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Global Chiplet Market Size study & Forecast, by By Processor (Field-Programmable Gate Array (FPGA), Graphics Processing Unit (GPU), Central Processing Unit (CPU), Application Processing Unit (APU), Artificial Intelligence Application-specific Integrated Circuit (AI ASIC) Coprocessor) By Packaging Technology (System-in-Package (SiP), Flip Chip Chip Scale Package (FCCSP), Flip Chip Ball Grid Array (FCBGA), 2.5D/3D, Wafer-Level Chip Scale Package (WLCSP), Fan-Out (FO)) By End-use Application (Enterprise Electronics, Consumer Electronics, Automotive, Industrial Automation, Healthcare, Military & Aerospace, Others) and Regional Analysis, 2023-2030

https://marketpublishers.com/r/GC69BE94C0A3EN.html
Date: April 2024
Pages: 200
Price: US$ 4,950.00 (Single User License)
ID: GC69BE94C0A3EN

Abstracts

Global Chiplet Market is valued approximately at USD 3.48 billion in 2022 and is anticipated to grow with a healthy growth rate of more than 86.7% over the forecast period 2023-2030. Chiplet individual semiconductor dies designed for specific functions, such as processing, memory, or input/output, that are integrated into a single package to form a complete system-on-chip or system-in-package. Chiplets enable a modular approach to chip design, allowing for easier customization and integration of various functionalities tailored to specific applications. Secondly, they facilitate faster time-to-market by enabling concurrent development of different chip components The Chiplet

market is expanding because of factors such as rising demand of high-performance computing and increasing number of data centers. Chiplets enable scalability and performance optimization by enabling the mixing and matching of different process technologies and architectures within a single package. As a result, the demand of Chiplet has progressively increased in the international market during the forecast period 2023-2030.

Traditional monolithic chip designs face limitations in scaling performance due to factors such as power consumption, heat dissipation, and manufacturing constraints. Chiplets provide a solution to this problem by enabling modular design approaches that allow for easier integration of advanced technologies like heterogeneous computing, 3D stacking, and advanced packaging techniques. This scalability enables the creation of high-performance computing systems that can deliver the necessary computational power for demanding workloads while maintaining energy efficiency and cost-effectiveness. Another important factor drives the Chiplet market is rising number of data centers. According to United States International Trade Commission report based on CloudScene data as in 2021, nearly 8,000 data centers were identified globally across 110 countries. Among these nations, six countries predominantly host a significant portion of these data centers: the United States (33%), the United Kingdom (5.7%), Germany (5.5%), China (5.2%), Canada (3.3%), and the Netherlands (3.4%). Chiplets enable the integration of specialized processing units optimized for specific tasks, leading to enhanced performance and energy efficiency. In data centers, energy consumption is a significant operational cost and environmental concern. By utilizing chiplets, data center operators can deploy heterogeneous architectures tailored to different workloads, effectively balancing performance requirements with energy consumption. This optimization contributes to overall cost savings and environmental sustainability, further driving the adoption of chiplet-based solutions in data center infrastructure. Moreover, growing rate of 5G network infrastructure and rising investments towards development of autonomous vehicles is anticipated to create a lucrative growth opportunity for the market over the forecast period. However, issues relate with heat management and cybersecurity issues associated with chiplet-based systems is going to impede overall market growth throughout the forecast period of 2023-2030.

The key regions considered for the Global Chiplet Market study includes Asia Pacific, North America, Europe, Latin America, and Middle East & Africa. North America dominated the market in 2022 with largest market share owing to the adoption of chiplets in AI and edge computing applications in the region. Chiplets enable the integration of heterogeneous components optimized for specific tasks. In AI applications, for instance, chiplets can include dedicated hardware for tasks like neural network inference or training, resulting in improved performance and energy efficiency. Similarly, for edge computing, chiplets can be tailored to handle specific processing tasks efficiently, enhancing overall system performance. The region’s dominant performance is anticipated to propel the overall demand of Chiplet. Furthermore, Asia Pacific is expected to grow fastest during the forecast period, owing to factors such as government-led digital transformation initiatives and expansion of 5G network in the region. Chiplet-based architectures offer scalability and customization options, allowing system designers to mix and match different chiplets based on their specific requirements.

Major market player included in this report are:

Intel Corporation

Advanced Micro Devices, Inc

Apple Inc

International Business Machines Corporation

Marvell Technology Group Ltd

MediaTek Inc

NVIDIA Corporation

Achronix Semiconductor Corporation

Ranovus Inc

ASE Technology Holding Co., Ltd

Recent Developments in the Market:

> In February 2024, Tenstorrent has announced a multi-tiered partnership agreement with Japan's Leading-edge Semiconductor Technology Centre (LSTC), which has chosen Tenstorrent's world-class RISC-V and Chiplet IP for its all-new edge 2nm AI Accelerator. In addition to the IP licencing component of

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this agreement, Tenstorrent will collaborate with LSTC as a collaborative innovation partner to co-design the chip that will transform AI performance in Japan.

Global Chiplet Market Report Scope:

Historical Data – 2020 - 2021

Base Year for Estimation – 2022

Forecast period - 2023-2030

Report Coverage - Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Segments Covered - Processor, Packaging Technology, End-use Application, Region

Regional Scope - North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope - Free report customization (equivalent up to 8 analyst's working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values to the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within countries involved in the study.

The report also caters detailed information about the crucial aspects such as driving factors & challenges which will define the future growth of the market. Additionally, it also incorporates potential opportunities in micro markets for stakeholders to invest along with the detailed analysis of competitive landscape and product offerings of key players. The detailed segments and sub-segment of the market are explained below:

By Processor:

Field-Programmable Gate Array (FPGA)

Graphics Processing Unit (GPU)

Central Processing Unit (CPU)

Application Processing Unit (APU)

Artificial Intelligence Application-specific Integrated Circuit (AI ASIC) Coprocessor

By Packaging Technology:

System-in-Package (SiP)

Flip Chip Chip Scale Package (FCCSP)

Flip Chip Ball Grid Array (FCBGA)

2.5D/3D

Wafer-Level Chip Scale Package (WLCSP)

Fan-Out (FO)

By End-use Application:

Enterprise Electronics

Consumer Electronics

Automotive

Industrial Automation

Healthcare

Military & Aerospace

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Others

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

ROE

Asia Pacific

China

India

Japan

Australia

South Korea

RoAPAC

Latin America

Brazil

Mexico

Middle East & Africa

Saudi Arabia

South Africa

Rest of Middle East & Africa

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