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Graphic Processor Market Assessment, By Type [Discrete, Integrated], By Application [Computer, Mobile & Tablets, Television, Others], By End-user [Media & Entertainment, Healthcare, Automotive, BFSI, Others], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

Global graphic processor market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years. With projected revenue of approximately USD 46.7 billion in 2022, the market is forecasted to reach USD 266.2 billion by 2030, displaying a robust CAGR of 24.3% from 2023 to 2030.

The graphics processor market is a highly dynamic and advancing sector that is pivotal in enhancing top-tier graphics and visual computing in diverse industries. Graphic processors, often called graphics processing units (GPUs), represent specialized electronic circuits to portray images, videos, and animations. The gaming industry is expected to continue to drive the demand for high-performance GPUs, with NVIDIA and AMD dominating the consumer market. Additionally, GPUs are crucial in data centers, accelerating AI and deep learning tasks. Cryptocurrency mining, particularly for Bitcoin and Ethereum, sometimes contributes to GPU shortages. Professional graphics solutions from NVIDIA and AMD remain essential for CAD and content creation industries. Ray tracing technology has gained prominence in gaming GPUs, offering realistic graphics. New entrants like Intel and Apple have expanded their market, intensifying the competition. However, supply chain challenges, including semiconductor shortages, are expected to impact GPU availability and pricing. Overall, the graphics processor market is dynamic, with evolving applications beyond gaming, including AI, rendering, and data processing, driving the market growth.

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Gaming Industry Creating Significant Demand for Graphic Processors

Modern video games require increasingly realistic and immersive graphics to captivate gamers. GPUs are essential for rendering lifelike visuals, from detailed character models to expansive game worlds with intricate textures and lighting effects. Specially, PC gaming continues to thrive, with enthusiasts building custom gaming rigs that feature high-end GPUs. These GPUs are essential for running games at the highest settings and achieving high frame rates, providing superior gaming experience. Moreover, the rise of e-sports and competitive gaming has created a demand for high-refresh-rate monitors and GPUs are capable of delivering smooth and responsive gameplay. Professional gamers often invest in top-tier GPUs to gain a competitive edge, further accelerating the market.

For example, in November 2022, AMD introduced fresh graphic cards that leverage the next-generation AMD RDNA3 architecture, renowned for its high performance and energy efficiency. These new offerings from AMD include the Radeon RX 7900 XTX and Radeon RX 7900 XT graphics cards. Continuing the success seen with AMD's 'Zen' architecture-based Ryzen chiplet processors, these newly unveiled graphics cards are the world's initial gaming graphics cards to incorporate a cutting-edge AMD chiplet design.

Cryptocurrancy Mining Influences Demand

Many cryptocurrencies, like Bitcoin and Ethereum, rely on complex cryptographic algorithms for mining. These algorithms require high computational power, making GPUs, with their parallel processing capabilities, well-suited for the task. Miners use GPUs in large numbers to increase their mining efficiency. Cryptocurrency miners often operate large-scale mining farms equipped with numerous GPUs, sometimes numbering in the thousands. This substantial demand for GPUs can lead to shortages in the consumer market and drive the prices. The profitability of cryptocurrency mining fluctuates with the market value of cryptocurrencies and the mining difficulty. When cryptocurrency prices surge, miners seek to acquire more GPUs to maximize their earnings, further influencing the market.

For example, in February 2022, Intel entered into cryptocurrency mining, unveiling a dedicated chip tailored specifically for blockchain purposes like Bitcoin mining and Non-fungible Token (NFT) creation. Intel asserts that its cryptocurrency mining chips will deliver a performance boost of 1000 times compared to the typical GPUs currently

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available.

Asia Pacific Holds the Largest Share

In 2022, Asia-Pacific took the lead in the overall market, securing a more than 28% market share. The remarkable surge in the gaming industry in the Asia Pacific serves as a significant catalyst for market expansion. The region is a vibrant hub for game development and consumption, boasting an extensive audience that craves visually stunning and immersive gaming encounters. Graphic processing units (GPUs) are indispensable in empowering developers to craft cutting-edge games that cater to the discerning gaming community's demands. Furthermore, the region’s emphasis on emerging technologies like artificial intelligence, robotics, and autonomous vehicles further amplifies the demand for GPUs. These transformative fields rely on intricate computations, a domain where GPUs excel, fostering innovation across diverse industries.

The escalating demand for cloud services and data centers in the region drives GPU demand. These facilities necessitate GPUs to manage resource-intensive applications encompassing AI-driven analytics and high-performance computing tasks. The trend supports the region's technological advancement and contributes significantly to its economic growth.

Government Initiatives

In 2023, the UK government is committing ?100 million in public funds to expedite the manufacturing of computer chips to establish domestic AI assets within Britain. The initiative involves procurement from prominent chip manufacturers like Intel, AMD, and Nvidia. As part of this effort, the government has ordered 5,000 graphics processing units (GPUs), commonly called graphics cards, from Nvidia. These GPUs are essential for executing the intricate tasks artificial intelligence (AI) demands.

Impact of COVID-19

COVID-19 pandemic in early 2020, had an adverse impact on global economies and various industries, including the market for graphic processors. The graphic processor market, like many others, experienced significant effects during this period. As countries implemented lockdowns, imposed travel restrictions, and businesses transitioned to remote operations, there was a surge in demand for electronic devices. However, this surge was accompanied by disruptions in supply chains. Factory closures and

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limitations on travel had a notable impact on the supply chain and manufacturing processes, leading to delays in deliveries and extended lead times. Moreover, the need for a more skilled workforce and reduced workforce capacities due to safety measures further complicate the situation.

While businesses and individuals adapted to remote work setups and increased online engagement, the demand for enhanced digital experiences grew significantly. It heightened the importance of graphic processors, particularly in the gaming sector, which saw remarkable growth during the pandemic. With more people seeking entertainment options at home, the gaming industry experienced a notable upswing, driving increased demand for graphic processors to deliver immersive visuals and seamless gameplay.

Key Players Landscape and Outlook

Global graphic processor market is witnessing a swift growth trajectory due to the increasing emphasis placed by companies worldwide on establishing advanced digital infrastructure. Furthermore, the market expansion is greatly facilitated by increasing users in gaming industry, along with significant investments made by companies to enhance research and development resources, engage in collaboration projects, bolster marketing efforts, and expand distribution networks. These factors collectively contribute to the rapid expansion of the market.

In March 2022, Intel entered the business of discrete graphics unveiling of its Intel Arc graphics product range, tailored for laptops. Intel has introduced the Arc A-series graphics within this product lineup, built on the new Xe HPG architecture. The company has introduced three GPUs as part of the Arc series — the Arc 3, Arc 5, and Arc 7. The Arc 3 represents the entry-level GPU in the company's portfolio, while the Arc 5 occupies a mid-range position, and the Arc 7 stands as the flagship GPU offering from Intel.

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