Optical Communication & Photonics

Weekly Intelligence Report

2026-06-07 | 21 articles | 6 countries

troy-technical.jp

This Week's Keyword

AI Photonics

Accelerating data centers & quantum computing

21	6	114	135
articles	countries	Tbps	%
Total Articles Analyzed	Source Countries	Photonic Interposer I/O	Lumentum YTD Return

All 21 Articles This Week — 5-Axis Evaluation Matrix

How to read columns — Tech Novelty: degree of breakthrough Market Proximity: closeness to commercialization Market Impact: industry-wide effect Data Reliability: quantitative data & peer review US/EU Relevance: direct impact on US/European companies & supply chains

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#01	Optica: Adv. Photonic Pkg	Industry Overview	●●○○○	●●●○○	●●●○○	●●○○○	●●●●○	Optica meeting to address photonic packaging bottlenecks for AI, datacom, sensing, and quantum.
#02	Wiwynn Demos CPO Interconn	New Product	●●●○○	●●●●○	●●●●○	●●●○○	●●●●○	Wiwynn, Ayar Labs, GUC to demo CPO interconnect for hyperscale AI data centers at Computex 2026.
#03	Vitex Guide: CPO in 2026	Market Analysis	●●○○○	●●●●○	●●●●○	●●●○○	●●●●○	Vitex LLC releases guide on CPO, detailing its transition to shipping products for AI data centers.
#04	Pandaily: CPO for AI DC	Market Trend	●●○○○	●●●○○	●●●●○	●●○○○	●●●●○	Pandaily reports CPO as the "ultimate goal" for AI data centers, with NPO adoption surging 2026-27.
#05	Lightmatter 114Tbps Interp	New Product	●●●●○	●●●○○	●●●●○	●●●●○	●●●●○	Lightmatter unveils 114Tbps 3D photonic interposer and 50Tbps optical I/O laser, joins NVIDIA NVLink Fusion.
#06	Coherent: Photonics for AI	Corporate Strategy	●●○○○	●●●○○	●●●●○	●●●○○	●●●●○	Coherent highlights photonics as key to AI infrastructure scaling, achieving low power-per-bit and high bandwidth.
#07	PsiQuantum Omega Chipset	Research Breakthrough	●●●●○	●●○○○	●●●●○	●●●●○	●●●●○	PsiQuantum unveils Omega quantum photonic chipset for utility-scale computing, secures $100M LOI with US DoC.
#08	Intel Foundry Adv. Pkg	New Technology	●●●●○	●●●○○	●●●●○	●●●●○	●●●●○	Intel Foundry unveils advanced packaging for AI/HPC, revolutionizing CPO with detachable optical connectors.
#09	Q.ANT TFLN Photonic AI	New Technology	●●●●○	●●○○○	●●●●○	●●●●○	●●●●○	Q.ANT unveils thin-film lithium niobate photonic AI chip at ISC 2026, advancing energy-efficient analog computing.
#10	Marvell Acquires Celestial	Corporate Strategy	●●●○○	●●●●○	●●●●○	●●●●○	●●●●○	Marvell acquires Celestial AI for $3B to secure CPO core technology, expands silicon photonics collaboration with NVIDIA.
#11	EPIC Photonics Report	Industry Report	●○○○○	●●●●○	●●●○○	●●●○○	●●●●○	EPIC Photonics reports strong growth in photonics industry with May 2026 M&A; and investment highlights.
#12	Nokia Optical Revenue	Market Report	●○○○○	●●●●○	●●●●○	●●●○○	●●●●○	Nokia optical network infrastructure revenue forecast to surge 31% to €4B in 2026, driven by NVIDIA.

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#13	Lumentum 135% YTD Return	Corporate Performance	●●○○○	●●●●○	●●●●○	●●●●○	●●●●○	Lumentum achieves 135% YTD return in 2026 driven by optical transceiver demand, InP constraints, and CPO.
#14	Organic Opto Device	Research Breakthrough	●●●●○	○○○○○	●●●○○	●●○○○	●●●○○	Organic optoelectronic device achieves simultaneous light collection and emission, boosting efficiency.
#15	Focused Energy Laser Fusion	Corporate Funding	●●●●○	○○○○○	●●●●○	●●●●○	●●●●○	Focused Energy secures $240M Series A funding to advance laser fusion technology development.
#16	Virtual Screens for 3D MV	New Technology	●●●●○	●●○○○	●●●●○	●●○○○	●●●●○	Optical technology to transform surroundings into "virtual screens," boosting 3D machine vision for robotics/AR/VR.
#17	Plastic Waste to Clean Fuel	Research Breakthrough	●●●●○	○○○○○	●●●●○	●●○○○	●●●●○	Light-based process explored for simultaneous plastic waste reduction and clean fuel production.
#18	Fujitsu Industrial Demo	New Application	●●●○○	●●●○○	●●●○○	●●●○○	●●●○○	Fujitsu completes Japan's first industrial inspection demo integrating Physical AI, IOWN APN, and 60 GHz WLAN.
#19	1Finity Accton MOU	Corporate Strategy	●●○○○	●●●●○	●●●○○	●●●○○	●●●○○	Fujitsu subsidiary 1Finity signs MOU with Taiwan's Accton, strengthening optical networking supply chain.
#20	Fujitsu AI Non-Fin. Disc.	New Service	●●○○○	●●●●○	●●○○○	●●●○○	●●○○○	Fujitsu launches new AI-powered service to analyze non-financial disclosures and enhance corporate value.
#21	Fujitsu Mgmt Vision 2035	Corporate Strategy	○○○○○	●●●●○	●●○○○	●●●○○	●●○○○	Fujitsu announces "Management Vision 2035" to guide long-term strategy and investment in AI and networking.

●●●●○ High ●●●○○ Med-High ●●○○○ Med ●○○○○ Low | Yellow highlight = featured article

Three Questions That Demand Your Decision This Week

❶ Is your AI infrastructure ready for CPO adoption?

Co-Packaged Optics (CPO) is rapidly transitioning from research to shipping products, with major players like NVIDIA and Broadcom already deploying it. Wiwynn, Ayar Labs, and Intel are demonstrating advanced CPO solutions. Evaluate your roadmap for integrating CPO to meet future AI workload demands.

❷ Are you investing in quantum-safe technologies?

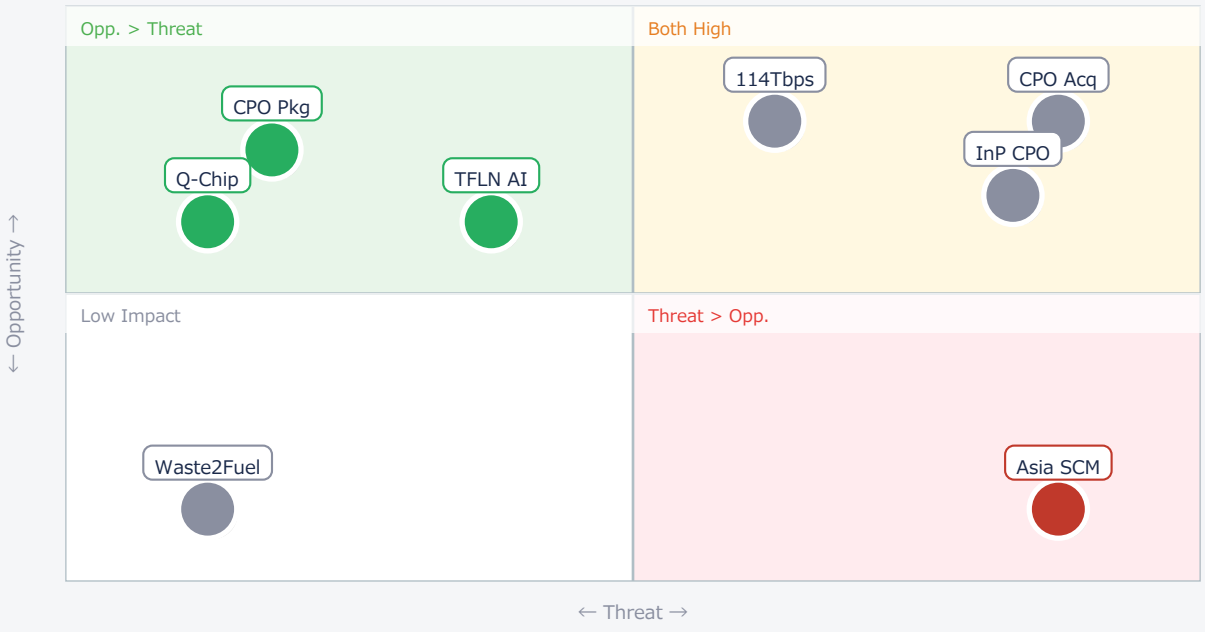
PsiQuantum's Omega quantum photonic chipset, backed by $100M from the US Department of Commerce, signals serious progress towards utility-scale quantum computing. While long-term, this breakthrough necessitates early strategic planning for quantum-resistant cryptography and future applications.

❸ How exposed is your supply chain to Asian optical component manufacturing?

The Fujitsu-Accton MOU strengthens Asian optical networking supply chains, while Lumentum's performance highlights InP supply constraints. Assess your reliance on specific regions for critical optical components and diversify to mitigate geopolitical and supply risks.

Opportunities vs. Threats for US/European Companies

Opportunity vs. Threat Matrix for US/European Companies



Item	Quadrant	↑ Opportunity	↓ Threat
CPO Acq	Critical	CPO market leadership	Competitor lag
114Tbps	Critical	AI perf boost	Obsolete tech
InP CPO	Critical	InP market gain	Supply chain risk
Q-Chip	Opp.	Quantum leadership	Long R&D; cycle
TFLN AI	Opp.	Energy-eff AI	Incumbent tech
CPO Pkg	Opp.	Robust CPO	Integration cost
Asia SCM	Threat	—	SCM competition

● Waste2Fuel	Ref.	Green tech IP	—

Deep Dive ① — Marvell Secures CPO Leadership

#10 | 2026/06/02 | Global Semi Research | Tech Novelty●●●○○ Proximity●●●●● Market Impact●●●●● Data Reliability●●●●○ US/EU Relevance●●●●●

Marvell's $3B acquisition of Celestial AI secures critical CPO core technology, expanding its silicon photonics collaboration with NVIDIA. This strategic move aims to cut power consumption by 50-60% in AI data centers.

The shift from compute-centric to networking-driven AI architectures makes optical-electrical chip integration vital. Marvell's expanded supply of DSP, TIA, and driver chips to NVIDIA further solidifies its role in the AI ecosystem.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: [Opportunity] Marvell's aggressive move positions it as a dominant player in AI interconnects, offering US/EU OEMs critical CPO solutions. This creates opportunities for IP licensing and component supply for integrated optical engines. [Threat] Competitors not investing heavily in CPO or lacking strong silicon photonics IP risk falling behind. US/EU firms relying on traditional electrical interconnects face obsolescence. Next Action: [Strategy] Evaluate CPO roadmap and potential M&A; targets by Q3 2026. [R&D;] Accelerate internal CPO development or partnership scouting by end of month.

Deep Dive ② — Lightmatter's Photonic Interposer

#05 | 2026/05/30 | Lightmatter | Tech Novelty●●●●○ Proximity●●●○○ Market Impact●●●●● Data Reliability●●●●○ US/EU Relevance●●●●●

Lightmatter unveiled a 114Tbps 3D Photonic Interposer and 50Tbps optical I/O laser, joining NVIDIA's NVLink Fusion ecosystem. This innovation targets high-speed data transfer and energy efficiency in AI infrastructure, addressing GPU communication bottlenecks.

The Passage L200 system supports 32-64 Tbps via co-packaged optics, enhancing bidirectional fiber bandwidth density. This technology promises to mitigate copper interconnect bottlenecks and significantly reduce power consumption and latency in AI data centers.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: [Opportunity] Lightmatter's breakthrough offers US/EU AI accelerator developers and data center operators a path to unprecedented bandwidth and power efficiency, crucial for next-gen LLMs. This could enable new AI hardware architectures. [Threat] The rapid pace of innovation from specialized firms like Lightmatter means established interconnect providers must quickly adapt or risk being outpaced. Integration complexity and cost remain barriers. Next Action: [R&D;] Benchmark Lightmatter's claims against internal roadmaps by Q4 2026. [Procurement] Initiate discussions with Lightmatter for early access or evaluation units by end of Q3 2026.

Deep Dive ③ — PsiQuantum's Utility-Scale Quantum Chip

#07 | 2026/05/28 | PsiQuantum News | Tech Novelty●●●●● Proximity●●○○○ Market Impact●●●●● Data Reliability●●●●○ US/EU Relevance●●●●●

PsiQuantum unveiled its Omega quantum photonic chipset, designed for utility-scale quantum computing, manufactured at GlobalFoundries. This chipset integrates components for million-qubit systems, marking a major breakthrough in scalability.

A $100M Letter of Intent with the US Department of Commerce under the CHIPS Act accelerates domestic manufacturing of critical quantum components. The approach leverages silicon photonics and Barium Titanate (BTO) optical switches.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: [Opportunity] This represents a significant step towards fault-tolerant quantum computing, offering US/EU companies a potential future platform for drug discovery, materials science, and cryptography. The US government backing strengthens domestic supply chains. [Threat] Commercialization is still 5+ years away, requiring substantial, sustained R&D; investment. Companies not exploring quantum-safe algorithms or future quantum applications risk being unprepared for this paradigm shift. Next Action: [R&D;] Form a cross-functional team to monitor quantum computing advancements and assess long-term impact by Q4 2026. [Strategy] Develop a quantum readiness strategy, including IP and talent acquisition, by mid-2027.

Other Notable Articles

Intel Foundry Unveils Advanced Packaging Innovations for AI/HPC at ECTC 2026 (Intel Foundry)
Tech Novelty●●●●○ Proximity●●●○○ Market Impact●●●●○

Intel's CPO packaging innovations, like detachable connectors, are critical for robust AI/HPC scaling.

Q.ANT Unveils Thin-Film Lithium Niobate Photonic AI Chip at ISC High Performance 2026 (Q.ANT)
Tech Novelty●●●●○ Proximity●●○○○ Market Impact●●●●○

German Q.ANT's TFLN photonic AI chip promises energy-efficient analog computing for AI inference.

Lumentum Achieves 135% YTD Return in 2026 Driven by Surging Optical Transceiver Demand (Let's Data Science (via Seeking Alpha))
Tech Novelty●●○○○ Proximity●●●●● Market Impact●●●●●

Lumentum's surge highlights critical InP supply constraints and booming CPO demand in AI data centers.

Focused Energy Secures $240 Million Series A Funding to Advance Laser Fusion Technology Development (Photonics Spectra)
Tech Novelty●●●●○ Proximity●○○○○ Market Impact●●●●●

German Focused Energy's $240M funding accelerates laser fusion, a long-term game-changer for clean energy.

Recommended Actions This Week

Action recommendations based on article evaluation matrix and opportunity/threat analysis.

Immediate (this week)

- [Executive] Review current CPO adoption strategies and competitive landscape, especially regarding Marvell's acquisition.
- [Procurement] Assess current optical interconnect supplier diversification and Indium Phosphide (InP) material exposure due to rising demand.

