

Space Semiconductor Market is Projected to Grow Expeditiously: to Reach USD 4.8 Billion by 2032, Report

The North America region held highest market share in terms of revenue in 2022, accounting for more than one-third of the global space semiconductor market.

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The global space semiconductor market size was valued at \$2.1 billion in 2022, and is projected to reach \$4.8 billion by 2032, growing at a CAGR of 8.8% from 2023 to 2032. "

Allied Market Research

Research published a report, titled, "[Space Semiconductor Market](#) by Type (Radiation Hardened Grade and Radiation Tolerant Grade), Component (Integrated Circuits, Discrete Semiconductors Devices, Optical Devices, Microprocessor, Memory, Sensors, and Others), and Application (Satellite, Launch Vehicles, Deep [Space](#) Probe, and Rover and Lander): Global Opportunity Analysis and Industry Forecast, 2023–2032.

According to the report, the global [space semiconductor](#) industry size generated \$2,122.9 million in 2022 and is

anticipated to generate \$4,813.8 million by 2032, witnessing a CAGR of 8.8% from 2023 to 2032.

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Prime Determinants of Growth

Space semiconductors include the increasing demand for satellite communication and Earth observation, advancements in satellite technology, the rise of satellite constellations, expanding space exploration initiatives, and the need for reliable and radiation-hardened components in space missions. Furthermore, the growing need for global connectivity, internet access, and data transmission drives the demand for satellite communication systems. Additionally, the rise in Earth observation applications for purposes such as weather monitoring, disaster management, agriculture, and urban planning contribute to the demand for space-based sensors and imaging systems, which rely on semiconductor components for data processing and transmission.

Impact of Russia-Ukraine War Scenario on Space Semiconductor Industry

On February 24, 2022, the Russia-Ukraine war led to increased geopolitical tensions, which might have unexpected effects on the space semiconductor industry. International commercial ties may be strained by increased political uncertainty and instability, which could lead to supply chain delays and market volatility.

In addition, large amounts of certain semiconductor materials, like neon gas, are made in Ukraine and are used in the semiconductor manufacturing process. Any disruption to supply chains for semiconductors coming from Ukraine may have an effect on the price and availability of semiconductor components, including those used in space-grade applications. Furthermore, as a result of the conflict, some countries may choose to review their military plans and increase their investments in space-based systems and technology. This could lead to a rise in the market for space-grade semiconductors in order to support military satellite programs, communications systems, and other defense-related applications.

Recent Advancements in the Space Semiconductor Sector Showcase Notable Collaborations and Innovations:

In August 2021, BAE Systems joined forces with Global Foundries to fabricate a radiation-hardened single-board computer tailored for space applications. This cutting-edge computer offers Power Architecture software-compatible processing, surpassing the capabilities of the RAD750 radiation-hardened general-purpose processor while consuming lower power, enhancing spacecraft efficiency.

By October 2023, semiconductor leader Infineon Technologies had expanded its co-innovation hub in Singapore, bolstering support for startups in their product development endeavors. This collaborative effort, in conjunction with Korean SMEs and startup agencies, aims to drive innovation in decarbonization and digitalization. Infineon's expanded facility underscores its dedication to nurturing sustainable innovation for the future.

In September 2023, Northrop Grumman's U.K. division partnered with British startup Space Forge, which endeavors to manufacture semiconductors in space. This strategic alliance promises groundbreaking advancements in space-based semiconductor production.

Teledyne U.K. Limited, a subsidiary of Teledyne Technologies, announced in June 2020 the development of new space-grade semiconductor FPGAs in collaboration with Xilinx, Inc., marking a significant milestone in space electronics technology.

In April 2023, Presto Engineering teamed up with SatixFy to qualify and test radiation-hardened ASICs for deployment in space. These ASICs boast features like error-correcting codes and specialized semiconductor processes, mitigating the risk of radiation-induced errors and enhancing reliability in space missions.

