Embedded Computing Market to Surge at a CAGR of 8.7% by 2027 – Global Analysis by The Insight Partners

The Embedded Computing Market size is expected to reach USD 67.29 Billion by 2027; registering at a CAGR of 8.7% from 2019 to 2027; Says The Insight Partners.

NEW YORK, UNITED STATES, January 18, 2023 /EINPresswire.com/ -- A recent market research report entitled "Embedded Computing Market to 2027 - Global Analysis and Forecasts by Component (Microprocessor, Microcontroller, ASIC, Digital Signal Processor, FPGA, Memory, Other Hardware and Software); Industry Vertical (Automotive, Industrial, Transport, Consumer Electronics, Enterprise & Government, Communications, and Others)" done by our research team depicts the comprehensive and collaborative analysis of industry during past, present, and forecast periods. The growing adoption of IoT application in diverse industries is one of the crucial factors influencing the embedded computing market. Additionally, the increased need for superior performance, secure connectivity, lower cost, power efficiency, and faster time to market are other significant factors bolstering market growth.

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Automotive Industry is Expected to be the Prime Driver for the Embedded Computing Market
At present, a modern vehicle contains between 25 or 100 electronic control units (ECUs). These systems are generally portioned based on domains, namely real-time body controls and infotainment controls. The real-time body controls include a different category such as chassis control, body control, powertrain control, and active safety control. The second category, the infotainment controls, includes navigation, information management, computing, external communication, and entertainment. Embedded computing in modern vehicles is segmented into different domains, mainly differentiated by the criticality of the function executed. In general, each ECU integrates a processing element (single or multi-core processor), memory subsystems (including volatile and non-volatile), optional dedicated accelerators like cryptographic or image processing engines, power supply elements, and the interfaces to the different sensors, actuators, and network. Specific combinations are chosen depending on the requirements for each application. For example, in the body electronics domain that handles simple comfort functions like doors, access control, lighting systems, and climate control, an ECU architecture may be composed of an 8- to 32-bit micro-controller, non-volatile code memory, and network interfaces like CAN and LIN.

Machine Learning at the Edge
The theory of pushing computing closer to sensors where data is gathered is a significant point of modern embedded computing – i.e., the edge of the network. With machine/deep learning, this conception becomes even more vital to enable autonomy and intelligence at the edge. For many applications such as industrial robots and automated machinery on a factory floor to an agricultural tractor in the field, to self-guided vacuums in the home, the computation must happen locally. There can be various reasons for local processing, such as low latency, reliability, bandwidth, power consumption, and privacy. Quite an amount of applications are driving adoption of machine learning (ML), such as advanced driver assistance systems (ADAS) and self-driving cars, big-data analysis, surveillance, and improving processes from audio noise reduction to natural language processing. Thus the concept of machine learning at the edge is expected to prevail in the future application of embedded computing along with the advancement in IoT concept.

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Strategic Insights:

Some of the market initiatives were observed to be most adopted strategy in the global embedded computing market. Few of the recent market initiatives are listed below:
- 2019:Advantech announced the introduction of Palm Size Embedded System EPC-U2117, which enhances the CPU performance by 30% as well as boost the graphic performance by 45%.
- 2018:Intel Corporation partnered with Micron Technology, Inc. to complete joint development for the second generation of 3D XPoint technology.
- 2017:Intel Corporation launched the world's first commercially available 64-layer, TLC, 3D NAND solid state drive.
- 2016:Qualcomm launches Snapdragon 600E and 410E.

Embedded systems are used in wide-ranging applications, which differs from low to high-cost consumer electronics to medical devices, industrial equipment to weapon control systems, entertainment devices and aerospace systems to academic equipment, among others. The automotive industry is expected to be a key driver for the embedded computing market. At present, a modern vehicle contains between 25 or 100 electronic control units (ECUs). These systems are generally portioned based on domains, namely real-time body controls and infotainment controls. The real-time body controls include a different category such as chassis control, body control, powertrain control, and active safety control. The second category, the infotainment controls, includes navigation, information management, computing, external communication, and entertainment. Embedded computing in modern vehicles is segmented into different domains, mainly differentiated by the criticality of the function executed. In general, each ECU integrates a processing element (single or multi-core processor), memory subsystems (including volatile and non-volatile), optional dedicated accelerators like cryptographic or image

processing engines, power supply elements, and the interfaces to the different sensors, actuators, and network. Specific combinations are chosen depending on the requirements for each application.

The application of an embedded system in vehicles has witnessed a high growth in the past two decades owing to demand better features. Also, the emergence of autonomous cars is a key factor expected to influence the demand for embedded systems in the automotive sector. In February 2019, STMicroelectronics collaborated with Virscient to allow quicker delivery of connected-car systems with ST's Telemaco3P automotive application processors. ST's Telemaco3P integrates Dual-Arm Cortex-A7 processors with an independent Arm Cortex-M3 subsystem, an embedded hardware security module, as well as a set of connectivity interfaces.

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Contact Us:
Call: +1-646-491-9876
Email: sales@theinsightpartners.com

Sameer Joshi
The Insight Partners
+ +91 96661 11581
email us here
Visit us on social media:
Facebook
Twitter
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