

ams OSRAM unveils breakthrough Thin-Film VCSEL for AI Scale-Up, showcasing connectorized multi-core fiber solution and expanding ecosystem network

Moving data efficiently is becoming one of the defining challenges of next-generation AI systems. As AI clusters continue to scale, optical interconnects are emerging as critical technology for enabling higher bandwidth at significantly lower power consumption.

- Expanding ams OSRAM's Digital Photonics Interconnects platform into AI scale-up through a growing ecosystem of industry partners
- Introducing next-generation 850nm Thin-Film microVCSEL arrays with addressability enabling highly parallel "wide-and-slow" optical architectures
- Demonstrating error-free 32 Gb/s operation with approximately 0.25 pJ/bit energy efficiency and more than 2,000 hours reliability validation
- Showcasing a connectorized multi-core fiber solution with ecosystem partner BizLink

Premstaetten, Austria, and Munich, Germany (21 September 2026) – ams OSRAM unveils breakthrough Thin-Film VCSEL for AI Scale-Up, showcasing connectorized multi-core fiber solution and expanding ecosystem network.

As artificial intelligence continues to drive unprecedented growth in computing infrastructure, moving data efficiently is becoming just as critical as processing it. The increasing scale of AI training and inference clusters is placing new demands on optical interconnect technologies, requiring higher bandwidth, lower latency and significantly improved power efficiency.

ams OSRAM is expanding its Digital Photonics strategy to address this emerging opportunity. Building on its leadership in intelligent light emitters, optical sensors and advanced semiconductor manufacturing and assembly, the company is unveiling key photonic building blocks required for next-generation AI infrastructure. These include addressable micro-emitter arrays based on both LED and VCSEL technologies, as well as matching micro-photodiode arrays that together form the optical foundation of future ultra-high-bandwidth interconnect architectures.

At ECOC 2026 in Malaga, ams OSRAM will unveil its latest breakthrough in Thin-Film VCSEL technology and demonstrate a connectorized multi-core fiber solution in collaboration with BizLink, maturing the ecosystem for highly parallel, ultra-low-power optical interconnects for AI Scale-up.

Building a Wide-and-Slow Ecosystem for AI Infrastructure

Following the strategic customer cooperation announced earlier this year with a confidential industry partner, ams OSRAM continues to broaden its ecosystem for wide-and-slow optical interconnect architectures.

The company is collaborating with multiple partners across the value chain, including testing, fiber infrastructure, connector technologies, packaging and system integration, with the objective of accelerating industry adoption of next-generation optical interconnect solutions.

BizLink joins this growing ecosystem as a specialist in optical connectivity and connector solutions and is supporting the development of the ECOC 2026 demonstrator.

From Adaptive Headlamps to AI Data Movement

The foundations of ams OSRAM's optical interconnect technology were established long before the emergence of today's AI infrastructure market.

ams OSRAM's optical interconnect technology builds upon the same core technology platform that enabled the successful commercialization of EVIYOS™, one of the industry's most advanced digital lighting solutions.

Combining highly addressable micro-emitter arrays, CMOS integration, wafer-level manufacturing know-how and advanced packaging technologies, EVIYOS™ has demonstrated the scalability and manufacturability of ams OSRAM's Digital Photonics platform in high-volume production. The platform has also proven ams OSRAM's ability to serve demanding markets requiring consistent quality, reliability and production scalability across millions of devices.

The same technology principles are now being extended into AI infrastructure as well as mobile/wearable applications. What began as a highly addressable micro-emitter architecture for adaptive headlamps is evolving into a photonics platform capable of moving data with exceptional energy efficiency and scalability.

Re-thinking Optical Interconnects with Wide-and-Slow Architectures

The rapid scaling of AI clusters is reshaping requirements for intra-datacenter connectivity. Future AI scale-up networks will require interconnects that simultaneously optimize power consumption, latency, density, reliability and cost.

ams OSRAM is targeting this challenge through a highly parallel wide-and-slow optical architecture. Instead of transmitting increasing amounts of data through a limited number of highly complex channels, data is distributed across a large number of lower-speed optical lanes. Realizing such highly parallel architecture also requires corresponding advances in fiber and connector technologies, highlighting the critical importance of the ams OSRAM and BizLink partnership.