Short-term (1 month)

- [R&D;] Initiate an internal working group to evaluate Lightmatter's photonic interposer and Intel's CPO packaging innovations.
- [Strategy] Begin scouting for M&A; or partnership opportunities in advanced photonic packaging and Thin-Film Lithium Niobate (TFLN) technologies.
- [Business Dev] Engage with key AI data center operators to understand their CPO deployment timelines and specific requirements.

Medium-long term (quarter+)

- [R&D;] Establish a dedicated quantum computing research track, focusing on photonic approaches and quantum-safe algorithms.
- [Strategy] Develop a long-term roadmap for integrating photonic AI accelerators and optical interconnects into future product lines.
- [Legal/IP] Conduct a comprehensive IP landscape analysis for CPO, silicon photonics, and TFLN to identify white spaces and potential infringements.

Photonics — Selected Articles

Date: 2026-06-07

Articles: 21

Table of Contents

#16 Photonics Spectra: Optical Technology to Transform Surroundings into "Virtual Screens," Significantly Boosting 3D Machine Vision for Robotics and AR/VR

#17 Photonics Spectra: Light-Based Process Explored for Simultaneous Plastic Waste Reduction and Clean Fuel Production, Pioneering Sustainable Photonics Application

#18 Fujitsu Successfully Completes Japan's First Advanced Industrial Complex Inspection Demonstration Integrating Physical AI, IOWN APN, and 60 GHz Wireless LAN

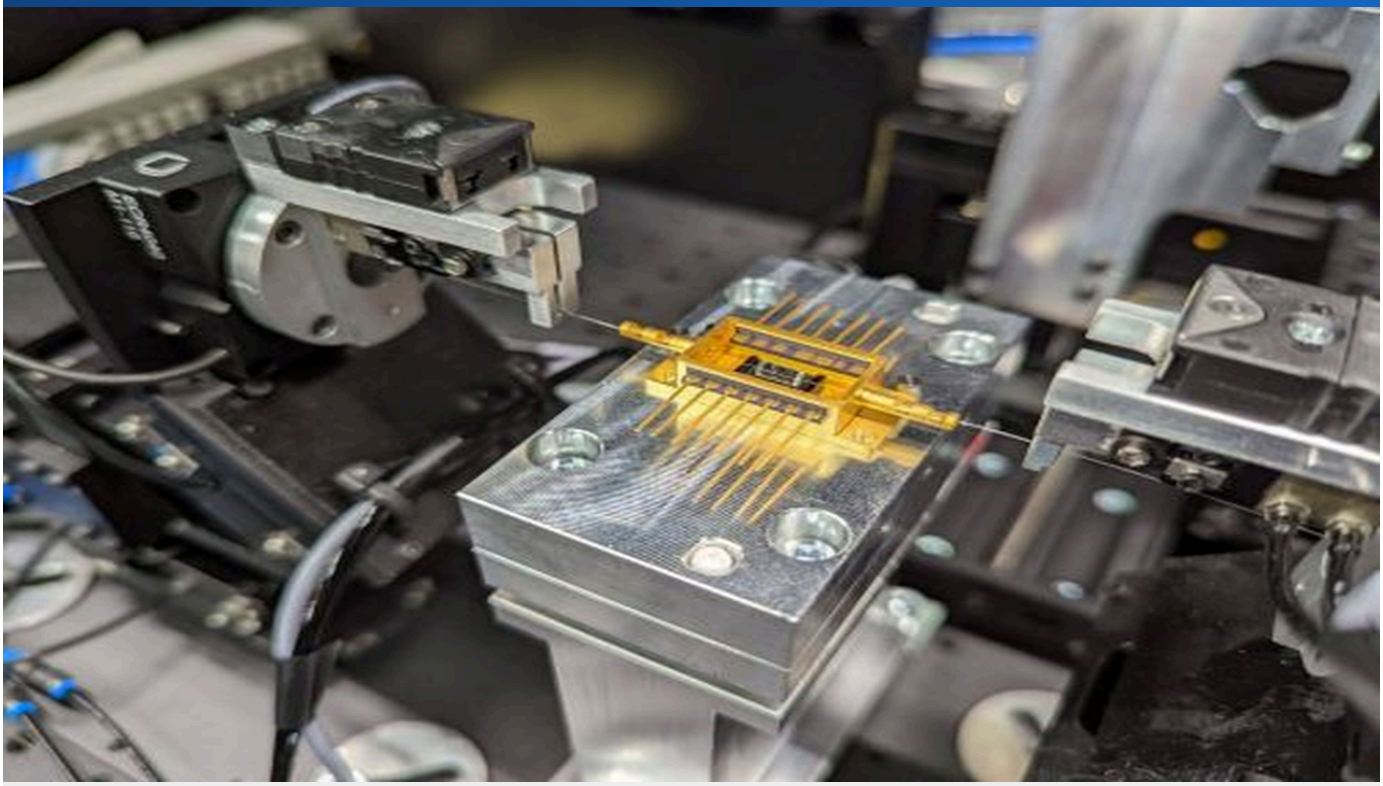
#19 Fujitsu Subsidiary 1Finity Signs Strategic Manufacturing Collaboration MOU with Taiwan's Accton, Strengthening Optical Networking Supply Chain

#20 Fujitsu Launches New AI-Powered Service to Analyze Non-Financial Disclosures and Enhance Corporate Value

#21 Fujitsu Announces "Management Vision 2035" to Guide Long-Term Strategy and Investment in AI and Advanced Networking Technologies for Sustainable Growth

Optica Online to Host Industry Meeting in June 2026: Advanced Photonic Packaging for AI, Datacom, and Quantum Technologies

Published June 05, 2026 Optica Online USA



OVERVIEW

Optica Online will convene an industry meeting in June 2026 focusing on advanced photonic packaging to accelerate the transition of photonic systems from prototype to high-volume manufacturing for AI infrastructure, datacom, sensing, and quantum technologies. Key discussions will encompass heterogeneous integration, wafer-level testing, fiber attach, thermal management, and co-packaged optics (CPO). This collaborative effort aims to address critical bottlenecks in industrializing photonics, paving the way for wider adoption across various sectors.

IN DEPTH

Key Findings

An industry meeting hosted by Optica Online in June 2026 will spotlight advanced photonic packaging technologies crucial for scaling photonic systems across AI infrastructure, datacom, sensing, and quantum applications. The discussions will delve into essential techniques such as heterogeneous integration, wafer-level testing, fiber attach, thermal management, and co-packaged optics (CPO), all vital for transitioning from prototyping to mass production. This initiative aims to identify and resolve critical bottlenecks in the industrialization of photonics, opening doors for its broader application in various industries.

Technical / Clinical Details

- **Heterogeneous Integration:** This technology, which integrates multiple chips and components manufactured with different materials or processes into a single package, is indispensable for performance enhancement and miniaturization.
- **Wafer-Level Testing:** Testing photonic devices early in the manufacturing process helps reduce defects and improve cost efficiency.
- **Fiber Attach:** The precise and efficient attachment of optical fibers to photonic chips is paramount for minimizing signal loss.
- **Thermal Management:** Effective dissipation of heat generated by densely integrated photonic systems ensures stable operation and extended device lifespan.
- **Co-Packaged Optics (CPO):** Integrating electro-optical conversion elements directly within the same package as CPUs or GPUs dramatically increases bandwidth and reduces power consumption.

These technologies are crucial for meeting the explosive data processing demands and energy efficiency challenges in AI data centers. Large-scale AI training and inference require ultra-high-speed, low-latency interconnects unattainable with conventional electrical wiring, making photonic packaging a promising solution.

Background & Context

The photonics industry is experiencing unprecedented attention, largely driven by the rapid expansion of AI infrastructure that demands high-speed data transfer and energy efficiency. Major players like Nvidia, Broadcom, and Marvell are intensely competing on electrical/thermal efficiency. Advanced packaging technologies are central to unlocking the full potential of photonic integrated circuits (PICs), simultaneously bolstering supply chains and promoting 'reshoring' initiatives. European efforts such as PhotonDelta exemplify the robust support for technological development and industrialization in this field.

Strategic Significance & Outlook

The technological advancements discussed at this meeting underscore photonics' role as a foundational scaling layer for AI-era computing. CPO, in particular, is key to resolving GPU communication bottlenecks caused by increasing data center traffic, striving for the 'ultimate goal' of low latency and reduced power consumption. As these technologies mature and become viable for mass production, innovation will accelerate across a wide range of applications, including LiDAR sensors for autonomous vehicles, quantum computing systems, and advanced sensing platforms. Photonics is poised to become a central driver of the next wave of technological innovation.

Source: https://www.optica.org/events/webinar/2027/october/advanced_packaging_for_photonics/

Collected: June 05, 2026 | Automated Research System (Gemini API)

Wiwynn and Partners to Demo CPO Interconnect for Hyperscale AI Data Centers at Computex 2026, Accelerating Optical Scaling

Published May 28, 2026 PR Newswire USA

OVERVIEW

Wiwynn, in collaboration with ecosystem partners including Ayar Labs and GUC, will showcase co-packaged optics (CPO) interconnect innovations at Computex 2026. This demonstration aims to accelerate optical scaling for hyperscale AI data centers, presenting a full-stack pathway from chip-level CPO innovation to data center deployment. The initiative seeks to overcome copper interconnect bottlenecks, reduce power consumption, and deliver high bandwidth and scalability for next-generation AI data centers.

IN DEPTH

Key Findings

Wiwynn, in collaboration with leading ecosystem partners including Ayar Labs, GUC, and TE Connectivity, will unveil groundbreaking co-packaged optics (CPO) interconnect innovations at Computex 2026. This demonstration is designed to accelerate optical scaling in hyperscale AI data centers, showcasing a comprehensive full-stack solution from chip-level CPO design to practical data center deployment. This advancement promises to deliver ultra-high bandwidth and power efficiency, essential for AI workloads, surpassing the limitations of traditional electrical interconnect technologies.

Technical / Clinical Details

The demonstration will prominently feature Ayar Labs' TeraPHY optical I/O chiplet combined with its SuperNova multi-wavelength light source. This silicon photonics-based solution directly enables multi-terabit throughput from GPU, CPU, or other accelerator packages, offering 5-10x higher bandwidth, 10x lower latency, and 4-8x better power efficiency compared to conventional copper interconnects. The integration of GUC's ASIC design expertise and TE Connectivity's connectivity solutions brings several specific advantages to this CPO technology:

- **Dramatic Bandwidth Increase:** Achieving multi-terabit-scale bandwidth to meet the demanding data transfer requirements of AI clusters.
- **Significant Power Reduction:** Substantially cutting power consumption compared to traditional electrical interconnects, lowering operational costs and environmental impact for AI data centers.
- **Low Latency:** Eliminating signal transmission bottlenecks to enhance data exchange speeds between computing nodes.
- **Scalability:** Enabling the connection of thousands of GPUs into a single, unified cluster via optical fabric, facilitating the construction of large-scale AI systems.
- **Heterogeneous Integration:** Ayar Labs’ optical engines are built using standard CMOS manufacturing processes, allowing for seamless integration into existing semiconductor ecosystems.

Background & Context

AI data centers face significant challenges from explosive data traffic growth and GPU communication bottlenecks. NVIDIA has also announced plans for full adoption of silicon photonics and CPO in its AI data center platforms by 2026, solidifying optical interconnects as the next frontier for AI infrastructure. In this context, Wiwynn and its partners' push for CPO technology underscores photonics' critical role as a foundational scaling layer for AI-era computing. NVIDIA's investment of over $6.5 billion in companies like Lumentum, Coherent, Marvell, Corning, and Ayar Labs further highlights the industry-wide commitment to optical interconnect solutions.

Strategic Significance & Outlook

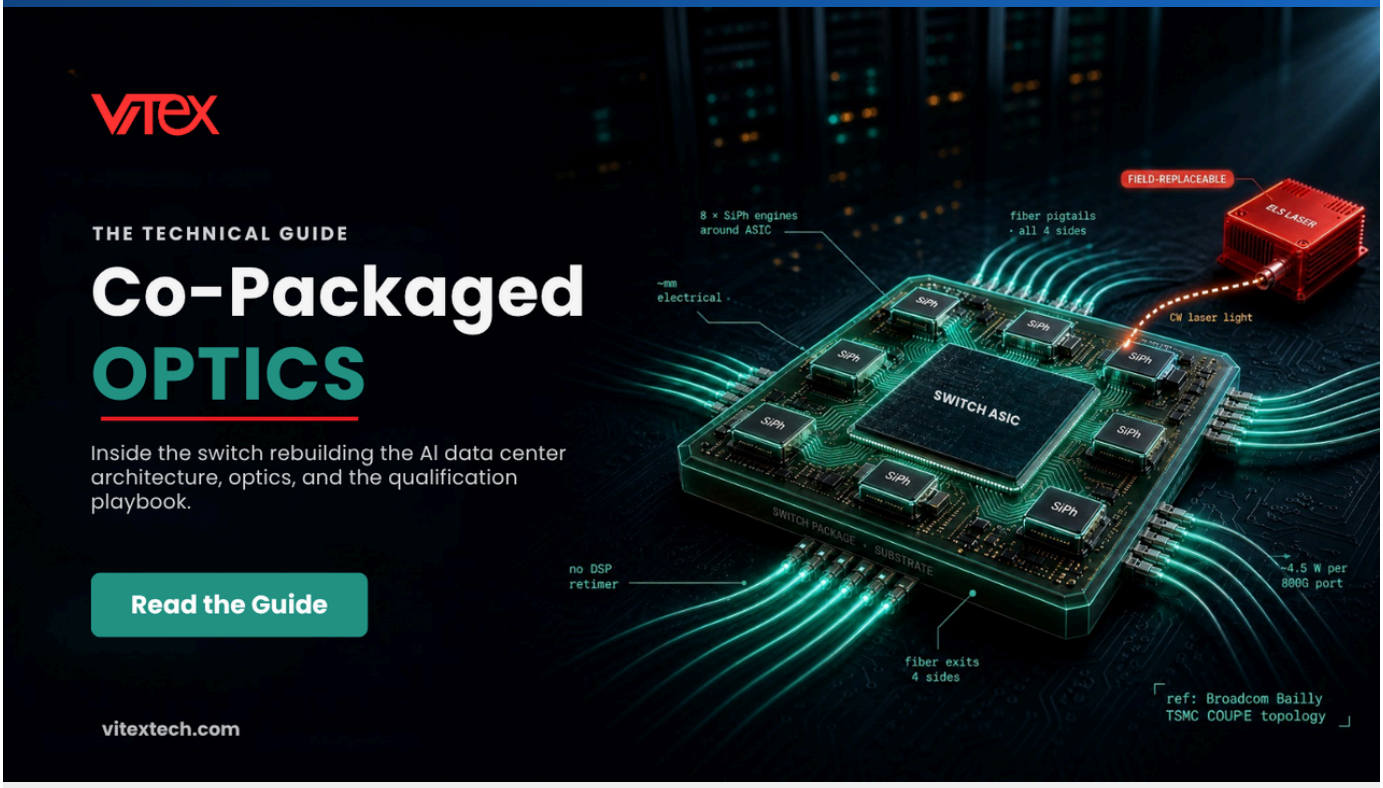
Wiwynn and its ecosystem partners' CPO technology demonstration provides a tangible vision for the future of AI data centers. This technology is an indispensable element for overcoming the physical limitations of copper interconnects and meeting the demanding requirements of AI workloads. CPO is positioned as the 'ultimate goal' for achieving low latency and low power consumption, following stages of pluggable optical modules and near-packaged optics (NPO), with explosive adoption projected between 2026 and 2027. This advancement promises to dramatically enhance AI computing capabilities, suggesting that heterogeneous integration and advanced packaging will become central to next-generation data center design and operation.

