

FIT (Foxconn Interconnect Technology) Tech Day 2026

Hemanth Ajithkumar, Clara Ee, Tony Chien, Wega Chu | Tuesday, September 22, 2026

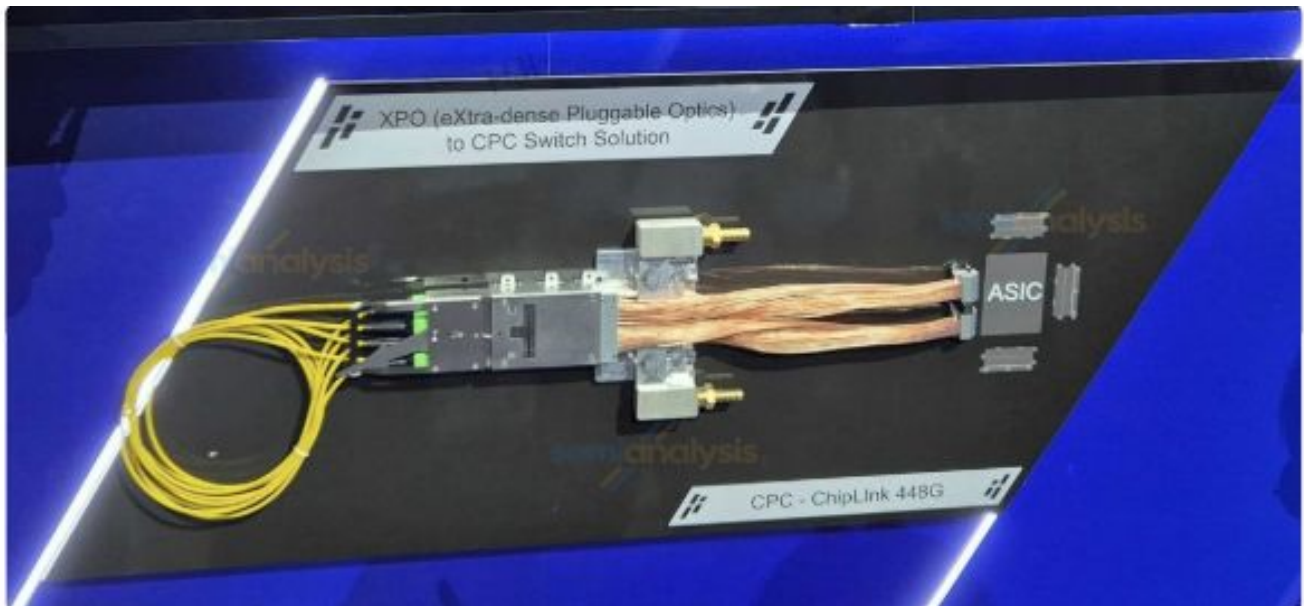
Executive Summary

- FIT is likely to play in the XPO ecosystem. They showcased ChipLink 448G, which is their CPC solution used to connect XPO modules from the faceplate to a switch ASIC. We estimate 128 differential pairs (DPs) worth of copper and there is a possibility they have to be implemented using PAM6 modulation at 448G per lane.
- Point2's RF based plastic waveguide for short-reach (<50m) links directly competes with Active Electrical Cables (AECs) and Active Optical Cables (AOCs) for NIC-to-TOR deployments but micro VCSELs remain the front runner thus far.
- NTT co-developed a 500-pin ultra low-loss connector for detachable optical engine architectures with FIT but we are not yet seeing large-scale manufacturing and deployments in the supply chain. 500-pins per connector over a relatively small surface area implies extremely high bandwidth density we are not yet seeing in the roadmap over the next 5 years.
- Another emerging technology is multidimensional multiplexing that results in up to 34 Tbps per fiber strand. Again, this is frontier and we are not seeing adoption any time soon.
- Ams OSRAM expects to lean into the Taiwanese supply-chain ecosystem for implementation of its wide-and-slow architecture. This may mean broader adoption of multi-core fiber expected to reduce fiber count.

