

# CamSim

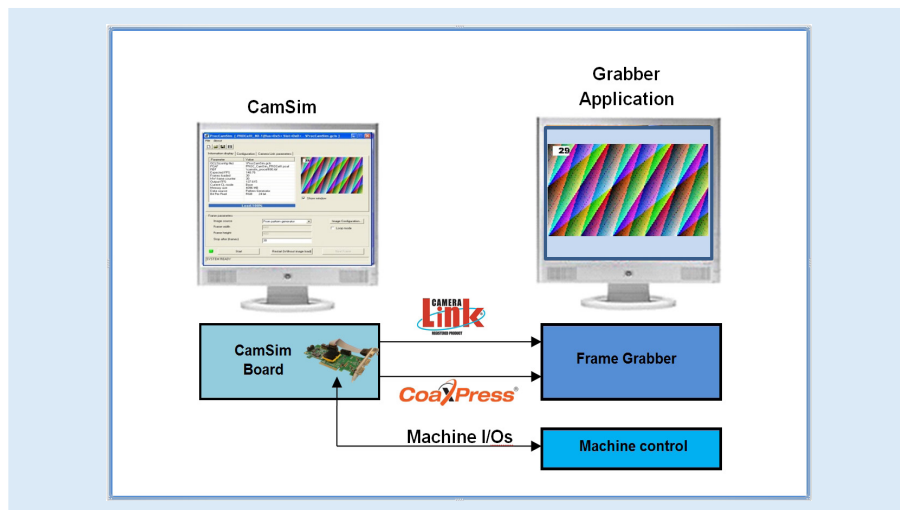
## Camera Link Camera Simulator

### Key Features

- Simulates all camera link v2.0 configurations (base / medium / full/80-bit (DECA))
- Supplies machine simulator capability by adding user IOs
- Supports BMP and RAW input image files
- Pattern generator for transmitting color and grayscale test patterns
- Fully programmable image timing and data parameter configuration via user-friendly GUI
- API methods for developing user simulator applications
- User-configurable Camera Control (CC) lines for triggering options
- Throughput capabilities of 1-10 pixels simultaneously at 7,000-85,000 KHz. Pixel bit depth varies from 8 to 36 bits per pixel
- Software and FPGA customization for extended machine simulation and/or custom logic/processes
- Up to 16 GB image buffer
- Two MDR-26 connectors for simulating all camera link modes or for simulating two base mode cameras

### Target Applications

- Vision Algorithms Development
- Image Processing Application Testing
- Machine Vision Integration
- Vision System Reliability Testing
- Debugging the Rare Bug



The Gidel CamSim™ is a flexible high-performance camera simulator that generates a camera link video stream and test patterns for testing frame grabbers or vision/imaging systems. The system supports all Camera Link™ specification v2.0 configurations and can be customized for any user-defined camera protocol and interface.

The CamSim enables most development to be done in a low-cost lab environment. Thus, the CamSim significantly improves productivity and reduces the overall expense of developing vision and imaging systems. Gidel's CamSim data flow repetition capability ensures that algorithms are validated and work as expected with pertinent input. Moreover, once the rare bug is detected, its respective data flow can be accurately reconstructed to locate the bug and quickly fix it.

The CamSim suite includes:

**Application Software:** An intuitive GUI enabling full control of the image simulation, including: transmitting image from user files or pattern generator files and configuring the camera link and timing parameters.

**API Methods:** A set of CamSim API methods that can be used to develop a customized user application.

**Gidel PCIe Board:** A PCIe FPGA board incorporating Gidel CamSim firmware for transmitting the image data.



**Gidel**

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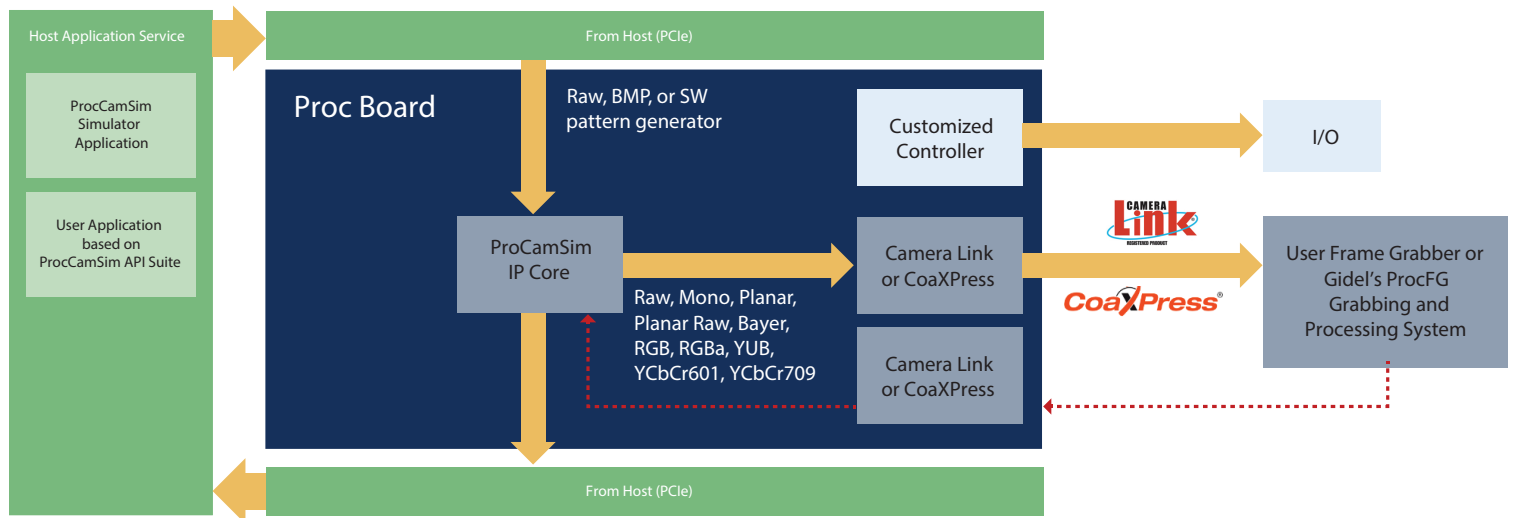
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FEATURE	SPECIFICATIONS
Camera Link Modes	1 80-bit (Deca), Full, Medium or Base Camera Link or 2 Base Camera Links with option for PoCL
Pixel Formats	Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color).
Max. Resolution	Horizontal: 16 K pixels (24-bit) Vertical: 65 K lines (16-bit) or infinite in Line scan simulation
Tap Configuration	All configurations as defined by the Camera Link standard, including 80-bit (Deca): 10 taps/8bits, 8bits/10taps.
Connectors	2x SDR26 (mini Camera Link) VGA15-pin I/O
Pixel Clock	Up to 85 MHz
Frame Buffer	1-16 GB
Host Throughput	Up to 64 Gb/s

FEATURE	SPECIFICATIONS
Host Bus	PCIe x8 Gen. 3
Form Factor	PCIe low-profile
Camera Types	Area and Line
GPIO	RS422, opto-coupler, LVTTTL and 30V at 0.9A
Software Support	CamSim GUI, API and examples. For open FPGA grabber version enabling customization, ProcWizard Development tool
OS Support	Win 10 and Server 2012 (64-bit) and Linux (kernel 2.6.x- 3.10.x). Linux version doesn't support GUI, only API.
Certifications	RoHS, Conflict Minerals, ISO
Operating Ambient Temperature	0 – 54 C, relative humidity up to 90% (non-condensing)
MTBF	> million hours



## CamSim System Overview



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