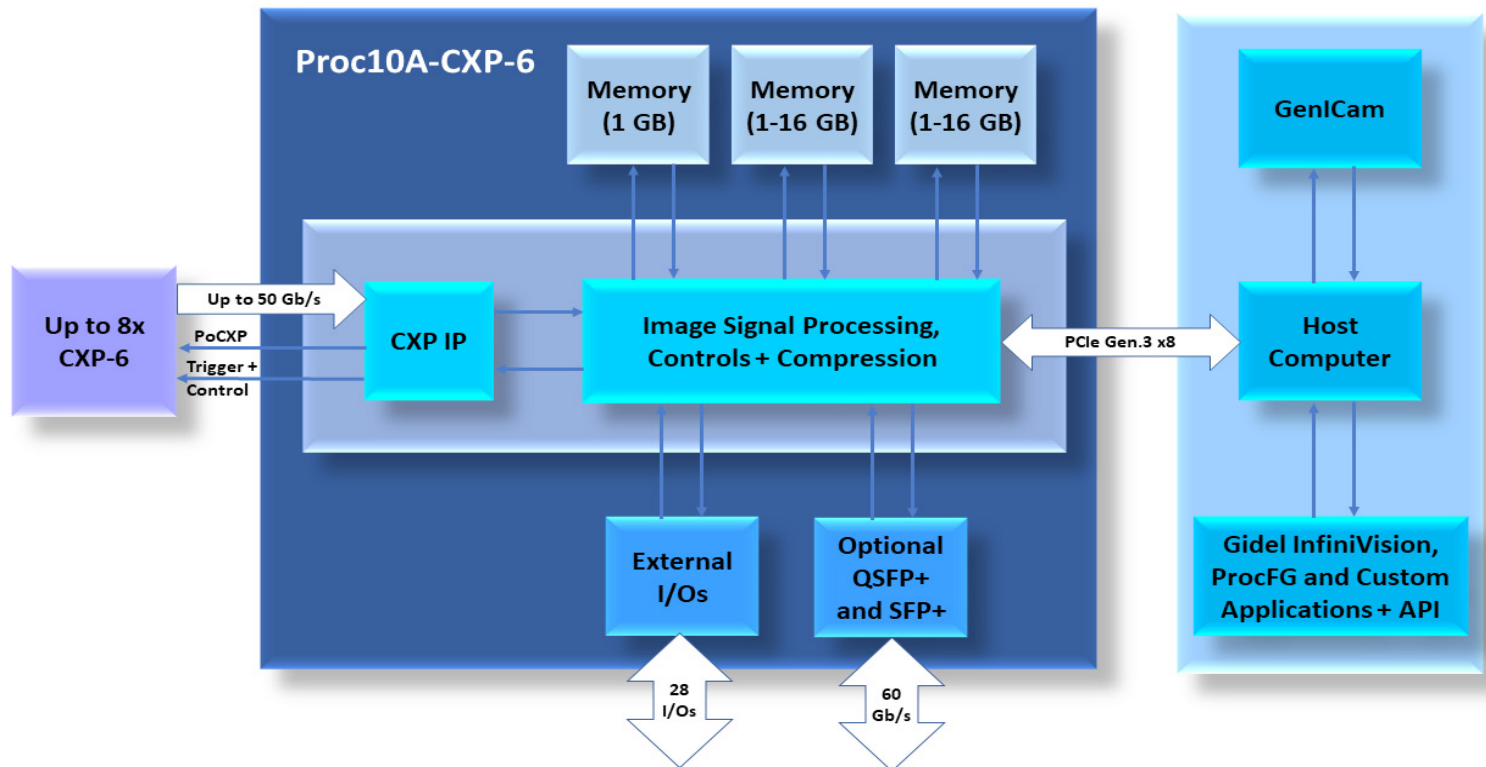POB 281, Or Akiva, Israel 3060000
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FEATURE	SPECIFICATIONS
Camera Interface	8x CoaXPress (cXp - 6), PoCXP
Image Formats	Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color)
Max Resolution	Horizontal: 16 K pixels (64-bit) Vertical: 65 K lines
Acquisition Rate	Up to 50 Gb/s acquisition rate
Host Bus	PCIe x8 Gen. 3
Frame Buffer	1-32 GB
Image Processing (optional)	Image processing code on Intel Arria 10 FPGA (270, 660 and 1150)
Image Compression (optional)	Lossless and JPEG encoding
Camera Types	Area and Line Scan
Connectors	• 4 or 8x Micro BNC • 2x GPIO connectors • Optional QSFP+ and SFP+
MTBF (with passive cooling)	> million hours

FEATURE	SPECIFICATIONS
Form Factor	PCIe half-length
GPIO	RS422, opto-couplers, current sink drivers, bi-directional I/Os
Advanced Features	Selective ROI acquisition
Ecosystem Support	• *ProcVision Kit* for Vision flow customization • *Proc Dev Kit* for automatic generation of Application Support Package and efficient development on FPGA • Image Compression and Decompression IPs • *InfiniVision* software for multi-camera aquisition and synchronization • Supports *GenICam GenTL* API • support for third-party software, including as *MVTec Halcon*™ machine vision software
Operating Ambient Temperature	0 - 50 C, relative humidity up to 90%

Proc10A-CXP6 System Block Diagram

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