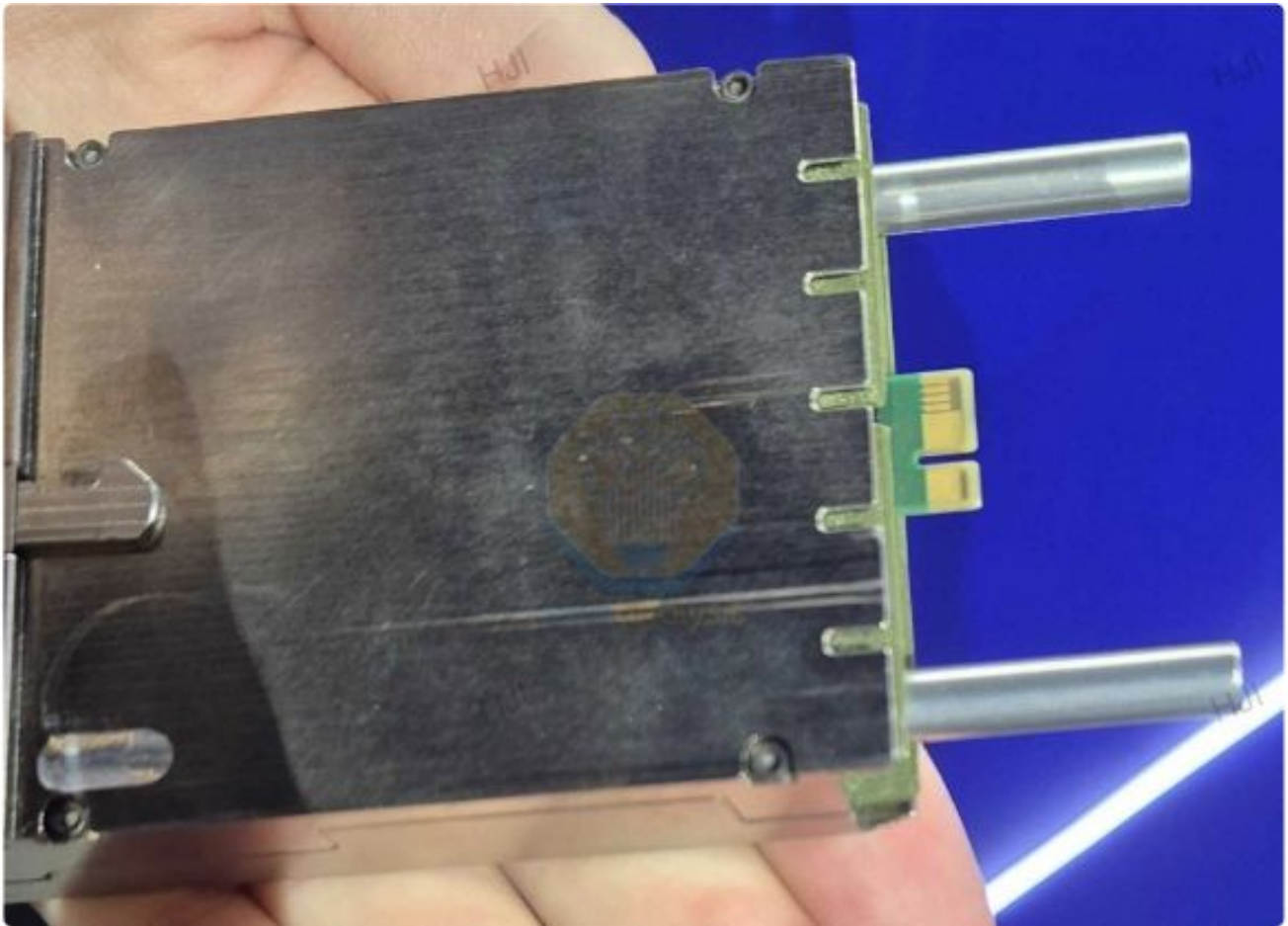
ChipLink 448G (CPC)

FIT showcased an XPO module with co-packaged copper (CPC) cables connecting the pluggable at the faceplate to the ASIC. A 448G per lane module would deliver a total of 25.6T of bandwidth, which is 2x the bandwidth of the first generation of XPO modules (12.8T bandwidth) we expect to be delivered with the Tomahawk 7 ASIC. At 448G per lane, it is still unclear if LPO is attainable and there is a possibility that the receive channel on the optical module is retimed or the copper channel adopts PAM6 modulation or both.

A single 25.6T XPO module is the equivalent of eight 3.2T OSFP transceiver modules at 448G per lane. One end of the module uses eight MPO x16 fiber connectors (8 Tx and 8 Rx). The field pluggable module mates into a front panel receptacle and visible at the edge of the module below is a cold plate that is sandwiched between two 32-lane paddle cards. Coming off the faceplate on the interior of the tray is 128 differential pairs (DPs) worth of copper connectors and cables connecting the front panel receptacle to the switch ASIC. We expect FIT to be one of the suppliers of the CPC interface used for XPO deployments.



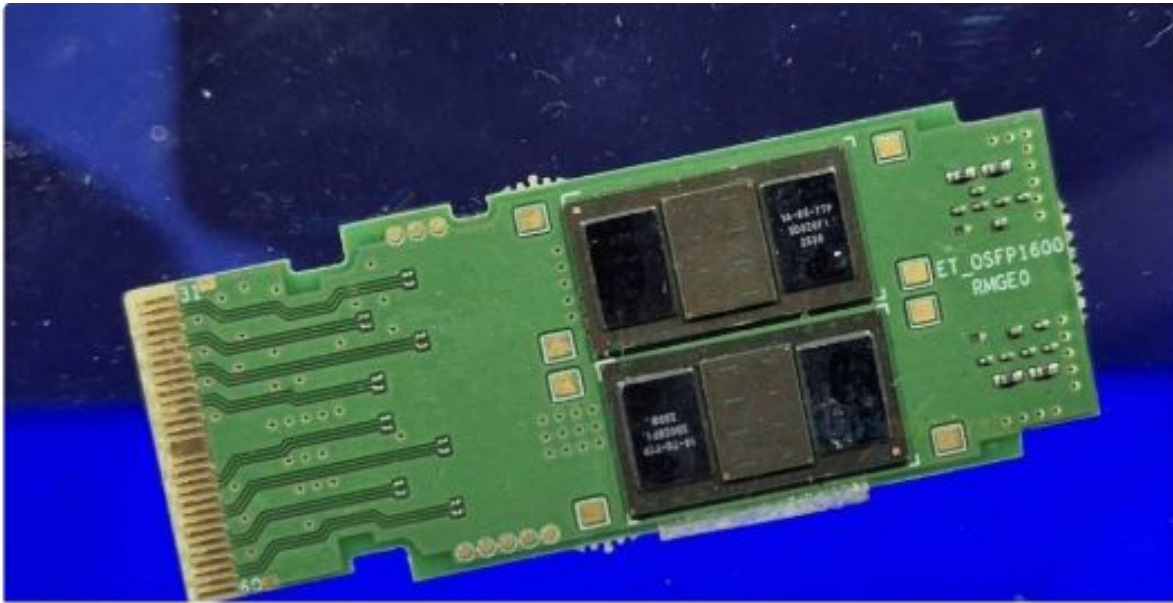
Source: FIT Tech Day 2026



Source: FIT Tech Day 2026

RF based plastic waveguides as alternative to AEC and AOCs

We observe several alternative technologies in the ecosystem targeting NIC-to-ToR use cases and Point2's e-Tube RF transceiver using plastic waveguide connections is one of them positioning as a replacement for Active Electrical Cables (AECs) and Active Optical Cables (AOCs). The transceiver converts electrical signals to millimeter-wave signals, which are then routed using plastic dielectric waveguides. We depict the module below. Notice that plastic waveguides are placed on top of RF transmitters using a 90-degree hollow waveguide array arrangement.



