



P4728D

ST introduces new image sensors for industrial automation, security and retail applications

- *Four new 5MP image sensors allow customers to optimize image capture with high speed, high detail with a single, flexible product instead of two chips*
- *New device family is ideal for high-speed automated manufacturing processes and object tracking*
- *New sensors leverage market-leading technology for both global and rolling shutter modes, with a compact 2.25µm pixel with advanced 3D stacking, and on-chip RGB-IR separation*

Geneva, Switzerland – October 20, 2025 — STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, introduces a new family of 5MP CMOS image sensors: [VD1943](#), [VB1943](#), [VD5943](#), and [VB5943](#). These advanced [ST BrightSense](#) sensors are designed to accelerate the development of innovative vision applications across industries, including advanced industrial automation with enhanced machine and robotic vision, next-generation security including biometric identification and traffic management, and smart retail applications such as inventory management and automated checkout. A longtime leader in optical sensing technology for consumer applications, ST continues to expand its offering for new applications with its industry-leading design, 3D stacking expertise and high-volume manufacturing for market-leading performance.

"Our new image sensors with hybrid global and rolling shutter modes allow our customers to optimize image capture, ensuring motion-artifact-free video capture and low-noise, high-detail imaging at the same time, making it ideal for high-speed automated manufacturing processes and object tracking. This architecture is unique on market today and provides unmatched flexibility, performance, and integration. We continue to broaden our portfolio of solutions for a wide range of industrial applications and want to bring the best of optical sensing technologies to both existing and new applications," said **Alexandre Balmeffre**, **Executive Vice President and General Manager of STMicroelectronics's Imaging Sub-Group**.

"Industrial and security imaging are pushing sensor performance to new levels, enabling functions from identification to robotic guidance, gauging and advanced monitoring and inspection," said **Florian Domengie**, **PhD Principal Analyst Imaging at Yole Group**. *"By 2030, this image sensor market is projected to reach \$3.9 billion with over 500 million units shipped. Key advances will include enhanced low-light performance, on-chip intelligence, and hybrid global/rolling shutter operation, combining low noise with high-precision temporal sensing."**

*Source: [Status of the CMOS Image Sensor Industry 2025](#) – 3D Imaging & Sensing 2025, Yole Group

Technical notes

The VD1943, VD5943, VB1943, and VB5943 sensors, part of the ST BrightSense portfolio, are ready for evaluation and sampling, with mass production scheduled to begin in February 2026. Detailed documentation, evaluation kits, and product samples, are available through the local ST sales representative or an authorized distributor.

Product code	Chroma	Package
VD5943	Monochrome	Sensor die
VB5943	Monochrome	OBGA sensor
VD1943	RGB-IR	Sensor die
VB1943	RGB-IR	OBGA sensor

Dual global and rolling shutter modes

The sensors provide hybrid global and rolling shutter modes, allowing developers to optimize image capture for specific application requirements. This functionality ensures motion-artifact-free video capture (global shutter) and low-noise, high-detail imaging (rolling shutter), making it ideal for high-speed object tracking and automated manufacturing processes.

Compact design with advanced pixel technology

Using 2.25 µm pixel technology and advanced 3D stacking, the sensors deliver high image quality in a smaller footprint. The die size is 5.76 mm by 4.46 mm, with a package size of 10.3 mm by 8.9 mm, and an industry-leading 73%-pixel array-to-die surface ratio. This compact design enables integration into space-constrained embedded vision systems without compromising performance.

On-chip RGB-IR separation

The RGB-IR variants of the sensors feature on-chip RGB-IR separation, eliminating the need for additional components and simplifying system design. This capability supports multiple output patterns, including 5MP RGB-NIR 4x4, 5MP RGB Bayer, 1.27MP NIR subsampling, and 5MP NIR smart upscale, with independent exposure times and instant output pattern switching. This integration reduces costs while maintaining full 5MP resolution for both color and infrared imaging.

Enhanced imaging performance

The sensors incorporate backside illumination (BSI) and capacitive deep trench isolation (CDTI) pixel technologies to enhance sensitivity and sharpness, particularly in low lighting conditions. Single-frame on-chip HDR improves detail visibility across bright and dark areas. These features enable high-quality imaging in challenging environments and support advanced machine vision and edge AI applications.

About STMicroelectronics

At ST, we are 50,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An integrated device manufacturer, we work with more than 200,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of cloud-connected autonomous things. We are on track to be carbon neutral in all direct and indirect emissions (scopes 1 and 2), product transportation, business travel, and employee commuting emissions (our scope 3 focus), and to achieve our 100% renewable electricity sourcing goal by the end of 2027.

Further information can be found at www.st.com.

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