Photonic Integrated Circuit Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

Market Report | 2023-10-15 | 145 pages | IMARC Group

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Report description:

Market Overview:

The global photonic integrated circuit market size reached US$ 9.7 Billion in 2022. Looking forward, IMARC Group expects the market to reach US$ 30.4 Billion by 2028, exhibiting a growth rate (CAGR) of 19.6% during 2023-2028.

A photonic integrated circuit (PIC) consists of multiple photonic and electronic components and devices, such as lasers, detectors, waveguides, modulators, and optical interconnects, in a single platform with nanometer-scale feature sizes. It relies on light for information signaling and transfer and assists in improving the performance of science instruments, constituents, and subsystems. Besides this, as it offers additional functionality, reliability, and scalability than discrete systems, PIC finds extensive applications in optical sensors, metrology, sensing in agriculture and autonomous driving, and biomedical devices like lab-on-a-chip devices worldwide.

Photonic Integrated Circuit Market Trends:
At present, there is a considerable increase in the use of PICs in fiber-optic communication to make externally modulated lasers (EML). This, in confluence with the thriving defense sector, represents one of the key factors bolstering the growth of the market. Moreover, unlike conventional free-space optics with long atmospheric path-lengths, PIC-based sensors rely on light confined within and transmitted through a dielectric waveguide or semiconductor. As a result, the usage of PIC-based biochemical sensors is rising across the globe. Furthermore, recent technological advancements in photonics are offering lucrative growth opportunities to industry investors. Apart from this, PICs permit size, weight, power, and cost reductions for spacecraft microprocessors, advanced data processing, and communication and processor buses, which play a pivotal role in small spacecraft platforms. This, coupled with the rapid expansion of data centers, is strengthening the market growth. Some of the other factors driving the market include rising miniaturization of devices, a gradual shift from analogue to digital mode of operation, significant growth in the aerospace industry, and the increasing demand for PICs over electronic ICS around the world.

Key Market Segmentation:
IMARC Group provides an analysis of the key trends in each sub-segment of the global photonic integrated circuit market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on component, raw material, integration and application.

Breakup by Component:

Lasers
MUX/DEMUX
Optical Amplifiers
Modulators
Attenuators
Detectors

Breakup by Raw Material:

Indium Phosphide (InP)
Gallium Arsenide (GaAs)
Lithium Niobate (LiNbO3)
Silicon
Silica-on-Silicon

Breakup by Integration:

Monolithic Integration
Hybrid Integration
Module Integration

Breakup by Application:

Optical Fiber Communication
Optical Fiber Sensor
Biomedical
Quantum Computing

Breakup by Region:

North America
United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia

Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

Competitive Landscape:
The competitive landscape of the industry has also been examined along with the profiles of the key players being Broadcom Inc., ColorChip Ltd., Hamamatsu Photonics K.K., II-VI Incorporated, Infinera Corporation, Intel Corporation, LioniX International, POET Technologies and VLC Photonics S.L. (Hitachi Ltd.).

Key Questions Answered in This Report:
How has the global photonic integrated circuit market performed so far and how will it perform in the coming years?
What has been the impact of COVID-19 on the global photonic integrated circuit market?
What are the key regional markets?
What is the breakup of the market based on the component?
What is the breakup of the market based on the raw material?
What is the breakup of the market based on the integration?
What is the breakup of the market based on the application?
What are the various stages in the value chain of the industry?
What are the key driving factors and challenges in the industry?
What is the structure of the global photonic integrated circuit market and who are the key players?
What is the degree of competition in the industry?

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