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Military Embedded Systems Market Research Report - Global Forecast till 2030

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Description:

Global Military Embedded Systems Market Overview
Military Embedded Systems Market Size was valued at USD 12.7 billion in 2022. The military embedded systems market industry is estimated to expand from USD 13.5 Billion in 2023 to USD 19.4 billion by 2030, exhibiting a compound annual growth rate (CAGR) of 6.31% during the forecast period (2023 - 2030). The advent of electronic and network-centric warfare and technological advancements in network convergence are key market drivers enhancing market growth.

Military Embedded Systems Market Overview

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Military Embedded Systems Market Trends

- **Growing government spending on the military is driving the market growth**

Market CAGR for military embedded systems is being driven by the growing spending of the government on its military infrastructure. Governments all across the world place a high priority on modernizing military and defense hardware. This situation has greatly expanded the global supply of unmanned applications and the market opportunity for military embedded systems. Also, the military embedded systems market revenue is expected to increase over the next several decades due to the widespread deployment of multi-core processors, wireless technologies, and innovative warfare systems. For instance, the United States, China, India, the United Kingdom, and Russia collectively accounted for 62% of expenditure in 2021, according to research released by Stockholm International Peace Research Institute on April 25, 2022. Global military spending will reach $2113 billion in 2021, up 0.7%.

Figure 1: Distribution of military spending worldwide in 2021 by country

Distribution of military spending worldwide in 2021 by country

Technology developments in embedded systems have made it possible to transmit data from several devices over a single wire using a single network. With the ability to offer significant SWaP (size, weight, and power) benefits and enhanced flexibility when adding new capabilities to a platform, this network is currently replacing numerous single-purpose connections. Curtiss-Wright Corporation created its newest embedded module with a security focus, the XMC-528, in September 2022. Leading defense manufacturers like Raytheon Technologies use the module in systems like C5ISR. Thus, driving the military-embedded systems market revenue.

Military Embedded Systems Market Segment Insights
Military Embedded Systems Component Insights

The Military Embedded Systems Market segmentation, based on components, includes hardware and software. The basic goal of embedded system software is to manage the performance of a group of hardware components without sacrificing its intended efficacy or performance. The hardware sector held the fastest-growing market share for military embedded systems in 2022 due to the rising need for portable wearables.

Military Embedded Systems Product Type Insights

The Military Embedded Systems Market segmentation, based on product type, includes advanced telecom computing architecture (TCA), compact-PCI (CPCI) boards, compact-PCI (CPCI) serial, VME BUS, OPEN VPX, motherboard and others. The Open VFX sector showed major growth in 2022. OpenVPX has substantially advanced system speeds, dependability, upgradeability, packaging, and SWaP-C (size, weight, and performance-cooling) for crucial military applications. However, in 2022, the demand for motherboards will rise significantly. Clients can build their application-specific carrier boards for rugged military mobile systems utilizing commercially available computer modules, regardless of the information's importance to the military.

Military Embedded Systems Application Insights

The Military Embedded Systems Market segmentation, based on application, includes intelligencesurveillance and reconnaissance (ISR), command, control, communication & navigation, radar, avionics, vetronics, cyber, networking and others. The navigation sector dominated the market in the forecast period. These systems were primarily created for defense and military applications, although they are also widely used in air traffic control, marine and weather monitoring, and aircraft anti-collision systems.

For instance, June 2021 Norway bought five Thales Ground Master 200 Multi-Mission Compact radars (GM200 MM/C) through a government-to-government agreement with the Netherlands. Due to this procurement, the Norwegian Armed Forces received a new mobile artillery locating radar system appropriate for national and international operations.

Additionally, intelligence surveillance and reconnaissance (ISR) witnessed the fastest growth rate in 2022. Systems for intelligence, surveillance, and reconnaissance (ISR) provide services for the collecting and processing of multi-intelligence data and its analysis, exploitation, and dissemination.

Military Embedded Systems Platform Insights

The Military Embedded Systems Market data, based on platform, includes land, airborne, marine and space. In 2022, the land category was the major user of the embedded system. The sector is expanding due to the development of complex electronic systems, mission-critical embedded systems, and increased demand for surveillance operations brought on by geographic instability. However, the marine forces' demand for an embedded system is also rising. These ships differ from commercial ships in terms of use, design structure, capabilities, and technologies. Many nations are modernizing their armed forces, which results in higher military spending.

