Optical Transceivers & Silicon Photonics Forum

PROGRAM

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Yole Développement

Alexis Debray

Technology & Market Analyst, MEMS, Sensors & Photonics

Alexis Debray, PhD is a Technology & Market Analyst, Optoelectronics at Yole Développement (Yole). As a member of the Photonics, Sensing & Display division, Alexis is today engaged in the development of technology & market reports as well as the production of custom consulting projects dedicated to the imaging industry.
After spending 2 years at the University of Tokyo to develop an expertise focused on MEMS technologies, Alexis served as a research engineer at Canon Inc. During 15 years he contributed to numerous projects of development, focused on MEMS devices, lingual prehension, and terahertz imaging devices.

Martin Vallo

Technology & Market Analyst, Solid-state Lighting

Martin Vallo, PhD is serves as a Technology & Market Analyst specialized in solid-state lighting technologies, within the Photonics, Sensing & Display division at Yole Développement (Yole). With 9 years' experience within semiconductor technology, Martin is involved today in the development of technology & market reports as well as the production of custom consulting projects at Yole.
Prior his mission at Yole, he worked at CEA (Grenoble, France), with a mission focused on the epitaxial growth of InGaN/GaN core-shell nanowire LEDs by MOCVD and their characterization for highly flexible photonic devices. Martin graduated from Academy of Sciences, Institute of Electrical Engineering (Slovakia) with an engineering degree in III-nitride semiconductors.

Trends in Optical Transceivers and Silicon Photonics: Insights into the market, technology and industry

The network traffic growth has been increasing at an enormous pace over the decades and across all segments of the network architectures, from the metro, 5G access to intra-DC networks. This growth has been driven by a newly emerging digital applications – IoTs (AR/VR, connected homes and cars) and services such as streaming UHD videos which need higher and higher data throughput. To enjoy the smooth playing UHD videos or being online when doing a sport or riding a car this requires higher data rates of optical modules. The goals of future optical transceivers are to reduce their size and thus decrease power consumption and increase data throughput. Progress in integration of optical component technologies led to dramatic reductions in complexity and cost of the modules. Silicon photonics is a key enabling technology for further development of optical interconnect solutions needed to address growing traffic. This technology will play an important role in 500m – 80km applications next years. Due to the high competitiveness the players have different strategies of components or modules manufacturing. Trends in players' strategies, future technologies, roadmaps and market forecasts in optical transceivers industry will be discussed in detail. This is your chance to learn straight from analysts of Yole Développement like Alexis Debray and Martin Vallo. So save your spot today.

System Plus Consulting

Sylvain Hallereau

Senior Technology & Cost Analyst

Sylvain Hallereau has been Project Manager at System Plus Consulting since 2000. He is in charge of costing analyses for Integrated Circuits, Power semiconductors and LEDs. He has significant experience in the modeling of manufacturing costs for electronics components, Sylvain holds a Master degree in Microelectronics from the University of Nantes, France.

Silicon Photonics Teardown and Cost Review: Case Study on Intel CWDM

With the 100G Coarse Wavelengh Division Multiplexer (CWDM) and the 100G Single Mode 4-channel (PSM4) technologies, Intel offer the 2 main solutions for the photonic connectors. If the two photonic connectors have similar technologies like the InP laser bonded on the silicon photonic die, mack zenhder modulator. However, the CWDM integrate more complex structures.
The transceiver comes with two separated lines and for each of them several dies. The transmitter silicon photonic die integrates four InP lasers, one for each wavelengths, in a different configuration than the PSM4. On the same die, a Mach-Zehnder modulator is added to modulate the signal, but the CWDM MZI is more complex. Light extraction is performed by the edge of the die and not by a mirror. Other components have been added to the system in order to focus or isolate the signal. Data is processed by using a four-channel 25G optical Clock and Data Recovery (CDR) component from MACOM.
Based on pictures extracted from teardown and physical analysis of Intel 100G CWDM and PSM4 connector, the presentation will highlight the integration choices of Intel for the silicon photonic die, the TIA circuit, the Mach-Zehnder driver circuit, the MACOM circuit and the germanium photodiode.

Broadex Technologies Co. Ltd.

Wenjun Chen

Vice President of Business Development

He received his MS degree in Optical Engineering from Huazhong University of Science and Technology, China. He worked as an NPI engineer at Fiberxon and was a Sales and Marketing Director at Mellanox before he joined Broadex Technologies as VP, Business Development and GM of Active Products Division in 2018.

Packaging Technologies and Applications of Silicon Photonics Products

Compared with traditional optical transceivers, Silicon Photonics requires the use of very different packaging technologies that include special fiber arrays, mux/demux devices and laser alignment and assembly. Consequently, packaging dictates to a large degree the performance, yield and cost of the final Silicon Photonics products. For the next five years, we believe that upgrade of optical networking in data center will be the most important market opportunities for Silicon Photonics products. Huge potential also exists in wireless applications. We will share our views on packaging technologies and discuss market trends for Siliocn Photonics products.

Scintil Photonics

Yannick Paillard

Chief Commercial Officer

Yannick PAILLARD drives Business Development and Marketing activities. He joined Scintil Photonics in September 2019 as its Chief Commercial Officer. Most recently, he was the director of business development and marketing of Dolphin Design and ICTK, both companies developing silicon IP. Before that, he was with STMicroelectronics, where he held various senior management positions in business development, strategic planning, and product marketing, serving in both sales and product organizations in Europe, Asia, and the USA. Yannick received a Master's degree in International Business from Grenoble School of Management (GEM). He also graduated in Electronic Engineering.

800G optical transceivers need a new breed of Integrated Photonics IC, a solution that combines the best of Silicon and InP photonics

With the release of 25.6Tb/s switch ASIC, data center operators will need 800G optical transceivers, whether plugged in the front panel or onboard. Major industry players have been investigating multiple solutions to align with the fragmented data center architectures and use cases. Whichever the adopted scenario, a very compact, power-efficient, and a cost-competitive photonic solution will be required. SCINTIL's technology enables a new level of integration, and we believe, will deliver the
performance requirements needed for this new generation of optical modules.
In the presentation, I will first give some background information on SCINTIL origin. I will continue with a description of our heterogeneous BackSide-on-BOX fabrication process. I will explain how we combine commercially available Silicon Photonics process and III-V/InP materials to develop a massproducible,
fully integrated Photonics IC. And I will conclude with the benefits our optical engines
will offer for supporting the multiple 800G optical module configurations.