

TROY TECHNICAL

OPTICAL COMMUNICATIONS & PHOTONICS WEEKLY REPORT

September 19 - September 25, 2026 | Issue 2026-W38

**Link budget, packaging, thermal reliability and
deployable supply**

10

ANALYZED ARTICLES

10

PRIORITY THEMES

Issued 2026-09-25 | English edition | fixed approved cover artwork



Optical Communications & Photonics: the boundary moved from isolated claims to qualification evidence

10 English articles were reviewed independently from the Japanese edition. Ten themes are retained for management decisions.

SIGNAL 01 | LIGHT SOURCE

GlobalFoundries & Marvell: 200Gbps silicon photonics specs

GlobalFoundries and Marvell Technology have significantly expanded their multi-year silicon photonics partnership to overcome the bandwidth and power efficiency limitations of copper wiring in data centers.

SIGNAL 02 | PHOTONIC DEVICE

Coherent: 3.2T and 6.4T optical solutions for AI at ECOC 2026

Coherent will showcase advanced optical solutions at ECOC 2026 to dramatically scale AI infrastructure, including a compact 3.2T pluggable architecture with dual 1.6T optical paths in an OSFP-size package, featuring 425G PAM4 line-side optical lanes and.

SIGNAL 03 | PACKAGING

Passage L20 CPX: Lightmatter's bidirectional optical engine

Lightmatter has introduced the Passage L20 CPX, the industry's first bidirectional (BiDi) optical link technology designed for AI infrastructure, simultaneously joining the Open CPX Multi-Source Agreement.

SIGNAL 04 | NETWORK SYSTEM

Nokia: 800ZR/ZR+ 3nm DSP pluggable optics for subsea networks

Nokia reports that coherent pluggable optics, traditionally used in terrestrial networks, are now extending their applicability to subsea networks.

DECISION

Focus this week's management attention on link budget, packaging, thermal reliability and deployable supply. Move only when the linked evidence can be reproduced under your own operating conditions.

THREE MANAGEMENT MOVES

1. Buyers: evaluate optical architectures by reach, power, latency, interoperability and field service.
2. Suppliers: pair optical performance with packaging yield, test, thermal drift and qualified capacity.
3. Executives: track yield, coupling loss, temperature drift, interoperability, volume and cost.

EVIDENCE DISCIPLINE

FACT states what the collected English source reports. BUSINESS READ and ACTION are editorial interpretations. UNKNOWN lists information that the source file does not establish. A linked article is not treated as independent confirmation of every claim.

Five numbers or evidence anchors that require conditions

425G A02	SOURCE-BOUND CONDITION Coherent will showcase advanced optical solutions at ECOC 2026 to dramatically scale AI infrastructure, including a compact 3.2T pluggable architecture with dual 1.6T optical paths in an OSFP-size package, featuring 425G.
3nm A04	SOURCE-BOUND CONDITION This shift is driven by advancements in 800ZR/ZR+ pluggables incorporating 3nm DSPs, leading to significant reductions in power per bit, increased functionality, and enhanced chromatic dispersion compensation for longer.
2nm A08	SOURCE-BOUND CONDITION Marvell is pioneering beyond-rack AI scale-up connectivity with its industry-first 2nm optical technology, setting an ambitious goal of \$1 billion in Photonic Fabric annual revenue by Q4 FY2029, following the Celestial.
1024 x A06	SOURCE-BOUND CONDITION This sensor features 1024 x 1 effective pixels, supports a maximum readout speed of 40 MHz, and a line rate of 34 kHz.
P05 A08	SOURCE-BOUND CONDITION Marvell is pioneering beyond-rack AI scale-up connectivity with its industry-first 2nm optical technology, setting an ambitious goal of \$1 billion in Photonic Fabric annual revenue by Q4 FY2029, following the Celestial.

HOW TO USE THESE NUMBERS

Each value is shown with the condition stated in the collected English article. Do not compare values across different test methods, device sizes, operating temperatures or commercial stages without normalizing those conditions.

Where the value chain moved

Each stage combines one leading theme and one supporting theme. The report treats handoffs as evidence transfers, not decorative arrows.

1

Light source

P01/P06

GlobalFoundries and Marvell Technology have significantly expanded their multi-year silicon photonics partnership to overcome.

2

Photonic device

P02/P07

Coherent will showcase advanced optical solutions at ECOC 2026 to dramatically scale AI infrastructure, including a compact.

3

Packaging

P03/P08

Lightmatter has introduced the Passage L20 CPX, the industry's first bidirectional (BiDi) optical link technology designed.

4

Network system

P04/P09

Nokia reports that coherent pluggable optics, traditionally used in terrestrial networks, are now extending their.

5

Operations

P05/P10

Marvell is pioneering beyond-rack AI scale-up connectivity with its industry-first 2nm optical technology, setting an.

EVIDENCE REQUIRED AT EACH HANDOFF

Light source to Photonic device	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck yield, coupling loss, temperature drift, interoperability, volume and cost.
Photonic device to Packaging	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck yield, coupling loss, temperature drift, interoperability, volume and cost.
Packaging to Network system	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck yield, coupling loss, temperature drift, interoperability, volume and cost.
Network system to Operations	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck yield, coupling loss, temperature drift, interoperability, volume and cost.

COMMON CONTROL POINT

No theme moves to a commercial commitment until a named owner has reproduced the relevant evidence and documented yield, coupling loss, temperature drift, interoperability, volume and cost.

Priority map: maturity and next decision locus



REPRODUCIBLE POSITIONING RULE

Horizontal position uses five discrete stages: Research, Prototype, Joint evaluation, Product adoption and Scale. The vertical bands classify the next decision locus: Tech / process, System / adoption, or Business / rules (including supply systems).

Article-title cues take precedence; the overview is used only when the title is silent. These are categories, not impact ranks. Bubble diameter reflects the editorial score.

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P01

GlobalFoundries & Marvell: 200Gbps silicon photonics specs

A01 | Light source | Product adoption

Date not stated

FACT

GlobalFoundries and Marvell Technology have significantly expanded their multi-year silicon photonics partnership to overcome the bandwidth and power efficiency limitations of copper wiring in data centers. This alliance leverages GlobalFoundries' silicon germanium (SiGe) technology for high-performance connectivity products, including pluggable optical transceivers, Near-Packaged Optics (NPO), and Co-Packaged Optics (CPO).

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P01.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 21/25 | MATURITY 4/5 | DECISION LOCUS: SYSTEM / ADOPTION

P02

Coherent: 3.2T and 6.4T optical solutions for AI at ECOC 2026

A02 | Photonic device | Research

Date not stated

FACT

Coherent will showcase advanced optical solutions at ECOC 2026 to dramatically scale AI infrastructure, including a compact 3.2T pluggable architecture with dual 1.6T optical paths in an OSFP-size package, featuring 425G PAM4 line-side optical lanes and Coherent Differential EMLs. They will also demonstrate 6.4T Near-Packaged Optics (NPO) for high-density AI Scale-Up and Scale-Out fabrics, alongside a new full C-band pluggable optical line system (LS200).