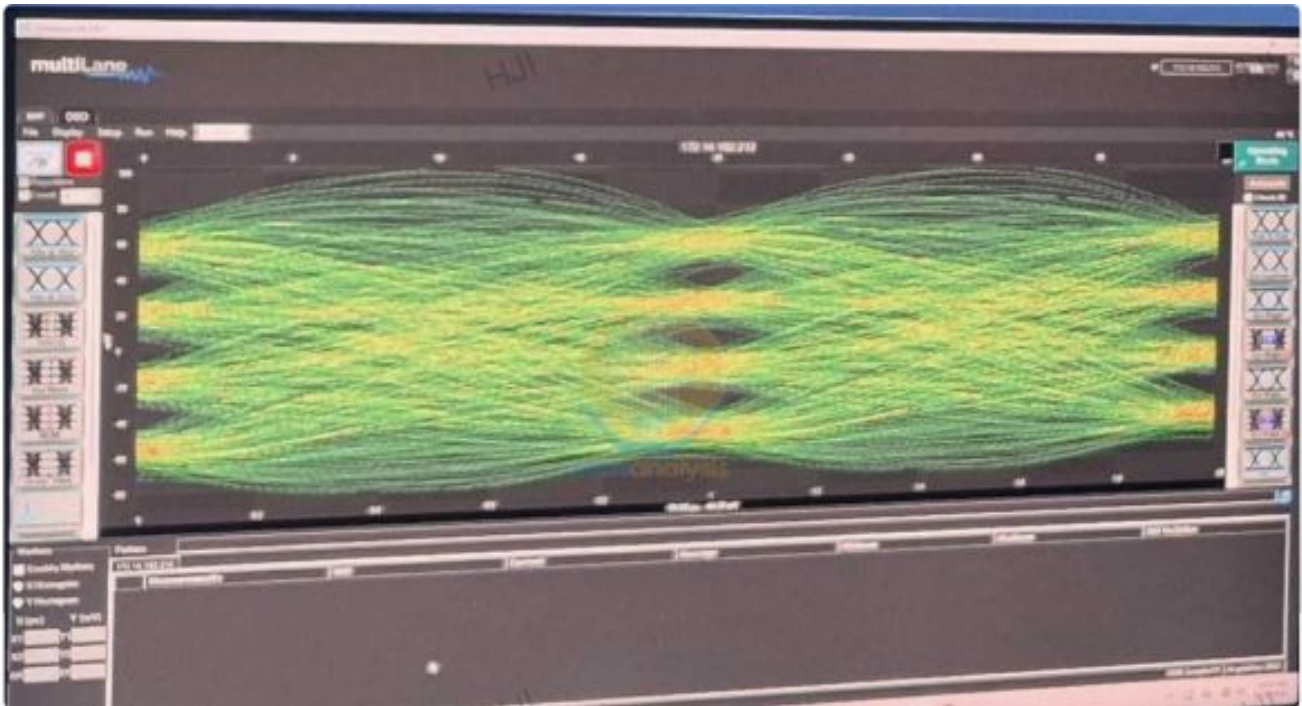
Source: Point2, FIT Tech Day 2026

Assuming the technology works and scales, the value proposition for e-Tube adoption is its similar cost structure as copper, but unlike copper, the link loss does not scale with frequency. This makes it perfect for 100G per lane use cases and beyond. Additionally, plastic waveguides are much lighter compared to copper or optical fibers. Showcased in the event as an 800G OSFP form factor transceiver transmitting 200G per waveguide with 8 waveguides in total (4 transmit and 4 receive).



Source: Point2, FIT Tech Day 2026

However, we think there is still some time before Point2 can ramp e-Tubes as evident in the demonstration of the 112G PAM4 signaling below. At 112G per lane, they are competing with AECs that are significantly more mature and have demonstrated performance at scale. It is also likely that they remain behind 224G PAM4 AEC deployments right now and we think that RF-based plastic waveguides may only be able to compete for NIC-to-ToR deployments at 448G per lane and beyond alongside micro VCSELs and micro LEDs in the 2029 timeframe and beyond. As of right now, micro VCSELs are the strongest contender gaining significant industry attention compared to alternative solutions.

