

800G Co-packaged Photonics Test Report



AI Overview

The 800G co-packaged photonics test report validates transmitter and receiver performance for 800G-LR4 modules, confirming DGD tolerance, TDECQ, OMA, and extinction ratio compliance with baseline specifications.

Overview of 800G Co-Packaged Photonics Co-packaged optics (CPO) integrate the optical engine directly with or adjacent to the switch ASIC, reducing electrical trace lengths, lowering latency, and significantly cutting power consumption—up to 70% compared to pluggable optics in 1.6T networks. Silicon photonics platforms, such as STMicroelectronics' PIC100, enable high-volume production of 800G and 1.6T optical modules using CMOS-compatible processes on 300mm wafers, supporting hyperscale AI data center fabrics. This architecture improves switch port density and reduces serialization delay, critical for RDMA/RoCE workloads.

Test Methodology The 800G-LR4 OSFP transceivers were tested using a Short Stress Pattern Random Quaternary (SSPRQ) with 65,535 symbols. Differential Group Delay (DGD) was emulated digitally by adding delayed copies of the original signal waveform, followed by an 11-tap Feed-Forward Equalizer (FFE). The tests conservatively assumed two extreme fiber DGD sections to evaluate worst-case performance.

Key Test Metrics

- DGD Tolerance:** The modules met the DGD tolerance levels reported in prior baseline studies, confirming robustness against polarization mode dispersion.
- Transmitter Power and Extinction Ratio:** Measurements validated compliance with 800G-LR4 baseline specifications, ensuring sufficient optical power and signal integrity.
- OMA (Optical Modulation Amplitude):** Confirmed to meet baseline requirements, supporting reliable high-speed transmission.
- TDECQ (Transmitter and Dispersion Eye Closure Quaternary):** Verified under DGD conditions, indicating the module's ability to maintain signal quality over long distances.
- Receiver Performance:** Additional validation results, including receiver sensitivity and error performance, are expected in follow-up reports.

Implications fo...

Article Content

BRKOPT-2699

High-Speed Interconnects: Backend network requires high speed 100G/200G or 800G optics to connect servers and network switches. These high bandwidth connections are essential for handling the data

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We report on glass interposers that can be molded, surface treated, and assembled at the wafer scale, serving to fiber couple surface emitting photonic integrated circuits (PICs) as well as VCSELs and

AAOI Bets on 800G Ramp, 1.6T Optics & Texas Scale to Power AI

In December 2025, the company announced a 400-milliwatt narrow-linewidth pump laser designed to meet growing demand for silicon photonics and co-packaged optics in AI data centers.

800G and 1.6 T Optical Transceivers Market's Tech

Explore the surging 800G and 1.6T Optical Transceivers Market, projected to reach ****15.44 billion**** by 2025 with an ****11.1% CAGR****. Discover key drivers like AI

AI photonics selloff sparks bullish calls on SIVE and AAOI

The selloff of the photonics sector came after the recent stress test that indicated the selective flow of capital in the AI trade. On June 4, Broadcom released its earnings report and

Wissen Research LLC: Silicon Photonics Market Size Forecast at

SHERIDAN, Wyo., May 21, 2026 /PRNewswire/ -- The global silicon photonics market is projected to grow from USD 2.8 billion in 2025 to USD 9.6 billion by 2030, registering a CAGR of 28% during

Opinion: optical transceivers at the chokepoint of AI

To dive deeper into market forecasts, competitive dynamics, technology trends, and supply chain developments, discover Yole Group's

CPO will soon replace pluggable optical modules, and Rubin will

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Co-Packaged Optics Market Size, Share & Growth,

Co-Packaged Optics Market Report Scope & Overview The Co-Packaged Optics Market Size was valued at USD 91.27 million in 2025 and is

Co-Packaged Optics (CPO) Market Analysis: 1.6T Transition & AI

Strategic analysis of the Co-Packaged Optics (CPO) market, tracking the 2026 inflection point for 1.6T modules. Explores value migration, supply chain bottlenecks, and thermal

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Revenue Impact Firm - MarketsandMarkets offers market research reports and quantified B2B research on 30000 high growth emerging opportunities to over

Co-Designed Silicon Photonics Chip I/O for Energy-Efficient Petascale ...

These results demonstrate promise in realizing co-packaged optical I/Os with shoreline and aerial bandwidth densities beyond 4Tbps/mm and 17Tbps/mm² while consuming sub-pJ/b energy, paving

Co-Packaged Optics — a deep dive | APNIC Blog

Some start-ups are also investigating photonic fabrics to connect multiple XPUs in a package. When there are many cores inside the package,

Photonics

Opto-Electric Automated Test Platform NORTH READING, Mass., April 2, 2026 — The Photon100 from Teradyne is an opto-electric automated test platform for high-volume silicon

Optical Communications Industry Chain: Critical Infrastructure in the ...

As AI cluster architectures continue to expand, demand for high-speed optical interconnects is rising significantly. 800G is expected to enter large-scale deployment between 2026

Test Validation of 800G-LR4 Transceivers

Here, we show the first set of test validation data for 800G-LR4 based on real pluggable modules using EML's in terms of TECQ and TDECQ with differential group delay (DGD) etc.

STMicro's Silicon Photonics Hits Mass Production:

STMicroelectronics enters high-volume PIC100 silicon photonics production for AI data centers. Here's what 800G/1.6T co-packaged optics mean

400G, 800G, and Terabit Pluggable Optics:

Silicon photonics technology allows to share laser sources, reducing the number of active components, and enhancing overall reliability compared to more discrete designs

Scale manufacturing test for high-bandwidth co-packaged optical devices

For bandwidth-intensive computing applications such as data centers and machine learning and AI devices, bandwidth demands for these networks are rapidly increasing from 200G to 400G today and

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Co-packaged optics are inching closer to

This section will explore the evolution of the market from copper to co-packaged copper and from digital signal processor (DSP) optics to linear

1.6 Tbps Silicon Photonics Integrated Circuit and 800 Gbps Photonic ...

We describe the performance of high bandwidth-density silicon photonic based integrated circuits (SiPh ICs) that enable the first fully functional photonic engine (PE) module co-packaged with

Photonics Revolution 2026: AI Infrastructure Shift to Light

Discover how photonics is replacing copper in AI infrastructure in 2026. Explore 1.6T optical growth, semiconductor supply chains, and top stocks and ETFs driving this \$40B market transformation.

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