Source: https://www.prnewswire.com/news-releases/wiwynn-and-ecosystem-partners-to-showcase-co-packaged-optics-innovations-at-computex-2026-302784419.html

Collected: June 05, 2026 | Automated Research System (Gemini API)

Vitex LLC Releases Comprehensive Technical Guide on Co-Packaged Optics (CPO) in 2026, Detailing Functionality and AI Data Center Applications

Published June 03, 2026 Vitex LLC USA



OVERVIEW

This article is an overview of a market research report published by Vitex LLC. Vitex LLC has released a comprehensive technical guide on Co-Packaged Optics (CPO) in 2026. The guide outlines CPO's transition from research projects to shipping products, explaining its functionalities, distinctions from pluggable, LPO, and NPO, and the advantages and tradeoffs for AI data centers.

IN DEPTH

Report Overview

Vitex LLC published a comprehensive technical guide in 2026 titled "Co-Packaged Optics (CPO) 2026: The Complete Technical Guide." This guide analyzes the detailed functionalities of Co-Packaged Optics (CPO) technology, its comparison with other optical interconnect technologies, and its specific applications and challenges in AI data centers, against the backdrop of CPO's maturation from research projects to commercially shipped products. It particularly highlights the current situation where co-packaged switches are being shipped in both Broadcom Ethernet and NVIDIA InfiniBand/Ethernet lines, indicating CPO's practical implementation by major industry players.

Key Findings

- **Evolution of CPO:** CPO has transitioned from mere proof-of-concept to actually deployed solutions for high-performance data centers.
- **Technological Comparison:** The guide thoroughly explains how CPO differs from other technologies like pluggable optical modules, Near-Packaged Optics (NPO), and Linear-drive Pluggable Optics (LPO), along with their respective advantages and tradeoffs. CPO is noted for its superior power efficiency and bandwidth density.
- **Application in AI Data Centers:** The adoption of CPO in AI data centers is identified as key to resolving GPU-to-GPU communication bottlenecks, reducing power consumption, and meeting high-bandwidth demands.
- **Market Adoption Track Record:** Major semiconductor vendors such as Broadcom and NVIDIA are already shipping co-packaged switches, confirming the practicality of CPO technology and its accelerating market penetration.

About the Publisher

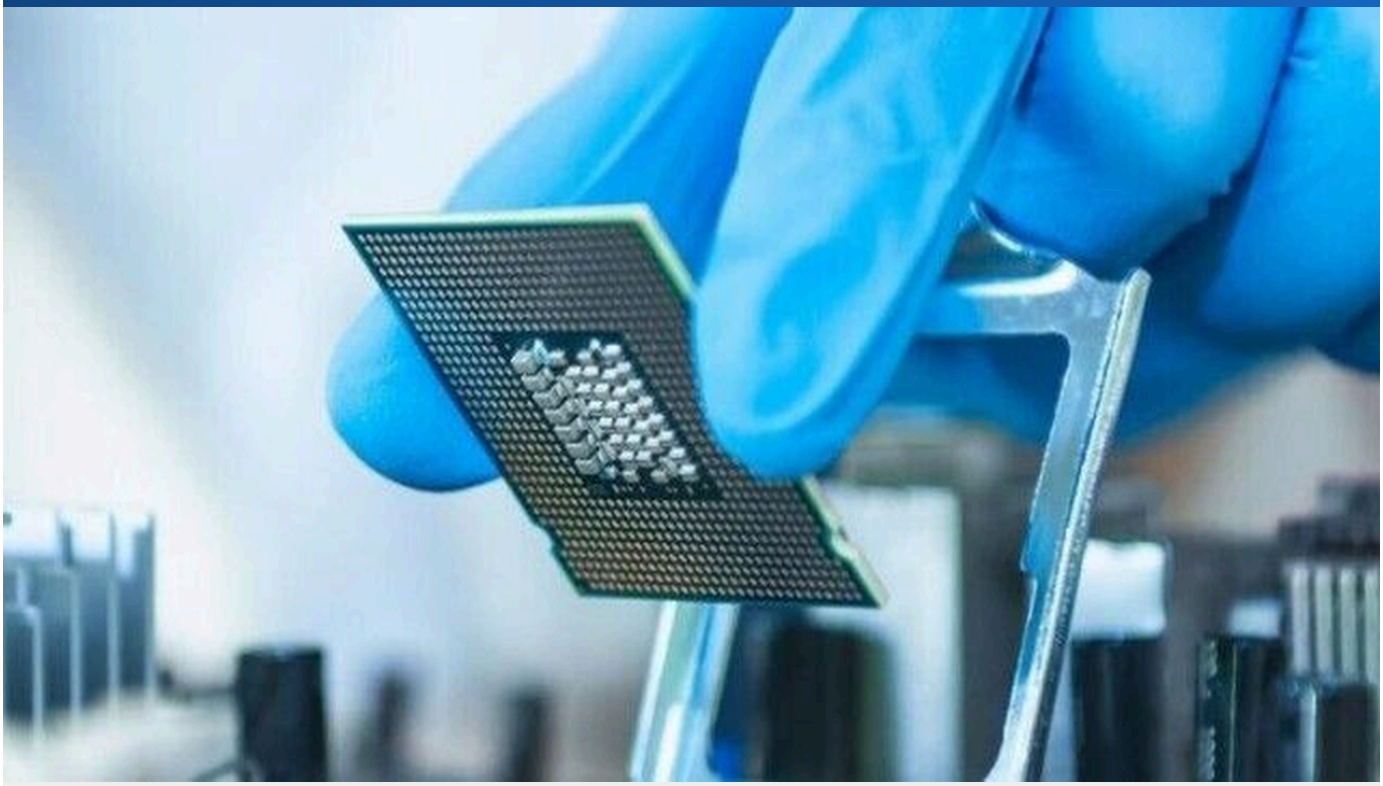
Vitex LLC is a company that provides high-performance interconnect solutions for optical communication and data centers. The company focuses on deep expertise in the latest technological trends and innovative product development tailored to customer needs. The publication of this technical guide demonstrates its leadership in the CPO field and its contribution to deepening overall industry understanding.

Source: https://www.vitextech.com/blogs/blog/co-packaged-optics-cpo-2026-the-complete-technical-guide

Collected: June 05, 2026 | Automated Research System (Gemini API)

Pandaily: Co-Packaged Optics (CPO) as the "Ultimate Goal" for Next-Gen AI Data Centers, Predicting Explosive NPO Adoption in 2026-27

Published June 03, 2026 Pandaily China



OVERVIEW

Pandaily reports that Co-Packaged Optics (CPO) is the core solution for next-generation AI data centers, addressing GPU communication bottlenecks. The article outlines a three-stage roadmap for optoelectronic integration: pluggable optical modules, Near-Packaged Optics (NPO) with anticipated explosive adoption from 2026-2027, and finally, CPO as the "ultimate goal" for low latency and low power consumption. This evolution is an indispensable step to meet the exponential growth of AI workloads.

IN DEPTH

Key Findings

A recent Pandaily article concludes that Co-Packaged Optics (CPO) will serve as a core solution for next-generation AI data centers, effectively alleviating GPU communication bottlenecks caused by increasing data center traffic. CPO is positioned as a pivotal technology to achieve the "ultimate goal" of low latency and low power consumption, essential for enhancing data center performance and energy efficiency. Specifically, an explosive adoption of Near-Packaged Optics (NPO) is anticipated between 2026 and 2027, followed by a gradual transition to CPO, outlining a clear roadmap for optical integration.

Technical / Clinical Details

The article elaborates on a three-stage roadmap for optoelectronic integration, illustrating the evolutionary path of optical technology in AI data centers:

- **Stage 1: Pluggable Optical Modules:** This widely used format converts electrical signals into optical signals for data transmission. However, it faces limitations in meeting the ultra-high bandwidth and low power consumption demands of AI workloads.
- **Stage 2: Near-Packaged Optics (NPO):** Expected to see explosive adoption from 2026 to 2027, NPO involves placing optical engines in close proximity to the ASIC package. This shortens electrical trace lengths, reducing power consumption and latency, thus offering superior performance over traditional pluggable modules.
- **Stage 3: Co-Packaged Optics (CPO):** Considered the "ultimate goal" for low latency and low power consumption, CPO integrates optical engines directly within the same package as ASICs like CPUs or GPUs. This minimizes electrical signal transmission distances, leading to dramatic performance improvements and optimized energy efficiency. Such integration significantly expands communication bandwidth between AI chips, enabling the scaling of high-density AI clusters.

These technologies are particularly critical for addressing the growing computational demands in AI training and inference. CPO resolves AI data center bottlenecks by substantially reducing power consumption per bit and enabling terabit-level data transfer speeds.

Background & Context

The explosive growth of AI workloads places unprecedented demands on data center interconnects. Traditional copper-based interconnects are approaching their limits in terms of bandwidth, power consumption, and thermal management. Consequently, major industry players, including NVIDIA, are making a significant shift towards optical interconnects. NVIDIA's plan to fully adopt silicon photonics and CPO in its AI data center platforms by 2026 strongly supports this trend. CPO is specifically recognized as an indispensable technology for enabling high-speed and efficient communication between GPUs, especially with the evolution of large language models (LLMs) and generative AI.

Strategic Significance & Outlook

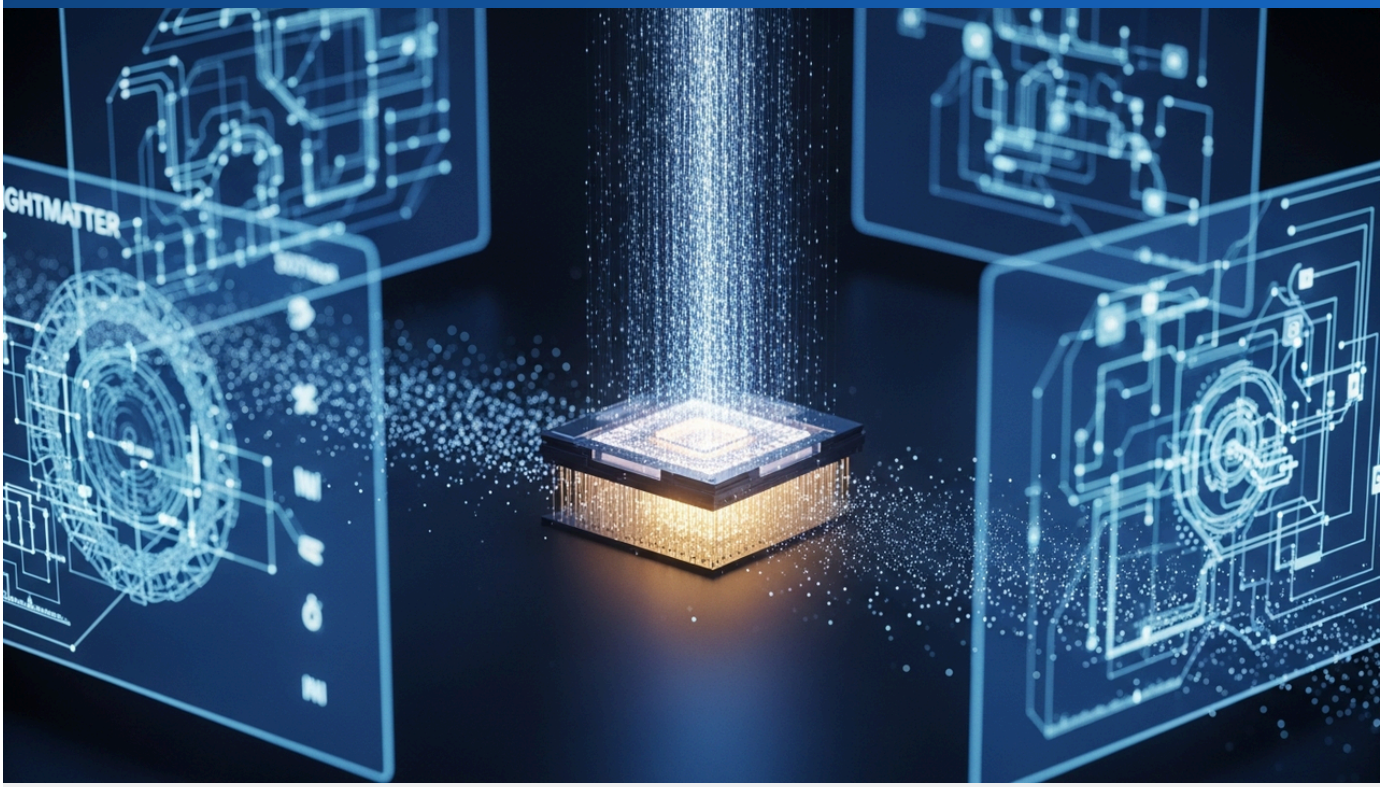
The roadmap presented in the Pandaily article provides insight into the future evolution of AI data centers over the coming years. Following the rapid introduction of NPO, the eventual standardization of CPO will dramatically enhance AI computing capabilities and efficiency. This technological evolution will enable further advancements in AI, opening new horizons for data-intensive applications such as autonomous driving, HPC, and cloud services. The widespread adoption of co-packaged optics signifies a fundamental paradigm shift in data center design, contributing to the realization of more sustainable and high-performance AI infrastructure.

Source: https://pandaily.com/co-packaged-optics-ai-data-centers-jun2026

Collected: June 05, 2026 | Automated Research System (Gemini API)

Lightmatter Unveils 114Tbps Passage M1000 3D Photonic Interposer and 50Tbps Optical I/O Laser at InterConnect 2026, Joins NVIDIA NVLink Fusion Ecosystem

Published May 30, 2026 Lightmatter USA



OVERVIEW

At its InterConnect 2026 keynote, Lightmatter revealed a new category of lasers capable of delivering 50 Tbps of optical I/O and the Passage M1000 3D Photonic Interposer, offering 114 Tbps I/O, to enable a photonic future for AI infrastructure. The company also announced its participation in the NVIDIA NVLink Fusion ecosystem, strengthening next-gen AI infrastructure with photonic interconnects. Lightmatter's Passage platform, including the Passage L200 supporting 32-64 Tbps aggregate bandwidth via co-packaged optics (CPO), addresses high-speed data transfer and energy efficiency challenges in AI data centers.

IN DEPTH

Key Findings

During its InterConnect 2026 keynote, Lightmatter presented a concrete vision for the photonic future of AI infrastructure, announcing a new category of lasers capable of delivering 50 Tbps (terabits per second) of optical I/O in a single module. Furthermore, the company showcased its Passage M1000 3D Photonic Interposer, which offers an astonishing 114 Tbps of I/O, signaling a dramatic potential for enhancing AI computing performance. Lightmatter also announced its entry into the NVIDIA NVLink Fusion ecosystem, committing to fortify next-generation AI infrastructure with photonic interconnects through its co-packaged optics (CPO) and near-packaged optics (NPO) products.

