Vadzo Imaging Launches Sony(R) Pregius S IMX900 Global Shutter Monochrome Sensor based Ultra Fast USB 3.2 Gen 2x2 Camera

Sony IMX900 Pregius S Industrial Global Shutter UVC Camera | Ultra Fast 20Gbps USB 3.2 Gen 2x2 | Quad HDR | Excellent NIR Sensitivity at 850nm and 940nm

Sony IMX900 Global Shutter Camera

TEL AVIV, ISRAEL, June 2, 2026 /EINPresswire.com/ -- Vadzo Imaging today announced the VAJRA-900MGS, a high-performance 3MP Monochrome Camera with global shutter and USB 3.2 Gen 2x2 UVC interface built on the Sony IMX900 Pregius S sensor and powered by the Infineon EZ-USB™ FX20 controller. Leveraging USB 3.2 Gen 2x2 over a single USB Type-C interface, the camera delivers up to 20 Gbps throughput-addressing the bandwidth limitations of conventional USB 3.2 Gen 1 and Gen 2 vision systems. Designed for high-data-rate industrial imaging, the VAJRA-900MGS targets advanced automation, robotics, AGV/AMR, and embedded AI applications.

The VAJRA-900MGS integrates with the Sony IMX900 Global Shutter Camera, with exciting features such as Quad HDR up to 120 dB, Fast AE, Quad Shutter Control, and superior NIR sensitivity at 850nm and 940nm. These features deliver distortion-free global shutter imaging in high-speed, high-precision environments such as industrial inspection, robotic automation, smart parking systems, and embedded AI applications. The camera conforms to the USB Video Class (UVC) standard, ensuring integration across Windows, Linux, and embedded systems, while exposing extended camera controls through the VISPA ARC SDK API.

Core Capabilities of the VAJRA-900MGS 3MP Monochrome Camera - USB 3.2 Gen 2x2 UVC with Global Shutter

USB 3.2 Gen 2×2 (Up to 20 Gbps Interface): Enables high-bandwidth, uncompressed image streaming over a single USB-C connection with minimal end-to-end latency. Dual-lane operation via Infineon EZ-USB™ FX20 ensures reliable 20 Gbps throughput, supporting high-frame-rate applications in industrial automation, robotics, and AGV/AMR systems.

3MP Global Shutter Imaging (2064 × 1552 Active Pixels, 1/3.1" Optical Format): Built around the Sony IMX900 sensor, the system delivers true global shutter acquisition. By eliminating motion skew and rolling artefacts at the source, it ensures spatial accuracy in high-speed robotics, precision inspection, and AGV/AMR navigation workflows where motion fidelity directly impacts system reliability.

Quad HDR (Up to 120 dB Dynamic Range): Enables accurate image acquisition in high-contrast scenes, preserving detail in both shadowed and brightly illuminated regions. This ensures reliable inspection in reflective, backlit, and variable lighting environments.

Fast Auto Exposure (Fast AE): Reduces exposure latency during abrupt lighting transitions, maintaining frame-to-frame stability and exposure consistency in motion-driven industrial systems such as conveyor-based inspection and mobile robotics.

Near-Infrared (NIR) Sensitivity: With enhanced NIR response and reduced incident light angle dependency, the IMX900 provides accurate, high-SNR imaging for inspection, robotic guidance, and low-light industrial applications, even under constrained illumination.

Deterministic Low-Latency Streaming: Via Ultra Fast 20 Gbps USB 3.2 Gen 2×2 Type C Interface, the VAJRA 900MGS enables uncompressed, high-frame-rate video transfer with minimal latency, supporting precise robotic motion, real-time inspection, and embedded AI inference.

Full Control, Seamless Integration: The VISPA ARC SDK gives developers direct access to all camera features, real-time controls, and platform integration across Windows, Linux, and embedded systems, with APIs in C, C++, C#, and Python.

VISPA ARC SDK

The Vadzo VISPA ARC SDK is a programmable control framework designed to unlock the full performance of the VAJRA-900MGS IMX900 Global Shutter Camera based on the Sony® Pregius S IMX900 sensor. While maintaining native UVC interoperability, the SDK enables advanced access to sensor configuration, imaging controls, and real-time video management beyond standard UVC feature sets.

