



Mobile World Congress
(MWC) 2024

Optical Fiber
Communications
Conference and
Exhibition (OFC) 2024



Sivers Insights from Events in Q1 2024

MWC and OFC

Shaping the future of the Fourth
Industrial Revolution

The Power of Innovation and Collaboration

As the two leading international optical communications, connectivity and networking events, we, Sivers Semiconductors, were excited to return to Mobile World Congress (MWC) 2024, held from Feb 26th-29th in Barcelona, Spain, and Optical Fiber Communications Conference and Exhibition (OFC) 2024, held from 26th – 28th March in San Diego, CA, USA. Our business unit Sivers Wireless represented the company at MWC, and Sivers Photonics was present at OFC.

Mobile World Congress 2024



Future First

Once again, we can state that MWC is the main stage for networking opportunities and collaborative endeavors within the wireless industry. With over 100,000 visitors from 205 countries, MWC Barcelona 2024 was more than just a showcase of the latest tech; the theme “Future First” put emphasis on a broad spectrum of technological advancements such as artificial intelligence (AI), IoT, 5G and Beyond, satellites and non-terrestrial networks (NTNs), reflecting the industry's drive towards more efficient, high-performance, and sustainable wireless communication solutions aimed at reducing the carbon footprint and enhancing the efficiency of mobile networks.

Booth and Demonstration

Our industry-leading mmWave product portfolio of 5G mmWave, unlicensed 5G, and SATCOM included Ka Band SATCOM Bespoke and Broad-market RFSOI Chipsets, RFSOI 28 & 39GHz Beamforming ICs: WLCSP & Antenna in Package, 5G and 60GHz Highly-Integrated RFICs, and 5G mmWave and 60GHz Antenna Modules.



Commercial partners implementing Sivers' suite of state-of-the-art components with exceptional results included Blu Wireless's LightningBlu track-to-train multi-gigabit rail-qualified 5G mmWave solution, Blu Wireless PhantomBlu and Cambium Network's cnWave™ 5G Fixed Customer Premises Equipment (CPE).



Demonstrations

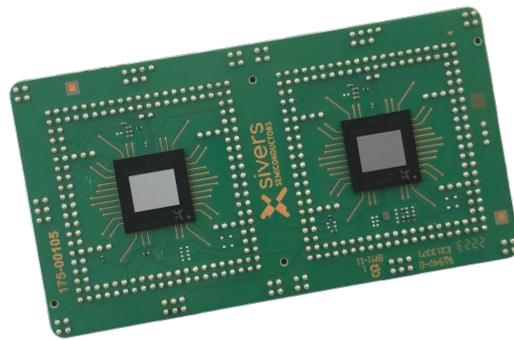
A live demonstration showed a fully-functioning and deployment-ready base station reference design based on NXP's Layerscape® Access LA12xx baseband processor, Sivers Semiconductors' 5G mmWave transceiver module: TRB02801, and PureSoftware's physical layer stack.

A pre-recorded demonstration was shown of the world's first 5G millimeter-wave FR2 stand-alone CPE solution jointly developed by Intel, WiSig, and Sivers. The solution can also be utilized as an integrated backhaul terminal in Sub-6 GHz 5G radio access networks. This unique solution is based on the Intel Agilex FPGA portfolio, Sivers RFIC and antenna technology, and full-stack software developed by WiSig.

A visually stunning model satellite in the booth accompanied by SATCOM messages underscored Sivers' commitment to innovation in the satellite communications space.

Commercial Product Launch

We commercially launched our state-of-the-art 28 GHz low-cost RF module BFM02803, optimized for high-performance, high-power Fixed Wireless Access (FWA) applications. This state-of-the-art module has the flexibility and performance required for large deployments of 28 GHz FWA networks, and will improve the customer business case and make the customers' 28 GHz fixed wireless access product truly competitive.



The BMF02803 module is available for customer sampling.
The TRB02801 RFIC is available for volume production.

For more information on BFM02803:

<https://www.sivers-semiconductors.com/sivers-wireless/wireless-products/rf-modules/bfm02803/>

The BFM02803 module was showcased in the live demonstration of a fully-functioning and deployment-ready base station reference design described earlier.