Technical / Clinical Details

Lightmatter's Passage platform is an innovative solution designed to resolve connectivity bottlenecks within AI data centers. Its core technological components include:

- **Passage M1000 3D Photonic Interposer:** Achieving 114 Tbps of I/O bandwidth, this interposer drastically boosts inter-chip and inter-rack communication speeds in data centers. This technology enables the high-speed movement of massive datasets, which is essential for training and inference of AI models.
- **New Category of Lasers:** The ability to deliver 50 Tbps of optical I/O in a single module significantly improves power efficiency and bandwidth density compared to conventional laser systems. This serves as a foundational element for driving advanced optical interconnect technologies such as DWDM (Dense Wavelength Division Multiplexing) BiDi networking.
- **Passage L200:** This system supports 32-64 Tbps of aggregate bandwidth via co-packaged optics, enhancing bidirectional fiber bandwidth density by 8x for 16-wavelength bidirectional optical links in AI data centers. This mitigates copper interconnect bottlenecks, leading to substantial reductions in power consumption and latency.

- **Manufacturing Process:** Lightmatter also presented the manufacturing process for its Passage M1000 3D Photonic Interposer, highlighting high-precision chip integration and scalable production capabilities. At OFC 2026, a photonic AI processor integrating six chips and achieving 65.5 TFLOPS with precision comparable to electronic devices was also introduced, marking a significant step towards post-transistor computing.

These technologies simultaneously deliver the high bandwidth, low latency, and high energy efficiency required by AI workloads, thereby breaking through the limitations of current electrical signal transmission.

Background & Context

The explosive growth of AI infrastructure has pushed data transfer and processing demands in data centers to unprecedented levels. Traditional electrical wiring is facing increasing difficulty in scaling further due to power consumption and heat generation issues. In response to these challenges, photonic computing and optical interconnects are rapidly emerging as foundational technologies for next-generation AI data centers. NVIDIA's strategic shift from copper to optics in scaling AI clusters, coupled with its significant investments in related companies, clearly demonstrates this industry-wide trend. Lightmatter's partnership with Global Unichip Corp. (GUC) also represents a strategic move to bring commercial Passage™ 3D CPO solutions to market.

Strategic Significance & Outlook

Lightmatter's photonic interconnect solutions have the potential to redefine the future of AI data centers. Specifically, its participation in the NVIDIA NVLink Fusion ecosystem signifies a deep integration of Lightmatter’s technology into major AI platforms. This will lead to dramatic improvements in computational power and efficiency for AI training and inference, enabling further advancements in large language models and generative AI. Low-power, high-bandwidth, and low-latency optical connectivity is expected to expand the scale and capabilities of AI systems, accelerating innovation across a wide range of applications, including autonomous driving, HPC, and cloud services. Lightmatter's technology plays a pivotal role in realizing the vision that "the future of AI runs on light."

Source: https://lightmatter.co/resource/lightmatter-interconnect-2026-the-future-of-ai-runs-on-light/

Coherent Emphasizes Photonics as Key to AI Infrastructure Scaling, Achieving Low Power-Per-Bit and High Bandwidth Density Amidst Surging Demand

Published June 02, 2026 Coherent / Photonics Spectra USA

OVERVIEW

Coherent's Sanjai Parthasarathi highlights advanced laser and photonics technologies as central to the scalability, efficiency, and reliability of AI systems, driven by rapid AI growth and increasing data center demands. Photonics offers high bandwidth density, low power-per-bit, and scalability beyond copper's physical limits for AI clusters. Paradigm-shifting approaches like Co-Packaged Optics (CPO) address networking challenges—scale-up, scale-out, and scale-across—through optical interconnects.

IN DEPTH

Key Findings

Sanjai Parthasarathi of Coherent emphasizes that advanced laser and photonics technologies are becoming central to the scalability, efficiency, and reliability of AI systems, serving as foundational elements of modern digital infrastructure amidst the explosive growth of AI and surging demand from hyperscale data centers. Photonics offers high bandwidth density, low power consumption per bit, and superior scalability for AI clusters, surpassing the physical limitations of traditional copper technologies. This is achieved particularly through paradigm-shifting approaches like Co-Packaged Optics (CPO), which effectively address complex networking challenges in data centers such as scale-up, scale-out, and scale-across through optical interconnects.

Technical / Clinical Details

AI workloads demand high-speed data movement and low power consumption, which are challenging to meet with conventional electrical interconnects. Photonics offers specific advantages for this challenge:

- **High Bandwidth Density:** Light can transmit information at much higher frequencies than electricity, allowing more data to be processed simultaneously within a limited physical space. This ensures bottleneck-free data transfer between GPUs and accelerators in AI clusters.
- **Low Power-Per-Bit:** Optical signal transmission requires less energy than electrical signals, significantly reducing overall power consumption in data centers. This is crucial for lowering AI system operational costs and enhancing sustainability.
- **Scalability:** Optical fibers support high-speed, long-distance data transmission with minimal signal degradation, enabling flexible design and expansion of large-scale AI data centers and clusters. This facilitates system configurations where tens to hundreds of thousands of GPUs operate collaboratively, akin to a "single giant GPU."
- **Co-Packaged Optics (CPO):** Integrating optical engines within the same package as CPUs or GPUs minimizes electrical trace lengths, maximizing power efficiency and bandwidth. This is rapidly being adopted as the next-generation interconnect architecture in AI data centers.

Scaling the production of photonic devices while maintaining performance and yield is a significant challenge, making established manufacturing platforms and vertically integrated capabilities indispensable.

Background & Context

The rapid expansion of AI infrastructure has heightened focus on energy efficiency, to the extent that "power per token" is a critical performance metric in the 2026 market. Leading semiconductor companies like Nvidia, Broadcom, and Marvell are engaged in intense competition over electrical and thermal efficiency. In this environment, Photonic Integrated Circuits (PICs) are recognized as a foundational scaling layer for computing in the AI era. Initiatives like Europe's PhotonDelta are bolstering the photonics industry by promoting supply chain "reshoring" and aiming to strengthen regional manufacturing capabilities.

Strategic Significance & Outlook

As AI demand continues to rise, photonics will remain an indispensable technology for improving data center performance and efficiency. The proliferation of advanced optical interconnect technologies like CPO signifies a fundamental paradigm shift in AI data center design and operation, enabling the realization of more powerful and sustainable AI systems. Optical solutions are expected to accelerate data movement and improve power efficiency across chips, racks, and entire data centers, thereby driving further AI development and the creation of new applications.

Source: https://www.photonics.com/Articles/Photonics-is-Pacing-AIs-Prolific-Growth/p5/a72170

Collected: June 05, 2026 | Automated Research System (Gemini API)

PsiQuantum Unveils Omega Quantum Photonic Chipset for Utility-Scale Computing, Secures $100M LOI with US Department of Commerce

Published May 28, 2026 PsiQuantum News USA

OVERVIEW

PsiQuantum announced its Omega quantum photonic chipset on May 28, 2026, purpose-built for utility-scale quantum computing. Manufactured on full-size wafers at GlobalFoundries, this chipset integrates all advanced components needed for million-qubit quantum computers, marking significant progress in photonic chip maturity and scalability. The company also signed a $100 million Letter of Intent with the U.S. Department of Commerce under the CHIPS and Science Act to accelerate domestic manufacturing and performance of critical quantum computing components.

IN DEPTH

Key Findings

On May 28, 2026, PsiQuantum unveiled its Omega quantum photonic chipset, specifically designed to enable utility-scale fault-tolerant quantum computing. This groundbreaking chipset is manufactured on standard silicon wafers at GlobalFoundries and integrates all the advanced components necessary for building million-qubit scale systems, signifying a major breakthrough in the maturity and scalability of quantum photonic chips. Concurrently, PsiQuantum signed a $100 million Letter of Intent (LOI) with the U.S. Department of Commerce, solidifying government cooperation to accelerate domestic manufacturing capabilities and performance of critical components for utility-scale quantum computing.

Technical / Clinical Details

PsiQuantum's photonic quantum computing approach focuses on manufacturing components like single-photon sources, detectors, and ultra-high-performance optical switches on standard silicon wafers using high-volume semiconductor foundries. The Omega chipset integrates the following key technologies:

- **Single-Photon Qubits:** Utilizes single photons in the telecommunications band to encode quantum information. This enables long-distance transmission via optical fibers, simplifying networking.
- **Highly Integrated Silicon Photonics:** Integrates photonic qubits and control electronics into manufacturable packages, improving system miniaturization and reliability. Collaboration with GlobalFoundries leverages existing semiconductor manufacturing infrastructure for large-scale production.
- **Barium Titanate (BTO) Optical Switches:** PsiQuantum employs barium titanate (BTO), a dielectric material, for its optical switches, enabling ultra-fast and efficient photon routing.
- **Construct FTQC Software:** The company has released its fault-tolerant quantum computing (FTQC) software, "Construct," for developers. This tool aids in designing quantum circuits, writing and simulating quantum algorithms, and optimizing resources, fostering the growth of the broader quantum computing community.

These technologies form the foundation for building fault-tolerant, utility-scale quantum computers, with anticipated applications in areas such as new drug discovery and workforce development.

Background & Context

Building fault-tolerant quantum computers remains one of the greatest challenges in the quantum computing field. PsiQuantum addresses this challenge with a unique silicon photonics approach, leveraging existing semiconductor manufacturing techniques to resolve the cost and scalability issues of quantum computer production. The $100 million LOI with the U.S. Department of Commerce signifies strong government support for strengthening the domestic semiconductor supply chain and establishing U.S. leadership in photonic quantum computing. This funding is aimed at deploying large-scale prototype systems and improving the performance of quantum photonic chips.

Strategic Significance & Outlook

The announcement of the Omega chipset and the partnership with the U.S. Department of Commerce clearly demonstrate PsiQuantum's acceleration of its roadmap towards realizing utility-scale quantum computers. The release of the Construct FTQC software is a crucial step in engaging the developer community and fostering the development of quantum algorithms and applications. Photonic quantum computing is believed to offer significant advantages in scalability and integration compared to other approaches like superconducting qubits and ion trap qubits. PsiQuantum's technology is expected to become a powerful tool for solving complex problems currently intractable for classical computers, across fields such as drug discovery, materials science, and financial modeling.

Source: https://www.psiquantum.com/news-import

Collected: June 05, 2026 | Automated Research System (Gemini API)

Intel Foundry Unveils Advanced Packaging Innovations for AI/HPC at ECTC 2026, Revolutionizing CPO with High-Performance Detachable Optical Connectors

Published June 05, 2026 Intel Foundry USA

OVERVIEW

Intel Foundry engineers presented advanced packaging technologies at ECTC 2026, redefining AI and HPC scalability limits. They demonstrated scaling of EMIB-T packaging and showcased innovations in Co-Packaged Optics (CPO), including high-performance detachable edge optical connectors and a novel V-groove-based edge-coupled glass capillary interface. These advancements aim to enable robust, energy-efficient, high-bandwidth AI scale-up networks.

IN DEPTH

Key Findings

Engineers from Intel Foundry presented groundbreaking research at ECTC 2026 on advanced packaging technologies set to redefine the future scalability limits of Artificial Intelligence (AI) and High-Performance Computing (HPC). They demonstrated the scaling of EMIB-T packaging technology, enabling larger package sizes and the integration of more compute and memory resources. Notably, innovative advancements in Co-Packaged Optics (CPO) were unveiled, featuring high-performance detachable edge optical connectors and a novel V-groove-based edge-coupled glass capillary interface for robust, energy-efficient, high-bandwidth AI scale-up networks. These technologies represent critical steps in the evolution of optical interconnects to meet the exponential growth of AI workloads.

Technical / Clinical Details

The key technological innovations presented include:

- **Scaling of EMIB-T Packaging:** EMIB (Embedded Multi-die Interconnect Bridge) is Intel's proprietary technology for integrating multiple dies within a single package. EMIB-T advances this technology further, allowing for larger package sizes and the integration of more compute and memory dies. This will enhance the performance and density of AI accelerators and HPC processors.
- **High-Performance Detachable Edge Optical Connectors:** As CPO adoption accelerates, the connection between optical engines and external fibers becomes paramount. The new detachable connectors provide high-precision and robust connections, facilitating maintenance and upgrades in data centers while preserving optical performance.
- **V-Groove-Based Edge-Coupled Glass Capillary Interface:** This novel interface represents an innovative approach to efficiently couple optical signals from the chip to the fiber. By utilizing glass capillaries and V-groove structures, it achieves low insertion loss and high reliability, improving the power efficiency and signal integrity of CPO modules. This is essential for resolving data transfer bottlenecks and reducing power-per-bit in AI scale-up networks.

These advancements offer comprehensive solutions to overcome the bandwidth, power, and thermal constraints faced by AI and HPC systems.

Background & Context

The demands of AI and HPC applications continue to push the limits of data movement and computational power. Traditional electrical interconnects are encountering bottlenecks in terms of power consumption, latency, and physical scalability, making the transition to optical communication technologies imperative. CPO, which positions optical engines in close proximity to compute chips, is widely recognized as a promising solution to address these challenges. Industry leaders like NVIDIA are also heavily investing in and adopting optical interconnects for AI clusters, making advanced packaging technologies a key determinant of next-generation data center performance.

Strategic Significance & Outlook

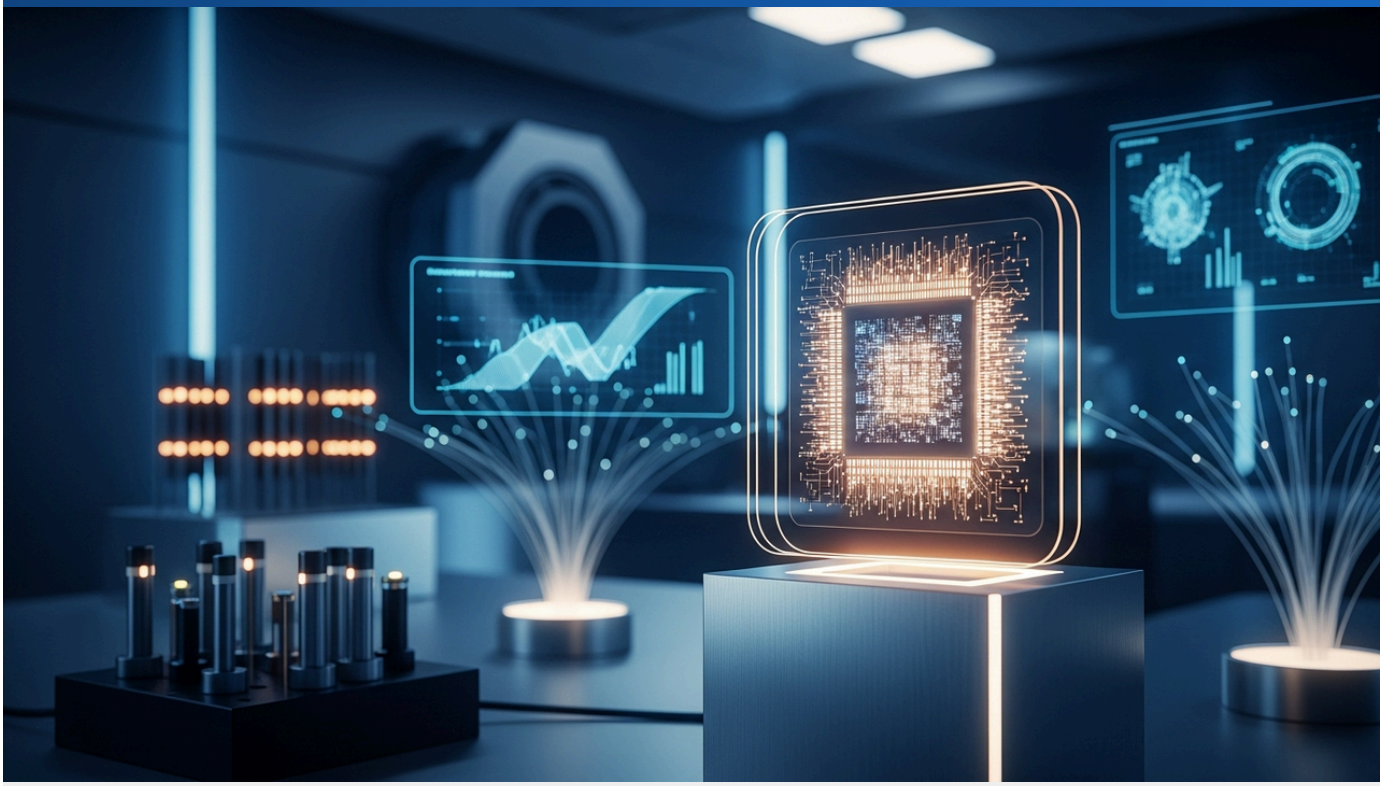
These advanced packaging technologies presented by Intel Foundry at ECTC 2026 are crucial for elevating AI and HPC scalability to the next level. Specifically, the detachable optical connectors and new optical coupling interfaces in CPO will accelerate the deployment of optical interconnects, contributing to the realization of more flexible and maintainable data center infrastructures. This will enable AI workloads to be processed faster and more efficiently, accelerating innovation in a wide range of fields, including autonomous systems, scientific simulations, and large language models. These innovations from Intel are laying critical foundations for driving computing in the AI era.

