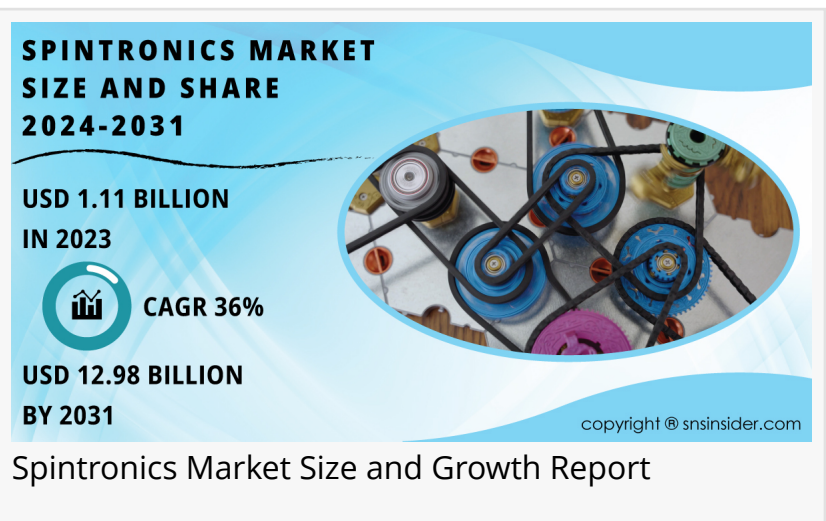


Spintronics Market Set to Soar to USD 12.98 Billion at 36% CAGR by 2031, Driven by Advanced Consumer Electronics

Spintronics Market Size, Share, Growth Drivers and Regional Analysis, Global Forecast 2024 - 2031

AUSTIN, TEXAS, UNITED STATES, May 29, 2024 /EINPresswire.com/ -- Market Size

The SNS Insider report reveals that the Spintronics Market, valued at USD 1.11 billion in 2023, is poised to reach USD 12.98 billion by 2031, demonstrating a robust CAGR of 36% over the forecast period of 2024-2031.



The rollout of 5G networks necessitates higher data transfer speeds, which spintronics technology can readily deliver.

The surge in demand for spintronics is fueled by various factors, notably the increasing penetration of 5G networks, which necessitate higher data transfer speeds that spintronics technology can readily deliver. The market's growth is further augmented by the integration of connected devices with the Internet of Things (IoT) and the development of semiconductor-based spin transistors. Ongoing research and development efforts, along with the deployment of 5G technology in developing economies, are also contributing to the market's upward trajectory.

Market Analysis

A key advantage of spintronics lies in its cost-effectiveness, as it functions effectively on common metals like copper and aluminum, eliminating the need for specialized semiconductor materials. This factor, coupled with technological advancements such as spin-orbit torque (SOT) in MRAM devices, is anticipated to drive market growth. However, the market faces challenges in integrating spintronic materials into mainstream microelectronics and contending with

substitute technologies.

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KEY PLAYERS:

- IBM Corporation
- NVE Corporation
- Plures Technologies
- Quantum Wise
- NVE Corporation
- Organic Spintronics
- Advanced Micro Sensors
- Everspin Technologies Inc.
- Crocus Technology Inc.
- Synopsys (QuantumWise)
- Spin Memory Inc.
- IBM Corporation
- Plures Technologies
- Organic Spintronics
- Intel Corporation
- Rhomap Ltd.
- Advanced Micro Sensors Inc.
- Advanced MicroSensors Corporation
- Atomistix A/S
- Freescale Semiconductor Inc.

Recent Developments

- In October 2023, Everspin Technologies expanded its high-density STT-MRAM product family with a new 4Mb capacity, smaller footprint, and extended temperature range.
- In June 2023, Crocus Technology introduced the CT40x, a revolutionary TMR current sensing solution for demanding environments.
- In May 2023, NVE unveiled the SM223, a high-sensitivity TMR smart magnetometer for precise position control and current measurement.
- In January 2023, NVE launched the ALT021-10E, one of the world's most sensitive analog magnetometer ICs, and expanded its line of isolated DC-to-DC converters.

KEY MARKET SEGMENTS:

BY TYPE

- Metal-based
 - o Giant magneto resistance-based device

- o Tunnel magneto resistance-based device
- o Spin-Transfer torque device
- o Spin-Wave logic device

- Semiconductor-Based Devices

- o Spin Diode
- o Spin Filter
- o Spin Field-Effect Transistor

The Semiconductor-based devices are projected to witness major growth, driven by the expanding semiconductor industry and the increasing demand for spin diodes and spin filters in memory and quantum dot applications.

BY APPLICATION

- Magnetic Sensors
- Spintronic Couplers
- Hard Disks
- Microwave Devices
- Electric Vehicles
- Industrial motors
- Data storage
- Magnetic Random Access Memory
- Semiconductor lasers
- Spintronics couplers
- Others

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Impact of the Russia-Ukraine War

The Russia-Ukraine war has indirectly impacted the spintronics market through disruptions in global supply chains and fluctuations in raw material prices. The conflict has also led to increased uncertainty and geopolitical tensions, affecting investor confidence and potentially delaying investments in research and development.

Impact of Economic Slowdown

Economic slowdowns can dampen consumer spending and reduce corporate investments, which may temporarily hinder the adoption of spintronics technology in certain sectors. However, the long-term growth prospects of the market remain strong due to the technology's potential to enhance efficiency and performance in various applications.

Asia Pacific is poised to secure a substantial share of the spintronics market

The Asia Pacific region boasts a significant increase in research activities related to spintronics. The region's global dominance in semiconductor manufacturing and foundries provides a strong foundation for the growth of the spintronics market. This established infrastructure enables the efficient production and integration of spintronics components into various electronic devices. The Asia Pacific region is a global leader in electronic product manufacturing. This high level of manufacturing activity creates a vast market for spintronics applications, ranging from consumer electronics to industrial and medical devices. The region is witnessing groundbreaking developments in spintronics research.

- For example, in August 2023, scientists in India developed a novel 2D composite quantum material with Rashba splitting, paving the way for advanced spintronic devices like transistors, diodes, and filters.

Key Takeaways

- The spintronics market is experiencing robust growth due to the increasing adoption of advanced consumer electronics and non-volatile memory technologies.
- Technological advancements, such as spin-orbit torque (SOT) in MRAM devices, are driving market expansion.
- The market faces challenges in integrating spintronic materials into mainstream microelectronics and competing with substitute technologies.
- Europe and Asia Pacific are key regions driving the market's growth, with significant investments in research and a strong presence of industry players.

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