For further information about this solution, please see:

https://www.sivers-semiconductors.com/sivers_puresoftware_nxp-in-cooperation/

Sivers Highlights

From a Sivers Semiconductors perspective, MWC2024 remains the premier venue for customer interaction, acquisition and collaboration. The interest from customers was quite considerable with many new leads and customers walk-in, as well as interactions with a majority of our current partners. The two major topics of interest were Fixed Wireless Access for 5G and Satellite communication (SATCOM).

The customers who visited us were very interested in finding cost optimized solutions which were alternatives to QCM. They particularly showed interest in our state-of-the-art 28 GHz low-cost RF module BFM02803, as well as our end-to-end demonstrations with the Intel Agilex platform and the NXP's Layerscape® platform.

The interest in 5G remained robust, with significant focus on 5G Advanced (5G-A) technologies that bridge the gap to 6G. There was also considerable discussion on the ongoing evolution towards 6G, emphasizing enhancements in speed, latency, and network efficiency.

The other focus area this year was SATCOM, which Sivers actively promoted for the first time at MWC. Traditionally, MWC has been focused on terrestrial networks, but this year we could see a clear change where all of the big SATCOM players were present. SATCOM was a hot topic, particularly in the context of integrating terrestrial and non-terrestrial networks for global connectivity. We had several interesting meetings with both startups and the biggest companies on the market where they showed great interest in our products and offerings, specifically our broad market chipsets in the Ka Band.

Specific mentions of 60GHz technology were less prominent compared to other bands, but it was part of the broader conversation about expanding high-frequency applications and improving wireless communications.

All in all, there was significant interest in mmWave technology, driven by its potential to deliver high-capacity and high-speed connectivity in dense urban environments. These technologies are crucial for the continued rollout of 5G and the development of future 6G networks.

OFC 2024

OFC

Spotlighting a Thriving and Expanding Optical Communications and Networking Industry

The 2024 OFC exceeded all expectations and solidified its status as the premier global event for optical networking and communications. With 12,500 registrants from 74 countries, a showcase of more than 630 exhibiting companies (23% more than 2023), and hundreds of sessions with industry-renowned and invited speakers, OFC 2024 was an unparalleled gathering for industry professionals and the global hub for innovation and collaboration in the field.

Topics such as 800ZR, Coherent PON, Linear Pluggable Optics (LPO), multicore fiber, artificial intelligence (AI), data center technology, quantum networking and more captured the interest of industry leaders, experts, academia, media, analysts and students worldwide, facilitating the exploration of the latest advancements in optical technology.

Exhibition

The sold-out OFC exhibition was a highlight, featuring more than 630 industry-leading companies representing the entire ecosystem of optical communications and networking. Attendees had the opportunity to explore groundbreaking technologies, innovative optical components, devices, systems, test equipment, software and specialty fiber products.

As a worldwide event, OFC provides startups with the opportunity to debut while industry leaders set the pace for the future. It includes unveiling pioneering trends that will define the industry's trajectory and offer solutions to critical global issues such as quantum networking, artificial intelligence (AI) and data-centre connectivity.

Show Floor Programming

The business-focused show-floor programming provided valuable insights into current market trends and emerging technologies. Market Watch, the Network Operator Summit, and the Data Centre Summit offered perspectives from industry leaders and experts, highlighting the industry's current environment and future prospects.

