Fiji Low-Cost Low-Power Optical Module 400G

Overview

Overview of the YXFiber QDD 400G DR4 Connectivity SolutionConclusion With its advantages of low cost, support for breakout applications, and ease of mainte.

Key Takeaways

Broadcom's 400G/lane Taurus BCM83640 DSP enables low-power, high-density 400G optical modules for cost-effective AI and cloud data center interconnects.

Overview

The Fiji low-cost, low-power 400G optical modules leverage the latest 400G/lane PAM-4 DSP technology, such as Broadcom's Taurus BCM83640, to deliver high bandwidth density while minimizing power consumption and cost. These modules are designed for 1. 6T pluggable transceivers, effectively doubling the bandwidth per optical lane compared to previous 200G/lane architectures, and enabling 102.

4T switching capacity in a 1RU system. This makes them ideal for AI clusters, cloud networks, and high-performance data center interconnects. Key Features400G/lane PAM-4 interfaces: Each lane supports 400G serial optical signaling, allowing high-density 1.

6T and future 3. 2T modules. Low power consumption: Optimized for energy efficiency, enabling deployment in dense switch ASICs and pluggable modules without exceeding thermal limits.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Advanced DS

P and equalization: Compensates for optical impairments while maintaining low power, supporting high-speed PAM-4 links in QSFP-DD and OSFP form factors. Integrated voltage regulators and FEC: Provides robust error correction and simplifies module design, reducing overall system cost. Scalable roadmap: Supports future 3.

2T optical modules with 400G/lane electrical interfaces, enabling next-generation 204. 8T switches.

Deployment and Form Factors

Fiji 400G modules are compatible with QSFP-DD and OSFP pluggable form factors, allowing easy integration into existing 400G-capable switches and routers. They are suitable for short-reach pluggable interconnects in AI and cloud data centers, as well as metro and regional networks when combined with coherent optics solutions. The low-cost, low-power design ensures that these modules can scale to millions of units over the next five years, supporting widespread adoption.

Advantages

Cost efficiency: By doubling bandwidth per lane and reducing power, these modules lower the cost per bit for high-speed optical interconnects. Power efficiency: Enables dense deployment in 1RU switches without exceeding thermal budgets. High performance: Supports 400G PAM-4 links with advanced DSP equalization, FEC, and crossbar functionality for reliable high-speed transmission.

Future-proof: Provides a clear path to 3. 2T optical modules and higher-density switch architectures. Fiji low-cost, low-power 400G optical modules represent a critical step in scaling AI and cloud network bandwidth, combining high performance, energy efficiency, and cost-effectiveness to meet the growing demands of modern data centers.

Article Content

Overview of the YXFiber QDD 400G DR4 Connectivity Solution

Conclusion With its advantages of low cost, support for breakout applications, and ease of maintenance, the YXF-QDD-400G-DR4 optical module has become an ideal choice for short-to

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

400G Coherent Optical Devices: Architecture, Applications & Trends

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Explore the architecture, key technologies, applications, and future trends of 400G coherent optical devices in modern high-speed fiber networks.

400G Optics – Technologies, Timing, and Transceivers

This presentation is an investigation into three potential solutions for 400G optical transceivers given the current objectives − Solutions perceived by the author to have a high probability of technical

How 400G Optical Modules Are Shaping Next-Gen Networks

Discover key factors driving the rapid adoption of 400G optical transceivers, including AI, 5G, coherent optics, and market trends shaping next-gen network infrastructure.

PSE 100G/400G pluggable coherent optics

Low power consumption and support for both Ethernet and OTN clients and framing, provides the flexibility to operate in optical transport systems, router platforms,

400G Coherent Optics Guide: ZR, ZR+ & MZR Comparison

Master 400G coherent optics with our comprehensive guide covering ZR, ZR+, MZR variants, reach capabilities, power consumption & deployment strategies.

Optical Module Industry Statistics 2026

The optical module industry is facing increasing pressure to reduce its carbon footprint, with 40% of manufacturers targeting net-zero emissions by 2030. Competition in the 400G optical

AI Data Center Optical Transceiver Module Market 2025–2030

The AI data center optical transceiver market has entered a historic growth phase, driven by the exponential expansion of AI computing clusters and the accelerated migration from traditional copper

Broadcom Delivers Industry''s First 400G/lane Optical DSP for Next ...

The device features 400G/lane serial optical interfaces, which enable optical transceiver manufacturers to cost effectively deliver low power 1.6T pluggable modules to meet the growing

Cisco 400G QSFP-DD High-Power (Bright) Optical Module Data Sheet

Learn how Cisco 400G QSFP-DD High-Power (Bright) Optical module''s small size and low power make it an optimal choice for a wide range of DCI/Cloud, metro access/aggregation,

EML vs VCSEL vs CW Laser: Optical Transceiver Guide (2025)

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Compare EML, VCSEL, and CW laser technologies in optical transceivers. Covers cost, reach, speed, the 2025 EML shortage, and silicon photonics alternatives.

Global 800G Optical Module Market Size, Share, Growth Analysis ...

Environmental sustainability is increasingly influencing product development strategies, with stakeholders seeking energy-efficient, low-power optical modules to reduce carbon footprints

Optical Transceivers Market Size Report, 2026-2033

The optical transceivers industry is prioritizing energy-efficient modules as enterprises and telecom operators face rising power and operational costs. Vendors are rapidly innovating low-power DSPs,

Wholesale Optical Transceivers Module | 100G QSFP28, 40G QSFP+ & 400G ...

Shop high-speed optical transceivers from Unitekfiber. We offer 100% compatible 40G, 100G, and 400G QSFP-DD modules for data centers. Expert technical support & wholesale pricing.

Broadcom Showcases Industry-Leading Solutions for Scaling AI ...

Together, the 400G/lane optical DSP and 400G EML/PD enable optical module manufacturers to deliver cost-effective, low-power 1.6T transceivers, while laying the foundation for

Co-Packaged Optics — a deep dive | APNIC Blog

OFC 2025 made one thing clear: The transition to Co-Packaged Optics (CPO) switches in data centres is inevitable, driven primarily by the power savings they offer. From Jensen Huang

Coherent DSP | Critical enablers for efficient transmission ...

Coherent DSPs for pluggable modules The Marvell coherent DSP portfolio, including Orion™, Canopus™ and Deneb™ platforms, empower the optical module ecosystem with low-power, high

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved

Contact Us

Continue your research online:

Website: https://alfa-pro.co.za
Technical inquiry: https://alfa-pro.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ALFA PRO COMMUNICATION SYSTEMS (Pty) Ltd - All rights reserved