



Emergent Vision Technologies Showcases High-Speed GigE Vision Machine Vision Camera Ecosystem and Benefits

PORT COQUITLAM, British Columbia — Aug. 3, 2023 — Emergent Vision Technologies, a pioneer in high-speed GigE Vision cameras and zero-data-loss vision technologies, has released a new video presentation that details major advancements in high-speed imaging technologies, including [machine vision cameras](#), [network interface cards](#) and other processing technologies, and [software](#). The [presentation](#) also looks at the technology behind GigE Vision and how understanding this can help deliver the highest camera performance with the lowest system simplicity in the market.

High-speed inspection today requires machine vision cameras capable of handling the required speed and data rates with high reliability and performance. Even with the machine vision industry's most popular interface—GigE Vision—differences exist between communications protocols that, when understood, can unlock the next level of performance in high-speed imaging. This presentation explains the differences between a GigE Vision Stream Protocol (GVSP) that leverages the user datagram protocol (UDP) approach, as opposed to remote direct memory access (RDMA), RDMA over Converged Ethernet (RoCE), and transmission control protocol (TCP), and how it can help systems integrators, OEMs, and end users achieve top system performance.

“An optimized GSVP approach can deliver true [zero copy image transfer](#) with the lowest latency and jitter, while remaining fully GigE Vision compliant,” said John Ilett, president, CTO, and founder of Emergent Vision Technologies. “While the proprietary RDMA/RoCE and TCP options offer some of the benefits of GigE Vision, they rely on flow control and resends, which can impact performance and induce latency and jitter.”

Powerful Processing Support

The presentation also dives into processing technologies—including NVIDIA GPUs, FPGAs, and Emergent's award-winning software and proprietary NICs—and how they unlock new capabilities for high-speed imaging, such as zero copy image transfer and [GPUDirect](#). Additionally, the presentation covers the adoption of 10GigE and beyond while showcasing new [high-speed imaging demonstrations](#) featuring 24- and 48-camera setups using eCapture Pro software and GPU Direct, along with several helpful animations that provide additional context to the technology.

“In high-speed imaging applications where multiple 10GigE, 25GigE, or 100GigE streams are used, real-time processing will require offload technologies to more suitable processing technologies than just system memory and CPU, which is a point that does not come up often when alternate interface or protocol methods are discussed,” said Ilett. “By leveraging an optimized, UDP-based GVSP approach, Emergent has dedicated the development of its GigE [Vision camera ecosystem](#) to reliably support today's most challenging high-speed imaging applications.”

[View the full on-demand presentation, which was originally aired as part of the 2023 Vision Spectra Conference, here.](#)

Emergent Vision Technologies has been shipping 10GigE for more than 10 years, 25GigE for five years, and 100GigE for two years. Avoid the imitators. Engage the innovators.

For more information, visit www.emergentvisiontec.com or [contact us here](#).

About Emergent Vision Technologies

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Emergent Vision Technologies was founded in 2007 in Vancouver, Canada. We are the first providers of cameras based on the 10 Gigabit Ethernet (10GigE), 25 Gigabit Ethernet (25GigE), 50 Gigabit Ethernet (50GigE), and 100 Gigabit Ethernet (100GigE) interfaces. Our team comes with vast experience in machine vision and high-speed imaging solutions, from design to engineering, manufacturing, consulting, and technical support. Our high-speed cameras are widely used in the areas of inspection and automation, sports technology, virtual reality, 3D mapping, traffic, and more.

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