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P02.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 20/25 | MATURITY 1/5 | DECISION LOCUS: BUSINESS / RULES

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P03

Passage L20 CPX: Lightmatter's bidirectional optical engine

A05 | Packaging | Research

Date not stated

FACT

Lightmatter has introduced the Passage L20 CPX, the industry's first bidirectional (BiDi) optical link technology designed for AI infrastructure, simultaneously joining the Open CPX Multi-Source Agreement. This module, leveraging Lightmatter's Passage L20 optical engine, achieves 6.4 terabits per second (Tbps) in a single-socket form factor while halving the required fiber and connectors.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P03.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 20/25 | MATURITY 1/5 | DECISION LOCUS: BUSINESS / RULES

P04

Nokia: 800ZR/ZR+ 3nm DSP pluggable optics for subsea networks

A04 | Network system | Joint evaluation

Date not stated

FACT

Nokia reports that coherent pluggable optics, traditionally used in terrestrial networks, are now extending their applicability to subsea networks. This shift is driven by advancements in 800ZR/ZR+ pluggables incorporating 3nm DSPs, leading to significant reductions in power per bit, increased functionality, and enhanced chromatic dispersion compensation for longer distances.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P04.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 20/25 | MATURITY 3/5 | DECISION LOCUS: TECH / PROCESS

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P05

Marvell 2nm Optics: AI photonic fabric revenue roadmap 2029

A08 | Operations | Product adoption

Date not stated

FACT

Marvell is pioneering beyond-rack AI scale-up connectivity with its industry-first 2nm optical technology, setting an ambitious goal of \$1 billion in Photonic Fabric annual revenue by Q4 FY2029, following the Celestial AI acquisition. The company aims for \$500 million in Photonic Fabric sales by Q4 FY2028.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P05.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 20/25 | MATURITY 4/5 | DECISION LOCUS: BUSINESS / RULES

P06

BizLink & ams OSRAM: AI data center optical link technology

A09 | Light source | Joint evaluation

Date not stated

FACT

BizLink and ams OSRAM have announced a strategic partnership to co-develop next-generation optical interconnect solutions for AI scale-up domains. They plan to demonstrate their innovative low-power, low-latency "wide & slow" optical link technology at the ECOC 2026 conference. This approach distributes data across numerous parallel, slower channels instead of a few complex, high-speed ones, achieving extended reach and ultra-low latency while maintaining cost and power efficiency.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P06.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 19/25 | MATURITY 3/5 | DECISION LOCUS: SYSTEM / ADOPTION

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P07

S15611W explained: Hamamatsu Photonics CMOS sensor specs

A06 | Photonic device | Research

Date not stated

FACT

Hamamatsu Photonics has announced the S15611W, a new CMOS linear image sensor with an integrated timing generator, bias generator, and 12-bit A/D converter, providing direct digital output. This sensor features 1024 x 1 effective pixels, supports a maximum readout speed of 40 MHz, and a line rate of 34 kHz. Its compact Chip Size Package (CSP) and broad spectral response from 400 nm to 1000 nm make it ideal for spectroscopy and various sensing applications.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P07.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 19/25 | MATURITY 1/5 | DECISION LOCUS: SYSTEM / ADOPTION

P08

Q.ANT SDK: Open-source photonic computing NPU programming

A07 | Packaging | Research

Date not stated

FACT

Q.ANT has unveiled the world's first open-source Software Development Kit (SDK) for photonic computing, empowering developers to program the core operations of photonic processors. Q.ANT commercializes photonic accelerators for AI and high-performance computing, offering Native Processing Units (NPUs) that directly execute mathematical operations on Thin-Film Lithium Niobate (TFLN)-based Photonic Integrated Circuits (PICs). This SDK dramatically enhances the accessibility and proliferation of optical computing.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P08.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 19/25 | MATURITY 1/5 | DECISION LOCUS: SYSTEM / ADOPTION

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P09

SiCN and SiN deposition: High-speed PIC transmission explained

A03 | Network system | Research

Date not stated

FACT

Significant advancements in silicon carbon nitride (SiCN) and silicon nitride (SiN) deposition and manipulation techniques have dramatically improved the fabrication and functionality of photonic integrated circuits (PICs). This new technology enables more efficient light manipulation for electronic functions, leveraging advantages such as higher speed and parallel data transmission compared to traditional silicon-based approaches.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P09.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 18/25 | MATURITY 1/5 | DECISION LOCUS: SYSTEM / ADOPTION

P10

Quantum Computing Inc: TFLN photonics for EQC optimization

A10 | Operations | Pilot

Date not stated

FACT

Quantum Computing Inc. (QUBT) has developed compact, high-speed optical processors utilizing thin-film lithium niobate chips, specifically enhancing its Entropy Quantum Computer (EQC) for complex optimization problems, AI workloads, and sensing applications. This strategic move aims to bridge the gap between advanced photonic hardware and real-world computational demands. The technology promises to significantly boost processing capabilities and efficiency across various next-generation computing domains.

WHY IT MATTERS

The decision relevance is link budget, packaging, thermal reliability and deployable supply. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, pair optical performance with packaging yield, test, thermal drift and qualified capacity.

ACTION

Within 30 days, evaluate optical architectures by reach, power, latency, interoperability and field service; record the evidence and owner against P10.

UNKNOWN

Still unproven or incompletely stated: yield, coupling loss, temperature drift, interoperability, volume and cost.

EDITORIAL SCORE 18/25 | MATURITY 2/5 | DECISION LOCUS: TECH / PROCESS

Playbook and 0-5 year roadmap

STAKEHOLDER	NOW 0-30 DAYS	NEXT 1-12 MONTHS	LATER 1-5 YEARS
Operating companies	evaluate optical architectures by reach, power, latency, interoperability and field service	Run production-like qualification with explicit acceptance and stop criteria.	Build a portfolio and architecture that can absorb technology and supplier changes.
Materials, equipment and technology suppliers	pair optical performance with packaging yield, test, thermal drift and qualified capacity	Create shared reliability, process-window and failure-analysis data with customers.	Standardize interfaces, traceability, lifecycle support and recovery services.
Trading, investment and legal teams	Map yield, coupling loss, temperature drift, interoperability, volume and cost.	Contract for capacity, quality, change notice, liability, alternatives and exit.	Diversify regional, technical and customer concentration risk.

ROADMAP

NOW 0-30 DAYS Evidence ledger Owner: Strategy + quality Deliverable: claim, source, condition, owner	NOW 0-30 DAYS Risk screen Owner: Procurement + legal Deliverable: unknowns, alternatives, stop	NEXT 1-12 MONTHS Joint qualification Owner: R&D + supplier Deliverable: process window and failure data
NEXT 1-12 MONTHS Commercial gate Owner: Business + finance Deliverable: unit economics and capacity	LATER 1-5 YEARS Platform strategy Owner: Executive team Deliverable: portfolio and interface roadmap	LATER 1-5 YEARS Service layer Owner: Operations + channel Deliverable: monitoring, maintenance and recovery

GO / NO-GO GATES

GATE	OWNER	REQUIRED EVIDENCE	NO-GO CONDITION
G1 Evidence	Quality	Source, test conditions and reproducibility	No traceable evidence
G2 Integration	R&D	Interface, process window and failure analysis	Cannot meet system conditions
G3 Commercial	Business	Capacity, total cost, contract and alternatives	Economics or supply cannot be supported
G4 Lifecycle	Operations	Monitoring, maintenance, change notice and exit	No accountable operating plan

ANALYZED ARTICLES | ITEMS 01-10

Every title and URL is displayed in full. URLs wrap without shortening and remain clickable. A verified-reference label means the translated HTML did not retain its original source URL.

ID	FULL ARTICLE TITLE	FULL SOURCE / VERIFIED REFERENCE URL - CLICKABLE
A01	GlobalFoundries & Marvell: 200Gbps silicon photonics specs	https://www.techspot.com/news/113903-globalfoundries-marvell-scaling-up-silicon-photonics-efforts-data.html
A02	Coherent: 3.2T and 6.4T optical solutions for AI at ECOC 2026	https://www.coherent.com/news/press-releases/showcases-optical-innovations-scale-ai-infrastructure-ecoc-2026
A03	SiCN and SiN deposition: High-speed PIC transmission explained	https://www.eurekalert.org/news-releases/1144567
A04	Nokia: 800ZR/ZR+ 3nm DSP pluggable optics for subsea networks	https://www.nokia.com/blog/how-are-coherent-pluggable-optics-evolving-from-terrestrial-to-subsea-networks/
A05	Passage L20 CPX: Lightmatter's bidirectional optical engine	https://www.prnewswire.com/news-releases/lightmatter-joins-open-cpx-msa-introduces-the-industrys-first-bidirectional-cpx-optical-engine-302881786.html
A06	S15611W explained: Hamamatsu Photonics CMOS sensor specs	https://optics.org/product-announcements/cmos-linear-image-sensor-with-digital-output
A07	Q.ANT SDK: Open-source photonic computing NPU programming	https://markets.businessinsider.com/news/stocks/q-ant-launches-world-first-open-source-sdk-for-photonic-computing-1036567143
A08	Marvell 2nm Optics: AI photonic fabric revenue roadmap 2029	https://futuresgroup.com/insights/marvells-2nm-optics-target-ai-scale-up-beyond-the-rack/
A09	BizLink & ams OSRAM: AI data center optical link technology	https://www.bizlinktech.com/news/bizlink-partners-with-ams-osram-to-advance-photonics-for-ai-data-center-interconnects
A10	Quantum Computing Inc: TFLN photonics for EQC optimization	https://quantumaiinsiders.com/qubt-integrated-photonics-eqc/

