LIGHTCOUNTING
Market Research

AOC / EOM • December 2018

Active Optical Cables and Embedded Optical Modules

The Summit Supercomputer has 10,000 AOCs

Image Source Credit. Oak Ridge National Labs

Abstract

This **two-part report** examines the optical interconnect segments that have long served as data bridges between elements of large systems or clusters.

The **active optical cable (AOC) product segment** embeds optical transceiver technologies into enclosed cables that hide the high-speed optics behind two transceiver ends with an electrical interconnect presented to the outside. This factor enables creating high aggregate data rate links at costs significantly below that of two separate connectorized transceivers and fibers.

This report also examines the product segment that embeds optical interconnect technologies inside computer and communication systems with on-board or **embedded optical modules (EOMs)**. As data rates continue to ramp, signal losses increase to the point that the effective reach of copper cabling and PCB traces on circuit boards shrinks considerably. Intra-system optical interconnects started at 2.5Gb/s two decades ago and have grown slowly to 25Gb/s interconnect fabrics, enabling massively-scalable multi-chassis systems from supercomputers to core routers. Proprietary interconnects are now supported by embedded optical modules and MSA-based active optical cables and transceivers, such as CXP.

At 25Gb/s and beyond, the amount of signal compensating electronics needed is growing along with cost and power consumption. When speed, reach, interconnect density and power limitations align to exceed the limits of copper, optical interconnects are finding use to support the next generations of system equipment.

Presented are data on annual AOC and EOM shipments, revenues and average selling prices for 2011-2017 and we forecast the market for 2018-2023. We analyze technologies, market trends, protocol transitions, data rates, and MSAs for InfiniBand, Ethernet and other protocols. Application segments are reviewed in detail and 19 categories of products are individually tracked, forecasted and mapped into five application segments: HPC, core routing, cloud, telecom equipment and lastly Military/Aerospace/Other applications.

The report is based on confidential sales information and detailed analysis of publicly available data released by leading component and equipment manufacturers. It incorporates new information from numerous interviews across both the supply chain and the consumption side of the industry.

LightCounting Market Research
858 West Park Street, Eugene, OR 97401

www.lightcounting.com

408-962-4851

LightCounting is a market research company focused on the in-depth study of high speed interconnects for the datacom, telecom, and consumer communications markets. Our research covers the whole supply

chain from optical and semiconductor components, to modules, sub-systems and their applications in telecom and datacom systems.

Our industry reputation was built by providing solid market data and objective analysis to help industry executives in making tactical and strategic business decisions and seeing past all the market hype, rumors, press reports, blogs and other distortions that so often complicate and confuse many decision making processes.

For more information, go to: www.lightcounting.com

Or follow us on Twitter at: www.twitter.com/lightcounting