Figure 2: Military Embedded Systems Market, by platform, 2022 & 2030 (USD billion)
Military Embedded Systems Market, by platform, 2022 & 2030

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Military Embedded Systems Regional Insights

By Region, the study provides market insights into Asia-Pacific, North America, Europe, and Rest of the World. The North American military embedded systems area will dominate this market. The US offers great investment prospects in embedded system technology as a nation with superior technology. The North American market is expected to control the global military embedded system market due to the region's improvement in next-generation communication technologies and the United States' quick advancement in military and aerospace.

Further, the major countries studied in the market report are Canada, U.S., France, German, Italy, UK, Spain, China, Japan, India, Australia, South Korea, and Brazil.

Figure 3: GLOBAL MILITARY EMBEDDED SYSTEMS SHARE BY REGION 2022 (%)
GLOBAL MILITARY EMBEDDED SYSTEMS SHARE BY REGION 2022

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Europe military embedded systems market accounts for the second-largest market share due to changing political conditions, major regional nations boosted their military spending, which necessitated the purchase of more defense equipment, weapons, armament, and other weapon systems to protect the region's international borders. According to the Stockholm Peace Research Institute (SIPRI), the European region has one of the highest levels of military spending in the world in 2021, with a total expenditure of USD 417.8 billion. Further, the German military embedded systems market held the largest market share, and the UK military embedded systems market was the fastest-growing market in the region.

The Asia-Pacific Military Embedded Systems Market is projected to expand at a rapid CAGR from 2023 to 2030. Over the past few years, terrorist operations have increased in nations including Afghanistan, Pakistan, India, and the Philippines. 113 of the 181 terrorist acts that occurred in India in 2021 were carried out by "jihadi terrorists," according to NCRB data. This is yet another important catalyst for the expansion of the Asia-Pacific defense sector. Moreover, China’s military embedded systems market held the largest market share, and the Indian military embedded systems market was the fastest-growing market in the region.

Military Embedded Systems Key Market Players & Competitive Insights
Leading market players are investing largely in research and development to expand their product lines, which will help the military-embedded systems market grow even more. Market participants are also undertaking different strategic activities to expand their global footprint, with important market developments including new product launches, contractual agreements, mergers and acquisitions, higher investments, and collaboration with other organizations. To expand and survive in a more competitive and rising market climate, the military embedded systems industry must offer cost-effective items.

Manufacturing locally to minimize operational costs is one of the key business tactics manufacturers use in the global military embedded systems industry to benefit clients and increase the market sector. In recent years, the military embedded systems industry has offered some of the most significant medical advantages. Major players in the military embedded systems market, including SMART Embedded Computing (US), EUROTECH (Italy), KONTRON AG (Germany), Curtiss-Wright Corporation (US), and others, are attempting to increase market demand by investing in research and development operations.

Mouser Electronics is a global leader in the authorized distributor of semiconductors and electrical components from over 1,200 manufacturers, with local sales and service locations worldwide. We specialize in bringing new items and technology to design engineers and purchasers as quickly as possible.

Recent News :

In April 2024, Tekever, a company specializing in uncrewed aerial systems (UAS), introduced its new modular ARX platform in Lisbon, Portugal. The ARX, Tekever's inaugural UAS with swarm capabilities, offers users the flexibility to select from a range of sensors, including EO/IR, LIDAR, SAR, and SIGINT/COMINT/ELINT. The ARX is equipped with advanced onboard artificial intelligence/machine learning (AI/ML) capabilities, SATCOM and mesh connection, and the capability to function in GNSS-denied conditions both at sea and on land. Tekever also provides the "ARX Digital Twin" alongside the ARX launch. This model serves as a digital representation of the system and may be used for simulation, integration, testing, monitoring, and maintenance. The ARX is scheduled to be released in 2025.