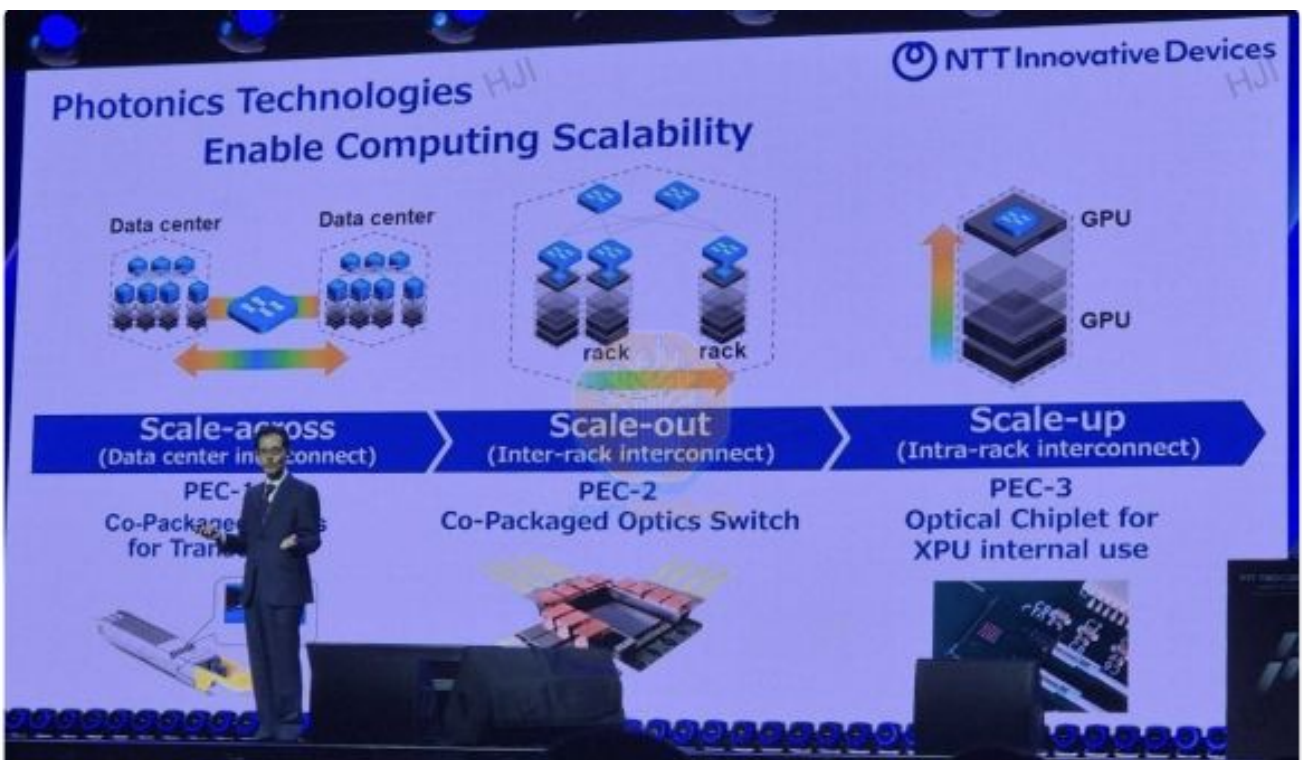


Source: Point2, FIT Tech Day 2026

Point2 recently obtained a Series B funding totaling 76 million USD, including participation from UMC Capital and NVentures (Nvidia's venture capital arm).

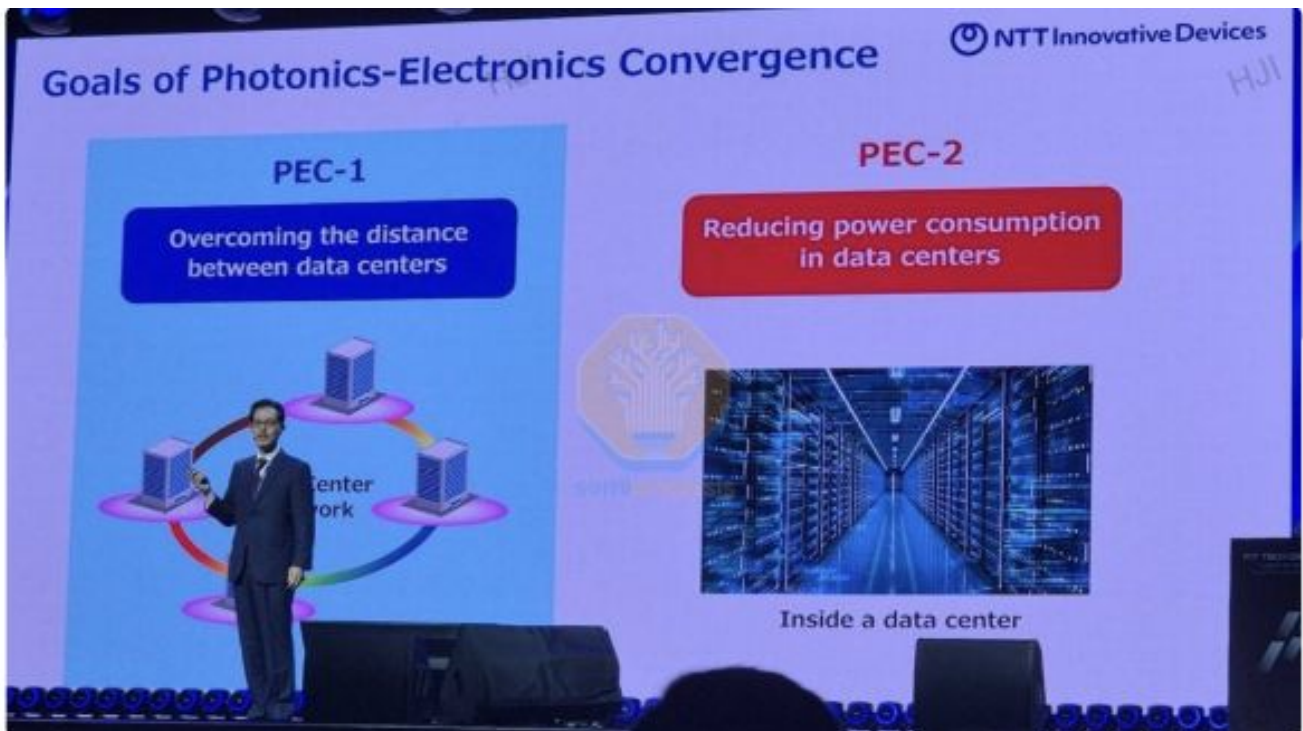
NTT Innovative Devices showcase detachable optical engine socket design in partnership with FIT

NTT Innovative devices (former CEO Yoshiaki Sato) presented several solutions in scale-up, scale-out and scale-across networking. To be clear, PEC-1 (co-packaged optics for transceivers) refers to the integration of optical modulation and DSP transceivers to scale between datacenters using optical fiber.



Source: NTT, FIT Tech Day 2026

For scale-out, NTT showcased a Tomahawk 6 ASIC with several detachable optical engines around the switch ASIC. Detachable optical engines are attractive to hyperscalers and AI clouds outside of the Nvidia ecosystem and we expect these solutions to continue to gain traction.

