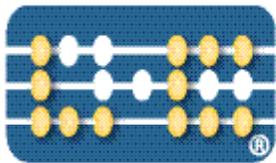


2018



LIGHTCOUNTING
Market Research

- Semi-Annual **Market Forecast**
- Semi-Annual **High Speed Ethernet Optics**

Mega Datacenter Optics

**Impact of Cloud Services
on the Telecom Industry**

Datacom

- State of the Industry**
- Integrated Optical Devices**
- **Market For Optics in China**

Telecom

**Active Optical Cables /
Embedded Optical Modules**

**Next Generation Access
Optics**

Quarterly Market Update

Report Overviews and Descriptions

Market for Optics in China (Published annually in January)

Demand for optics from Chinese Service Providers surprised the industry in 2010-2017. It started with massive deployments of FTTx systems and continued with optical fronthaul in the access markets. First deployments of 100G DWDM technology in core networks set up high expectations for scale of future projects. Chinese internet companies are starting to build datacenters requiring more optical connectivity inside and outside of these facilities. This report takes a closer look at all these developments and offers detailed profiles of leading service providers and Internet companies in China. It segments data on sales of optical components and modules in 2010-2017 between China and the rest of the world and offers forecast for sale of optics to China Market in 2018-2023.

Information on the report is available at <http://www.LightCounting.com/China>

Impact of Cloud Services on the Telecom Industry (Published annually in February):

Emergence of Internet based delivery of video and many other services presents a challenge and opportunity for telecom service providers. Burdened with extensive legacy networking infrastructure, Service Providers face challenges in adapting their networks to deliver these new Cloud services. This report reviews approaches taken by leading service providers to transform their businesses and networks to compete with rapidly growing Internet Cloud companies.

Information on the report is available at: <http://www.LightCounting.com/Cloud.cfm>

High Speed Ethernet Optics (Published semi-annually in March and September):

This reported is focused on markets and technologies for Ethernet Optical transceivers, used in Data center, Enterprise and Telecom applications. It will include the latest shipment data and a forecast for more than 50 types of Ethernet transceivers segmented by speed, reach and form factors. Confidential sales data from more than 20 leading suppliers provide a basis for this report. As an active participant in the IEEE 802.3 standards process, LightCounting is also uniquely placed to provide an insider perspective on vendors' latest products and technologies under consideration by the IEEE.

Information on the report is available at: <http://www.LightCounting.com/DataCenter2.cfm> and <http://www.LightCounting.com/Datacenter.cfm>

Quarterly Market Updates (Published quarterly in March, June, September and December):

These reports summarize the latest quarterly financial results and news of service providers, Web 2.0 companies, optical networking equipment vendors, module and component vendors. Each report also comes with a database featuring quarterly shipments, pricing and sales for more than 100 categories of optical components and modules based on confidential sales data collected by us from more than 25 leading vendors. The database also includes historical component sales data for the last 4 quarters and provides estimates for the current and at least one next quarter.

Information on the latest report is available at <http://www.LightCounting.com/marketupdate.cfm>

Market Forecasts (Published semi-annually in April and October):

Based upon confidential sales data provided by more than 25 leading optical component and module vendors together with data points obtained from semiconductor vendors, network equipment vendors, service providers and the Web 2.0 companies, these reports provide detailed forecasts for more than 125 optoelectronic modules including transceivers, transponders, line cards and WSS used in WDM, SONET/SDH, Ethernet, Fiber Channel, FTTx, Wireless Backhaul and Optical Interconnect applications.

Information on the latest report is available at <http://www.LightCounting.com/Forecast.cfm>

Report Overviews and Descriptions

State of the Industry (Published annually in May):

This report provides a holistic look at the optical components “food chain”, spanning the datacenter and network operators, their business strategies, and the optical and semiconductor components vendors who supply them. For each group, the report examines business strategies, M&A activity, and profitability. It also provides market shares of the top 3, top 6 and top 10 optical component and module vendors in WDM, SONET/SDH, Ethernet, Fibre Channel, FTTx, Wireless fronthaul/backhaul and Active Optical Cables and Embedded (on board) optical module market segments. Selected trends and hot topics in the industry are also addressed, such as the impact of China, the move to open systems, etc.