Photonics — Selected Articles

Date: 2026-09-27

Articles: 10

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#01 GlobalFoundries & Marvell: 200Gbps silicon photonics specs

Published September 18, 2026 TechSpot USA



OVERVIEW

GlobalFoundries and Marvell Technology have significantly expanded their multi-year silicon photonics partnership to overcome the bandwidth and power efficiency limitations of copper wiring in data centers. This alliance leverages GlobalFoundries' silicon germanium (SiGe) technology for high-performance connectivity products, including pluggable optical transceivers, Near-Packaged Optics (NPO), and Co-Packaged Optics (CPO). GlobalFoundries will deliver SiGe connectivity solutions achieving 200Gbps per optical lane, underscoring the increasing importance of silicon photonics for AI data centers and high-volume data processing infrastructure.

Key Findings

GlobalFoundries and Marvell Technology have substantially expanded their strategic alliance in silicon photonics, directly addressing the evolving demands of AI data centers that are pushing conventional copper wiring beyond its limits. This multi-year agreement centers on GlobalFoundries' cutting-edge silicon germanium (SiGe) technology, designed to accelerate the development and mass production of next-generation high-performance connectivity products, including pluggable optical transceivers, Near-Packaged Optics (NPO), and Co-Packaged Optics (CPO). Notably, GlobalFoundries will provide SiGe connectivity solutions capable of 200Gbps per optical lane, contributing significantly to resolving bandwidth and power efficiency challenges in AI data centers.

Technical Details

At the core of this partnership is GlobalFoundries' SiGe technology, which enables efficient generation, modulation, and detection of optical signals by integrating germanium onto silicon substrates. SiGe offers high carrier mobility and CMOS compatibility, making it an ideal platform for high-speed optical interconnects. The 200Gbps per optical lane speed significantly surpasses many existing solutions on a single optical channel, meeting the immense data transmission requirements between AI accelerators. This drastically reduces power consumption within data centers while enabling high-density interconnects.

The integration of SiGe, silicon photonics, and advanced packaging solutions facilitates tight optical-electrical coupling at the chip level, minimizing signal transmission delays and power loss. This is crucial for enhancing the efficiency of synchronous communication required in AI model training. Combined with Marvell's expertise, these technologies are transitioning from pluggable modules to more closely integrated NPO and CPO solutions, delivering the performance and scalability demanded by AI workloads.

Background & Context

The explosive growth of AI and High-Performance Computing (HPC) has exposed critical interconnect bottlenecks within data centers. With demands for multi-terabit-per-second bandwidth and low power consumption, traditional electrical copper wiring is reaching its physical limits. Silicon photonics has emerged as the most promising technology to address this challenge, integrating the high speed and low loss of optical fiber onto semiconductor chips. Large-scale investments by industry leaders like GlobalFoundries and Marvell underscore this technology's strategic importance and the industry's direction.

Strategic Significance & Outlook

The collaboration between GlobalFoundries and Marvell is set to form the foundational technology for next-generation AI data centers, enhancing both companies' competitive positions in the market. Further acceleration beyond 200Gbps per optical lane and even deeper integration of optical components into chip designs will be key elements of future technology roadmaps. This advancement in silicon photonics is expected to enable the construction of larger, more efficient, and more sustainable AI data centers, playing an indispensable role in accelerating the widespread adoption of AI technologies across various sectors.

Source: <https://www.techspot.com/news/113903-globalfoundries-marvell-scaling-up-silicon-photonics-efforts-data.html>

#02 Coherent: 3.2T and 6.4T optical solutions for AI at ECOC 2026

Published September 20, 2026 Coherent (via Stock Titan) USA



OVERVIEW

Coherent will showcase advanced optical solutions at ECOC 2026 to dramatically scale AI infrastructure, including a compact 3.2T pluggable architecture with dual 1.6T optical paths in an OSFP-size package, featuring 425G PAM4 line-side optical lanes and Coherent Differential EMLs. They will also demonstrate 6.4T Near-Packaged Optics (NPO) for high-density AI Scale-Up and Scale-Out fabrics, alongside a new full C-band pluggable optical line system (LS200). These innovations address the escalating bandwidth and power efficiency demands of AI workloads in data center interconnect and transport.

Key Findings

Coherent is set to unveil groundbreaking optical communication solutions at ECOC 2026, aimed at significantly enhancing the performance and efficiency of AI infrastructure. Highlights include a compact 3.2T pluggable architecture integrating dual 1.6T optical paths within an OSFP-size package, and a 6.4T Near-Packaged Optics (NPO) demonstration for high-density AI fabrics. These technologies are poised to tackle the burgeoning challenges in data center interconnect and transport driven by the explosive growth of AI workloads.

Technical / Clinical Details

The 3.2T pluggable architecture achieves high density and performance within an industry-standard OSFP form factor by combining 425G PAM4 line-side optical lanes with Coherent Differential EMLs. This allows for seamless integration into existing data center infrastructures while delivering substantial bandwidth upgrades. The 6.4T NPO solution mitigates electrical interconnect bottlenecks by bringing optical modules closer to processors, enabling ultra-high-density and low-power optical transmission for AI Scale-Up and Scale-Out fabrics. Furthermore, Coherent will introduce the new full C-band pluggable optical line system (LS200) for data center interconnect and long-haul transport, providing high-performance optical signal amplification and routing for diverse applications.

Background & Context

The rapid advancements in generative AI and large language models have placed unprecedented demands on bandwidth and power efficiency for both intra-data center interconnects and inter-data center transport. Traditional electrical signaling is increasingly becoming a bottleneck. Coherent's new optical solutions are critical for overcoming these limitations, offering faster, more efficient, and scalable optical connectivity that is essential for the AI era. These innovations represent a strategic response to the industry's evolving needs for high-performance computing.