Source: https://semiengineering.com/packaging-technologies-redefine-ai-and-hpc-scalability-limits-at-ectc-2026/

Collected: June 05, 2026 | Automated Research System (Gemini API)

Q.ANT Unveils Thin-Film Lithium Niobate Photonic AI Chip at ISC High Performance 2026, Advancing Energy-Efficient Analog Computing

Published 2026 Q.ANT Germany



OVERVIEW

At ISC High Performance 2026, Q.ANT presented its photonic analog processors, which utilize light instead of electricity. The company's thin-film lithium niobate (TFLN) photonic AI chip pilot line offers more energy-efficient computing and higher computational density for AI inference/training, advanced image processing, and scientific simulations. This initiative aims to increase data center capacity and provide a blueprint for cost-effective modernization of global chip production.

IN DEPTH

Key Findings

At ISC High Performance 2026, Q.ANT announced the development of innovative photonic analog processors that utilize light instead of electrons. Specifically, the company's photonic AI chip pilot line, based on thin-film lithium niobate (TFLN), offers significantly more energy-efficient computing and higher computational density compared to conventional electronic processors, across fields such as AI inference and training, advanced image processing, and scientific simulations. This technology aims to provide a blueprint for increasing data center capacity and cost-effectively modernizing chip production processes worldwide.

Technical / Clinical Details

The core of Q.ANT's photonic analog processor is its thin-film lithium niobate (TFLN) platform. TFLN's excellent electro-optical properties enable high-speed and efficient optical signal processing.

- **Photonic Analog Computing:** This chip performs computations using analog properties of light, such as amplitude and phase, rather than digital 0s and 1s. This bypasses the thermal generation and power consumption bottlenecks faced by traditional electronic chips, enabling high-speed and low-energy operations.
- **High Energy Efficiency:** Optical signals have lower transmission losses than electrical signals, allowing vast computational processing, essential for AI workloads, to be performed with less power. This significantly contributes to reducing data center operational costs and environmental impact.
- **High Computational Density:** By leveraging the high integration density of TFLN and the parallel processing capabilities of light, more computational resources can be accommodated within the same footprint, thereby enhancing data center processing power.
- **Application Areas:** It contributes to accelerating AI inference and training, especially for large language models (LLMs) and generative AI. Furthermore, it is expected to find applications in advanced image processing for medical diagnostics and defense, as well as scientific simulations of complex physical phenomena, among other fields.

This pilot line represents a crucial step towards the mass production of future photonic AI chips.

Background & Context

The explosive growth of AI continues to push the limits of computational power and energy efficiency in data centers. Traditional electronic chips are approaching the limits of Moore's Law, and issues of power consumption and heat generation are becoming severe. In this context, photonic computing is rapidly gaining attention as a promising alternative for next-generation AI accelerators. In Europe, initiatives like PhotonDelta aim to strengthen the photonics industry supply chain and enhance regional manufacturing capabilities. Q.ANT's technology, particularly in the realm of analog computing, is paving a new path in this global competition, addressing both energy efficiency and performance.

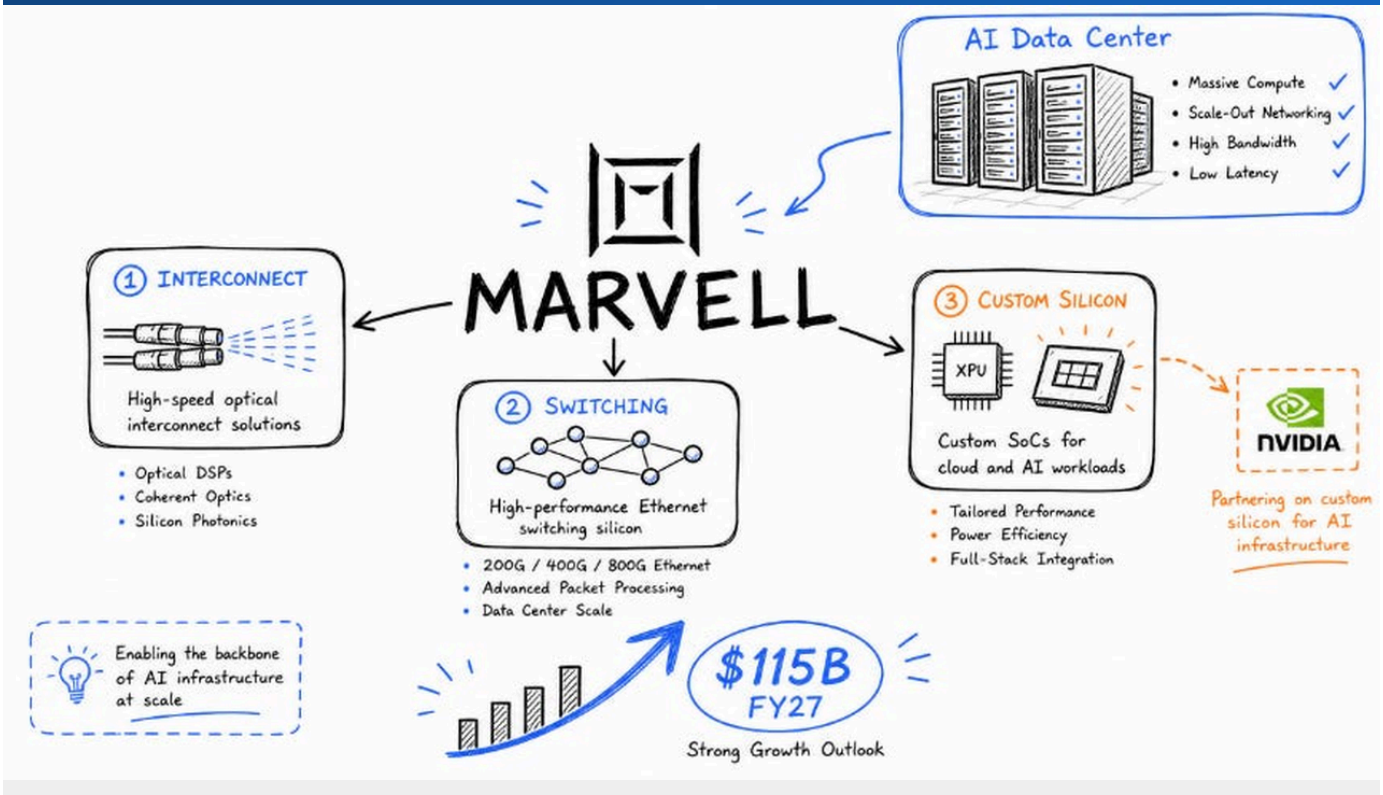
Strategic Significance & Outlook

Q.ANT's thin-film lithium niobate photonic AI chip pilot line has the potential to significantly impact the future of AI computing. If this technology is commercialized, data centers will be able to perform more computations with less power, reducing AI training costs and improving accessibility. Furthermore, this pilot line provides a concrete model for cost-effectively modernizing chip production worldwide, accelerating the industrialization of photonic technology. Q.ANT's efforts represent a crucial step towards achieving both sustainability and high performance in AI-era computing, contributing to the further development of AI and the exploration of new application areas.

Source: https://qant.com/events/isc-high-performance-2026/

Marvell Acquires Celestial AI for $3 Billion to Secure CPO Core Technology, Expands Silicon Photonics Collaboration with NVIDIA

Published June 02, 2026 Global Semi Research USA



OVERVIEW

Marvell has strategically transformed into a key player in AI data center interconnect and custom chips by acquiring Celestial AI for approximately $3 billion in December 2025, gaining crucial Co-Packaged Optics (CPO) core technology. The company also expanded its collaboration with NVIDIA on DSP, TIA, driver chips, and silicon photonics technology for scale-up networks. This move aims to reduce power consumption by 50-60% through optical-electrical chip integration, as AI infrastructure shifts from compute-centric to networking-driven architectures.

IN DEPTH

Key Findings

Marvell has undergone a strategic transformation, becoming a key player in AI data center interconnects and custom chips, following its acquisition of optical interconnect firm Celestial AI for approximately $3 billion in December 2025, thereby securing crucial Co-Packaged Optics (CPO) core technology. In addition to this acquisition, Marvell announced an expanded collaboration with NVIDIA, extending its supply relationship for DSP, TIA, and driver chips, and deepening cooperation on silicon photonics technology development for AI scale-up networks. These moves aim to reduce power consumption by 50-60% through the integration of optical and electrical chips, as AI infrastructure shifts from a compute-centric to a networking-driven architecture.

Technical / Clinical Details

Marvell's strategic transformation focuses on the following technical elements:

- **Co-Packaged Optics (CPO):** The CPO technology acquired from Celestial AI dramatically shortens the transmission distance of electrical signals by integrating optical engines within the same package as ASICs like CPUs or GPUs. This allows for significant reductions in signal loss, latency, and power consumption, which is essential for meeting the high bandwidth and low latency requirements of AI workloads.
- **Silicon Photonics:** Collaboration with NVIDIA will accelerate the development of silicon photonics technology. Silicon photonics enables the integration of optical components using standard silicon manufacturing processes, reducing the cost of optical interconnects and facilitating mass production. This is a crucial factor for the widespread adoption of optical interconnects in AI data centers.
- **DSP, TIA, and Driver Chips:** Marvell will expand its supply of these key optical transceiver components to NVIDIA. High-performance DSP (Digital Signal Processing), TIA (Transimpedance Amplifier), and driver chips ensure accurate modulation and demodulation of optical signals, enhancing the overall performance and reliability of optical communication systems.

Through the combination of these technologies, Marvell aims to eliminate the "copper bottleneck" in AI data center connectivity and support next-generation AI computing platforms.

Background & Context

The explosive growth of AI is placing unprecedented demands on data center interconnects, with traditional copper-based connections reaching their limits in terms of power consumption and bandwidth. Major players like NVIDIA are making a strategic shift towards optical interconnects for scaling AI clusters, and Marvell's acquisition of Celestial AI and expanded collaboration with NVIDIA reflect this industry-wide trend. NVIDIA's investment of over $6.5 billion in photonics-related initiatives further underscores that optical technology will be a foundational layer for computing in the AI era. Marvell's move indicates a shift in its business focus from traditional storage and networking solutions to becoming a key enabler of AI infrastructure.

Strategic Significance & Outlook

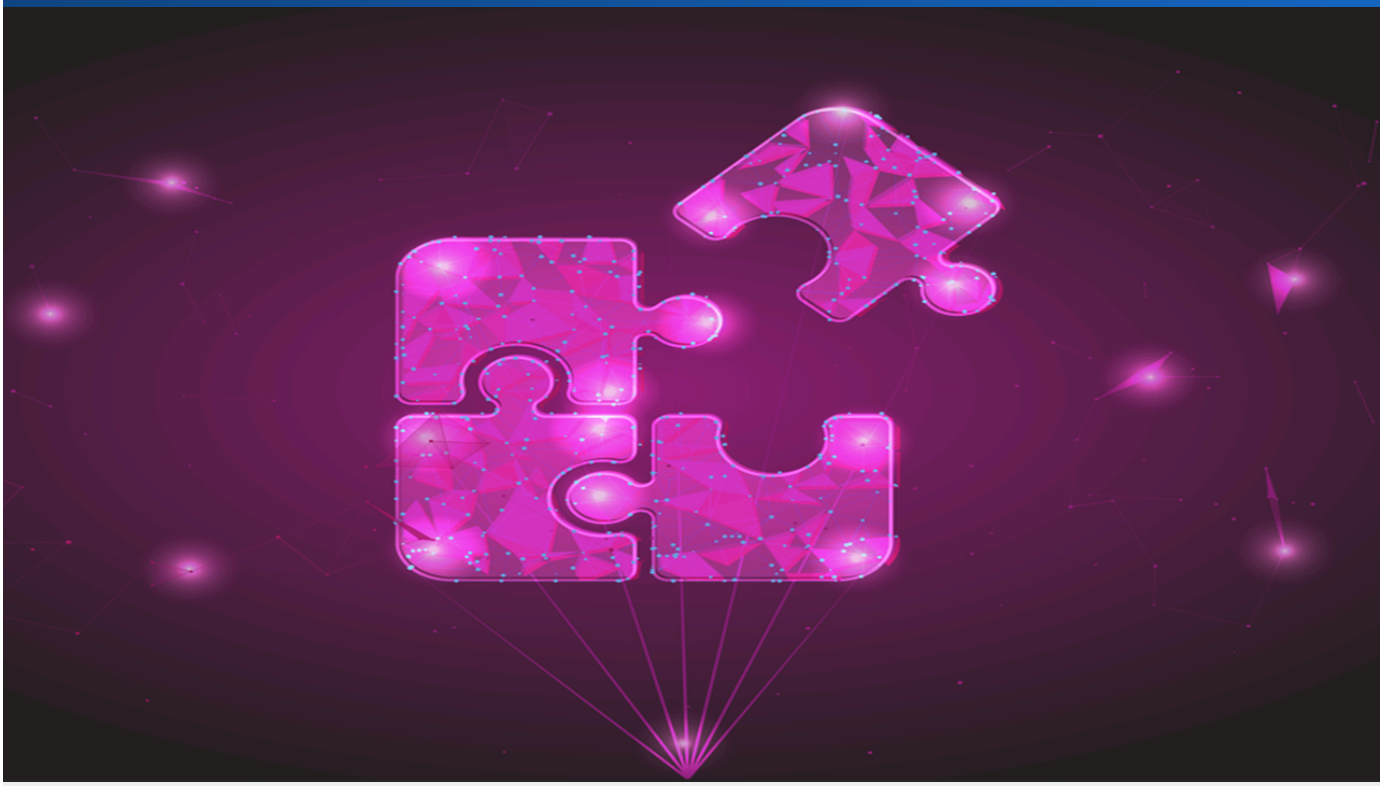
Marvell's acquisition of Celestial AI and expanded collaboration with NVIDIA are expected to dramatically accelerate the adoption of co-packaged optics and silicon photonics in AI data centers. A 50-60% reduction in power consumption through integrated optical-electrical chips will not only significantly reduce operational costs and environmental impact for AI data centers but also dramatically improve the efficiency of AI model training and inference. Marvell's expanded interconnect portfolio and silicon photonics acquisition are key drivers supporting the company's significantly upward revised performance outlook for the coming years, and are expected to further accelerate the industry-wide transition to optical technology. This marks a critical step towards building sustainable and high-performance computing infrastructure for the AI era.