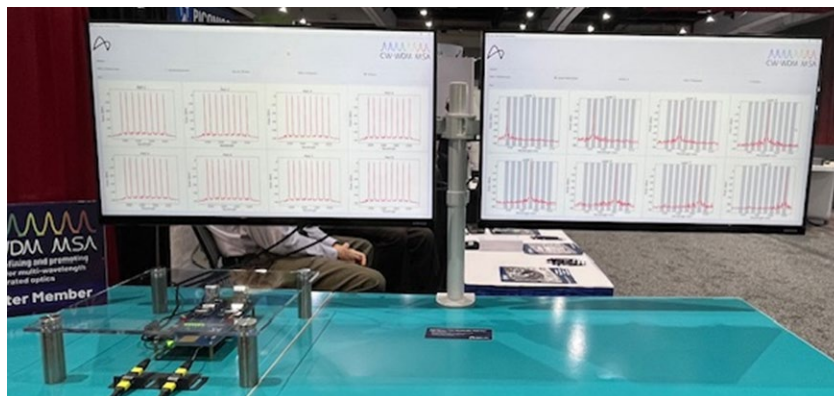
Booth and Demonstration

A live demonstration at the Sivers Photonics booth featured Ayar Labs' 8 channel optical I/O solution with CW-WDM MSA compliant SuperNova™ light source powered by Sivers Photonics' advanced 8x Wavelength DFB laser array.

As the complexity and size of AI models increase, traditional interconnect technology creates data bottlenecks that force GPUs and other accelerators to sit idle, limiting compute performance, increasing power consumption, and driving up costs. Ayar Labs' optical I/O solution eliminates these bottlenecks, enabling customers to maximize the compute efficiency and performance of their AI infrastructure while lowering costs, latency, and power consumption.



A key element in enabling next generation applications including Optical I/O, HPC and AI. The live demonstration showed two SuperNova™ modules, each with 64 total wavelengths, running without active cooling.



Ayar Labs Booth and Demonstration

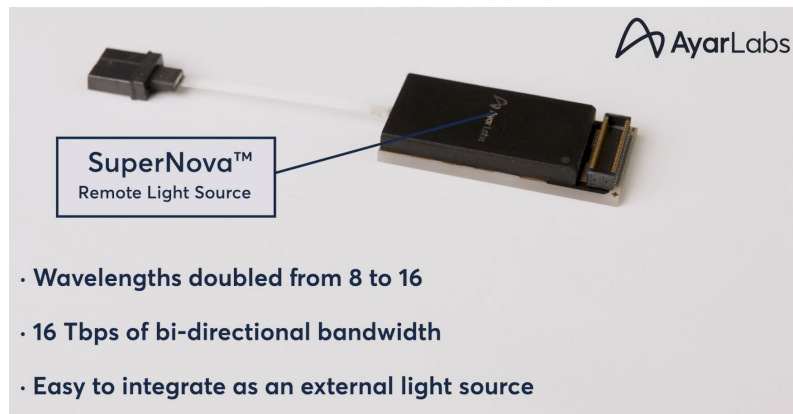
Ayar Labs’ optical I/O solution was also on display at their booth, including a demonstration of the industry’s first CW-WDM MSA-compliant 16-wavelength light source, which can drive 256 optical carriers for 16 Tbps of bi-directional bandwidth – a level of bandwidth essential for AI workloads.



Only one year after introducing the industry’s first 4 Tbps optical solution, Ayar Labs unveiled the second generation of SuperNova, which powers the company’s TeraPHY™ optical I/O chiplet and

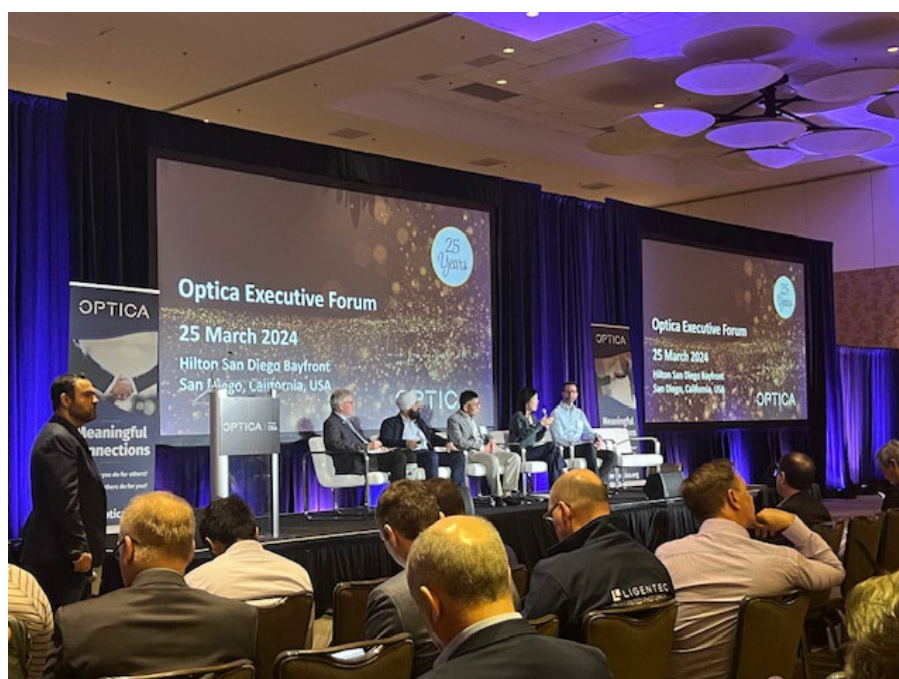
enables an unrivaled 16 Tbps of bi-directional bandwidth.