Through the VISPA ARC SDK, developers can:

- Configure dynamic Regions of Interest (ROI) for application-specific field-of-view optimisation

- Implement ROI-based Auto Exposure for stable, region-prioritized illumination control

- Control hardware triggering and flash synchronisation for motion-critical imaging workflows

- Access sensor-level parameters including binning, windowing, exposure timing, and frame control

- Perform secure firmware configuration and field updates

The VISPA ARC API provides native support for C, C++, C#, and Python, enabling streamlined integration across desktop systems, embedded platforms, and edge AI deployments while maintaining deterministic performance and low-latency image streaming.

Target Applications

The VAJRA-900MGS IMX900 monochrome global shutter USB 3.2 Gen 2x2 UVC camera is designed for high-throughput, motion-critical, and data-intensive vision systems across multiple industrial and embedded domains, including:

Industrial Automation & Inspection

- PCB inspection and semiconductor wafer analysis

- Surface defect detection and precision metrology

- Inline quality control and production line monitoring

Robotics & Autonomous Systems

- Pick-and-place automation and conveyor tracking

- Visual servoing and real-time robotic guidance

- AMR/AGV navigation and obstacle detection

Collaborative robot (cobot) vision and 3D reconstruction

- Enterprise & Commercial Imaging

- Document scanning and kiosk-based vision systems

- Barcode decoding, OCR, and identity verification

Edge AI & Smart Vision Systems

- Embedded analytics and real-time inference platforms

- Low-light and near-infrared (NIR) imaging applications

- Biometrics and vein pattern recognition

- Material sorting and inspection under structured NIR illumination

Motion-Critical & Scientific Imaging

- Laboratory instrumentation and scientific analysis

- High-speed motion capture and validation systems

- Real-time monitoring and production diagnostics

Frequently Asked Questions

1) Why does this camera use USB 3.2 Gen 2×2 instead of standard USB 3.2 Gen 2? What's the real-world difference?

Standard Gen 2 delivers 10 Gbps; Gen 2×2 doubles that to 20 Gbps over a single USB-C cable via the Infineon EZ-USB™ FX20 dual-lane controller. This allows uncompressed 3MP streaming at high frame rates, eliminating the bandwidth bottlenecks that force other cameras to compress or drop resolution.

2) What does "global shutter" mean, and why does it matter for industrial or robotics use?

Global shutter captures all pixels at the same instant, eliminating the motion skew and distortion caused by rolling shutters. This is essential for fast-moving subjects, conveyor belts, robotic arms, and AGVs, where spatial accuracy directly impacts inspection reliability and system performance.

3) Does the camera work plug-and-play, or do I need special drivers and SDK to use it?

It works natively via UVC on Windows, Linux, and embedded platforms, no custom driver needed. The optional VISPA ARC SDK (C, C++, C#, Python) unlocks advanced controls: hardware triggering, ROI-based auto exposure, flash sync, binning, and firmware updates.

4) What makes the IMX900 sensor suitable for NIR imaging is it useful without an external IR light source?

The IMX900 has enhanced NIR sensitivity at 850 nm and 940 nm, so it performs well with even a modest IR illuminator. In complete darkness without any IR source, performance is limited; a paired 850 nm or 940 nm LED array is recommended for NIR-specific use cases like vein

recognition, biometrics, or structured NIR inspection.

5) What is Quad HDR, and how does 120 dB dynamic range help in real industrial environments?

Quad HDR combines four exposures into one frame, achieving up to 120 dB dynamic range, roughly double that of standard industrial cameras. In mixed-lighting environments like factory floors with reflective surfaces, backlit labels, or sun/shadow conditions, it preserves detail in both bright and dark regions simultaneously, preventing missed defects or failed reads that standard cameras would produce.

Availability

Engineering samples and production quantities of the VAJRA-900MGS are available immediately. Product documentation, configuration resources, and evaluation requests are accessible at www.vadzoimaging.com.

Organisations seeking pricing, customisation options, or design-in collaboration may contact Vadzo Imaging for technical and commercial support.

About Vadzo Imaging

Vadzo Imaging develops embedded vision cameras and configurable imaging platforms across USB, MIPI, GigE, Wi-Fi, and high-speed SerDes interfaces. Vadzo delivers OEM camera solutions for industrial automation, robotics, healthcare systems, smart mobility, and edge AI deployments, with a focus on performance-optimised imaging and long-term product continuity.

Beyond hardware, Vadzo provides end-to-end engineering support, including sensor integration, ISP tuning, firmware customisation, and software development tools to accelerate customer design cycles and enable seamless system integration.

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