Source: https://globalsemiresearch.substack.com/p/marvell-strategic-transformation

Collected: June 05, 2026 | Automated Research System (Gemini API)

Photonics Sector Accelerates: May 2026 Sees Robust M&A and Investment, Fueling Laser Fusion and Quantum Tech

Published Published June 04, 2026 EPIC Photonics ベルギー



OVERVIEW

A new market report from EPIC Photonics reveals a period of substantial growth and dynamism across the photonics industry, with May 2026 alone witnessing 26 M&A transactions and 45 investment rounds. Highlights include a $240 million Series A for laser fusion developer Focused Energy and a $200 million raise for distributed quantum computing pioneer Photonic Inc., underscoring robust capital flow into advanced optical technologies.

IN DEPTH

Background

EPIC Photonics' May 2026 M&A and Investment Highlights report paints a clear picture of a photonics industry experiencing a period of significant growth. This surge is fueled by a confluence of technological innovations and the rapid emergence of new applications. The report meticulously details 26 major M&A transactions and 45 investment rounds recorded during the month, underscoring the industry's pervasive dynamism.

Key Findings

- **Active M&A Landscape:** May 2026 saw 26 M&A transactions, signaling accelerated consolidation and the formation of strategic alliances within the photonics sector. These maneuvers are largely aimed at fortifying technology portfolios and and expanding market presence.
- **Robust Investment Inflow:** Concurrently, 45 investment rounds unfolded, demonstrating strong appetite from venture capital and private equity firms for photonics-centric technologies. This capital infusion is critical for advancing the commercialization and scaling of nascent innovations.
- **Notable Funding Cases:**
    - **Focused Energy:** Laser fusion technology developer, Focused Energy, successfully closed a $240 million Series A funding round. This substantial capital injection highlights considerable optimism regarding laser fusion's long-term potential as a clean energy solution.
    - **Photonic Inc.:** The distributed quantum computing specialist, Photonic Inc., secured $200 million. This investment is poised to accelerate research & development and commercialization efforts in quantum technologies, with a particular focus on photonic quantum computing.
- **Broad Sectoral Investment:** Investments were broadly distributed across diverse segments of the photonics industry, encompassing lasers, optical sensing, imaging, optical communications, and quantum technologies, thus showcasing widespread innovation.

This comprehensive report is published by EPIC (European Photonics Industry Consortium) Photonics, a preeminent industry association dedicated to fostering growth and innovation within the European photonics sector. EPIC Photonics champions the widespread adoption of photonics technologies through collaborative initiatives, strategic technology roadmapping, and providing vital market intelligence. The release of this report underscores EPIC Photonics' commitment to advancing industry development and transparency.

Source: https://epic-photonics.com/news-media/may-2026-mergers-acquisitions-and-investment-highlights/

Collected: June 05, 2026 | Automated Research System (Gemini API)

Nokia's Optical Network Business Set for 31% Surge to €4 Billion by 2026, Fueled by NVIDIA's $1B Investment and Hyperscaler AI Demand

Published Published May 29, 2026 S&P Global フィンランド

OVERVIEW

Nokia's optical network infrastructure revenue is projected to surge 31% year-over-year, reaching €4 billion by 2026, primarily driven by a strategic $1 billion investment from NVIDIA and escalating hyperscaler demand for high-capacity data center connectivity to expand AI capabilities. This robust growth underscores Nokia's critical role in the evolving AI infrastructure landscape, contributing significantly to its overall network infrastructure revenue and market valuation.

IN DEPTH

Background

The burgeoning demands of artificial intelligence (AI) are fundamentally reshaping data center architectures, with an acute need for unprecedented bandwidth and extremely low latency, particularly for GPU-to-GPU communication. As conventional electrical interconnects increasingly approach their physical limitations, optical communication technology has emerged as an indispensable cornerstone of next-generation AI infrastructure. This strategic shift is underscored by NVIDIA's substantial $1 billion investment in Nokia, a clear testament to Nokia's pivotal role in AI-driven network infrastructure. This collaboration is anticipated to accelerate the "opticalization" of the entire AI ecosystem, bolstering the development of high-performance optical networking solutions critical for both AI model training and inference.

Key Findings

Nokia's optical network infrastructure revenue is forecast to reach €4 billion by 2026, marking a substantial 31% year-over-year increase. This robust expansion is primarily fueled by a strategic $1 billion investment from NVIDIA, dated October 2025, and the escalating demand from hyperscale cloud providers for advanced data center connectivity to augment their AI capabilities. This significant growth trajectory, reflective of strong performance across Nokia's optical and IP networking businesses, is expected to elevate the company's overall network infrastructure revenue by 14% to €8.7 billion. Concurrently, Nokia's stock price has experienced a considerable year-to-date rise, driven by market confidence in its expanding footprint within AI-driven network infrastructure.

Technical Deep Dive

Nokia's optical network infrastructure delivers critical high-bandwidth, low-latency, and high-reliability connectivity solutions essential for the demanding environment of modern AI data centers. Core technical aspects driving this capability include:

- **Coherent Optical Transmission:** Leveraging advanced coherent detection technology, Nokia enables ultra-high-speed data transmission over substantial distances, thereby maximizing the efficiency and capacity of Data Center Interconnect (DCI). This is crucial for distributing AI workloads and datasets across geographically dispersed data centers.
- **WDM (Wavelength Division Multiplexing) Systems:** By multiplexing multiple optical signals (wavelengths) onto a single fiber, WDM systems dramatically increase data transmission capacity. This capability is vital for efficiently handling the exascale data volumes characteristic of AI training and inference.
- **Network Automation and Software-Defined Networking (SDN):** To manage the increasingly complex and dynamic traffic patterns within AI-driven data centers, Nokia is advancing its network automation and SDN solutions. These technologies facilitate dynamic resource allocation, intelligent traffic steering, and overall network optimization, ensuring optimal performance for AI workloads.
- **Silicon Photonics Integration:** Looking ahead to next-generation interconnects, Nokia is actively pursuing silicon photonics integration. This includes collaboration with partners like NVIDIA on solutions for Co-Packaged Optics (CPO) and Near-Packaged Optics (NPO), aiming to develop more power-efficient, high-density optical interconnects directly integrated with processing units.

Further demonstrating this growth, Nokia reported a 56.4% year-over-year increase in optical networking revenue to €821 million in October 2025, directly correlating AI-driven demand with tangible revenue expansion.

Strategic Significance & Outlook

The robust growth forecast for Nokia's optical network business underscores the profound impact of AI development on global telecommunications infrastructure. Anticipating sustained high demand from hyperscalers, Nokia is poised to accelerate innovation in optical transmission technology, continually delivering advanced solutions tailored to the unique challenges of AI data centers. This trajectory not only solidifies Nokia's competitive advantage in the optical networking market but also reinforces its strategic position as a foundational infrastructure provider in the unfolding AI era. The company's continued momentum in both optical and IP networking is expected to be instrumental in enabling the capabilities of the next-generation digital economy.

Source: https://www.spglobal.com/market-intelligence/en/news-insights/research/2026/05/optical-and-ip-momentum-to-push-nokia-network-revenues-up-14percent-in-2026

Lumentum Achieves 135% YTD Return in 2026 Driven by Surging Optical Transceiver Demand, InP Supply Constraints, and Expanding CPO Opportunities from NVIDIA AI Data Centers

Published May 28, 2026 Let's Data Science (via Seeking Alpha) USA

OVERVIEW

Lumentum Holdings Inc. achieved a substantial 135% year-to-date return in 2026, propelled by higher-than-expected demand for optical transceivers, supply constraints in indium phosphide (InP), and expanding Co-Packaged Optics (CPO) opportunities driven by NVIDIA's data center demand. Optical transceivers and CPO serve as critical links connecting the growth of semiconductor computing with networking hardware demand in AI infrastructure. This performance underscores the company's pivotal role in optical technology during the AI era.

IN DEPTH

Key Findings

Lumentum Holdings Inc. has achieved a remarkable 135% year-to-date return in 2026, establishing its strong position in the AI infrastructure market. This performance is primarily driven by higher-than-expected demand for optical transceivers, supply constraints in indium phosphide (InP), and expanding opportunities in Co-Packaged Optics (CPO) fueled by demand from NVIDIA's AI data centers. Optical transceivers and CPO function as indispensable links connecting the rapid growth of semiconductor computing with the increasing demand for networking hardware in AI infrastructure. This success clearly demonstrates Lumentum's capability to play a central role in optical technology during the AI era.

Technical / Clinical Details

The key technologies and market factors supporting Lumentum's growth are as follows:

- **Surging Demand for Optical Transceivers:** With the explosive increase in AI workloads, high-performance optical transceivers are essential for high-speed data transfer between servers, GPUs, and switches within data centers. Lumentum is one of the leading providers of next-generation transceiver technologies, including 400G, 800G, and future 1.6T solutions.
- **Indium Phosphide (InP) Supply Constraints:** InP is a critical material for manufacturing high-performance optical components such as high-speed optical transceivers and laser diodes. InP-based devices exhibit characteristics such as high optical output, excellent modulation speed, and low power consumption, which are crucial for meeting AI data center demands. Supply constraints provide pricing power and competitive advantage for vertically integrated companies like Lumentum.
- **Expanding Co-Packaged Optics (CPO) Opportunities:** As AI industry leaders, including NVIDIA, accelerate their transition to CPO, Lumentum is positioned as a key supplier of optical engines and related components required for CPO modules. CPO enables dramatic increases in bandwidth and reductions in power consumption by integrating electro-optical conversion elements within the same package as CPUs or GPUs.

These technological elements demonstrate Lumentum's capability to effectively respond to the increasing data demands of the AI era.

Background & Context

The rapid expansion of AI infrastructure is placing unprecedented demands on data center interconnects. Traditional copper-based interconnects are reaching their limits in terms of bandwidth, power consumption, and thermal management, making the transition to optical interconnects imperative. NVIDIA's substantial investments in optical technology for scaling AI clusters clearly illustrate this industry-wide trend. Lumentum has established itself as a critical partner in the AI ecosystem by supplying optical components to major customers like NVIDIA. Optical transceivers and CPO serve as the "blood vessels" connecting the growth of semiconductor computing with the demand for networking hardware.

Strategic Significance & Outlook

Lumentum's 135% year-to-date return highlights the immense opportunities presented by the AI-driven data center market. The demand for optical transceivers and CPO is expected to continue to rise with the increasing complexity of AI models and data volumes. Lumentum, with its vertically integrated manufacturing capabilities amidst InP supply constraints, is poised to further strengthen its market leadership. The widespread adoption of optical technology in AI infrastructure will dramatically improve data center power efficiency and performance, accelerating further AI development and the creation of new application areas. Lumentum is expected to remain at the forefront of this transformation, supporting AI-era digital infrastructure through innovation in optical communication technology.

Source: #

Photonics Spectra: Organic Optoelectronic Device Achieves Simultaneous Light Collection and Emission, Boosting Efficiency Across Light-Based Technologies

Published May 29, 2026 Photonics Spectra USA

OVERVIEW

Researchers have developed a groundbreaking organic optoelectronic device capable of simultaneously collecting and emitting light. This innovation has the potential to significantly improve efficiency across a wide range of light-based technologies, from displays to sensors. Achieving bidirectional optical functionality within a single device opens new avenues for simplifying complex optical systems and reducing power consumption. This could profoundly impact the design and function of next-generation optical devices.

IN DEPTH

Key Findings

Researchers have successfully developed a groundbreaking organic optoelectronic device capable of simultaneously collecting (detecting) and emitting (generating) light. This innovative technology overcomes the limitations of conventional devices, which perform light collection and emission separately, enabling bidirectional optical functionality within a single device. This capability holds the potential to dramatically improve efficiency across a wide range of light-based technologies, including displays, sensors, and optical communications. This breakthrough signifies a fundamental paradigm shift in the design and function of optical devices, opening new avenues for the realization of more compact and energy-efficient systems.

Technical / Clinical Details

The core of this organic optoelectronic device lies in the properties of specific organic materials and the precise structuring techniques used. Key technical features include:

- **Simultaneous Collection and Emission Functionality:** The device can convert external optical signals into electrical signals (detection) while simultaneously converting electrical signals into optical signals for emission (generation). This allows for efficient electro-optical conversion processes within the same physical space and in real-time.
- **Utilization of Organic Materials:** Organic semiconductor materials are suitable for this type of dual-function device due due to their flexibility, low-cost manufacturing, and tunable optical properties. Researchers selected organic compounds with specific molecular structures to maximize the quantum efficiency of both photoexcitation and light emission.
- **Highly Efficient Energy Conversion:** The simultaneous collection and emission function is designed to minimize energy loss within the device. This is crucial for improving the overall efficiency of the device and reducing power consumption.
- **Simple Architecture:** Integrating both collection and emission functions simplifies the device's architecture, reducing the overall system footprint and complexity. This enables the realization of smaller, more highly integrated optical systems.

This technology is expected to have diverse applications, such as simplifying transceivers in optical communication and enabling interactive optical detection and response in smart sensors.

Background & Context

The modern optoelectronics industry demands high-performance and energy-efficient devices. Particularly in high-speed data transfer within AI data centers, efficient sensor functions in IoT devices, and next-generation display technologies, the efficiency of light-to-electricity conversion is a critical challenge. Previous devices typically utilized separate photodetectors and light-emitting diodes (LEDs) or laser diodes (LDs), requiring signal transfer between these discrete components. This new organic device overcomes these existing limitations, offering a more integrated solution that significantly reduces system design complexity.