Information on the latest report is available at <http://www.lightcounting.com/SOTIR.cfm>

Integrated Optical Devices (Published annually in May)

In contrast to electronic chips that combine millions of functions in a single device, optics developed for transmitting data over fiber networks remains relatively simple. Generation and detection of light is accomplished by discrete optical elements: lasers and detectors coupled with fiber and co-packaged with electronics. Increasing the speed of optics as required in mega-datacenters and DWDM networks has led to development of more complex optical devices that combine multiple functions on the same chip. New technologies such as Silicon Photonics (SiP) also hold promise for integration of optics and electronics. This report will include analysis of the market data from 2010-2017 and provide a forecast for shipments of integrated optical devices based on InP, GaAs and SiP technologies.

Information on the report is available at <http://www.LightCounting.com/Silicon.cfm>

Mega Data Center Optics (Published annually in June):

This report is structured to provide a detailed analysis of the growth in data traffic and the rapidly changing data center infrastructure architectures on the market for pluggable optical transceivers. Analysis on technology transitions in servers, switches and DWDM transport equipment will be correlated to projections for sales of next generation optical products. The report will include a forecast for optical connectivity of mega-datacenters, including DWDM optics, Ethernet transceivers and Active Optical Cables.

Information on the latest report is available at <http://www.lightcounting.com/MegaDC.cfm>

Next Generation Access Optics (Published annually in November):

High-speed Internet access is an essential part of life for billions of people around the globe. Mobile 4G LTE and fixed Passive Optical Networks are the primary access networks delivering broadband to the masses today. FTTx networks will consume more than 90 million optical modules in 2017, and mobile fronthaul applications another 16.9 million transceivers, with a combined market value of \$1.4 billion. While these networks are still being rolled out, the next generation is in development. This report examines how the new 5G and NG-PON2 networks will reshape demand for optical components, reducing the opportunity for some types and speeds of modules, and increasing it for others. The report includes a detailed five-year forecast of transceiver shipments, prices and revenues, broken down by speeds, reaches and colors for both PON and fronthaul applications. Profiles of leading vendors of fronthaul and PON equipment components, and visual guides to mobile fronthaul and PON networking equipment are also included.

Information on the latest report is available at <http://www.lightcounting.com/Access.cfm>

Report Overviews and Descriptions

Active Optical Cables and Embedded Optical Modules (Published annually in December):

This two-part focused report examines two segments of optical interconnects that go beyond pluggable modules. Active Optical Cables (AOCs) embed transceiver technologies into enclosed cables with electrical connections on the outside. This design enables significantly lower product costs compared to open-faced transceivers and are plug-and-play without the usual issues surrounding optical technologies. Having gained traction in the High-Performance Computing (HPC) area, they are spreading into the data center and into proprietary intra-system interconnects.

Part 2 on Embedded Optical Modules (EOMs) details the design and use of on-board optical interconnect technologies inside computer and communication systems. 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. EOMs are a potential solution in various applications.

Information on the latest report is available at <http://www.lightcounting.com/AOC.cfm>

Publication Dates

- January 2018 - Market for Optics in China
- February 2018 Impact of Cloud Services on the Telecom Industry
- March, June, September and December 2018 - Quarterly Market Updates
- March 2018 -High Speed Ethernet Optics
- April 2018 - Market Forecast
- May 2018 - State of the Industry Report
- May 2018 - Integrated Optical Devices
- June 2018 - Mega Data Center Optics
- September 2018 - High Speed Ethernet Optics
- October 2018 - Market Forecast
- November 2018 - Next Generation Access Optics
- December 2018 - Active Optical Cables and Embedded Optical Modules

LightCounting's Subscription Packages

LightCounting offers **Platinum Plus, Platinum, Gold, Gold Plus, Silver and Bronze** subscription packages that, in addition to the reports, include:

- Previews of the quarterly and semi-annual forecasts (at least two weeks ahead of the publication date)
- At least 8 research notes for publication in the calendar year. Between January and October 2017, the following Research Notes were published:
 - How the Trump Presidency Could Impact the Telecom Industry (January 2017)
 - Mobile World Congress (March 2017)
 - Highlights from OFC 2017 (April 2017)
 - Update on Silicon Photonics (May 2017)
 - Open Stack Summit (May 2017)
 - Will Pluggable Optical Modules Become Obsolete? (July 2017)
 - Will Google and China Impact Next Generation Access Networks (August 2017)
 - Where Will VCSELs Shine Next? (August 2017)
 - CIOE and ECOC (September 2017)
 - Mobile Fronthaul in the 5G Era (October 2017)
 - Ciena - A Western Alternative to Huawei and ZTE (October 2017)