Strategic Significance & Outlook

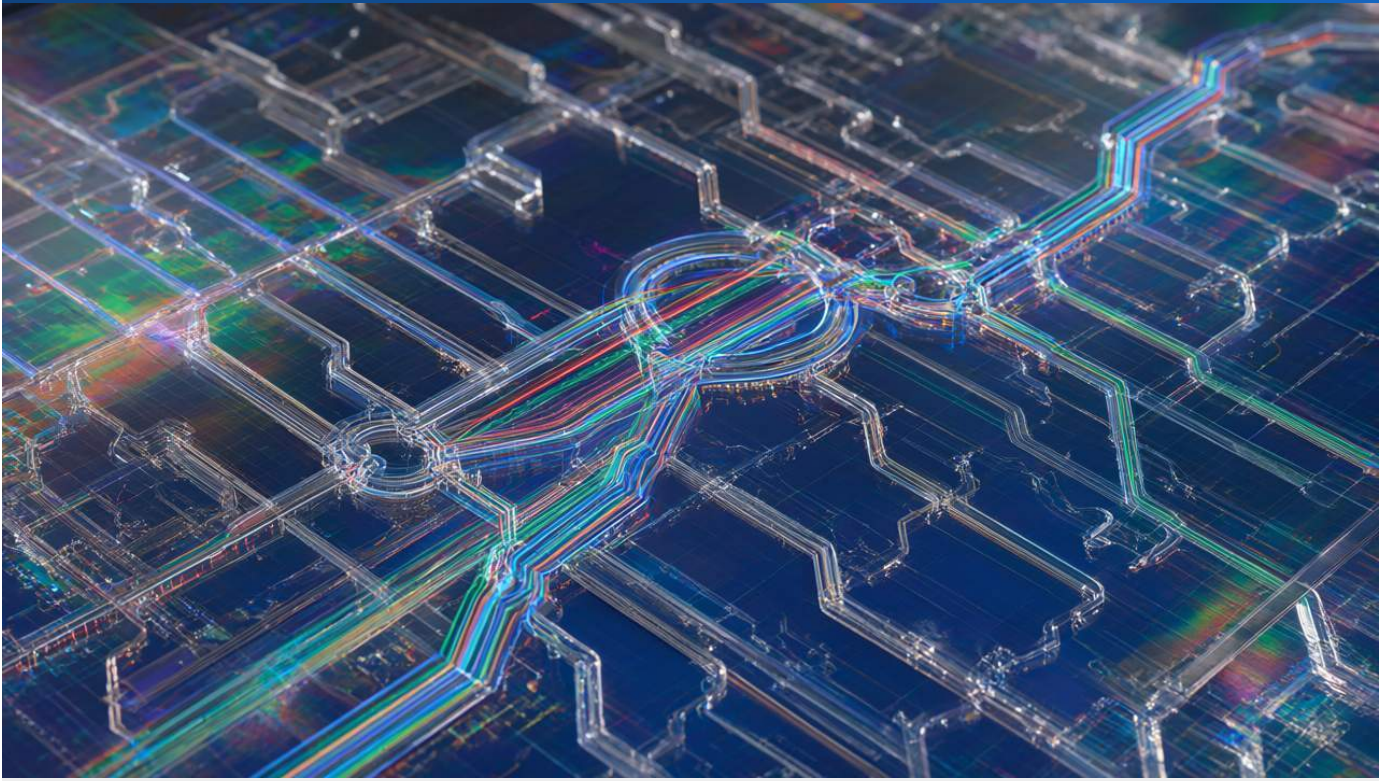
These technological advancements are expected to profoundly influence the design and operation of AI infrastructure. High-density, high-bandwidth solutions like the 3.2T pluggable and 6.4T NPO will form the bedrock for future AI model growth, pushing the boundaries of data transfer capabilities. Coherent aims to reinforce its leadership in optical communications by supporting the construction of next-generation AI data center networks through these innovations. This will, in turn, accelerate the further evolution and widespread adoption of AI technologies, driving continued expansion of the digital economy.

Source: <https://www.coherent.com/news/press-releases/showcases-optical-innovations-scale-ai-infrastructure-ecoc-2026>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#03 SiCN and SiN deposition: High-speed PIC transmission explained

Published September 18, 2026 EurekaAlert! United States



OVERVIEW

Significant advancements in silicon carbon nitride (SiCN) and silicon nitride (SiN) deposition and manipulation techniques have dramatically improved the fabrication and functionality of photonic integrated circuits (PICs). This new technology enables more efficient light manipulation for electronic functions, leveraging advantages such as higher speed and parallel data transmission compared to traditional silicon-based approaches. This breakthrough is crucial for advancing integrated photonics by optimizing material structures, paving the way for next-generation optical communication and sensing applications.

Key Findings

A new era for photonic integrated circuits (PICs) has dawned with significant advancements in the deposition and manipulation of silicon carbon nitride (SiCN) and silicon nitride (SiN). These breakthroughs markedly enhance the fabrication and functional performance of PICs, enabling more precise light manipulation for electronic functions. The result is the realization of higher speeds and parallel data transmission capabilities, directly addressing the data processing bottlenecks prevalent in modern electronic systems and substantially elevating the performance of integrated photonics technology.

Technical / Clinical Details

The newly developed techniques involve the precise deposition of SiCN and SiN onto existing photonic structures, harnessing the superior optical properties and physical stability of these materials. Specifically, SiCN offers high refractive index contrast and a wide bandgap, facilitating light confinement within smaller waveguides. This innovation significantly reduces signal loss while enabling device miniaturization and increased integration density. Concurrently, SiN's low-loss characteristics and broad wavelength compatibility make it ideal for constructing complex optical circuits. By optimally combining these materials, the efficiency and reliability of light-electronic functional interfaces are dramatically improved, promising broader bandwidth and lower power consumption in signal processing compared to conventional silicon photonics.

Background & Context

The exponential growth in data traffic has exposed the limitations of existing electrical interconnects in terms of transmission speed and power consumption. Photonic integrated circuits are emerging as a critical next-generation technology to address these challenges by utilizing light for data transmission and processing. The exploration of higher-performance material systems is crucial for enabling breakthroughs across diverse fields, including optical communications, sensing, and quantum computing. The integration of SiCN and SiN stands as a pivotal milestone in this context, particularly for achieving low-loss, high-density optical circuits.

Strategic Significance & Outlook

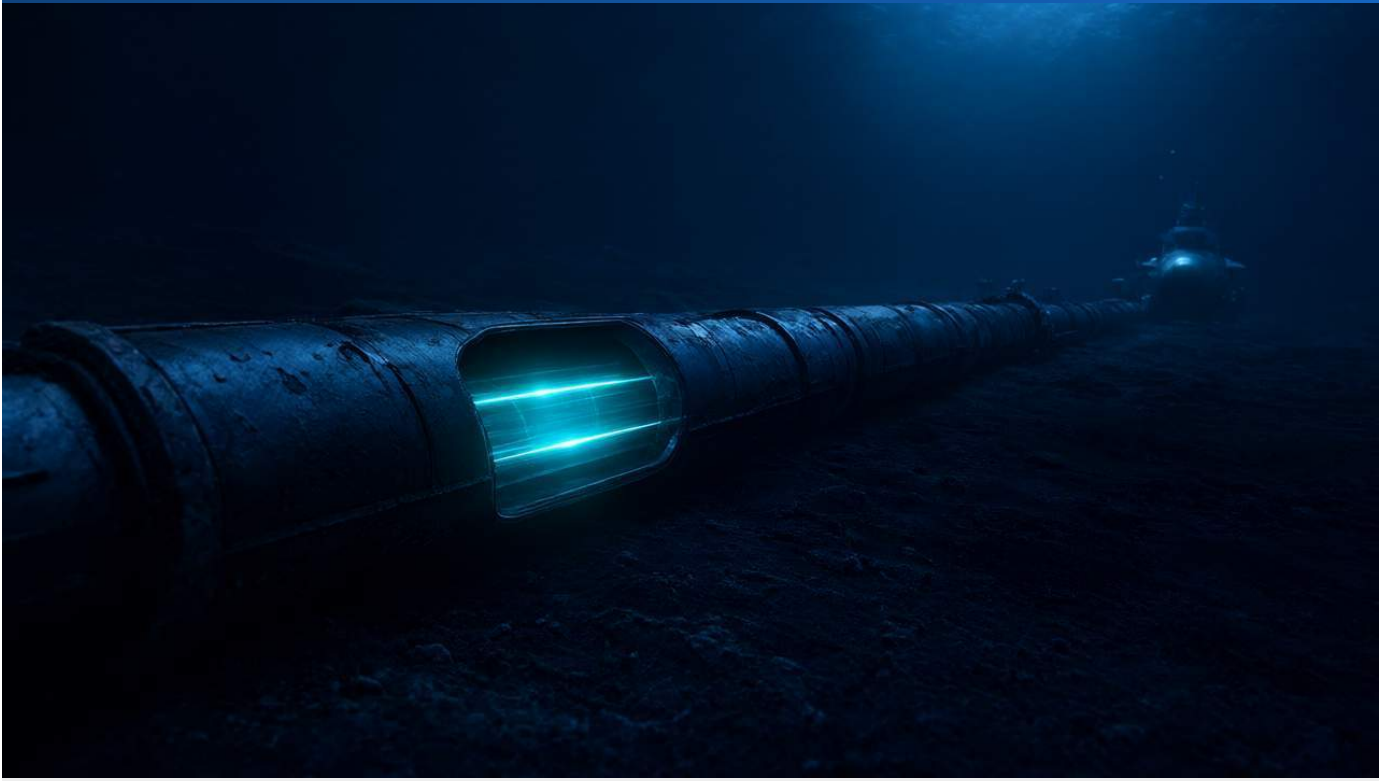
The progress in SiCN and SiN-based technologies holds immense potential to broaden the application scope of photonic integrated circuits. It is expected to contribute to the realization of smaller, higher-performance optical transceivers, more sensitive optical sensors, and even optical quantum computers. Researchers and engineers can leverage this new material platform to accelerate innovation across various sectors, from solving data center bandwidth issues to enhancing the precision of medical diagnostic devices and advancing LiDAR systems for autonomous vehicles. Future efforts will likely focus on establishing mass production techniques and further optimizing the performance of these materials.

