

# Spintronics Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

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## Abstracts

The global spintronics market size reached US\$ 695.0 Million in 2022. Looking forward, IMARC Group expects the market to reach US\$ 920.7 Million by 2028, exhibiting a (CAGR) of 4.80% during 2022-2028.

Spintronics, or spin electronics, is the study of the intrinsic spin of electrons and the associated magnetic moment in solid-state devices. It is widely used in quantum computing for analyzing the functioning of nanoscale electronics. Spintronics is applied to semiconductors, magnetic multilayers and mass-storage devices that use the spin of the electrons to carry information. It involves the use of various metal-based devices, such as giant magneto resistance-based (GMRS), tunnel magneto resistance-based (TMRS) and spin-transfer torque and spin-wave logic devices. They are used with spin diodes, filters and spin field-effect transistors (FET) for higher data transfer speeds, processing powers, memory densities and increased storage capacities. As a result, spintronics finds extensive application in electric vehicles (EVs), industrial motors and magnetic sensing systems.

### Spintronics Market Trends:

The increasing demand for hybrid and EVs across the globe is one of the key factors driving the growth of the market. Spintronic closed-loop sensors are widely used to accurately detect the remaining battery capacity and check the charge and discharge condition to improve the overall performance of these automobiles. Moreover, the widespread adoption of advanced consumer electronics is providing a thrust to the market growth. The growth of the market can also be attributed to the rising demand for non-volatile memory technologies installed in Magneto-resistive random-access memory MRAM (systems) to use electron spinning for reversing the magnetization of layers and storing data through electric current. Additionally, various technological

advancements, such as the integration of connected devices with the Internet of Things (IoT) and the development of semiconductor-based spin transistors, are also contributing to the growth of the market. Other factors, including the increasing deployment of 5G technology, especially in the developing economies, along with extensive research and development (R&D) activities, are anticipated to drive the market toward growth.

#### Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global spintronics market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on type, application and end user.

#### Breakup by Type:

##### Metal-Based Devices

- Giant Magneto Resistance-Based Device (GMRs)
  - Tunnel Magneto Resistance-Based Device (TMRs)
  - Spin-Transfer Torque Device
  - Spin-Wave Logic Device
- ##### Semiconductor-Based Devices
- Spin Diode
  - Spin Filter
  - Spin Field Effect Transistor (FETs)

#### Breakup by Application:

- Magnetic Sensors
- Hard Disks and MRAMs
- Electric Vehicle and Industrial Motor
- Quantum Computing
- RF and Microwave Devices
- Others

#### Breakup by End User:

- Automotive
- Consumer Electronics
- Healthcare

IT and Telecom  
Others

#### Breakup by Region:

North America  
United States  
Canada  
Asia-Pacific  
China  
Japan  
India  
South Korea  
Australia  
Indonesia  
Others  
Europe  
Germany  
France  
United Kingdom  
Italy  
Spain  
Russia  
Others  
Latin America  
Brazil  
Mexico  
Others  
Middle East and Africa

#### Competitive Landscape:

The competitive landscape of the industry has also been examined along with the profiles of the key players being Avalanche Technology, Crocus Technology, Everspin Technologies Inc., FUTEK Advanced Sensor Technology Inc., Intel Corporation, International Business Machines Corporation, Merck KGaA, NVE Corporation, Spin Memory Inc. and Synopsys Inc.

#### Key Questions Answered in This Report

1. How big is the global spintronics market?

2. What is the expected growth rate of the global spintronics market during 2023-2028?
3. What are the key factors driving the global spintronics market?
4. What has been the impact of COVID-19 on the global spintronics market?
5. What is the breakup of the global spintronics market based on the type?
6. What is the breakup of the global spintronics market based on the application?
7. What is the breakup of the global spintronics market based on the end user?
8. What are the key regions in the global spintronics market?
9. Who are the key players/companies in the global spintronics market?

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