

## **Graphics Processing Unit (Gpu) Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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### **Report description:**

The graphics processing unit (GPU) market is expected to register a CAGR of 32.70% during the forecast period (2022-2027).

#### Key Highlights

A graphics processing unit, a programmable logic chip used for rendering images, animations, and videos and, for general computing purposes, is deployed in almost all computing devices shipped globally. Deployment in personal computers, laptops, and emerging applications, such as AR/VR, high-performance computing, AI, ML, blockchain, cryptocurrency mining, autonomous driving, and navigation (vehicles, robotics), are also driving the need for advancement in GPU technology.

The demand for high-end personal computing devices and gaming console effects has surged in recent years. Hence, investing in a graphics add-in board is helpful for micro-processing companies, as GPU forms a vital component of the finished product.

The high adoption of computing products, such as personal computers (PC) or laptops, globally and the increasing investment in the gaming industry have been major factors driving the studied market's growth in recent years. The growing demand for high graphics and computing applications and the expansion of technologies, like AI, along with the trend of real-time analysis, are mainly expanding the scope of GPU technology over the forecast period.

GPU manufacturing, especially the standalone GPU chip, is a costlier process and requires high-end machines. Although the raw material is cost-effective, the companies need high initial investment to build the lab for testing and manufacturing. For instance, Intel announced Intel Arc for consumer high-performance graphics solutions. The Arc brand will encompass hardware, software, and services over multiple generations of hardware, with the first discrete GPU (Alchemist) based on the Xe HPG microarchitecture delivered to OEMs in Q1 2022.

COVID-19 impacted the industry by disrupting the supply chain in the initial phase. However, the market has reported increased consumer demand in a particular segment, which mainly supports GPU technology growth. In April 2022, Nvidia stated that researchers discovered trends in Hubble data on 25 of them using a supercomputer with NVIDIA GPUs. To increase the

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understanding of all planets, high-performance computing is used with NVIDIA GPUs to analyze the torrid atmospheres

## Graphics Processing Unit Market Trends

### Servers to Lead the GPU Market Growth

The server segment is witnessing significant growth owing to the proliferation of the cloud in various end-user sectors. In Japan, KDDI, one of the prominent telecom companies, partnered with NVIDIA to offer GeForce Now game-streaming service to customers in March 2020. KDDI reportedly partnered with NVIDIA to deliver PC games over low-latency broadband and a 5G network to gamers in Japan. It will place NVIDIA's RTX gaming servers in a new data center in Tokyo. Additionally, GPUaaS may be utilized for various purposes, including training multilingual AI speech engines and identifying early indicators of diabetes-related blindness. Modern GPUaaS, which provides a compelling alternative to traditional general-purpose processors with variable pricing and no CAPEX, is one way to achieve the speed required for machine learning systems. Moreover, the Indian market is also witnessing investment by many vendors. For instance, Acer launched new NVIDIA Tesla GPU-powered servers in India. The server can host up to eight NVIDIA Tesla V100 32GB SXM2 GPU accelerators, wherein every GPU pair includes one Peripheral Component Interconnect (PCIe) slot for high-speed interconnect. Technological advancement in high-performing computing (HPC) may also develop an opportunity for GPU vendors. For instance, in April 2022, Nvidia stated that researchers discovered trends in Hubble data on 25 of them using a supercomputer with NVIDIA GPUs. To increase the understanding of all planets, high-performance computing is used with NVIDIA GPUs to analyze the torrid atmospheres.

### Asia Pacific to Hold the Largest Market Share

In China, the Fenghua GPU achieved a significant milestone in terms of broad adoption. The GPU was announced in November 2021 by Xindong Technology and Innosilicon. The GPU was validated in March 2022 for stable operation and excellent performance on the Tongxin UOS operating system.

Tongxin UOS is a significant operating system in China because it was created as a government-led effort to usurp Windows. It is built on Debian Linux and has been tweaked to work with the newest homemade hardware. As a result, alongside the development of support for Chinese-designed semiconductor devices such as Zhaoxin CPUs and GPUs, the Fenghua GPU certification represents a significant step.

In April 2022, Moore Threads announced MTT S60 for PC desktops and workstations and the MTT S2000 for servers. Both are based on MUSA-based 12nm GPUs. Moving on to AI, MUSA-based graphics cards can support a variety of common AI frameworks, including those for visual processing, audio processing, natural language processing, and more.

Many companies are also partnering or investing in Chinese start-ups or research laboratories, which are getting government support. This is also known as indirect penetration in the Chinese market. China-based popular AI start-up SenseTime has a portfolio of 700 clients and partners, including the Massachusetts Institute of Technology (MIT), and Qualcomm, among others. The company has become successful in very little time and has a valuation of USD 4.5 billion. One of the reasons SenseTime has been able to grow so quickly is that it has government support and direct access to China's vast databases. The company is also working with the Chinese government on Made in China in 2025. The company also revealed that its aggregate computing power is more than 160 petaflops, achieved with 54,000,000 GPU cores across 15,000 GPUs within 12 GPU clusters.

The growth in the Chinese gaming industry is mainly due to increasing investment in enhancing R&D capability for GPU technology. Independent games developed by domestic firms have continued to dominate market sales in China.

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## Graphics Processing Unit Market Competitor Analysis

The global GPU market is highly consolidated and comprises a limited number of players. Market incumbents spend huge capital on research and development to gain market shares in several end-user segments, often unscalable by new entrants or upcoming players.

February 2022 - AMD Completes Acquisition of Xilinx The acquisition of Xilinx brings together a highly complementary set of products, customers, and markets combined with differentiated IP and world-class talent to create the industry's high-performance and adaptive computing leader and the ability to offer an expanded set of solutions including AMD CPUs and GPUs.

January 2022 -Nvidia introduced the new GeForce RTX 3050 GPU, which launches later this month, aims to help PCs run the latest games, and goes for \$249. Nvidia also announced the high-powered GeForce RTX 3090 Ti GPU, which it said bests the earlier \$1,499 RTX 3090.

March 2022 - Intel launched the Arc series of Graphics Processing Unit (GPU) for laptops and desktop PCs. Laptops with the Arc 3 GPU, designed for enhanced gaming and content production, are available for pre-order, while laptops with the Arc 5 and Arc 7 GPUs, designed for advanced and high-performance gaming, will come later in 2022.

January 2022 - Microsoft announced plans to acquire Activision Blizzard Inc., a prominent player in game development and interactive entertainment content publisher. This acquisition may accelerate the growth in Microsoft's gaming business across mobile, PC, console, and cloud and is expected to drive the demand for the company's Xbox offerings.

### Additional Benefits:

The market estimate (ME) sheet in Excel format  
3 months of analyst support

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