Source: <https://www.eurekalert.org/news-releases/1144567>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#04 Nokia: 800ZR/ZR+ 3nm DSP pluggable optics for subsea networks

Published September 23, 2026 Nokia (Optical network blogs) Finland



OVERVIEW

Nokia reports that coherent pluggable optics, traditionally used in terrestrial networks, are now extending their applicability to subsea networks. This shift is driven by advancements in 800ZR/ZR+ pluggables incorporating 3nm DSPs, leading to significant reductions in power per bit, increased functionality, and enhanced chromatic dispersion compensation for longer distances. This technological evolution provides a viable option for subsea cable operators seeking to optimize for power, space, or cost, opening new upgrade paths for existing submarine infrastructure.

Key Findings

Nokia highlights a significant expansion in the deployment of coherent pluggable optics, moving beyond their traditional terrestrial applications into the more challenging domain of subsea networks. This transition is primarily fueled by the advent of advanced 800ZR/ZR+ pluggable optics, which leverage cutting-edge 3nm Digital Signal Processors (DSPs). Key advantages include substantial reductions in power consumption per bit and enhanced functionality, crucial for improving the efficiency and economics of optical transmission in subsea cable systems.

Technical / Clinical Details

Historically, pluggable optics have been less common in subsea systems due to stringent performance requirements. However, the latest generation of 800ZR/ZR+ pluggables, powered by advanced 3nm DSPs, exhibits dramatically improved power efficiency. This leads to a smaller device footprint and reduced overall power consumption. Critically, these new modules feature enhanced chromatic dispersion compensation capabilities, vital for maintaining signal integrity over the immense distances characteristic of subsea cables. This allows subsea cable operators to achieve higher data throughput with fewer devices, translating into significant operational cost savings.

Background & Context

Global data traffic is experiencing exponential growth, continuously elevating the importance of subsea cable networks for intercontinental and wide-area connectivity. Previous subsea cable systems have relied heavily on proprietary line cards and custom-designed transmission equipment, leading to high initial investment and operational costs. The evolution of coherent pluggable optics, offering standardized form factors and reduced costs, provides a flexible and more economical alternative for building and upgrading subsea networks. This development is a crucial step towards meeting the escalating bandwidth demands driven by the expansion of AI and cloud computing.

Strategic Significance & Outlook

Nokia's analysis underscores the pivotal role coherent pluggable optics are expected to play in the future of subsea networking. For subsea cable operators focused on optimizing power, space, and cost, this technology presents a highly attractive option. It is anticipated that the adoption of pluggable optics in future subsea cable projects will enhance the flexibility and scalability of the global data communication infrastructure. Furthermore, continued technological advancements could enable even longer-reach and higher-capacity subsea transmissions to become standard capabilities for pluggable devices, fundamentally reshaping the economics of global connectivity.

Source: <https://www.nokia.com/blog/how-are-coherent-pluggable-optics-evolving-from-terrestrial-to-subsea-networks/>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#05 Passage L20 CPX: Lightmatter's bidirectional optical engine

Published September 17, 2026 PR Newswire / Lightmatter USA



OVERVIEW

Lightmatter has introduced the Passage L20 CPX, the industry's first bidirectional (BiDi) optical link technology designed for AI infrastructure, simultaneously joining the Open CPX Multi-Source Agreement. This module, leveraging Lightmatter's Passage L20 optical engine, achieves 6.4 terabits per second (Tbps) in a single-socket form factor while halving the required fiber and connectors. The innovation promises to eliminate fiber limitations in AI clusters, reduce total interconnect network costs by approximately 15%, and accelerate deployment.

Key Findings

Lightmatter has announced the Passage L20 CPX, an Open CPX module featuring the industry's first bidirectional (BiDi) optical link technology for AI infrastructure. This breakthrough solution, revealed concurrently with Lightmatter's entry into the Open CPX Multi-Source Agreement (MSA), significantly enhances the efficiency of optical interconnects within data centers and addresses critical bottlenecks in AI cluster construction.

Technical Details

The Passage L20 CPX is built upon Lightmatter's proprietary Near-Package Optics (NPO) platform, the Passage L20 optical engine. This technology enables a high bandwidth of 6.4 terabits per second (Tbps) within a single-socket module, while drastically reducing the number of fiber cables and connectors typically required for optical interconnects by 50%. The bidirectional communication capability optimizes data flow between AI accelerators and simplifies complex physical cabling infrastructure.

Background & Context

The rapid evolution of AI computing has intensified challenges related to bandwidth and power efficiency in data center interconnects. Specifically, the massive data movement between GPU clusters is becoming increasingly difficult to manage with conventional electrical signals or unidirectional optical links. Lightmatter's NPO technology aims to break through this 'AI power wall' by integrating optical I/O directly into computing packages. Participation in the Open CPX MSA underscores the company's commitment to industry standardization, facilitating broader adoption across the ecosystem.

Strategic Significance & Outlook

The bidirectional CPX optical engine from Lightmatter is projected to reduce the total interconnect network cost for AI data centers by approximately 15%. This cost reduction is expected to accelerate the deployment of large-scale AI infrastructure and simplify fiber plant maintenance and long-term operational expenses. The technology is poised to have a substantial impact on the industry, offering a scalable and cost-effective optical interconnect solution to meet the growing demands of AI workloads.

Source: <https://www.prnewswire.com/news-releases/lightmatter-joins-open-cpx-msa-introduces-the-industrys-first-bidirectional-cpx-optical-engine-302881786.html>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#06 S15611W explained: Hamamatsu Photonics CMOS sensor specs

Published September 22, 2026 Optics.org Japan



OVERVIEW

Hamamatsu Photonics has announced the S15611W, a new CMOS linear image sensor with an integrated timing generator, bias generator, and 12-bit A/D converter, providing direct digital output. This sensor features 1024 x 1 effective pixels, supports a maximum readout speed of 40 MHz, and a line rate of 34 kHz. Its compact Chip Size Package (CSP) and broad spectral response from 400 nm to 1000 nm make it ideal for spectroscopy and various sensing applications.

Key Findings

Hamamatsu Photonics has introduced the "S15611W," a new CMOS linear image sensor featuring integrated digital output capabilities. This sensor simplifies system design and contributes to miniaturization by directly providing digital output signals from a single device, eliminating the need for complex external circuitry.

Technical Details

The S15611W is a high-performance linear image sensor with 1024 x 1 effective pixels, supporting a maximum readout speed of 40 MHz and a line rate of 34 kHz. A key feature is the on-chip integration of a timing generator, bias generator, and a 12-bit A/D converter. This eliminates the need for external analog and data conversion circuits, simplifying system design and reducing noise. The sensor adopts a compact and thin Chip Size Package (CSP) structure, facilitating integration into space-constrained environments. Furthermore, its wide spectral response range of 400 nm to 1000 nm covers visible to near-infrared light, making it suitable for diverse spectroscopic analysis and industrial sensing applications.

Background & Context

In fields requiring high-precision linear imaging, such as industrial inspection equipment, medical devices, and environmental monitoring, there's a constant demand not only for sensor performance but also for system miniaturization, reduced power consumption, and shorter development times. Sensors with integrated digital output are a crucial solution for addressing these challenges, improving overall system integration and reliability. Hamamatsu Photonics, a global leader in optoelectronics, offering products from photomultiplier tubes to various sensors, demonstrates its technological prowess with this new product release.

