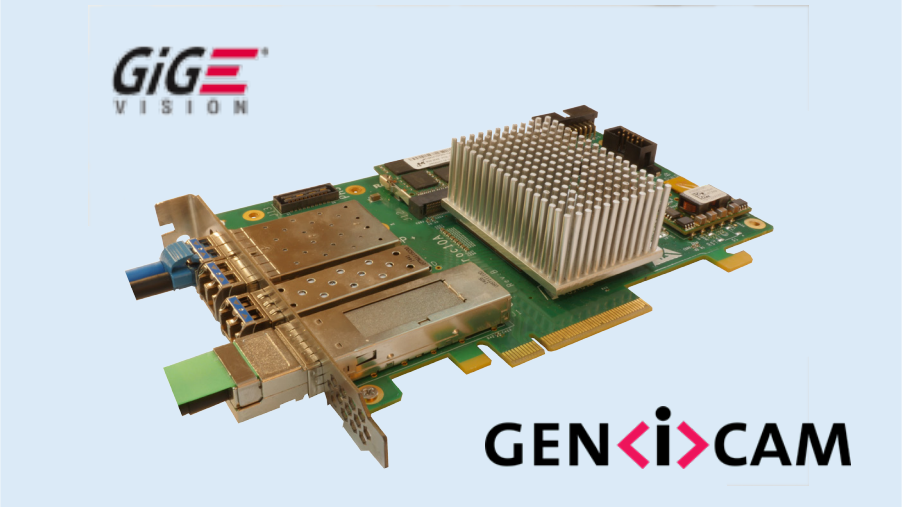
Proc10A-40GigE

High-Bandwidth GigE Vision Grabbing and Image Processing

July 2025



Key Features

- Grabbing from up to 4 x 10 Gig Vision cameras or up to 40 x 1 GigE via switch.
- Acquisition bandwidth of up to 40 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
- Modular design enabling application specific tailoring, including embeddedHDR, white balance, histogram, compression (JPEG, Lossless, Quality+), and other ISPs.
- 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** toolchain for efficient development of 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_40GigE Vision 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 tailored acquisition path, image processing, real-time compression and more.

The Proc10A_40GigE is designed for ultra-high bandwidth combining 4x 10 GigE links for up to 40 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_40GigE enables the use of four 500+ MPixels/s Gidel Lossless and JPEG encoders - twice the pixel frequency of any other available solution.

The Proc10A_40GigE 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 designed for multi-level modularity enabling tailoring the frame grabber to the user's application needs. Gidel offers the grabber with embedded modules respective to user's specifications, including HDR, dynamic white balance, compression (JPEG, losseless, Quality+) and a variety of other Image Signal Processors (ISP) options. The Gidel **ProcVision suite** enables advanced development on FPGA, including customization of acquisition path and image processing.

Gidel
Committed to Your Innovation

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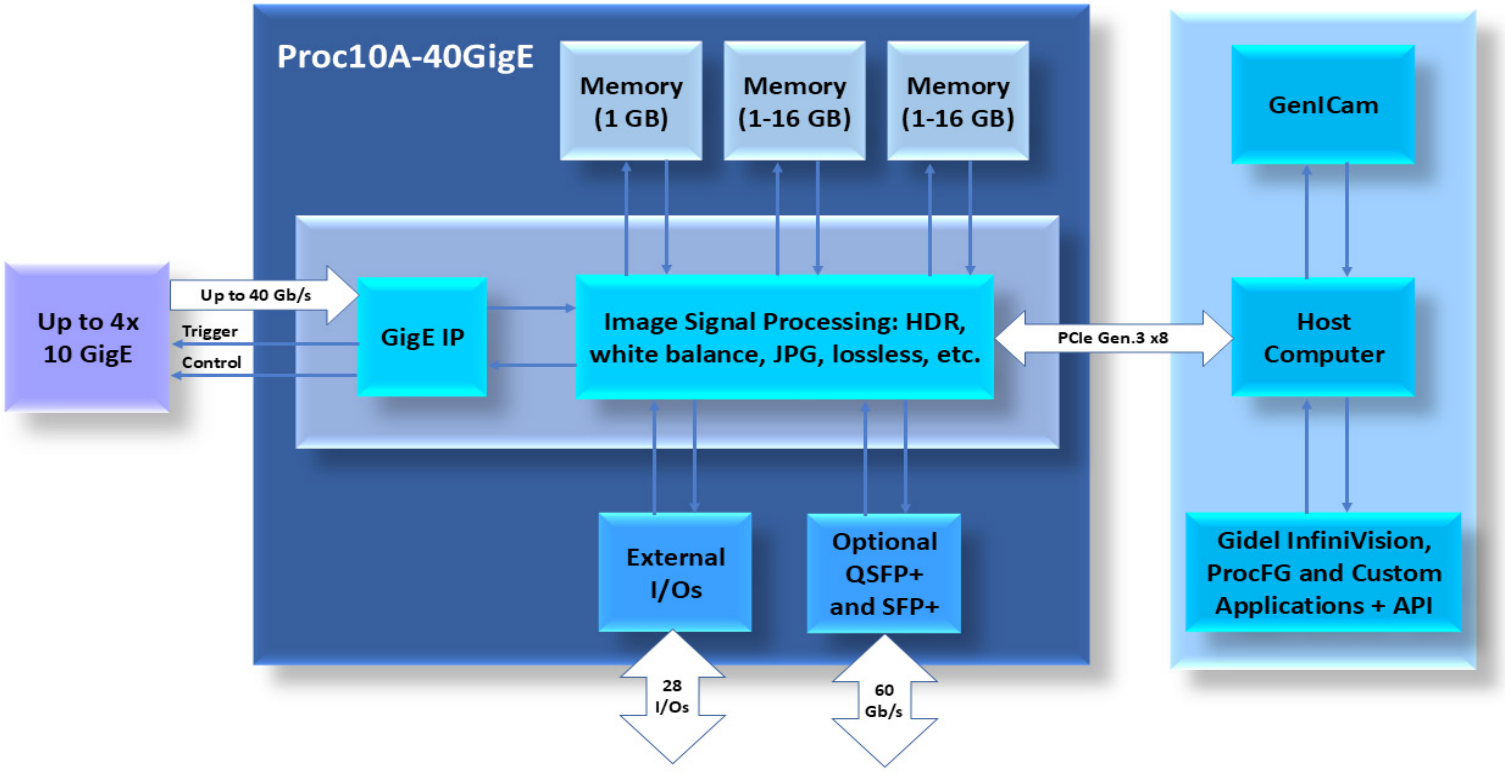
Proc10A-40GigE High-Bandwidth GigE Vision Grabbing and Image Processing

FEATURE	SPECIFICATIONS
Camera Interface	4x 10 GigE Vision
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 40 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, JPEG and Quality+
Camera Types	Area and Line Scan
Connectors	• 4 or 8x Micro BNC • 2x GPIO connectors • QSFP+
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	• *Option for embedded HDR, white balace, HDR, histogram, compression and other ISPs* • *ProcVision Kit* for Vision flow and processing customization • *Proc Dev Kit* for automatic generation of Application Support Package and efficient development on FPGA • *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-40GigE System Block Diagram

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