

# MRAM Market - Forecasts from 2021 to 2026

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## Abstracts

The global Magnetic RAM Market is expected to grow at a compound annual growth rate of 28.71% over the forecast period to reach a market size of US\$4,996.637 million in 2026 from US\$853.870 million in 2019. The market is expected to surge in the coming years, because of the increasing usage of MRAM in applications such as automotive, defense, aerospace, consumer electronics, and others. Major companies, scientific, and research & development institutions, have been developing MRAM technologies, in the past few years. For Instance, In April 2020, a team at the Indian Institute of Technology, in Mandi, India, announced the development of Magnetic Random-Access Memory, intending to address data storage concerns. The team stated that the spin-transfer torque MRAM, which were based on nano spintronic devices, would be used to put an end to data loss from computers, because of interruptions, and would enhance the next-generation computers, or other gadgets. There are other developments in the market, in recent years. Startups and novel players have been working hard to secure funding from major players in the market. For instance, In September 2020, Antaios, a key pioneer in SOT-MRAM technology, announced that it had secured US\$11 million in funding from a major French venture capital firm, Sofimac Innovation, and Innovacom. The company stated that the novel funds would be used to deploy SOT-MRAM in every chip, becoming a major candidate for the next generation memory storage market. MRAM is considered a niche memory storage memory in the market, because of the availability of alternatives such as DRAM. But, in recent years, with the increasing investments in R&D in MRAM technology, the market growth has accelerated. In May 2020, The Korea Institute of Science and Technology announced that its research team had developed a magnetoresistive random-access memory, that has high speeds of spin direction changes and consumes extremely low power. The research team stated that MRAM's had more advantages than DRAM, as they processed data at a faster rate, and also flashes memories, and were highly energy efficient. . Samsung, one of the largest manufacturers of smartphones, globally, stated recently the company had been planning to expand the applications of MRAM

technology, to various sectors. The company had been aiming to use MRAM chips in more areas, beyond Artificial Intelligence and the Internet of Things, such as the automotive market, low-level cache, graphic memory, and wearables. The company begins the mass production of MRAM solutions in mid-2019. The chip was built using a 28nm FD-SOI process.

### Increasing Defense Expenditure

The market is expected to surge in the coming years, because of the acceleration in defense spending and expenditure, globally. According to the Stockholm International Peace Research Institute, global military expenditure saw a surge in the year 2019 and 2020, reaching approx. US\$1.9 trillion in the year 2019. The budget saw a surge of 3.6% in 2019, then the previous year. The top five military spenders in the year 2019, were the United States, China, India, Russia, and Saudi Arabia. The defense budget is utilized for the development and procurement of novel weapons, with updated and advanced technology. The use of Magnetic Random-Access Memory in defense equipment has seen a growth in the last few years. The total military spending by the United States in 2019, was at US\$732 billion and it accounted for approx. 38% of global military expenditure. China and India had a military expenditure of US\$261 billion and US\$71.1 billion, in the same years. Major companies have been providing Magnetic Random Access Memory solutions for different applications. For Instance, Teledyne e2V, one of the major players in the market, provides MRAM type EV2A16A for different applications, such as defense, avionics, and others. The type has been an extended reliability version of the MR2A16A from another key player in the market, known as Everspin. It is an ideal memory solution for applications that usually stores and retrieves data, more quickly. In defense, the solution and the product are used for Electronic Warfare, Field Communication, ECM, and Radar. Another benefit of the product is that it provides reliable performance and operation, across the different military temperature range.

### The rise in Aviation Sector

The market is expected to be driven by the Magnetic Random Access Memory in the aviation industry, in recent years, MRAM technology has been gradually increasing its presence in Aviation and Aerospace industry, because it provides higher density non-volatile memory on a specific device. Moreover, the black box in an airplane is used to store data and memory, and with a faster and more durable MRAM device, the market is expected to register substantial growth during the forecast period. With the rise in air passenger traffic, worldwide, the demand for aircraft production is likely to surge.

According to the World Bank, the air passenger rose from approx. 310 million in the year 1970, to approx. 4.397 billion in the year 2019. The OECD members have a major share in air passenger traffic, with over 2.44 billion passengers in the year 2019. Major companies such as Boeing and Airbus, have increased the production and delivery of aircraft in recent years. Boeing delivered 35 commercial jets, in December 2019, and Airbus delivered 138 commercial jets, in December 2019. Major companies have been providing novel and advanced MRAM solutions, for the aerospace and aviation industry, in the past few years. Avalanche Technology had been developing a large and substantial portfolio of around 1Mb to 256 Mb of radiation hardened, highly reliable Persistent SRAM products, which had been based on its proprietary pMT. STT-MRAM technology, by the company, had been designed to operate successfully in harsh and difficult weather conditions and environment. Radiation surges the aging and life cycle of semiconductor materials and parts, leading to major degradation of premature failure or electrical performance. Avalanche had announced its partnership with NASA Goddard Space Flight Centre to examine and evaluate the company's novel and first-generation P=SRAM products.

#### Segmentation:

##### By Product Type

Spin-Transfer Torque MRAM

Toggle MRAM

##### By Application

Robotics

Consumer Electronics

Automotive

Aerospace & Defense

Enterprise Storage

Others

By geography

Americas

USA

Others

Europe Middle East and Africa

UK

Germany

France

Others

Asia Pacific

Japan

China

South Korea

Others

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