This approach reduces overall system complexity while enabling lower latency, lower power consumption and scalable bandwidth growth. As AI clusters continue to expand, wide-and-slow architecture offers a promising path toward more sustainable and cost-efficient infrastructure.

Breakthrough Thin-Film microVCSEL Platform for AI Scale-Up Networks

ams OSRAM continues to expand its photonics portfolio through the development of a next-generation 850 nm Thin-Film VCSEL platform specifically designed for AI scale-up interconnects.

The platform combines several differentiating technologies in a single architecture, including top-emission Thin-Film VCSELs, dense 25 µm pitch microVCSEL arrays with addressability, silicon TSV integration and compatibility with standard multimode fiber infrastructure. This enables highly parallel optical links with exceptional packaging density and ultra-low-power operation.

The company has successfully completed microVCSEL integration on silicon TSV substrates and demonstrated error-free 32 Gb/s NRZ operation. The platform achieves an energy efficiency of approximately 0.25 pJ/bit while maintaining compatibility with scalable manufacturing approaches. This level of efficiency highlights the potential of highly parallel optical architectures to support future bandwidth scaling while minimizing power consumption.

In addition, reliability testing has shown no failures after more than 2,000 hours under elevated junction temperatures and current overstress conditions.

Building on these results, ams OSRAM is advancing the development of fully integrated 3D photonics stacks combining microVCSEL arrays, micro-photodiode arrays and mixed signal CMOS electronics for future ultra-high-bandwidth optical interconnect architectures.

ECOC 2026 Demonstrates High-Speed Operation with a Connectorized Fiber Solution

At ECOC 2026, ams OSRAM will present its most advanced optical interconnect demonstrator to date together with BizLink, a leading provider of interconnect, fiber-optic connectivity and optical integration solutions.

The demonstrator combines ams OSRAM's 2D addressable 850 nm microVCSEL array technology with BizLink's fiber-array integration and optical connectivity expertise, creating a connectorized multi-core fiber solution optimized for wide-and-slow data communication.

The system will be demonstrated in a private setting for selected customers and industry partners during the event.

"AI infrastructure requires a fundamentally different approach to moving data and wide-and-slow optical architectures deliver a step-change in power efficiency, latency and scalability. As an integrated electro-optical engine provider, it's our role to build out the ecosystem required to support a scalable industry solution, and we're excited about our partnership with BizLink to enable fiber connectivity solutions." said Ashkan Seyedi, Vice President and General Manager of Optical Interconnects at ams OSRAM.

"This demonstrator validates a fundamentally different optical interconnect architecture optimized for ultra-low power and low latency operation, by combining ams OSRAM's addressable microVCSEL technology with BizLink's expertise in fiber-array integration, optical packaging and manufacturing, we have demonstrated the potential of highly parallel optical interconnects for future AI infrastructure." said Hendrik Coldenstrodt, CTO of the Computing and Transportation Business Group at BizLink Group.

ECOC attendees interested in learning more about ams OSRAM's optical interconnect developments are invited to visit booth #1281 and attend the company's presentations at the Global Photonics Economic Forum (GPEF 2026).

Additional information on Optical Interconnects and ams OSRAM's AI photonics technology can be found on the company's dedicated [technology page](#).

About ams OSRAM

The ams OSRAM Group (SIX: AMS) is a global leader in innovative light and sensor solutions. As a specialist in Digital Photonics, we combine engineering excellence with cutting-edge global manufacturing to offer our customers the broadest portfolio of digital light and sensing technologies.

“Sense the power of light” — our success has ever since been based on a deep understanding of the potential of light. For 120 years, we have been developing innovations that move markets: from automotive applications and industrial manufacturing to medical and consumer electronics. In the anniversary year of the OSRAM brand, around 19,000 employees worldwide are working on pioneering solutions alongside societal megatrends such as smart mobility, artificial intelligence, augmented reality, smart health, and robotics. This is reflected in over 12,000 patents granted and applied for. Headquartered in Premstaetten/Graz (Austria) with co-headquarters in Munich (Germany), the group achieved EUR 3.3 billion revenues in 2025 and is listed as ams-OSRAM AG on the SIX Swiss Exchange (ISIN: AT0000A3EPA4).

Find out more about us on <https://ams-osram.com>

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