In February 2024, Vecow Co., Ltd., a group of international specialists in embedded technology, introduced their new Fanless High-Endurance System designed for workstation use. The Vecow HEC-1000 is specifically engineered to be deployed in demanding environments, offering robust computing power based on the 13th Generation Intel® Core™ i9/i7/i5/i3 processor. It is equipped with dependable input/output interfaces, making it ideal for outdoor applications such as Advanced Driver Assistance Systems (ADAS), Autonomous Mobile Robots (AMR), Robotic Control, and rugged Edge Artificial Intelligence (AI) deployments.

The Vecow HEC-1000 is equipped with a maximum of 24-core 13th generation Intel® Core™ i9/i7/i5/i3 Processor (Raptor Lake-S). The system operates on the Intel® R680E PCH with a 35W TDP CPU, providing high-level computational power specifically designed for Edge AI applications. In addition, the system incorporates three 2.5GigE LAN connections and supports TSN technology, which enables it to effectively manage demanding workloads. The HEC-1000 is equipped with MIL-DLT-38999 connectors that offer IP66-rated protection, allowing it to function in extreme temperatures and cold environments while remaining resistant to moisture. This military-grade design ensures high reliability, making it suitable for critical applications such as outdoor AMR, defense, military, and

robotic control.

For instance,In February 2020 Mouser Electronics, Inc., the New Product Introduction (NPI) leader that enables innovation, announced a global distribution agreement with Kontron, a leading global provider of Internet of Things (IoT)/Embedded Computing Technology (ECT) and a Premier Member of the Intel Internet of Things Solutions Alliance.

Curtiss-Wright Corporation is a manufacturer and service provider based in Davidson, North Carolina, with plants and operations in and beyond the United States. Curtiss-Defense Wright's Electronics business offers critical aerospace, ground, and naval defense systems and support to national and international military forces. In September 2022, Curtiss-Defense Wright's Solutions division stated that it had been chosen once again by a top defense system integrator to supply its embedded Security IP module technology. Curtiss-Wright will offer its XMC-528 Mezzanine Card under the contract to add cutting-edge security protection to an existing system within a DoD end-state application.

Key Companies in the military embedded systems market include

- Curtiss-Wright Corporation (US)
- KONTRON AG (Germany)
- Mercury Systems Inc. (US)
- Xilinx Inc. (US)
- EUROTECH (Italy)
- General Dynamics Corporation (US)
- General Micro Systems Inc. (US)
- Advantech Co. Ltd. (Taiwan)
- Thales Group (France)
- SMART Embedded Computing (US)

Military Embedded Systems Industry Developments
For instance,April 2021 Science Applications SAIC earned a $2.9 billion contract to continue assisting the US Army with its mission engineering capabilities. The award has a performance period of five years. According to the deal, the company will continue to develop advanced technologies and assist the United States Army in developing, integrating, and maintaining software platforms.

For instance,April 2020 Abaco Systems presented their new 3U CompactPCI Robust Single Board Computer, designed for various demanding applications in the defense, aerospace, industrial, and commercial sectors where rugged reliability in hostile environments is vital. The size, weight, and power consumption of the IMP3B CompactPCI is all small (SWaP). CompactPCI's market share in military embedded systems has increased due to the new 3U CompactPCI boards.

Military Embedded Systems Market Segmentation
Military Embedded Systems Component Outlook

- Hardware
- Software

Military Embedded Systems Product Type Outlook

- Advanced Telecom Computing Architecture (TCA)
- Compact-PCI (CPCI) Boards
- Compact-PCI (CPCI) Serial
- VME BUS
- OPEN VPX
- Motherboard
- Others

Military Embedded Systems Application Outlook

- Intelligence
- Surveillance and Reconnaissance (ISR)
- Command
- Control
- Communication & Navigation
- Radar

- Avionics
- Vetronics
- Cyber
- Networking
- Others

Military Embedded Systems Platform Outlook

- Land
- Airborne
- Marine
- Space

Military Embedded Systems Regional Outlook

- North America
    - US
    - Canada
- Europe
    - Germany
    - France
    - UK
    - Italy
    - Spain
    - Rest of Europe
- Asia-Pacific
    - China
    - Japan
    - India
    - Australia
    - South Korea
    - Australia
    - Rest of Asia-Pacific
- Rest of the World
    - Middle East
    - Africa
    - Latin America

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