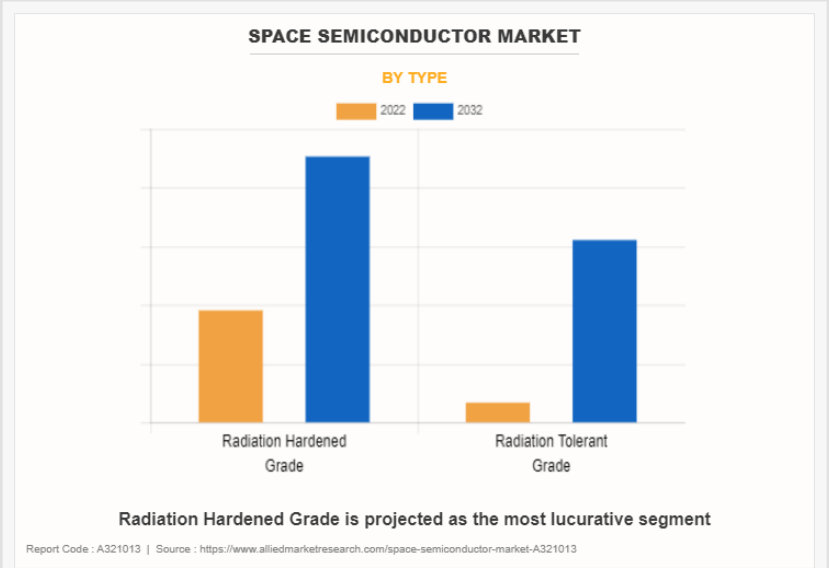
Space Semiconductor Market to Reach $4.8 Billion by 2032 with an 8.8% Annual Growth Rate - Industry Report

PORTLAND, OREGAON, UNITED STATES, May 23, 2024 /EINPresswire.com/ -- Space Semiconductor Market Size, Share, Competitive Landscape and Trend Analysis Report by Type, By Component, By Application : Global Opportunity Analysis and Industry Forecast, 2023-2032.



Space Semiconductor

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The global space semiconductor market 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.

As more and more government and commercial organizations plan missions to investigate the Moon, Mars, asteroids, and beyond, there is a growing interest in space exploration. This pattern fuels the need for semiconductor parts for satellites, rovers, landers, spaceships, and other vehicles used in space exploration. Furthermore, more powerful and effective space systems can be created due to developments in semiconductor technology, which have led to downsizing, better computing power, increased radiation tolerance, and increased dependability. Innovation and market expansion for space semiconductors are fueled by these technical developments.

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The space sector is experiencing new growth as a result of the commercialization of space, which is being spearheaded by businesses like SpaceX, Blue Origin, and others. There is a need for semiconductor components for a range of space applications due to commercial satellite launches, space tourism, asteroid mining, and other commercial space endeavors. For instance,

in September 2023, SpaceX launched 22 more of its Starlink internet satellites to orbit and landed the returning rocket on a ship at sea. Large satellite constellations are being deployed by businesses to offer internet connectivity throughout the world. For communication, navigation, and data processing, projects like SpaceX's Starlink, OneWeb, and Amazon's Project Kuiper require hundreds of satellites outfitted with cutting-edge semiconductor components.

In addition, radiation hardened grade (RHG) refers to a classification of electronic components that are specifically designed and manufactured to withstand the effects of ionizing radiation present in harsh environments such as outer space. These components are engineered to maintain their functionality and reliability in the presence of radiation, which can cause damage or degradation in standard electronic devices. Furthermore, solar and cosmic ray radiation are just two of the many types of radiation that fill space. Systems in space may malfunction or completely fail as a result of these radiations' interference or damage electronic components.

To ensure the longevity and dependability of electronic systems in space, RHG components are specially designed to reduce the effects of radiation. Furthermore, crucial duties including communication, navigation, Earth observation, and scientific research are part of many space missions. Such missions run the risk of failing or losing important data due to electrical component failure. For space missions, RHG components are essential because they provide the high dependability and durability needed for these mission-critical applications.

Integrated circuits segment attained the highest market share in 2022 in the space semiconductor industry. This is attributed to the fact that several electrical components, such as resistors, capacitors, and transistors, are combined into one chip via integrated circuits. For space applications where weight and size limits are important factors, this integration makes it possible to create complex electronic systems in a tiny form factor. Furthermore, integrated circuits can be specifically designed and manufactured to withstand the effects of radiation in space environments. By using radiation-hardened ICs, space agencies and satellite manufacturers can ensure the reliability and longevity of electronic systems operating in the harsh radiation environment of space.

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Integrated circuits can be tailored and enhanced for particular space applications, enabling designers to satisfy the distinct needs of various missions. Custom integrated circuits (ICs) facilitate the development of customized solutions that give optimal performance in space, whether they are used for scientific investigations, communication, navigation, or remote sensing.

Satellite segment attained the highest market share in 2022 in the space semiconductor market due to the fact that the satellite industry has experienced significant growth in recent years, driven by increased demand for various applications such as communication, navigation, Earth

observation, remote sensing, and scientific research. This growth has led to a corresponding increase in the demand for semiconductor components used in satellite systems.

Satellites serve a wide range of applications, including telecommunications, broadcasting, weather forecasting, navigation, surveillance, and scientific exploration. Each of these applications requires specialized electronic systems comprising semiconductor components tailored to meet specific performance, reliability, and environmental requirements.

Extreme temperatures, vacuum, radiation, and vibrations are some of the difficult conditions in which satellites operate. To endure these circumstances and guarantee dependable functioning over extended mission durations, which can span from several years to decades, semiconductor components used in satellites need to be radiation-hardened and ruggedized. Moreover, in order to enable internet access, mobile communication, and broadcasting services, satellites are essential to the global communication infrastructure since they connect isolated and underserved areas. For dependable and excellent communication links, semiconductor parts used in satellite communication systems—such as transceivers, amplifiers, and signal processing units are crucial.

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On the basis of type, the radiation hardened grade segment is anticipated to exhibit significant growth in the near future.

On the basis of component, the integrated circuits segment is anticipated to exhibit significant growth in future.

On the basis of application, the satellite segment is anticipated to exhibit significant growth in future.

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