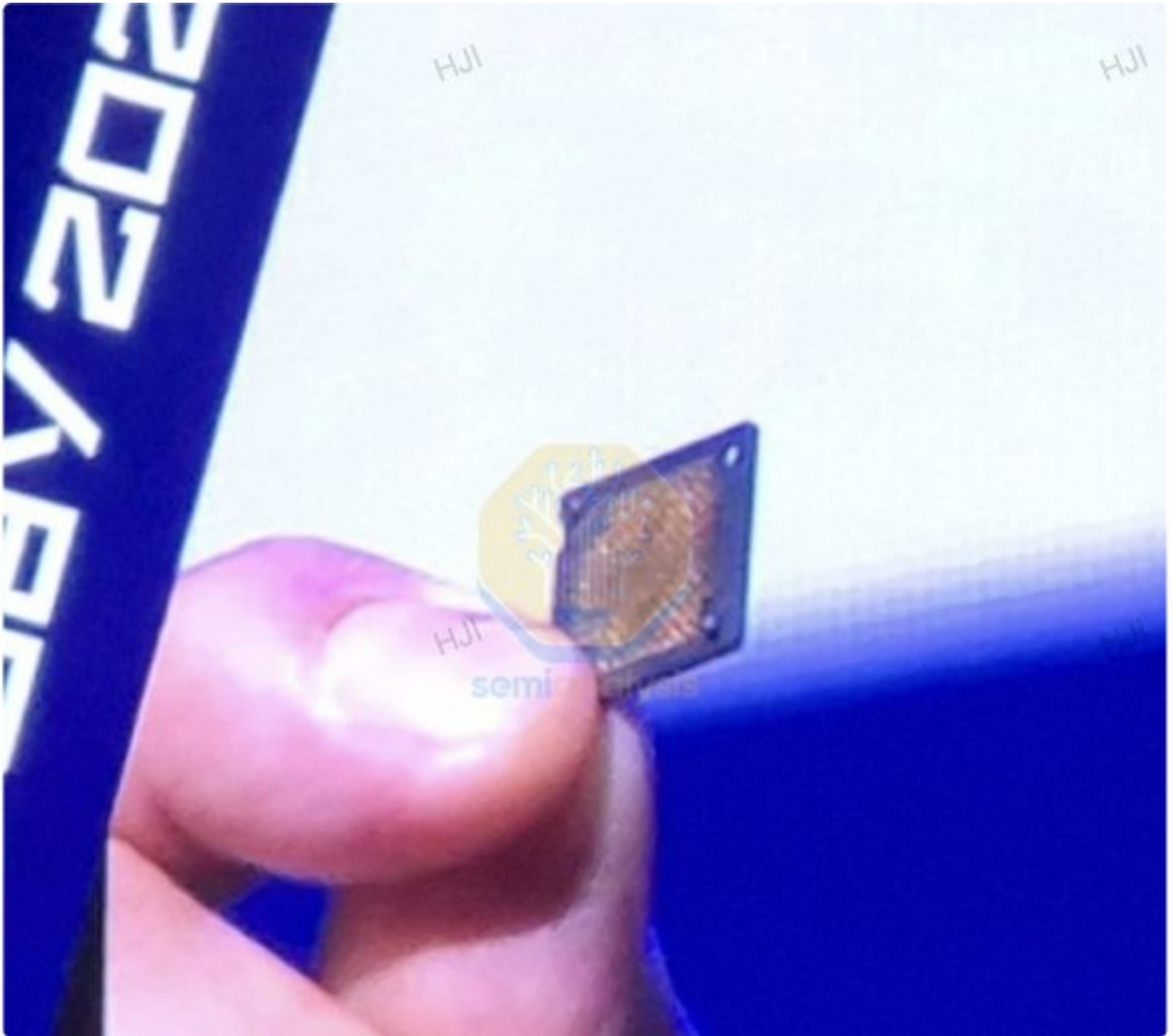


Source: NTT, FIT Tech Day 2026

Specifically, NTT co-developed a 500-pin detachable ultra low-loss connector used for detachable optical engine architectures. We have not seen broader adoption of this ultra-low loss connector in the ecosystem yet for the earlier NPO programs (TH6) and this appears to be an ambitious project as compared to the 64- or 128 pin connectors we expect to be developed for 3.2T and 6.4T optical engines respectively.

