Advanced Micro Foundry Pte Ltd
11 Science Park Road
Singapore Science Park II
Singapore 117685

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MEDIA RELEASE
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A*STAR SPIN-OFF AMF INTRODUCES NEW SILICON PHOTONIC PLATFORMS FOR SOLID STATE LIDAR AND TELECOMMUNICATION DEVICES

Highlights:

- **Germanium on Silicon platform enables solid state LiDAR to operate at 1.55 micrometers wavelength, increase detection range and meet laser safety standards**

- **Silicon Nitride on SOI platform integrates high density 3D optical devices in single chip**

1 November 2018

SINGAPORE - Advanced Micro Foundry (AMF) Pte Ltd, the world's first silicon photonics specialty foundry today announced the availability of two new technology platforms further expanding the company offering.

AMF, a spin-off from the Institute of Microelectronics (a research institute under ASTAR - the Agency for Science, Technology And Research), specializes in Silicon Photonics Technology and supplies worldwide customers.

Dr Tan Yong Tsong, the Company's Chief Executive Officer said that "although hidden from the eyes of the general public, Silicon Photonics technology is the backbone of optical high-speed data transmission and AMF has been at the forefront of R&D in this field. Our proprietary technology has been highly successful and is used across data centers and telecommunication devices worldwide".

The new technology platforms now made available to AMF customers will allow the company to provide advanced performance for telecommunication devices and to expand into other fields such as Solid State LiDAR (Light Detection and Ranging).

Although the demand for LiDAR devices is increasing, driven by the development of industry automation, drones and autonomous vehicles, the current technology offering is dominated by bulky and costly rotating devices. Solid state LiDAR offers a path to low cost, small form

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factor devices that can be easily integrated and have attracted much attention.

Current LiDAR devices also use a light source that faces power limitations to remain safe for human eyes. The technology developed at AMF focuses on a different wavelength (1.55 micrometers) that is harmless to humans and can thus use higher power, leading to LiDAR functioning over longer distances, a key requirement for automotive applications.

One of the challenges facing this technology was the lack of efficient detectors that can be integrated at low cost on the prevalent CMOS chip technology. Existing detector (called Avalanche Photo Detectors) solutions are based on high-cost materials incompatible with CMOS. Dr Tan explained that “the detector technology developed at AMF is based on Germanium, a material that can easily be integrated on CMOS and allows the detection of low intensity signal. This places AMF in an ideal position to work with LiDAR suppliers and to contribute to the development of autonomous vehicles”.

Dr Tan added that AMF also remains focused on supporting its existing customer base by always providing better performance and the company also released a new platform enabling the development of densely integrated on-chip solutions for optical networks. This technology, based on Silicon Nitride, supports 3D integration of optical components while improving their performance and is critical in supporting the technology roadmap of telecommunication chips.

Dr Tan concluded that “the introduction of these two key technologies bears testament to the talent of the teams assembled since the creation of AMF less than a year ago and will reinforce the competitiveness of the Company and will help strengthen the role of Singapore in all Photonics based applications”.

For media queries and clarifications, please contact:

Louis Lee
Director, Business Operations
Advanced Micro Foundry Pte. Ltd.
+65 6909 6394
louislee@advmf.com

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About Advanced Micro Foundry

AMF specializes in customizable prototyping and volume wafer manufacturing services for Silicon Photonics integrated circuits. AMF manufacturing services are the back-bone technology to a global customer base in the emerging markets of Data Centers, Telecom, Automotive, Medical and environmental sensors.

A spin off from IME, A*STAR, AMF was incorporated in 2017. AMF's core technology has been globally acclaimed as technology par excellence over the last decade and widely deployed in multiple markets.

AMF offers customize Foundry services which enable customers to design, develop and manufacture integrated Photonics Chips for a broad range of applications – Cloud computing, Cloud security, 5G communications, Autonomous Vehicles and Diagnostic chips. AMF services are offered in the format of customizable technology platforms based on Silicon, SOI (Silicon On Insulator), SiN (Silicon Nitride) & Germanium materials.

For more information, please visit www.advmf.com

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