



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

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Advanced Micro Foundry Pte Ltd and Denselight Semiconductors Pte Ltd to jointly develop Si Photonics optical engine with integrated InP based lasers.

On September 3rd, 2020, Advanced Micro Foundry Pte Ltd (AMF), a leading commercial pure-play Silicon specialty foundry and Denselight Semiconductor Pte Ltd, a vertically integrated end to end Indium Phosphide (InP) laser light solutions provider with its own InP MOCVD technology and wafer fab in Singapore entered into a Memorandum of Understanding to jointly develop Silicon Photonics Solutions with integrated lasers.

The data traffic within data centers is projected to grow rapidly over the next 5 years due to an economy increasingly relying on online solutions and the deployment of 5G technology. This will lead to a higher demand for High Speed Data Center Interconnect technology. Silicon Photonics (SiP) technology is uniquely placed to support these requirements and Si Photonics based solutions started being deployed to support the transition from 100G to 400G. However, Silicon Photonics chips for these applications require the subsequent attachment of an InP based external laser light source and the challenges associated can impact the final optical performance and cost of the interconnects.

By joining forces, AMF and Denselight are combining their respective expertise in Si Photonics manufacturing and Laser development to develop an integrated “low loss – low cost” SiP optical engine with integrated laser light source. Rather than off-the-shelf modules with limited range of specifications, the companies will focus on the development of laser on chip integration solutions that can be applied directly onto customer PIC designs. The solutions will then be offered through the pure-play foundry services of AMF with Denselight’s matching laser integration as part of the AMF Process Design Kits.

The availability of such made-to-order turnkey Si Photonics optical engine solutions with integrated light sources will contribute to lower assembly costs and shorten development cycle times of Transceiver (400G/800G) and Fiber Sensing products.

Dr Patrick Lo, President of AMF mentioned that “for the first time, two Singapore companies are working together to locally develop unique solutions that will promote the widespread adoption of Si Photonics by the Data Communication industry and by other emerging technologies”.

“This MOU creates a unique partnership between two synergistic Singapore based companies to deliver turnkey SiP based solutions to both Datacom & Fiber Sensing customers. Our proprietary **DPHI™** technology enables the integration of InP based



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photronics devices to SiP platforms for efficient light coupling into waveguides” said Rajan Rajgopal, President & CEO of DenseLight.

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Advanced Micro Foundry Pte Ltd (AMF) is a commercial pure-play foundry based in Singapore and is a spin-off of the Institute of Microelectronics, an A*STAR institute. The company provides innovative Si Photonics solutions for advanced applications and offers customized manufacturing services with competitive cycle times based on unique platforms. Services range from MPW to prototyping and large volume manufacturing services for product deployment.

Website: www.advmf.com

Contact: kavithab@advmf.com

About DenseLight Semiconductors

DenseLight specializes in providing end-to-end integrated photonics solutions for the global Photonics & Data Centre markets. Its solutions include design and simulation, epitaxial growth, wafer fabrication, chip production, in-line optical coating, sub-mounting, photonic measurements and product tests and screening. This is accomplished in DenseLight with our state-of-the-art Indium Phosphide (InP) and Gallium Arsenide (GaAs) wafer epitaxial growth and fabrication cleanroom, together with high precision photonics assembly and test facilities.

Website: www.denselight.com

Contact: soma.sankaran@denselight.com