Proc10A-CXP-12

High-Bandwidth CoaXPress Grabbing and Image Processing

Key Features

- Grabbing from up to 8 cXp cameras via 8x cXp-12/6 links
- Acquisition bandwidth of up to 10 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: PCle 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-12 grabber and image processing family offers a number of options to accommodate diverse application needs, from plugand-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-12 is designed for ultra-high bandwidth combining 8x CXP-12/6 links for up to 10 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 Pro-c10A_CXP-12 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-12, 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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Proc10A-CXP-12 High-Bandwidth CoaXPress Grabbing and Image Processing

FEATURE	SPECIFICATIONS	FEATURE	SPECIFICATIONS
Camera Interface	8x CoaXPress 2.0 (cXp -12/6), PoCXP	Form Factor	PCIe half-length
Image Formats	Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/	GPIO	RS422, opto-couplers, current sink drivers, bi-directional I/Os
May Pasalution	COLOR)	Advanced Features	Selective ROI acquisition
Max Resolution	Vertical: 65 K lines	Ecosystem Support	ProcVision Kit for Vision flow custom- ization
Acquisition Rate	Up to 10 GB/s acquisition rate		• Proc Dev Kit for automatic genera-
Host Bus	PCle x8 Gen. 3		tion of Application Support Package and efficient development on FPGA
Frame Buffer	1-32 GB		Image Compression and Decom-
Image Processing (optional)	Image processing code on Intel Arria 10 FPGA (270, 660 and 1150)		pression IPs
Image Compression (optional)	Lossless and JPEG encoding		era aquisition and synchronization
Camera Types	Area and Line Scan		Supports GenICam GenTL API
Connectors	4 or 8x Micro BNC		• support for third-party software, in-
	2x GPIO connectors		cluding as <i>MV lec Halcon™</i> machine vision software
	Optional QSFP+ and SFP+		
Up to 8x CXP-12 Links Contro	Memory (1 GB)	Memory (1-16 GB) Memory (1-16 GB) PCle PCle Optional QSFP+ and SFP+	GenICam Host Computer Gidel InfiniVision, ProcFG and Custom Applications + API
Proc10A-CXP12 System Block Diagram			
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