

Article Overview

The largest optical modules currently available are 1.6 Terabit (1.6T) modules, primarily targeting AI-scale data centers and high-performance networking.

Overview of Optical Module Speeds

Optical modules have rapidly evolved from 400G to 800G, and now 1.6T modules are emerging. While 400G modules remain widely deployed for enterprise and cloud workloads due to cost-effectiveness, 800G modules are becoming the standard for AI clusters and high-density data centers because they offer double the bandwidth and 30-40% better power efficiency per bit compared to 400G modules. 1.6T modules are currently in early deployment stages, designed for AI-scale data centers and high-performance fabrics, with new form factors like OSFP-XD and OSFP-224 addressing power, heat, and signal integrity challenges at 224 Gbps per lane (Link-PP) .

Deployment and Manufacturers

- o InnoLight Technology is a global leader in optical transceivers, scaling 800G OSFP/QSFP-DD modules for AI GPU clusters and actively working on 1.6T modules for hyperscalers (Wolontek) .
- o Zhongji Xuchuang has achieved mass production of 1.6T optical modules and leads in 800G market share, demonstrating early adoption of next-generation high-speed optics (Inf.News) .
- o Source Photonics is ramping up production for 1.6T deployment, with 200G EML chips supporting large-scale 1.6T modules, easing supply bottlenecks for North American cloud providers (X.com) .

Key Features of 1.6T Modules

- o Bandwidth: 1.6 Terabits per second, the highest commercially available rate.
- o Form Factors: OSFP-XD, OSFP-224, designed for high-density AI and hyperscale data centers.
- o Technology: Advanced silicon photonics, PAM4 modulation, and co-packaged optics (CPO) for improved power efficiency and reduced fiber count.
- o Deployment Status: Early-stage deployment, with pilot and sampling phases in hyperscale AI data centers, expected to expand as production scales (Link-PP, Inf.News) .

Summary

Currently, 1.6T optical modules represent the largest and fastest optical transceivers available, primarily aimed at AI-scale data centers and high-performance networking environments. While 400G and 800G modules dominate mainstream deployments, 1.6T modules are approaching deployable maturity, with several manufacturers actively ramping production and addressing technical challenges such as heat dissipation, power efficiency, and signal integrity. These modules are expected to become more widely available as



Currently the largest optical module

hyperscale AI and cloud workloads continue to grow.

Furthermore, the shift toward 200G/lane optical links in data centers sets the stage for 1.6T and 3.2T

Recently, LightCounting, a market research institution in the optical communication industry, released the latest version

This list of the largest optical reflecting telescopes with objective diameters of 3.0 metres (120 in) or greater

The global optical transceiver market size is projected to grow from \$17.15 billion in 2026 to \$46.12 billion by 2034,

In 2021, the fiber optic transceiver module segment accounted for the largest revenue share (58%) of the optical

In summary, the surging demand for 800G and 1.6T optical modules--driven by AI computing clusters, hyperscale

Enter optical modules, which leverage the power of light to transmit data efficiently over long

Today, I'm excited to share an in-depth analysis of the global optical module market, an industry I find particularly

The Asia-Pacific region currently dominates the Optical Modules Market, primarily due to China, South Korea, and

Discover the evolution from 400G to 800G and 1.6T optical modules. Learn key technologies, CPO vs pluggable, and

4-3-2 Global Optical Module Dominant Players: Marvell, Lumentum, and Coherent's 1.6T Monopoly Battle
The global

The rapid development of AIGC has promoted the demand for 800G optical modules, and

Innolight, Coherent, and Eoptolink are the largest suppliers of Datacom modules, with Coherent, Broadcom, and

The biggest telescopes in the world are often the most successful at making new space discoveries, due to their ability

Currently the largest optical module

The goal? Embed Lumentum's lasers right into those transceiver modules and help margins as AI workload grows.

Optical modules are typically defined by their bandwidth capacity, with the highest currently available being 800G

Web: <https://www.millstraining.co.za>

