OMNIVISION and Seeing Machines Develop World First ASIC with Integrated ISP and Occula® NPU Optimized for Driver and Occupant Monitoring Systems

Announced at CES 2022, the new solution combines OMNIVISION's image signal processing technology with Seeing Machines' industry-leading Occula® neural processing unit to provide automotive OEMs a cost-effective and highly efficient DMS/OMS solution

SANTA CLARA, Calif. and CANBERRA, Australia – January 5, 2022 – OMNIVISION, a leading global developer of semiconductor solutions, including advanced digital imaging, analog and touch & display technology, together with Seeing Machines, the advanced computer vision technology company that designs AI-powered operator monitoring systems to improve transport safety, announce the automotive industry's first dedicated driver monitoring system (DMS) and occupant monitoring system (OMS) application-specific integrated circuit (ASIC) that combines an image signal processor (ISP) and is powered by Seeing Machines' Occula® Neural Processing Unit (NPU).

OMNIVISION announced the world's first dedicated DMS ASIC with an integrated AI NPU, ISP and DDR3 memory in January 2021 (OAX8000). The new OAX4600 integrates the Occula® NPU. It will feature a higher level of processing and performance, comply with ASIL B advanced safety standards, and is based on a much deeper level of partnership with ecosystem vendors. It will include an optimal HW RGB-IR ISP, cybersecurity and deliver the most power efficient solution.

"OMNIVISION has been working with Seeing Machines for more than five years now and was the first to execute a silicon license for the Occula® NPU in 2021. Today, we are unveiling our unique ASIC implementation, the OAX4600, featuring an integrated ISP and NPU, capable of higher resolution processing of up to 5 megapixels (MP)," said Andy Hanvey, director of automotive marketing, OMNIVISION. "With the need for automotive-grade RGB-IR processing solutions, OMNIVISION brings its knowledge and leadership in ISP processing together with its highly optimized OAX4600 implementation that minimizes DDR bandwidth requirements. We will be releasing the combined solution which is ideal for space-constrained automotive integrations, such as in rear view mirror, in the second half of this year to deliver improved efficiency and the lowest power to automotive OEMs."

"The rear-view mirror is the critical integration point for automotive OEMs to add occupant monitoring that adheres to the Euro NCAP roadmap for distracted, drowsy and, in the future, impaired driving detection," says Colin Barnden, principal analyst at Semicast Research. "However, the mirror is both space and power constrained, demanding a highly-optimized imaging signal chain to meet the conflicting needs of high-performance vision processing with very low power consumption. Together the OX05B1S sensor and OAX4600 processor represent the interior sensing equivalent of an ace high royal flush, combining 5MP resolution with best-in-class image processing and low power consumption. It isn't obvious how this solution could be bettered on a performance-per-watt basis and looks positioned to be extremely successful in the automotive OEM nominations for occupant monitoring to be decided throughout this year and next."

"We are excited to be working with OMNIVISION to bring this optimized DMS/OMS solution to the market. With the introduction of the OAX4600 device, OMNIVISION now occupies a unique position in the silicon space as the only company that can offer a physical pipeline from pixel to the processing," added Nick DiFiore, SVP and GM of automotive at Seeing Machines. "Pairing Seeing Machines' Occula NPU, and expert knowledge of the associated algorithms and optical space, with OMNIVISION's market leading imaging solutions, the OAX4600 brings the first truly optimized DMS/OMS standalone SoC processing solution."

Availability of the combined ASIC IP solution is expected in 2H 2022. For more information, contact your OMNIVISION sales representative: www.ovt.com/contact-sales.

About Seeing Machines
Seeing Machines (LSE: SEE), a global company founded in 2000 and headquartered in Australia, is an industry leader in vision-based monitoring technology that enable machines to see, understand and assist people. Seeing Machines' technology portfolio of AI algorithms, embedded processing and optics power products that need to deliver reliable real-time understanding of vehicle operators. The technology spans the critical measurement of where a driver is looking, through to classification of their cognitive state as it applies to accident risk. Reliable "driver state" measurement is the end-goal of driver monitoring systems (DMS) technology. Seeing Machines develops DMS technology to drive safety for automotive, commercial fleet, off-road and aviation. The company has offices in Australia, the U.S., Europe and Asia, and supplies technology solutions and services to industry leaders in each market vertical. For more information, visit seeingmachines.com.

About OMNIVISION
OMNIVISION is a global fabless semiconductor organization that develops advanced digital imaging, analog and touch & display solutions for multiple applications and industries, including mobile phones; security and surveillance; automotive; computing; medical; and emerging applications. Its award-winning innovative technologies enable a smoother human/machine interface in many of today's commercial devices. Find out more at www.ovt.com.

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