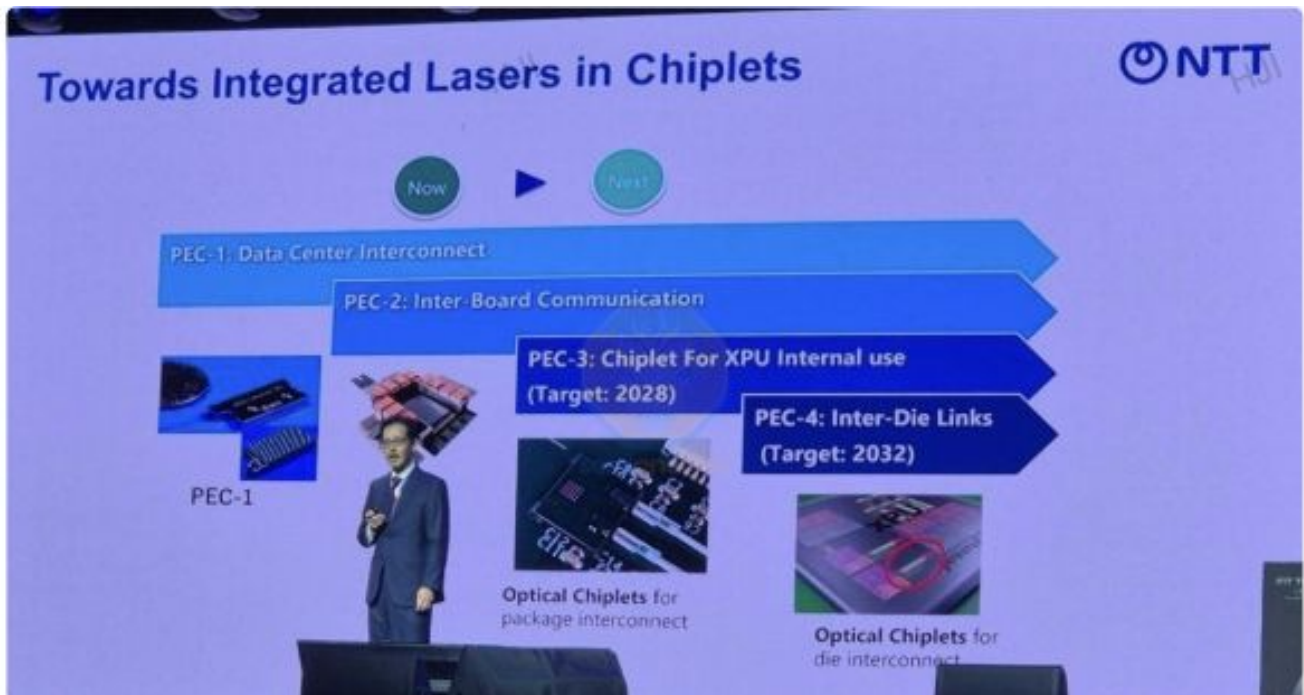


Source: NTT, FIT Tech Day 2026



Source: NTT, FIT Tech Day 2026

For scale-up, NTT is researching integrating lasers on chiplets. Specifically, they are attempting to create an internal thin membrane laser with a very thin active region. Such a thin membrane laser uses high index contrast between the thin active InP based layer and the surrounding material to increase the optical mode confinement, which leads to a lower lasing threshold current and **higher gain**. To be clear, integrated lasers on chiplets such as the ones being developed by Intel are not the same as ILS (internal laser source) adopted in NPO modules. We think this technology remains in its early stages of development, and it will be many years before it is being adopted at scale.

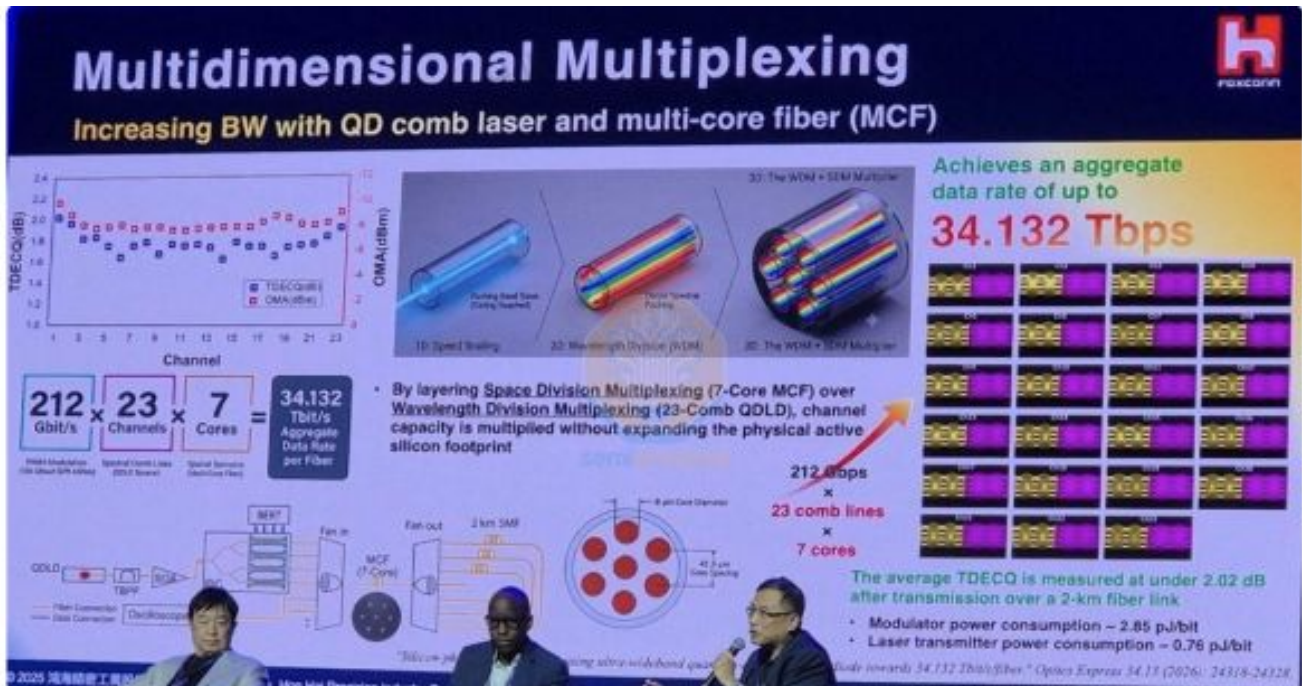


Source: NTT, FIT Tech Day 2026

Multidimensional Multiplexing for High Throughput Communications

In the FIT Tech Day panel, Foxconn's Semiconductor Research Center showcased an interesting research paper on multidimensional multiplexing. They proposed a proof-of-concept involving the use of a Quantum Dot comb laser which can generate 23 wavelengths from a single laser source. These are integrated into a multi-core fiber with 7 cores enabling simultaneous wavelength and spatial multiplexing. This ends up creating multiplexing in the wavelength domain through the multi-wavelength comb laser source and spatial multiplexing by a multi-core fiber, thus supercharging the throughput passing through a single fiber. Foxconn termed this combination of comb laser wavelength multiplexing and spatial multiplexing (using multi-core fibers) as **multidimensional multiplexing**.

