

# Gigajot Unveils World's First Commercially Available Quanta Image Sensors

Market Leading 0.19e- Read Noise Enables Photon Counting Cameras at Room Temperature

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PASADENA, Calif., May 18, 2021 /PRNewswire/ -- Gigajot Technology, inventors of the Quanta Image Sensor (QIS), today announced the first QIS products, marking the dawn of a new era in solid-state imaging. The CMOS-based QIS devices utilize Gigajot's patented sensor architecture and pixel design to achieve record low noise that enables accurate detection of individual photons of light. The new QIS products are capable of photon counting at room temperature while operating at full speed, and achieving high dynamic range – all in small pixel, high resolution formats. With 5-10x read noise improvement over conventional small pixel image sensors, QIS enables imaging at ultra-low light levels not previously possible.

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Quanta Image Sensor Camera Development Kit



Gigajot's pioneering QIS products target high performance imaging applications such as scientific, medical, defense, industrial, and space. The 16-megapixel GJ01611 utilizes a 1.1-micron pixel to achieve room temperature 0.19 electron read noise and less than 0.09 electron/second/pixel dark current, while the 4-megapixel GJ00422 employs a 2.2-micron pixel and provides 0.27 electron read noise with single-exposure high dynamic range of 100 dB. These innovations will be presented at the Symposium on VLSI Technology, June 19, 2021. Leveraging advanced stacked CMOS backside-illuminated (BSI) sensor process technology, the sensors are capable of photon counting at room temperature without elaborate cooling systems - made possible by industry leading dark current and read noise. Gigajot's proprietary readout architecture enables photon counting cameras to operate at high-speed and low-power. Additionally, the single-exposure high dynamic range mitigates the motion artifacts that result from conventional multi-exposure HDR techniques.

Photon counting and reliable photon number resolving, until now, only partially available utilizing esoteric EMCCD technology in highly controlled laboratory environments, is now possible with a compact form-factor camera, operating at room temperature - with the



additional benefits of higher resolution and speed. "The ability to do photon counting at room temperature is a game changer for our research efforts in Astrophysics and Quantum Information Science," said Dr. Don Figer, Director of Center for Detectors and the Future Photon Initiative in the College of Science, Rochester Institute of Technology.

GJ00422 and GJ01611 evaluation and camera development are supported by Gigajot's Camera Development Kit (QIS CDK). Available now, the QIS CDK has a SuperSpeed USB 3.0 interface and user-friendly software, in a small form factor. Capable of true photon counting out of the box, the QIS CDK can be setup in minutes for evaluation or incorporated directly in customer systems.

*About Gigajot Technology, Inc.: Headquartered in Pasadena, CA, Gigajot is developing the next generation of image sensors. Gigajot's mission is to develop innovative Quanta Image Sensor (QIS) devices and advance this technology for the next generation of image sensors, offering high-speed and high-resolution single-photon detection to realize new, unprecedented image capture capabilities for professional, and consumer cameras. At Gigajot, every photon counts. For more information, visit [www.gigajot.tech](http://www.gigajot.tech).*

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