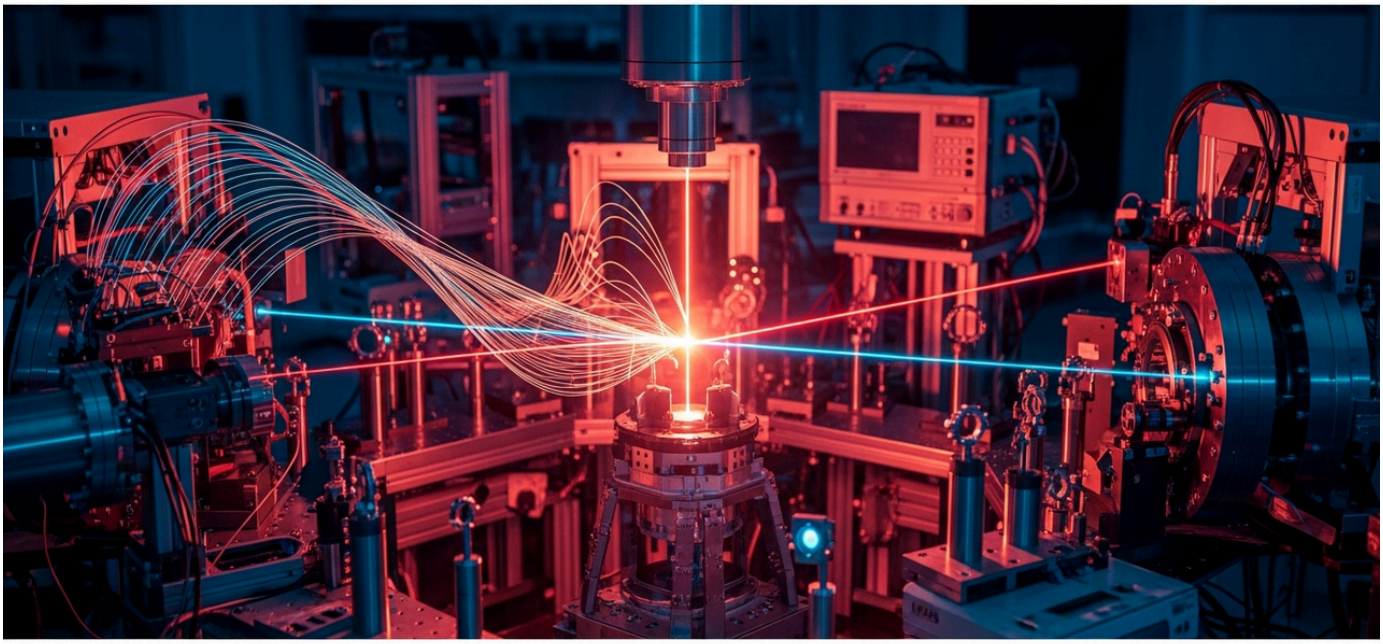
Strategic Significance & Outlook

This breakthrough in organic optoelectronic devices holds significant potential for future optical technologies. Firstly, in display technology, it could contribute to the development of more responsive and power-efficient Organic Light-Emitting Diode (OLED) displays. For smart sensors, it could enable more intelligent sensors that detect ambient light while simultaneously emitting their own light signals to interact with their surroundings. In optical communication, it is expected to accelerate the development of compact and efficient transceivers that integrate transmitting and receiving functions, contributing to more efficient data center interconnects. This technology opens new frontiers in optoelectronics and promises to be a crucial innovation supporting computing in the AI era.

Source: https://www.photonics.com/Articles/Raytheon-and-GH-Build-Out-a-Domestic-TFLN-Supply/a71968

Focused Energy Secures $240 Million Series A Funding to Advance Laser Fusion Technology Development

Published May 29, 2026 Photonics Spectra Germany



OVERVIEW

Focused Energy, a laser fusion company, successfully completed a $240 million Series A funding round. This significant investment demonstrates growing interest and capital flow into advanced laser and energy technologies within the photonics sector. The company aims to commercialize fusion energy, and this funding marks a critical milestone in accelerating its research, development, and commercialization efforts.

IN DEPTH

Key Findings

Focused Energy, a company dedicated to developing laser fusion technology, has successfully completed a substantial $240 million Series A funding round. This major capital infusion clearly demonstrates robust investor interest in advanced laser and clean energy technologies within the photonics sector, indicating active capital flow into this field. This funding round represents a crucial milestone for the company, significantly accelerating its research, development, and commercialization efforts aimed at realizing practical fusion energy.

Technical / Clinical Details

Focused Energy's fusion technology relies on using high-power lasers to compress and heat fuel targets, thereby inducing nuclear fusion reactions. This process is critically dependent on advanced photonics technologies such as:

- **High-Power Laser Systems:** Technology to generate and control petawatt-class laser pulses plays a central role in creating the extreme conditions required for fusion reactions. This includes precise pulse shaping, amplification, and beam delivery techniques.
- **Precision Optical Control:** Controlling laser irradiation of the target with sub-nanosecond precision is essential for achieving efficient fusion reactions. This involves adaptive optics, high-speed optical switching, and precise alignment systems.
- **Optical Diagnostic Technologies:** To monitor plasma conditions during fusion reactions in real time, advanced optical diagnostic techniques such as ultra-fast imaging, spectroscopy, and interferometry are indispensable. These technologies provide crucial data for optimizing and deepening the understanding of the reactions.
- **Advancements in Materials Science:** Advanced photonics materials science contributes to the development of optical elements that can withstand high-power lasers and structural materials for fusion reactors.

The progress in these technologies will be key to enabling the commercialization of fusion energy.

Background & Context

The world faces challenges of climate change and energy security, leading to an unprecedented demand for clean and sustainable energy sources. Fusion energy is considered the "ultimate clean energy" due to its zero CO2 emissions and abundant fuel supply. In recent years, investment in fusion research from both government agencies and private companies has accelerated, with particular attention to advancements in laser technology for inertial confinement fusion (ICF). Focused Energy's funding round indicates that private innovation, in this global trend, is a significant driving force towards the practical realization of fusion energy.

Strategic Significance & Outlook

The $240 million secured by Focused Energy will play a major role in accelerating the company's research and development of laser fusion technology, advancing its roadmap towards the design and construction of commercial fusion power plants. This funding is expected to be allocated towards developing more powerful and efficient laser systems, optimizing target design, and deepening the understanding of plasma physics. The commercialization of fusion energy has the potential to revolutionize global energy supply, not only reducing reliance on fossil fuels but also contributing to stabilizing energy costs. Focused Energy's success is a critical step towards this ambitious goal, clearly demonstrating the indispensable role of photonics technology in shaping future energy solutions.

Source: https://www.photonics.com/Articles/Raytheon-and-GH-Build-Out-a-Domestic-TFLN-Supply/a71968

Collected: June 05, 2026 | Automated Research System (Gemini API)

Photonics Spectra: Optical Technology to Transform Surroundings into "Virtual Screens," Significantly Boosting 3D Machine Vision for Robotics and AR/VR

Published May 28, 2026 Photonics Spectra USA

OVERVIEW

New advancements in light-based technology are expected to dramatically enhance 3D machine vision by enabling physical surroundings to be transformed into "virtual screens." This could improve environmental perception and interaction in applications such as robotics and AR/VR. By providing more detailed and dynamic information about objects and spaces in real-time, this technology will increase the accuracy and efficiency of autonomous systems' decision-making.

IN DEPTH

Key Findings

Groundbreaking advancements in light-based technology are anticipated to dramatically enhance 3D machine vision by allowing physical surroundings to function dynamically as "virtual screens." This innovative approach has the potential to fundamentally transform how systems perceive and interact with their environments in applications such as robotics, augmented reality (AR), and virtual reality (VR). By providing more detailed and dynamic three-dimensional information in real-time, it will significantly improve the accuracy and efficiency of decision-making in autonomous systems.

Technical / Clinical Details

This "virtual screen" technology is primarily achieved by combining the following technical elements:

- **Structured Light Projection:** Light patterns (e.g., grids or dots) are projected onto the environment, and their distortions or reflection patterns are analyzed to accurately measure object shapes and distances. This generates real-time 3D maps of the surroundings.
- **High-Speed Optical Sensing:** Ultra-fast responding photodetectors and image sensors capture changes in projected light patterns with sub-millisecond precision. This enables the system to respond to fast-moving objects and dynamic environmental changes.
- **Advanced Image Processing and AI Algorithms:** The collected optical data is analyzed in real-time by machine learning algorithms for object identification, tracking, motion prediction, and semantic understanding of space. This enables higher-level perception based on the information displayed on the "virtual screen."
- **Leveraging Silicon Photonics:** Similar to the realization of cost-effective, chip-scale LiDAR, silicon photonics could be a foundational technology for integrating compact, high-performance optical projection and detection systems.

This technology has the potential to recognize not only depth information but also object materials, surface properties, and even transparent objects.

Background & Context

3D machine vision is an indispensable technology in many fields, including autonomous vehicles, industrial robots, smart manufacturing, security surveillance, and AR/VR devices. However, current 3D sensing technologies, particularly LiDAR and depth cameras, face challenges in terms of cost, size, resolution, and performance under adverse conditions (e.g., fog or rain). This "virtual screen" technology aims to address these challenges, offering more robust and widely adoptable 3D machine vision solutions. Especially when combined with AI, it opens up possibilities for extracting deeper insights from sensor data and achieving human-like environmental understanding.

Strategic Significance & Outlook

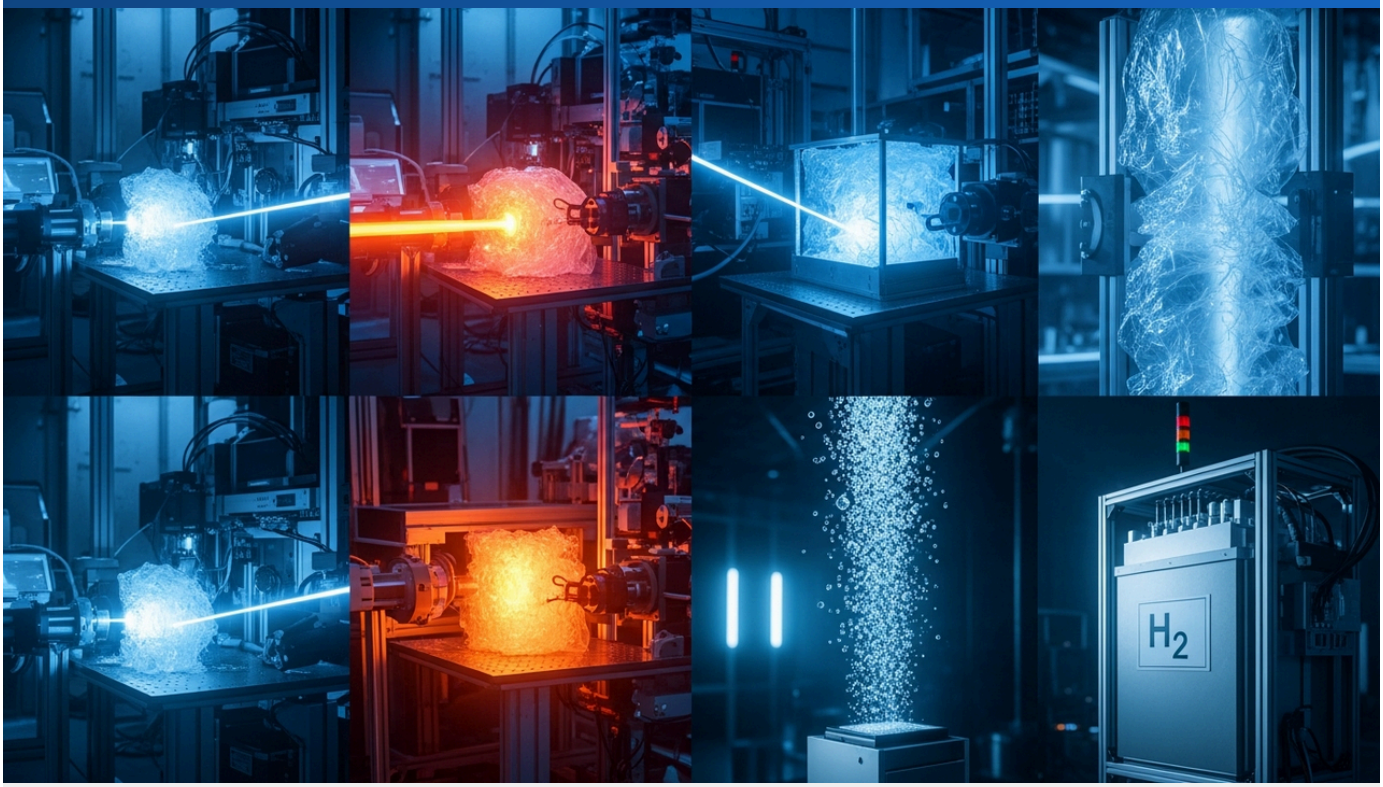
The advancement of optical technology that transforms surroundings into "virtual screens" has the potential to revolutionize the future of 3D machine vision. In robotics, it will enable robots to safely collaborate with humans in more complex environments, and in manufacturing, it will further enhance the automation of quality inspection and assembly tasks. In AR/VR, users will enjoy more realistic and interactive experiences that seamlessly merge the real and virtual worlds. For autonomous vehicles, it will enable more accurate obstacle detection and path planning, improving safety and reliability. This technology is expected to accelerate the convergence of AI and IoT, serving as a foundational element to fundamentally transform our lives and industries.

Source: https://www.photonics.com/Articles/Raytheon-and-GH-Build-Out-a-Domestic-TFLN-Supply/a71968

Collected: June 05, 2026 | Automated Research System (Gemini API)

Photonics Spectra: Light-Based Process Explored for Simultaneous Plastic Waste Reduction and Clean Fuel Production, Pioneering Sustainable Photonics Application

Published May 28, 2026 Photonics Spectra USA



OVERVIEW

Researchers are investigating a novel light-based process with the potential to reduce plastic waste while simultaneously generating clean fuel. This significant advancement in sustainable photonics applications opens new avenues for addressing environmental challenges. By leveraging light energy, the process could generate valuable resources from waste more energy-efficiently and with a lower environmental footprint than traditional chemical methods. This is expected to contribute significantly to achieving a circular economy.

IN DEPTH

Key Findings

Researchers are actively investigating an innovative light-based process that holds the potential to efficiently reduce plastic waste while simultaneously generating clean fuel. This significant advancement in sustainable photonics applications opens new and promising avenues for addressing pressing environmental challenges, specifically plastic pollution and energy demands. By utilizing light energy as a catalyst, the process demonstrates the potential to produce valuable resources from waste in a more energy-efficient and environmentally friendly manner compared to conventional chemical processes.

Technical / Clinical Details

The core of this light-based process lies in utilizing photocatalytic reactions to break down plastics from polymers into fuels such as hydrogen or methane. Key technical aspects include:

- **Photocatalytic Materials:** Specific semiconductor materials or composite materials absorb energy from sunlight or artificial light to promote chemical reactions that cleave plastic molecular bonds. The efficiency and stability of these materials determine the practicality of the process.
- **Photochemical Reactor Design:** Optimized reactor designs are required to efficiently deliver light to plastic waste and catalysts, and to safely recover the generated fuels. This involves precise control of parameters such as light wavelength, intensity, and irradiation time.
- **Selective Decomposition:** Research focuses on selective decomposition processes that generate desired fuels (e.g., hydrogen, methane) while minimizing the production of unwanted byproducts. This enhances the purity and economic value of the generated fuels.
- **Energy Efficiency:** Compared to conventional processes like pyrolysis or gasification, light-based processes operate at lower temperatures and require less external energy input, improving overall energy efficiency.

This technology has broad applicability as it can utilize low-cost and abundant sunlight as an energy source.

Background & Context

The increasing volume of plastic waste and associated environmental pollution represent urgent global challenges. Concurrently, the transition to clean energy is an indispensable goal for achieving a sustainable society. Traditional plastic recycling often faces challenges such as high costs, quality degradation, and applicability to only limited materials. The new light-based process aims to overcome these challenges, promoting the concept of a circular economy by transforming plastics from mere waste into a renewable fuel source. Research in this area is gaining attention as an interdisciplinary effort merging environmental science, materials science, and photonics.