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The radiation hardened grade segment to maintain its leadership status throughout the forecast period

On the basis of type, the radiation hardened grade segment held the highest market share in 2022, accounting for more than two-thirds of the global space semiconductor market revenue. This is attributed to the fact that radiation hardened grade semiconductor components are specifically designed and manufactured to withstand the harsh radiation environment present in space. Given that space missions expose electronic systems to various forms of radiation, including cosmic rays and solar radiation, radiation hardened grade components are essential for ensuring the reliability and longevity of these systems.

However, the radiation tolerant grade segment is projected to manifest the fastest CAGR of 12.2% from 2023 to 2032. This is attributed to the fact that radiation-tolerant components offer a balance between radiation resilience and cost-effectiveness, making them suitable for a wide range of space missions with varying requirements. Semiconductor manufacturers can develop radiation-tolerant components that meet the specific needs of different missions, providing flexibility and versatility to space system designers.

The integrated circuits segment to maintain its leadership status throughout the forecast period

On the basis of component, the integrated circuits segment held the highest market share in 2022, accounting for around one-third of the global space semiconductor market revenue. This is attributed to the fact that integrated circuits offer high performance and efficiency, making them well-suited for space applications where reliability and functionality are paramount. Semiconductor manufacturers are continually improving the performance of ICs, including higher processing speeds, lower power consumption, and increased functionality, which are critical for meeting the demanding requirements of space missions.

However, the sensors segment is projected to manifest the fastest CAGR of 13.5% from 2023 to 2032. This is attributed to the fact that space missions require a wide variety of sensors to meet different operational needs. These include temperature sensors, pressure sensors, inertial sensors (such as accelerometers and gyroscopes), radiation sensors, imaging sensors, and more. Each sensor type serves specific purposes in different phases of a mission, from launch and orbit to landing or reentry.

The satellite segment to maintain its leadership status throughout the forecast period

On the basis of application, satellite segment held the highest market share in 2022, accounting

for more than one-third of the global space semiconductor market revenue and is estimated to maintain its leadership status throughout the forecast period. This is attributed to the fact that satellites are essential components of modern communication, navigation, Earth observation, and scientific research networks. They serve as critical infrastructure for a wide range of applications, including telecommunications, broadcasting, weather forecasting, navigation, surveillance, and disaster management.

Semiconductor components are fundamental to the operation of satellites, driving the demand for space-grade semiconductors. However, the launch vehicles segment is projected to manifest the fastest CAGR of 10.0% from 2023 to 2032. This is due to the fact that launch vehicle manufacturers are continuously striving to reduce the size, weight, and power consumption of onboard electronics to increase payload capacity and improve overall efficiency. This trend drives the demand for compact, lightweight, and energy-efficient semiconductor components, including microcontrollers, sensors, communication modules, and power management ICs.

North America to maintain its dominance by 2032

On the basis of region, North America held the highest market share in terms of revenue in 2022, accounting for more than one-third of the global space semiconductor market revenue. This is attributed to the fact that the U.S. is a global leader in semiconductor technology and innovation, with a robust ecosystem of semiconductor manufacturers, research institutions, and technology companies.

North American semiconductor manufacturers are at the forefront of developing advanced semiconductor components tailored for space applications, including radiation-hardened integrated circuits, sensors, and communication chips. However, Asia-Pacific is expected to witness the fastest CAGR of 12.0% from 2023 to 2032. This is attributed to the region's expanding space programs, increasing satellite launches, growing demand for space-based services, and the rise of indigenous semiconductor manufacturing capabilities.

Key Highlights of the Report:

The study of the space semiconductor market encompasses analysis across more than 16 countries, offering insights into each country's segment value (\$million) throughout the forecast period.

This research integrates top-notch data, expert opinions, and rigorous analysis, supplemented by significant independent perspectives. The methodology is designed to present a well-rounded view of the global market landscape, aiding stakeholders in making informed decisions to attain ambitious growth objectives.

A comprehensive review of over 3,700 product literature pieces, annual reports, industry statements, and comparable materials from leading industry players was conducted to deepen the understanding of the market dynamics.

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Leading Market Players: -

BAE Systems

CASE

Honeywell International Inc.

Infineon Technologies AG

Microchip Technology Inc.

Solid State Devices

STMicroelectronics

Teledyne Technologies Incorporated

Texas Instruments Incorporated

AMD-Xilinx, Inc.

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