Strategic Significance & Outlook

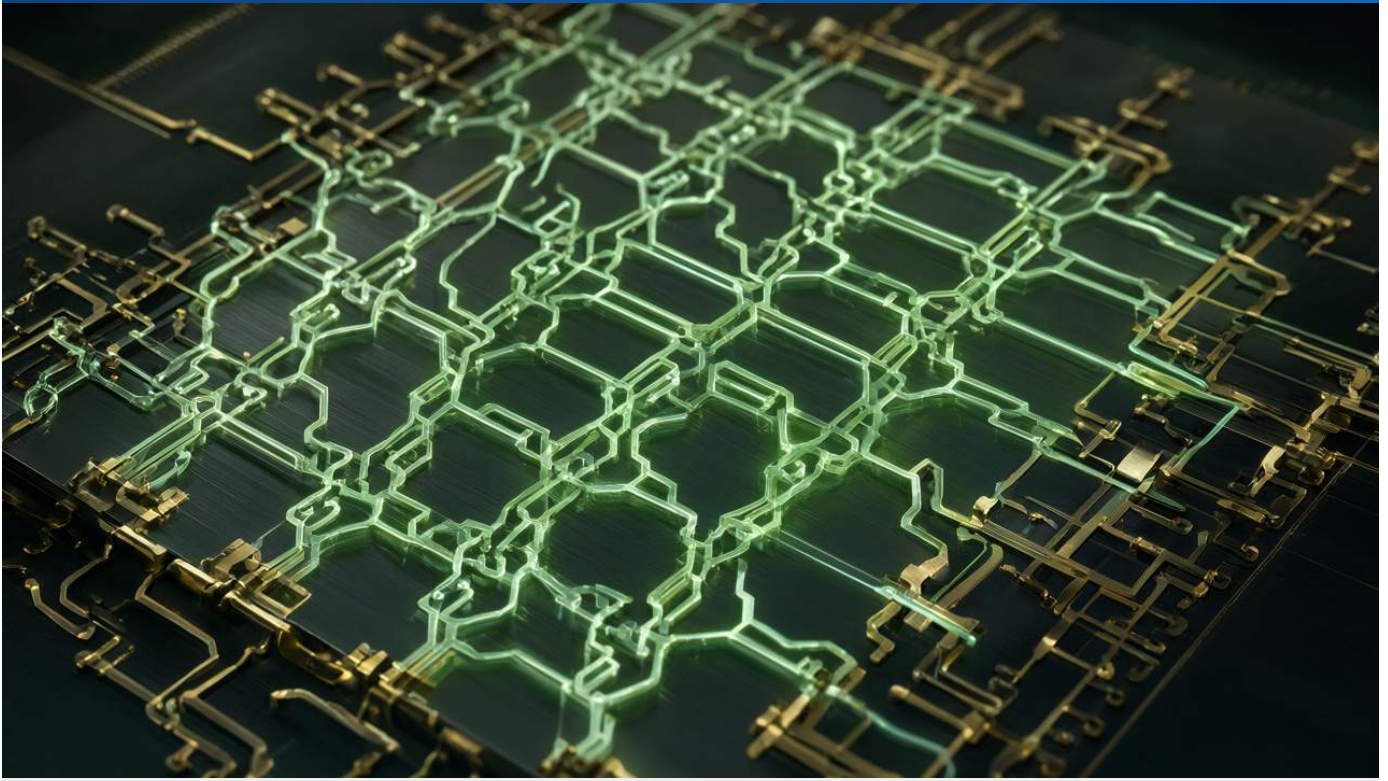
High-functional digital output linear image sensors like the S15611W are expected to be adopted in a variety of next-generation applications, including advanced spectrometers, Process Analytical Technology (PAT), and non-destructive inspection systems. They will particularly excel in portable devices and embedded systems where miniaturization and high sensitivity are paramount. This product is poised to contribute to the widespread adoption of more efficient and reliable optical sensing solutions across industries and research sectors.

Source: <https://optics.org/product-announcements/cmos-linear-image-sensor-with-digital-output>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#07 Q.ANT SDK: Open-source photonic computing NPU programming

Published September 23, 2026 Markets Insider / Q.ANT Germany



OVERVIEW

Q.ANT has unveiled the world's first open-source Software Development Kit (SDK) for photonic computing, empowering developers to program the core operations of photonic processors. Q.ANT commercializes photonic accelerators for AI and high-performance computing, offering Native Processing Units (NPUs) that directly execute mathematical operations on Thin-Film Lithium Niobate (TFLN)-based Photonic Integrated Circuits (PICs). This SDK dramatically enhances the accessibility and proliferation of optical computing.

Key Findings

Q.ANT has announced the world's first open-source Software Development Kit (SDK) for photonic computing, marking a significant advancement in the field. This SDK empowers developers to directly program the core operations of photonic processors, accelerating the democratization and widespread adoption of optical computing technology.

Technical Details

The open-source SDK developed by Q.ANT provides tools and libraries for developers to directly control the functionalities of Native Processing Units (NPU) operating on Thin-Film Lithium Niobate (TFLN)-based Photonic Integrated Circuits (PICs). TFLN is a highly promising material for optical computing due to its high-speed electro-optic modulation capabilities and low-loss characteristics. NPUs can execute mathematical operations (e.g., matrix multiplications) directly in the optical domain, thereby bypassing data conversions and electrical bottlenecks inherent in electronic computing. This delivers orders-of-magnitude improvements in speed and energy efficiency for AI and High-Performance Computing (HPC) tasks. The SDK enables programmers to leverage specific features of these photonic processors, optimizing AI algorithms and complex computations.

Background & Context

AI and HPC workloads are pushing the performance limits of conventional electronic computing systems, with data movement and power consumption becoming major challenges. Optical computing is gaining attention as a next-generation computing paradigm with the potential to solve these issues. However, previous optical computing systems have had limited hardware-software interfaces, making them inaccessible to developers. Q.ANT's open-source SDK removes this barrier, paving the way for more researchers and engineers to explore the possibilities of optical computing and develop new applications.

Strategic Significance & Outlook

The release of the world's first open-source SDK by Q.ANT represents a crucial step in the transition of photonic computing from research to practical application. This SDK will standardize the programming of TFLN-based NPUs and foster the growth of the optical computing ecosystem. As more developers gain access to this technology and drive innovation, high-performance and energy-efficient optical computing solutions are expected to emerge across various sectors, including AI accelerators, data centers, and edge devices. This will serve as a foundation for further extending AI capabilities and enabling new technological breakthroughs.

Source: <https://markets.businessinsider.com/news/stocks/q-ant-launches-world-first-open-source-sdk-for-photonic-computing-1036567143>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#08 Marvell 2nm Optics: AI photonic fabric revenue roadmap 2029

Published September 24, 2026 The Futurum Group USA



OVERVIEW

Marvell is pioneering beyond-rack AI scale-up connectivity with its industry-first 2nm optical technology, setting an ambitious goal of \$1 billion in Photonic Fabric annual revenue by Q4 FY2029, following the Celestial AI acquisition. The company aims for \$500 million in Photonic Fabric sales by Q4 FY2028. This groundbreaking technology is designed to address the critical high-bandwidth and low-latency challenges in AI data centers while significantly improving power efficiency compared to traditional electrical interconnects.

Key Findings

Marvell has unveiled an industry-first 2nm optical technology aimed at enabling AI computing scale-up beyond the confines of a single rack. The company has articulated ambitious financial targets in connection with its recent acquisition of Celestial AI, projecting \$500 million in annual Photonic Fabric revenue by the fourth quarter of fiscal year 2028, and a significant jump to \$1 billion by the fourth quarter of fiscal year 2029. This innovative optical solution is poised to resolve the escalating demand for high bandwidth and ultra-low latency within AI data centers, simultaneously delivering substantial improvements in power efficiency over conventional electrical interconnects.

Technical Details

Marvell's 2nm optical technology integrates state-of-the-art CMOS processing with advanced silicon photonics to achieve unprecedented levels of integration and performance. This enables the technology to handle the colossal data flows between AI accelerators and GPU clusters with much higher efficiency and lower latency than traditional electrical wiring. The 'Photonic Fabric' facilitates data transmission via light, allowing for long-distance connectivity—from meters to hundreds of meters—with minimal signal attenuation and dramatically reduced power consumption. This capability liberates AI workloads within data centers from being restricted to a single rack, enabling true "scale-up" architectures across multiple racks and clusters.

Conventional electrical interconnects face a fundamental challenge where increasing bandwidth correlates with increased power consumption and latency. Marvell's 2nm optical technology offers a critical breakthrough against these "power wall" and "bandwidth wall" limitations. The synergy with Celestial AI's optical I/O technology specifically enhances data transfer rates between processors and memory, which is expected to shorten AI model training times and facilitate the execution of more complex AI tasks.