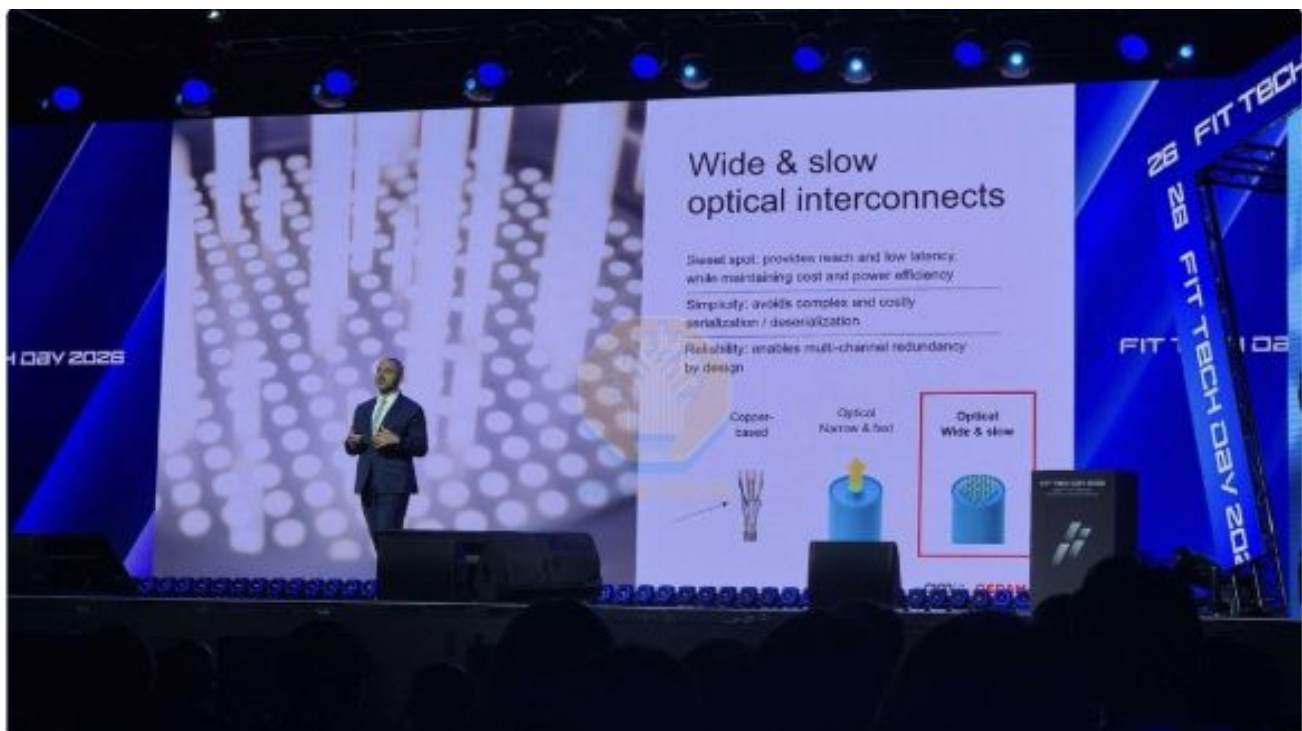
At 212G PAM4 per wavelength, this arrangement can result in up to 34 Tbps per fiber, eliminating the need for multiple lasers and reducing system complexity and fiber count. Comb laser implementation is significant here since these lasers output multiple wavelengths from a single source, elegantly eliminating the need to use multiple single wavelength laser sources and having to multiplex them into a single fiber (or fiber core in this case). However, integrating multiple comb lasers into each core of a multi-core fiber is still a major challenge, and the use of an SOA with a multi wavelength quantum dot comb laser can lead to four-wave mixing, which can degrade link budget by introducing intensity noise across multiple bands (which a system with single wavelength laser sources can largely avoid).



Source: Foxconn Semiconductor Research Center, FIT Tech Day 2026

Ams OSRAM makes a case for Wide-and-Slow Interconnects

Ams OSRAM's talk was centered around the need for interconnects which are designed for reduced power and latency to allow for bigger AI scale-up world sizes. The key point of the talk was that wide-and-slow interconnect architectures provide good reach and low latency for scale-up domains while simultaneously maintaining cost and power efficiency.



