



Zebra **GeviQ** >>>

Smart network interface cards for efficient high-bandwidth
GigE Vision acquisition

Overview

Efficient high-bandwidth GigE Vision acquisition

Zebra® GevIQ is the industry's first network interface card (NIC) offering generic GigE Vision® acquisition offload at speeds up to 25 Gigabits/s per port. With GigE Vision packet processing performed directly onboard, Zebra GevIQ boards enable capture from one or more cameras without any image data loss.

GigE Vision is a camera interface standard that delivers image transfer at high-speed over large distances using standard copper fiber-optic Ethernet cabling. Use of 10 and 25 GbE by cameras are gaining industry popularity as they are ideal for vision applications requiring the utmost imaging speed and resolution. Machine vision applications requiring cameras with a 10+ GbE interface can, however, be challenging—they benefit from a high data transmission rate but suffer from increased demands on the host system, resulting in corrupted or dropped image frames, and increased processing latency.

Zebra GevIQ NICs provide a more versatile and widely compatible alternative to custom-built or proprietary solutions based on 10+ GbE. The board is equipped with two 25 GbE ports and acquires from these with very little host CPU usage. Multiple 1, 2.5, 5, or 10 GbE cameras can be aggregated at each port for a total of up to 32 input sources. Support of the standard SFP28 connector allows users to select from standard RJ45, direct attach copper (DAC) or fiber-optic Ethernet cables for their specific installation requirements.

Zebra GevIQ at a glance

Reliably and efficiently acquire at up to 25 Gigabit/s per port through onboard packet processing

Maintain maximum flexibility with support for generic GigE Vision cameras

Readily and cost-effectively support multi-camera setups through two ports, together capable of handling up to 32 cameras

Cater to a range of cabling needs with support for copper and fiber-optic Ethernet cabling

Directly license Aurora software, formerly Matrox Imaging Software, with integrated license fingerprint and storage

Monitor and troubleshoot acquisition performance in detail using Aurora Gecho event-logging tool

Software Environment

Pairs with Aurora Library¹ software

Zebra GevIQ boards support 64-bit Windows[®] and Linux^{®2} through the latest [Zebra Aurora Imaging Library](#) (formerly Matrox Imaging Library). The cards also act as a license fingerprint and can store a supplemental license for Aurora software, avoiding the need for a separate hardware key.

Camera configuration and test utility

Aurora Capture Works is a utility that allows users to rapidly evaluate the performance and functionality of virtually any GigE Vision-compliant camera or 3D sensor. Aurora Capture Works will list all detected GigE Vision-compliant devices connected to each allocated board. It can start or stop capturing images, display acquired images, save the last grabbed image, send a software trigger, as well as browse and control the selected device's features. Users can view and change acquisition properties, as well as view acquisition statistics. Aurora Capture Works is distributed with [Aurora Imaging Library](#); it is also available with [Aurora Imaging Library-Lite](#).



Thorough acquisition monitoring utility

Offered with the above-mentioned software is Aurora Gecho, a logging utility that records events generated by the Zebra GevIQ device driver and saves these to a JSON or CSV file. The utility is made to run concurrently with the application to log acquisition activity for the purpose of troubleshooting capture errors as well as measuring latencies and execution times to identify performance bottlenecks. Resulting trace files can be loaded into [Google Perfetto](#) for viewing on an interactively navigable graphical timeline. Aurora Gecho helps developers optimize image capture and make sure it runs as intended.



Specifications

Zebra GeviQ	
Hardware	
Model	Zebra GeviQ
Host interface	
Interconnect	PCIe® 3.1 x8
Camera/video interface	
Standard	GigE Vision
Configuration	Two (2) network ports
Speeds	1 / 2.5 / 5 / 10 / 25 Gbps
Video inputs	Up to 32 cameras through network switches
Connectors	SFP28
Miscellaneous	Connection-status indicator LEDs
Memory	
Type	DDR4 SDRAM
Quantity	4 GB
Purpose	Image buffering
Image processing capabilities	
Onboard look-up tables	8-/10-/12-bit support
Onboard Bayer interpolation	GB, BG, GR, and RG pattern support
Onboard color space conversion	Input formats: 8-/16-bit mono/Bayer, 24-/48-bit packed BGR
	Output formats: 8-/16-bit mono, 24-/48-bit packed/planar BGR, 16-bit YUV, 16-bit YCbCR, 32-bit BGRa
Physical	
Form factor	Half-length, half-height, PCIe add-in card
Dimensions (L x W x H)	4.86 x 2.16 x 6.91 cm (5.85 x 0.85 x 2.72 in)
Environmental	
Operating temperature	With passive heatsink: 0°C to 45°C (32°F to 113°F) ³
Relative humidity (operating)	20% to 80% (non-condensing)
Relative humidity (storage)	10% to 90% relative humidity (non-condensing)
Certifications	
Electromagnetic compatibility	FCC Class A
Software	
Compatible software	Aurora Imaging Library
Operating system support	Windows 10 and 11 (64-bit)
	Linux ²
Licensing provisions	Aurora Imaging Library license fingerprint and storage

Ordering Information

Part number	Description
Hardware	
GIQ4G2SF28	Zebra GeviQ PCIe 3.1 x8 add-in card for GigE Vision interface and offload with 4 GB DDR4 SDRAM, two SFP28 ports and a passive heatsink ³ . Partially licensed for Aurora Imaging Library software.
Software	
Included with GIQ4G2SF28	Licensed for the Aurora Imaging Library Interface (GigE Vision) run-time package. See Aurora Imaging Library datasheet for more information. Aurora Imaging Library-Lite software available for download
Accessories	
Available from third parties	SFP28 direct attach copper and active optical connectors and cables.

Endnotes:

1. The software may be protected by one or more patents; see [Patents](#) for more information.
2. Ask for availability.
3. Operating temperature rating assumes airflow of 150 LFM (linear feet per minute) over the board.
Contact a Aurora Imaging sales representative for ventilation requirement for multiple board configurations.



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