Compliant with the CW-WDM MSA specification, the 16-wavelength light source offers compact packaging, operates at wide temperature ranges, and can supply light for 256 data channels, making it capable of handling the significantly higher throughput required for the massive growth in AI applications.



Optica Executive Forum - The Premier Annual Event for Leaders in Optical Networking and Communications

Co-located with OFC, this was an Optica Industry Event attended by Andy McKee and Greme Urquhart of Sivers Photonics. The Executive Forum featured C-level panellists in an informal, uncensored setting discussing the latest issues facing the industry and your business. Leaders from top companies discussed critical technology advancements and business opportunities that will shape the network in 2024 and the future.



IMEC ITF Photonics USA Event

Conveniently held on the event of OFC 2024, the Imec Technology Forum presents insights on the rapidly evolving R&D and innovations in integrated photonics. Agenda included,

6:05 PM	Patrick Vandenameele - EVP & co COO, imec General opening keynote
6:20 PM	Philippe Absil - VP R&D, Head of the 3D and Silicon Photonics Technologies Department, imec Silicon Photonics Technology: A platform facing diverging roadmap requirements
6:35 PM	Hong Liu - Fellow/VP, Google Invited keynote: Optical circuit switching for scalable network
06:50 PM	Zhujun Shi - Research Scientist, Meta Reality Labs Visible photonics for Augmented Reality displays
07:05 PM	Dan Harding - CEO, Nubis Communications High density optics for ML/AI applications
07:20 PM	Blair Morrison - Head of Photonic Integration, Xanadu Chip integration for photonic quantum computing
07:35 PM	Panel 'Bridging the gap between technology and manufacturing: challenges and opportunities' Sarah Boen - Director ASIC and Strategic Technology, Tektronix / Jonathan Doylend - Optical AI/HPC Systems Engineering, Meta / Jeroen Duis - CCO, Phix / Andrew McKee - CTO, Sivers Photonics / Philippe Soussan - Strategic Development Director, imec, moderated by Jose Pozo - CTO, Optica

Sivers MD/CTO Dr Andrew McKee was a panelist discussing '*Bridging the gap between technology and manufacturing: challenges and opportunities*', along with representatives of Tektronix, Meta, Phix, and IMEC.



Conclusion

We saw great interest in our products and solutions at both events, AI is a great driving force for optical Communication and for Sivers products. A broad range of Sivers Photonics customers demonstrated products across optical communications and optical sensing powered by Sivers advanced lasers. At MWC, Sivers Wireless gave proof of commercial partners implementing Sivers' suite of state-of-the-art components with exceptional results, which drew great interest.

We had many fruitful meetings with great potential to build Sivers's pipeline for continued growth, mainly within AI Photonics and wireless SATCOM; at OFC underpinned by Sivers Photonics' partnership with AyarLabs, demonstrating our capabilities in enabling next generation applications including Optical I/O, HPC. and AI; at MWC, Sivers Wireless experienced a strong activity in SATCOM and noted a clear upswing in 5G activities for the entire market.

Sivers stands out as a unique technology company, underpinned by competitive, world-class products. In industries built on collaboration and relying on a solid sustainable ecosystem committed to achieve net-zero goals, face-to-face interaction with our customers and peers yet again proved to be invaluable.

Anders Storm

CEO Sivers Semiconductors