Strategic Significance & Outlook

Should this light-based process become practical, it has the potential to offer groundbreaking solutions to both the plastic waste problem and the clean energy challenge. Firstly, it would significantly improve the current reliance on plastic waste landfilling and incineration, reducing environmental impact. Secondly, the generated clean fuels could reduce dependence on fossil fuels and enhance energy security through utilization in transportation and industrial sectors. Furthermore, this technology also holds the potential to open pathways to decentralized energy systems, where local communities can generate energy from their own waste. Further research and demonstration are anticipated to verify the scalability, economic viability, and long-term stability of this process, clearly showcasing the significant role photonics plays in innovating environmental technology.

Source: https://www.photonics.com/Articles/Raytheon-and-GH-Build-Out-a-Domestic-TFLN-Supply/a71968

Collected: June 05, 2026 | Automated Research System (Gemini API)

Fujitsu Successfully Completes Japan's First Advanced Industrial Complex Inspection Demonstration Integrating Physical AI, IOWN APN, and 60 GHz Wireless LAN

Published June 01, 2026 Fujitsu Global Japan

OVERVIEW

Fujitsu, in collaboration with NTT East, NTT DOCOMO Solutions, NTT DATA Group, and 1Finity, has successfully completed Japan's first demonstration of advanced industrial complex inspections using Physical AI, IOWN® All-Photonics Network (APN), and 60 GHz wireless LAN. This demonstration aims to enhance operational efficiency and safety in industrial settings by integrating advanced networking and AI technologies. Specifically, IOWN APN's optical technology enables real-time data transmission and processing, promoting the digitalization of industrial infrastructure into digital twins.

IN DEPTH

Key Findings

Fujitsu, in collaboration with NTT East, NTT DOCOMO Solutions, NTT DATA Group, and 1Finity, has successfully completed Japan's first demonstration of advanced industrial complex inspections, integrating Physical AI, IOWN® All-Photonics Network (APN), and 60 GHz wireless LAN. This groundbreaking initiative aims to dramatically improve operational efficiency and safety within Japan's industrial infrastructure. Notably, IOWN APN's full photonics technology is expected to significantly enhance the accuracy and speed of inspection tasks by enabling real-time transmission and processing of vast amounts of sensor data, facilitating advanced analysis by Physical AI.

Technical / Clinical Details

This demonstration was realized through the convergence of several cutting-edge technologies:

- **IOWN All-Photonics Network (APN):** Central to NTT's IOWN concept, APN is a full photonics network that processes optical signals end-to-end. This dramatically reduces latency and power consumption associated with traditional electrical signal processing, achieving terabit-class ultra-high-speed and large-capacity data transmission. The massive data from sensors within industrial complexes is transmitted to central processing units almost in real-time, enabling rapid anomaly detection and predictive maintenance.
- **Physical AI:** This AI technology collects and analyzes vast amounts of data from physical space to reproduce and predict physical phenomena in digital space. For example, in plant equipment monitoring, Physical AI analyzes sensor data (temperature, vibration, acoustics) in real-time to detect signs of failure or anomalies. This allows for the capture of subtle changes that are difficult for human eyes to spot.
- **60 GHz Wireless LAN:** Utilizing a high-frequency band, this technology achieves high-speed, large-capacity wireless communication. In complex environments like industrial complexes, it enables stable, high-bandwidth data transmission even in areas where wired cable installation is difficult. This allows for low-latency transmission of video and sensor data from mobile inspection robots or drones.

The integration of these technologies accelerates the construction of digital twins (real-time replication of physical space information in digital space) of equipment, enabling remote monitoring, analysis, and autonomous inspection and maintenance tasks.

Background & Context

Japanese industries face challenges such as a shortage of skilled labor, aging infrastructure, and intensifying global competition. Particularly in large industrial complexes like petrochemical plants and power generation facilities, safe and efficient inspection and maintenance are essential, and technological innovations to address these challenges are highly sought after. The IOWN concept aims to maximize the utilization of optical technology to solve these societal issues, and this demonstration holds significant meaning as a concrete application. The collaboration among leading Japanese companies like Fujitsu, NTT Group, and 1Finity is forming a robust ecosystem that promotes the strengthening of Japan's digital infrastructure and industrial digital transformation.

Strategic Significance & Outlook

The successful completion of this inaugural domestic demonstration significantly expands the application potential of Physical AI, IOWN APN, and 60 GHz wireless LAN technologies in the industrial sector. Moving forward, this technology will contribute to the standardization and advancement of inspection and monitoring processes across various fields, including manufacturing, energy, and transportation infrastructure. Real-time high-precision data acquisition and AI-driven analysis will directly lead to enhanced predictive maintenance, improved worker safety, reduced downtime, and overall productivity gains. Fujitsu is also extending its AI-powered services to non-financial disclosure analysis, supporting sustainable corporate growth. Furthermore, Fujitsu's long-term strategies, such as "Management Vision 2035," are expected to guide investments and development in these advanced technologies, laying the groundwork for future industries and society.

Source: https://global.fujitsu/en-global/pr

Fujitsu Subsidiary 1Finity Signs Strategic Manufacturing Collaboration MOU with Taiwan's Accton, Strengthening Optical Networking Supply Chain

Published May 29, 2026 Fujitsu Global Japan

OVERVIEW

Fujitsu subsidiary 1Finity Inc. has signed a Memorandum of Understanding (MOU) for strategic manufacturing collaboration with Accton Technology Corporation of Taiwan. This partnership aims to strengthen production capabilities and the supply chain in the optical networking sector. By combining Accton's manufacturing expertise with 1Finity's optical technology, they will establish a more efficient and reliable supply system for next-generation optical products destined for data centers and telecommunication networks.

IN DEPTH

Key Findings

Fujitsu subsidiary 1Finity Inc. has signed a Memorandum of Understanding (MOU) for strategic manufacturing collaboration with Accton Technology Corporation, a leading Taiwanese network equipment manufacturer. This partnership aims to significantly strengthen both companies' production capabilities and supply chains in the optical networking sector. By combining Accton's established manufacturing expertise with 1Finity's innovative optical technology, they seek to establish a stable supply system for more efficient and reliable optical products required by next-generation data centers and telecommunication networks.

Technical / Clinical Details

This strategic alliance primarily focuses on enhancing the following technical areas and manufacturing capabilities:

- **Optical Transceivers and Optical Modules:** 1Finity is dedicated to developing ultra-high-speed optical transceivers and modules, including 400G, 800G, and future 1.6T solutions. Collaboration with Accton will enhance mass production and quality control for these products, addressing the increasing demand from AI data centers and hyperscale cloud providers.
- **Co-Packaged Optics (CPO) Compatibility:** Anticipating the future widespread adoption of CPO technology, both companies are likely to explore collaboration in the manufacturing processes for CPO modules. This will facilitate efficient integration of optical engines and ASICs, contributing to improved power efficiency and bandwidth density.
- **Enhanced Supply Chain Resilience:** The partnership with Taiwan-based Accton promotes geographical diversification and broadening of the supply chain, increasing resilience against geopolitical risks and supply disruptions. This is crucial for ensuring a stable product supply.
- **Quality Control and Cost Efficiency:** By leveraging Accton's extensive manufacturing experience and economies of scale, 1Finity will be able to optimize production costs while maintaining product quality.

This cooperation is also expected to strengthen vertical integration from optical network product design to manufacturing and supply, reducing time-to-market.

Background & Context

The explosive growth of AI and the deployment of 5G networks are placing unprecedented demands on global communication infrastructure, especially data centers and optical networks. High-speed, low-latency, and energy-efficient data transmission forms the foundation of the modern digital economy, and the optical transceiver market is projected to reach $46.5 billion by 2033, indicating continued strong growth. In this context, securing manufacturing capacity and stabilizing supply chains to meet increasing demand has become an urgent priority for key technology players. 1Finity's partnership with Accton, as part of the Fujitsu Group, is a strategic move to strengthen its market position and capture future growth opportunities within this global competitive environment.

Strategic Significance & Outlook

The strategic manufacturing collaboration between 1Finity and Accton will significantly enhance both companies' competitiveness in the optical networking market. This partnership will enable 1Finity to bring innovative optical products to market more rapidly and on a larger scale, positioning it as an indispensable partner for next-generation AI data centers and telecommunication operators. Strengthening the supply chain and improving manufacturing efficiency will accelerate the adoption of optical communication technology, supporting the further development of AI, IoT, and cloud computing. Furthermore, this cooperation has the potential to expand its influence in the Asia-Pacific region, which leads the optical transceiver market with its robust 5G infrastructure and substantial telecommunications investments.

Source: https://global.fujitsu/en-global/pr

Fujitsu Launches New AI-Powered Service to Analyze Non-Financial Disclosures and Enhance Corporate Value

Published May 29, 2026 Fujitsu Global Japan

OVERVIEW

Fujitsu has launched a new AI-powered service to analyze non-financial disclosures and support the enhancement of corporate value. This service aims to foster sustainable corporate growth by enabling AI to process and interpret complex data beyond traditional financial metrics. By analyzing non-financial information such as ESG (Environmental, Social, Governance) data, intellectual property, and human capital, the service provides strategic insights, contributing to increased transparency for investors and stakeholders, and strengthening long-term corporate competitiveness.

IN DEPTH

Key Findings

Fujitsu has launched a new service that leverages advanced AI technology to analyze corporate non-financial disclosures, thereby supporting the enhancement of corporate value. This innovative service aims to comprehensively support sustainable corporate growth and strengthen competitiveness by efficiently processing and interpreting complex non-financial data—which traditional financial metrics alone cannot fully capture—using AI. Specifically, it quantitatively evaluates the impact of factors such as ESG (Environmental, Social, and Governance) information, intellectual property, and human capital on corporate value, providing strategic insights.

Technical / Clinical Details

The core technological elements of this AI-powered service are as follows:

- **Natural Language Processing (NLP) and Text Mining:** Automatically extracts and analyzes relevant information and trends from large volumes of unstructured text data (e.g., integrated reports, sustainability reports, press releases). It evaluates a company's non-financial performance from multiple angles through keyword analysis, sentiment analysis, and theme identification.
- **Machine Learning Models:** Based on the extracted data, machine learning models are built to predict correlations between a company's non-financial activities and corporate value (e.g., stock price, brand value). This helps identify which non-financial elements have the greatest impact on corporate value.
- **Dashboards and Reporting:** Analysis results are provided as visually intuitive dashboards and customizable reports. This enables management to quickly grasp non-financial risks and opportunities and make data-driven decisions.
- **IOWN APN and High-Speed Data Processing:** As outlined in Fujitsu's "Management Vision 2035," high-speed optical network technologies like IOWN APN serve as the foundation for collecting, transmitting, and processing vast amounts of non-financial data without delay, enhancing the real-time capability of AI analysis.

This service enables the monetization of non-financial information's potential value and its integration into corporate strategy.

Background & Context

In recent years, the importance of ESG factors in corporate evaluation has dramatically increased. Investors now prioritize not only financial performance but also non-financial information such as environmental considerations, social contributions, and robust governance structures. However, non-financial information is often qualitative, extensive, and complex, requiring advanced expertise and time for analysis. Fujitsu's new service addresses these market needs, demonstrating AI's capability to efficiently solve this challenge. This enables companies to disclose and utilize non-financial information more effectively, striving for sustainable development.

Strategic Significance & Outlook

Fujitsu's AI-powered service will play a crucial role in enhancing corporate evaluation transparency and supporting investor decision-making. By clarifying the impact of non-financial information on corporate value, companies can more effectively formulate ESG strategies and strengthen trust with stakeholders. This serves not only to fulfill corporate social responsibility (CSR) but also as an essential tool for securing long-term competitiveness. Furthermore, this service is expected to provide insights for companies to contribute to broader societal problem-solving, becoming an indispensable element for promoting sustainable economic growth. Fujitsu's Management Vision 2035 clearly articulates the company's long-term commitment to realizing a human-centric, sustainable society through the integration of AI and advanced technologies.

Source: https://global.fujitsu/en-global/pr

Collected: June 05, 2026 | Automated Research System (Gemini API)

Fujitsu Announces "Management Vision 2035" to Guide Long-Term Strategy and Investment in AI and Advanced Networking Technologies for Sustainable Growth

Published May 28, 2026 Fujitsu Global Japan

OVERVIEW

Fujitsu has unveiled "Management Vision 2035," outlining its long-term strategic direction and goals. This vision will guide future investments and development in advanced networking and AI technologies, aiming to achieve a sustainable society and enhance corporate value. Fujitsu plans to strengthen its commitment to solving societal challenges and promoting digital transformation by integrating optical technologies like IOWN APN with Physical AI.

IN DEPTH

Key Findings

Fujitsu has unveiled its "Management Vision 2035," which clearly articulates the company's long-term strategic direction and objectives. This comprehensive vision will guide Fujitsu's future investments and developments in advanced networking and AI technologies, aiming to achieve both a sustainable society and continuous enhancement of corporate value. Notably, optical technologies represented by the IOWN All-Photonics Network (APN) and Physical AI, which merges the physical and digital worlds, are positioned at the core of addressing societal challenges and driving digital transformation (DX).

Technical / Clinical Details

Within "Management Vision 2035," the following technological areas are highlighted as strategic priorities:

- **Investment in IOWN All-Photonics Network (APN):** APN, proposed by NTT, is a next-generation communication infrastructure that consists entirely of optics from end-to-end, enabling ultra-high speed, large capacity, low latency, and low power consumption. Fujitsu will drive innovation in optical transmission technology for data centers, 5G/6G networks, and edge computing through investments in this technology, supporting the high-speed and efficient data communication essential for AI workloads.
- **Evolution of Physical AI:** This AI technology collects and analyzes vast amounts of data from physical space in real-time, reproducing and predicting physical phenomena in digital space. It directly contributes to solving real-world problems such as predictive maintenance in manufacturing, autonomous driving, and urban infrastructure management. In conjunction with IOWN APN, Physical AI can achieve even higher precision and real-time analysis.
- **Innovation in Computing Technologies:** Fujitsu will focus on new technological developments in AI accelerators, quantum computing, and high-performance computing (HPC). This will provide the computational power to support society's digitalization and GX (Green Transformation).

- **Creation of Data-Driven Businesses:** Leveraging these technologies as a foundation, Fujitsu will support customers' DX initiatives and create new data-driven business models and services.

These technologies will work synergistically to provide powerful solutions for complex societal challenges.

Background & Context

Modern society faces global challenges such as climate change, declining birth rates and aging populations, and the digital divide. Solving these issues requires digital transformation, leveraging technology to its fullest, and green transformation, pursuing sustainability. Fujitsu's Management Vision 2035 was formulated to address these societal contexts and market needs. Specifically, AI and optical communication technologies are considered central to solving the challenges of explosive data growth and associated power consumption. This vision, which also contributes to strengthening Japan's industrial competitiveness and enhancing social infrastructure resilience, clearly defines the role Japanese tech companies must play on the global front.

Strategic Significance & Outlook

Based on "Management Vision 2035," Fujitsu will accelerate strategic investments in AI and advanced networking technologies and implement them in society, aiming to achieve both a sustainable society and long-term corporate growth. The integration of IOWN APN and Physical AI will contribute to industrial efficiency, enhanced safety, and the creation of new services, driving innovation in broad areas such as autonomous driving, smart cities, and digital healthcare. This vision is expected to influence not only the products and services Fujitsu offers but also its corporate culture and partnership strategies, strengthening its position as a global leader. Fujitsu's initiatives will serve as a blueprint for how technology can contribute to society and build a better future.

Source: https://global.fujitsu/en-global/pr