Source: ams OSRAM, FIT Tech Day 2026



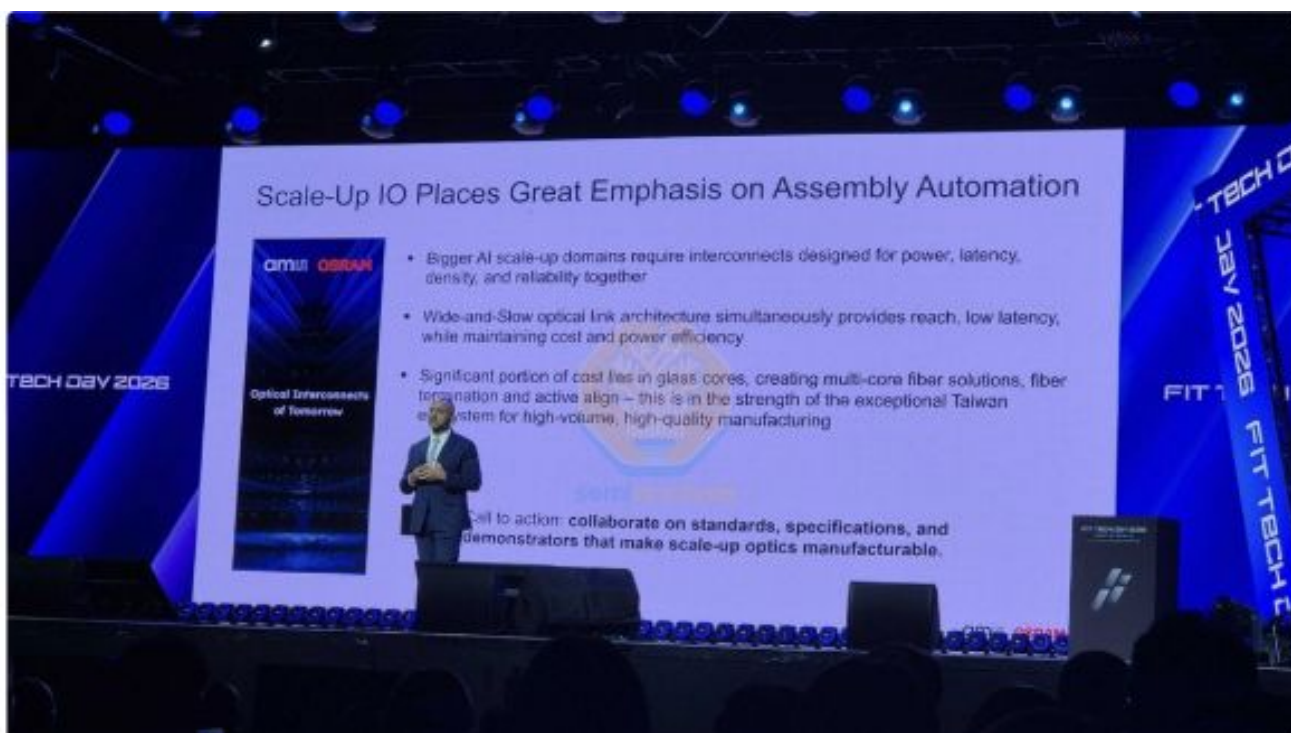
Source: ams OSRAM, FIT Tech Day 2026

Ams OSRAM in this regard is uniquely positioned to partake in this opportunity since they have capabilities to produce both thin film microVCSELs as well as microLEDs, with all the manufacturing processes in-house. They aim to apply their micro-emitter manufacturing expertise towards AI photonics.



Source: ams OSRAM, FIT Tech Day 2026

To support the Micro VCSELs ecosystem, ams OSRAM expects to lean into the Taiwanese supply-chain ecosystem for wide-and-slow. They also expect to rely on multi-core fibers, which is expected to significantly reduce fiber count and overall costs for a given number of micro-emitters because multiple cores are embedded in a single cladding.



Source: ams OSRAM, FIT Tech Day 2026

Disclaimers

Analyst Certifications and Independence of Research.

Each of the analysts whose names appear in this report hereby certify that all the views expressed in this Report accurately reflect our personal views about any and all of the subject securities or issuers and that no part of our compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views in this Report. SemiAnalysis LLC (the “Company”) is an independent equity research provider. The Company is not a member of the Financial Industry Regulatory Authority or the Securities Investor Protection Corporation, and it is not a registered broker dealer or investment adviser.

Private Investment Disclosure.

Each analyst and/or author contributing to this Report hereby discloses that they may hold, directly or indirectly, private investments in companies, sectors, or asset classes discussed or referenced herein. Such holdings, if any, are disclosed externally with a third-party vendor. The Company requires that no author or analyst allow their personal investment positions to influence the views, opinions, analyses, or conclusions expressed in this Report. Readers should be aware that the existence of such holdings, even where disclosed, may present a potential conflict of interest, and are encouraged to weigh this accordingly when evaluating the contents of this Report.

Limitation of Research and Information.

This Report has been prepared for distribution to only qualified institutional or professional clients of the Company. The contents of this Report represent the views, opinions, and analyses of its authors. The information contained herein does not constitute financial, legal, tax or any other advice. All third-party data presented herein were obtained from publicly available sources which are believed to be reliable; however, the Company makes no warranty, express or implied, concerning the accuracy or completeness of such information. In no event shall the Company be responsible or liable for the correctness of, or update to, any such material, or for any direct, indirect, incidental or consequential loss, damage or lost opportunities (including loss of profits, revenue or goodwill) resulting from use of this data or from any investment decisions based on information or research obtained from the Company. Nothing contained in this Report or any distribution by the Company should be construed as any offer to sell, or any solicitation of an offer to buy, any security or investment. Any research or other material received should not be construed as individualized

investment advice. Investment decisions should be made as part of an overall portfolio strategy and you should consult with a professional financial advisor, legal and tax advisor prior to making any investment decision.

Reproduction and Distribution Strictly Prohibited.

No user of this Report may reproduce, modify, copy, distribute, sell, resell, transmit, transfer, license, assign or publish the Report itself or any information contained therein. Notwithstanding the foregoing, clients with access to working models are permitted to alter or modify the information contained therein, provided that it is solely for such client's own use. This Report is not intended to be available or distributed for any purpose that would be deemed unlawful or otherwise prohibited by any local, state, national or international laws or regulations or would otherwise subject the Company to registration or regulation of any kind within such jurisdiction.

Copyrights, Trademarks, Intellectual Property.

The Company, and any logos or marks included in this Report are proprietary materials. The use of such terms and logos and marks without the express written consent of the Company is strictly prohibited. The copyright in the pages or in the screens of the Report, and in the information and material therein, is proprietary material owned by the Company unless otherwise indicated. The unauthorized use of any material on this Report may violate numerous statutes, regulations and laws, including, but not limited to, copyright, trademark, trade secret or patent laws.

ETF and Regulatory Status Disclaimer.

From time to time, The Company may collaborate with asset managers, issuers, sponsors, index providers or other financial institutions in connection with the development, launch or support of exchange-traded funds ("ETFs") and other investment products, including by providing research, market analysis, index-related research or other research related services. The Company does not sponsor, endorse, sell or promote any ETF, and makes no representation or warranty, express or implied, regarding the advisability of investing in any such ETF. In connection with the services described herein, the Company does not act as a fiduciary to any investor, fund, sponsor, issuer or other party. The Company is not registered with the U.S. Securities and Exchange Commission or any state securities authority as an investment adviser or exempt reporting adviser. The Company's role is limited to providing research and related services, and it does not provide individualized investment advice, portfolio management, brokerage services or other services requiring registration as an investment adviser.