Background & Context

The explosive growth of artificial intelligence, particularly large language models (LLMs) and generative AI, places unprecedented demands on data center infrastructure. Training these models requires immense computational resources and ultra-fast, low-latency interconnects to efficiently link them. However, current data centers are confronting an "AI power wall," where data transfer capabilities lag behind the increasing AI processing power due to the inherent limitations of electrical wiring. Consequently, the industry is increasingly looking to optical technologies, such as silicon photonics and Co-Packaged Optics (CPO), to address these challenges.

As a leading provider of data infrastructure semiconductors, Marvell has recognized this fundamental hurdle in the AI era and has strategically increased its investment in optical technologies. The acquisition of Celestial AI is a pivotal step to bolster its optical portfolio and introduce high-performance, AI-dedicated optical I/O solutions to the market. This move demonstrates Marvell's strong intent to establish leadership in AI-era data center interconnects, competing with other industry giants like NVIDIA and Broadcom who are also heavily investing in optical solutions.

Strategic Significance & Outlook

Marvell's 2nm optical technology and Photonic Fabric strategy have the potential to fundamentally transform the future landscape of AI data centers. The ambitious revenue target of \$1 billion by fiscal year 2029 underscores the company's high expectations for this technology and its significant market impact. Broad adoption of this technology could substantially improve the scalability of AI computational power, enabling the development and deployment of even larger and more complex AI models. Furthermore, enhanced power efficiency will contribute to reduced data center operational costs and improved sustainability.

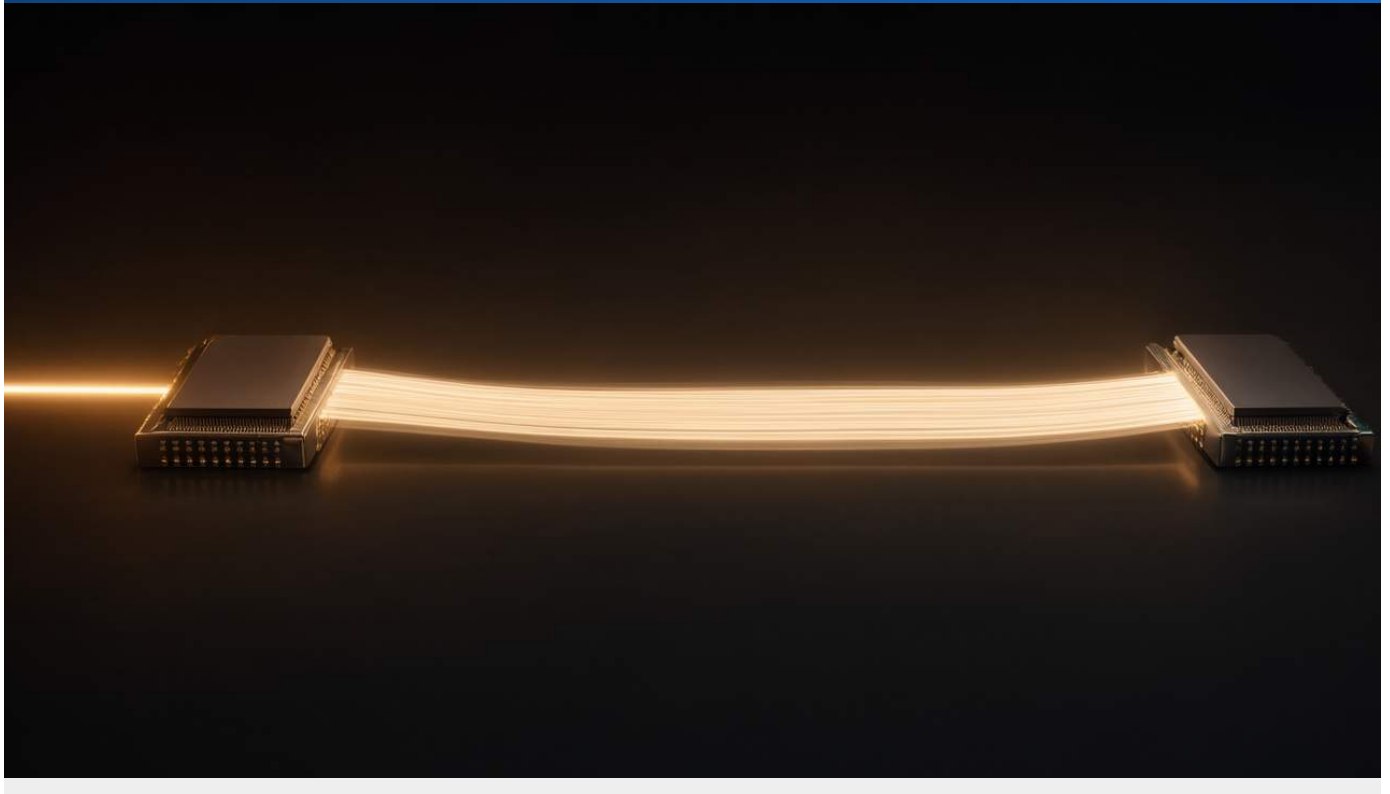
In the long term, this technology is expected to influence the entire data center architecture, potentially making hybrid optical-electrical systems a new standard. Marvell's proactive stance is seen as a crucial step in accelerating AI development and shaping the next generation of computing paradigms, driving innovation across various AI-driven applications globally.

Source: <https://futurumgroup.com/insights/marvells-2nm-optics-target-ai-scale-up-beyond-the-rack/>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#09 BizLink & ams OSRAM: AI data center optical link technology

Published September 21, 2026 BizLink Germany



OVERVIEW

BizLink and ams OSRAM have announced a strategic partnership to co-develop next-generation optical interconnect solutions for AI scale-up domains. They plan to demonstrate their innovative low-power, low-latency "wide & slow" optical link technology at the ECOC 2026 conference. This approach distributes data across numerous parallel, slower channels instead of a few complex, high-speed ones, achieving extended reach and ultra-low latency while maintaining cost and power efficiency.

Key Findings

BizLink and ams OSRAM have entered into a strategic partnership to collaboratively develop next-generation optical interconnect solutions specifically tailored for Artificial Intelligence (AI) scale-up domains. The companies are slated to demonstrate their groundbreaking "wide & slow" optical link technology, characterized by its innovative low-power and low-latency performance, at the upcoming ECOC 2026 conference. This novel approach fundamentally shifts from relying on a few complex, power-intensive high-speed channels to distributing data across a multitude of parallel, slower channels, thereby achieving extended reach and ultra-low latency while rigorously preserving cost and power efficiency.

Technical Details

The "wide & slow" optical link technology represents a paradigm shift in data transmission. Unlike traditional optical communication systems that concentrate data onto a few high-bandwidth channels (e.g., 100Gbps+ per channel), this new technology operates numerous channels in parallel, each at a lower individual speed (e.g., a few Gbps per channel). This yields several significant technical advantages:

- ****Reduced Power Consumption****: The slower operating speed of each channel dramatically decreases power consumption, particularly in electro-optical conversion components like modulators and drivers.
- ****Lower Latency****: Data is distributed across multiple paths, reducing queuing delays and improving overall data transmission latency.
- ****Extended Reach****: Slower signals are less susceptible to physical constraints than high-speed signals, enabling more reliable data transmission over longer distances.
- ****Cost Efficiency****: Eliminating the need for complex signal integrity techniques and expensive components required for high-speed channels helps control overall system costs.

BizLink contributes its expertise in connectors, cables, and interconnect assemblies, while ams OSRAM provides high-performance optical semiconductor technologies, including VCSELs (Vertical Cavity Surface Emitting Lasers) and photodiodes. The combination of their technologies aims to create robust and efficient optical interconnect solutions specifically designed for the demanding requirements of AI data centers.

