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STMicroelectronics Launches LaSAR, an Ecosystem to Accelerate Development of Augmented-Reality Eyewear Applications

- *Applied Materials, Dispelix, Osram, and Mega1 contribute leading-edge technology and manufacturing expertise to meet demanding AR smart-glass requirements*
- *Builds on ST leadership in MEMS¹ micro-actuation and BCD² process technologies*

Geneva, Switzerland, October 7, 2020 – STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, announces the launch of the LaSAR Alliance (Laser Scanning for Augmented Reality), an ecosystem of leading technology developers, suppliers and manufacturers collaborating to develop and accelerate Augmented Reality (AR) smart-glass solutions. Founding members in the LaSAR Alliance include Applied Materials, Dispelix, Mega1, and Osram, in addition to ST.

The Alliance is focused on meeting the technical challenges required for all-day wearable smart glasses. The eyewear will balance a small, light-weight form factor and extremely low-power operation with good FoV (Field-of-View) and a large eyebox. The founding members coalesced around the recognition that near-to-eye displays based on ST-developed Laser Beam Scanning (LBS) solutions have demonstrated the potential to meet all these requirements.

The LaSAR Alliance brings together all the foundational elements -- a MEMS micro-mirror platform and BCD expertise from ST, compact illumination sources from Osram, advanced waveguide elements from Applied Materials and Dispelix, and the overall integration of these devices into a small optical light engine from Mega1. These elements can be assembled into AR-enabled smart glasses that are stylish, functional, comfortable and deliver critical application-specific information. The Alliance's mission is to facilitate the development, availability, and support of all key technology elements for rapid AR-enabled smart-glass application creation, adoption, and volume production.

“With its leadership developing and delivering in volume a high-performance, low-power, laser-beam scanning MEMS micro-mirror solution that combines MEMS mirrors, MEMS driver, laser driver, and control software, ST recognized the value of its technology to Augmented Reality and especially to Smart Glasses and Eyewear,” said Anton Hofmeister, Vice President and General Manager MEMS Microactuator Division, STMicroelectronics.

¹ MEMS (Micro-Electro-Mechanical Systems) are miniaturized mechanical and electro-mechanical elements manufactured on a small piece of silicon using semiconductor processing and manufacturing technology. Micro-actuators are MEMS devices that generate mechanical motion of solids or fluids, including the movement of micro-mirrors.

² BCD (BIPOLAR-CMOS-DMOS) is a key technology for power ICs. ST invented this technology—revolutionary at the time—in the mid-eighties and has continually developed it ever since. BCD is a family of silicon processes, each of which combines the strengths of three different process technologies onto a single chip: Bipolar for precise analog functions, CMOS (Complementary Metal Oxide Semiconductor) for digital design, and DMOS (Double Diffused Metal Oxide Semiconductor) for power and high-voltage elements.

“In working with Applied Materials, Dispelix, Osram, and Mega1 to bring their critical expertise to establish LaSAR, we see a powerful alliance of exceptional technical strength that aims to accelerate the adoption of Augmented Reality in comfortable Smart Glass eyewear through foundational developments.”

“One of the most critical requirements needed to support widespread growth of the AR industry is the ability to manufacture high-quality, high-performance, affordable waveguides,” said Wayne McMillan, General Manager of Applied Materials’ Engineered Optics™ program. *“Applied Materials is answering this need with our decades-long leadership in materials engineering and expertise in precision manufacturing at an industrial scale. We are excited to work with the LaSAR Alliance and others in the industry to accelerate the availability of all-day-wear smart glasses for AR applications.”*

“Dispelix is delighted to join the LaSAR Alliance. We’re combining our world-leading waveguide technology with advanced technologies from the alliance partners to make it easier for our customers to integrate a complete display solution for advanced all-day wearables. Our innovations will set a new benchmark for what is already the thinnest and lightest waveguide technology in the industry – without sacrificing image quality,” said Juuso Olkkonen, Dispelix CTO and co-founder.

“Miniaturized modular integration and automated volume production play pivotal roles in the ultimate success of the next generation AR wearable. Mega1’s LBS solution integrates all critical modules into 1.2cc in 3g light-weight optical engine. With aligned mission of LaSAR, Mega1 facilitates its strength to manufacture for volume production. We believe true AR adoption will come to realization soon with this powerful Alliance,” said CTO & COO, Makoto Masuda, Mega1.

“We constantly work to miniaturize and optimize our RGB (Red, Green, Blue) laser portfolio because we know size and power are critical parameters for our AR customers,” explains Jörg Strauss, General Manager and Vice President of Visualization & Laser at Osram Opto Semiconductors. *“Being a founding member of LaSAR enables us to contribute to the alliance’s technical strength that will help resolve the system challenges of LBS adoption in all-day-wear AR eyewear.”*

About STMicroelectronics

At ST, we are 46,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An independent device manufacturer, we work with our 100,000 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 the Internet of Things and 5G technology. Further information can be found at www.st.com.

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