Background & Context

The rapid advancement of AI has imposed unprecedented challenges on data center interconnects. The enormous volume of data movement required between CPUs, GPUs, and memory for large-scale AI model training and inference is pushing traditional electrical wiring and high-speed optical modules to their limits concerning bandwidth, power consumption, cost, and thermal management. Particularly in large AI clusters, data transfer within and between racks has become a significant bottleneck, degrading overall system performance and energy efficiency.

The "wide & slow" approach is envisioned as a revolutionary solution to overcome these "power wall" and "I/O wall" limitations. Data center operators are actively seeking more power-efficient and scalable interconnect solutions, and the partnership between BizLink and ams OSRAM directly addresses this critical demand. Demonstrations at key events like ECOC (European Conference on Optical Communication) will be crucial for this technology to gain significant industry attention and adoption.

Strategic Significance & Outlook

The "wide & slow" optical link technology co-developed by BizLink and ams OSRAM holds the potential to profoundly transform AI data center interconnect architectures. Widespread adoption of this technology could substantially reduce data center power consumption and operational costs while simultaneously enhancing AI workload performance and scalability. This will facilitate the deployment of larger and more complex AI models, thereby further accelerating the proliferation of AI across various applications.

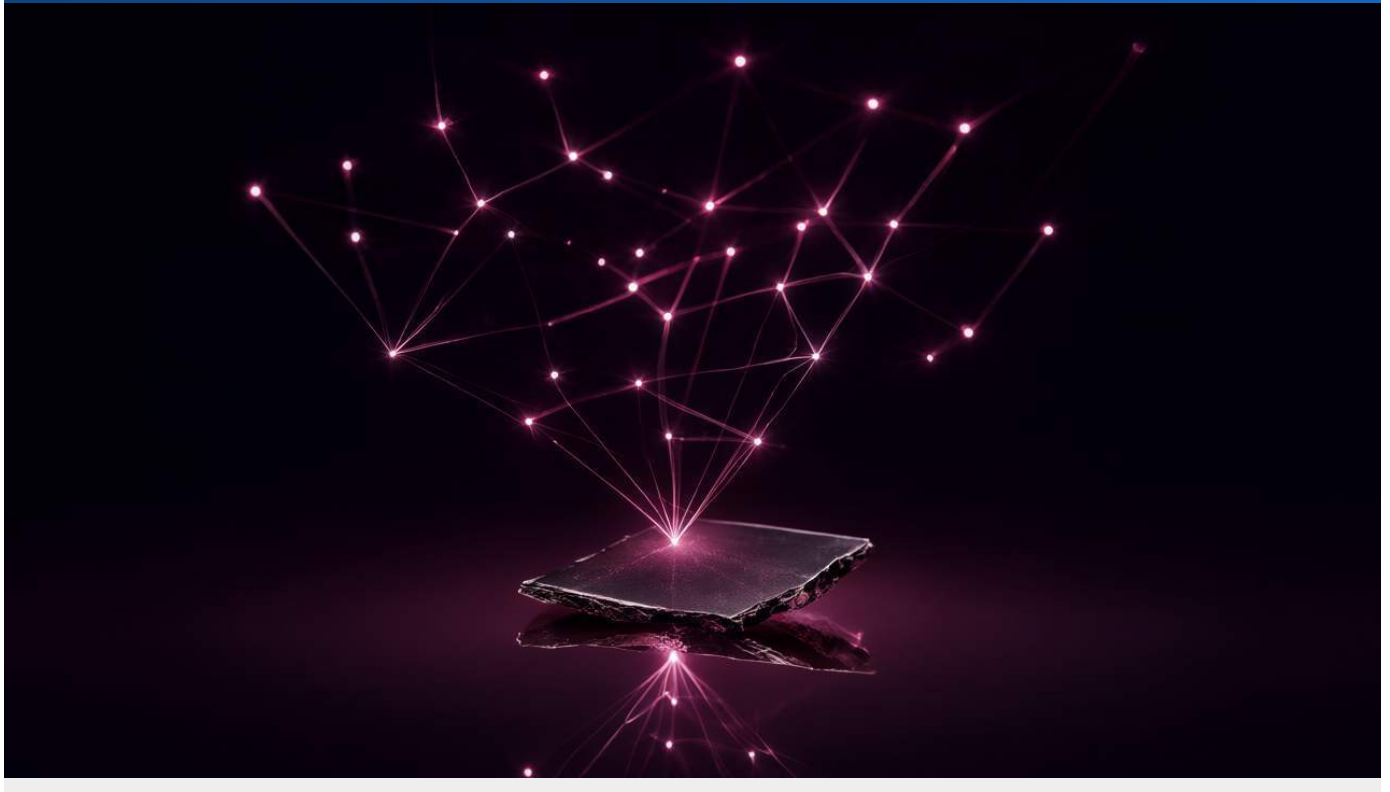
In the future, this technology's applications may extend beyond data centers to other fields requiring low latency and high efficiency, such as High-Performance Computing (HPC), edge computing, and even in-vehicle networks. This partnership is expected to play a vital role in driving sustainable innovation within the optical communication sector and establishing the foundation for next-generation digital infrastructure globally, making it a critical development for engineers and investors alike.

Source: <https://www.bizlinktech.com/news/bizlink-partners-with-ams-osram-to-advance-photonics-for-ai-data-center-interconnects>

Collected: September 25, 2026 | Automated Research System (Gemini API)

#10 Quantum Computing Inc: TFLN photonics for EQC optimization

Published September 24, 2026 Quantum Computing Inc. / Medium USA



OVERVIEW

Quantum Computing Inc. (QUBT) has developed compact, high-speed optical processors utilizing thin-film lithium niobate chips, specifically enhancing its Entropy Quantum Computer (EQC) for complex optimization problems, AI workloads, and sensing applications. This strategic move aims to bridge the gap between advanced photonic hardware and real-world computational demands. The technology promises to significantly boost processing capabilities and efficiency across various next-generation computing domains.

Key Findings

Quantum Computing Inc. (QUBT) has announced advancements in its optical processors, leveraging thin-film lithium niobate chips to create compact, high-speed photonic devices. These processors are designed to power the company's Entropy Quantum Computer (EQC), Emucore, and Neurawave platforms, specifically targeting demanding applications in optimization, artificial intelligence (AI) workloads, and sensing. This development is positioned as a practical bridge between cutting-edge photonic hardware and real-world computational tasks.

Technical / Clinical Details

QUBT's core innovation lies in its use of thin-film lithium niobate (TFLN) chips, which enable the creation of highly compact and exceptionally fast optical processors. The EQC, central to QUBT's stack, is a photonic-based system designed to tackle complex optimization problems that are intractable for traditional computing paradigms. TFLN offers superior electro-optic properties compared to conventional silicon photonics, allowing for more efficient and faster modulation of light signals. This translates into significant improvements in data processing speeds and integration density, which are critical for overcoming bottlenecks in high-performance computing, especially within AI data centers and sophisticated sensor arrays. The integrated photonic approach allows for highly scalable and energy-efficient solutions for complex computational challenges.

Background & Context

The increasing demands of AI and large-scale optimization problems have highlighted the limitations of electronic computing, particularly regarding power consumption and latency. Photonics-based computing offers a promising alternative, utilizing light for computation and communication to overcome these hurdles. QUBT's strategy aligns with this industry shift, aiming to unlock new computational capabilities by harnessing the inherent speed and bandwidth advantages of light. The choice of thin-film lithium niobate as a material platform is significant, as it represents a cutting-edge development in integrated photonics, offering a path to higher performance and greater integration density than previously possible.

Strategic Significance & Outlook

QUBT's integration of advanced photonics into its computing platforms holds substantial strategic significance. By offering compact, high-speed optical processors for EQC, Emucore, and Neurawave, the company aims to address critical needs in AI acceleration, complex industrial optimization (e.g., logistics, finance), and high-precision sensing. This technology is expected to drive efficiencies and performance improvements across various sectors, pushing the boundaries of what's computationally feasible. The ability to bridge the gap between photonic hardware and practical applications positions QUBT as a key player in the evolving landscape of next-generation computing, with potential long-term impacts on data center architecture, scientific discovery, and commercial innovation.

Source: <https://quantumaiinsiders.com/qubt-integrated-photonics-eqc/>

Collected: September 25, 2026 | Automated Research System (Gemini API)