

# **Embedded System Market by Hardware (MPU, MCU, Application-specific Integrated Circuits, DSP, FPGA, and Memories), Software (Middleware, Operating Systems), System Size, Functionality, Application, Region - Global Forecast to 2025**

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## **Abstracts**

“The embedded system market is projected to grow at CAGR of 6.1% from 2020 to 2025.”

The embedded system market is projected to grow from USD 86.5 billion in 2020 to USD 116.2 billion by 2025; it is expected to grow at a CAGR of 6.1% from 2020 to 2025. Key factors fueling the growth of this market include an increase in the number of research and development activities related to embedded systems, rise in demand for advanced driver-assistance systems (ADAS) and electromobility solutions for electric vehicles and hybrid vehicles, increase in demand for portable devices such as wearables, and rise in the use of multicore processors in military applications.

“Among hardware, the FPGA segment of the market is projected to grow at the highest CAGR from 2020 to 2025.”

The field-programmable gate arrays (FPGA) segment of the embedded system market is projected to grow at the highest CAGR from 2020 to 2025. The growth of this segment can be attributed to the simple design cycles of FGPA and their ability to reconfigure systems based on the requirements of applications. Moreover, FPGA support parallel computing, which makes them suitable for the rapid prototyping of various digital devices. Various advancements in the telecommunication industry, such as the advent of 5G technology, are expected to drive the growth of the market for FPGA-based embedded hardware globally.

“The middleware segment of the embedded system market is projected to grow at a high CAGR during the forecast period.”

Among software, the middleware segment of the market is projected to grow at a high CAGR from 2020 to 2025. Middleware is an alternative to the embedded operating systems (OS) and can either be incorporated in the OS or integrated with device drivers and OS. Middleware helps in reducing the complexity of applications by centralizing software architecture, usually present in application layers. Moreover, it offers connectivity, intercommunication feature, portability, security, and flexibility, which embedded OS fail to offer in distributed and heterogeneous architectures.

“The medium-scale embedded systems segment accounted for the largest share of the market in 2019.”

The medium-scale embedded systems segment accounted for the largest size of the embedded system market in 2019. Medium-scale embedded systems are used for packet processing in network switches and routers and data processing in ultrasonic sensors. These systems form a major part of network and communication applications owing to their excellent power handling capacities. The increasing requirement of fast processing of embedded systems and efficient power consumption are key factors leading to the growing demand for 16-bit and 32-bit microcontrollers. Based on the number of threads and memory requirements, embedded devices commonly use either 16-bit microcontroller or 32-bit microcontroller architectures or a combination of both.

“Based on functionality, the real-time embedded systems segment of the market is projected to grow at a high CAGR from 2020 to 2025.”

The real-time embedded systems segment of the embedded system market is projected to grow at a high CAGR from 2020 to 2025. Real-time embedded systems are dedicated to perform given functions within a specified time frame. Since there is an increasing focus on efficiency and power management in various applications, these embedded systems are increasingly being used in network systems, medical systems, process control systems, robot manufacturing systems, traffic control systems, multimedia systems, etc. Moreover, the rising demand for real-time data and its analysis, along with the requirement of advanced communication infrastructure for technologies such as 5G and artificial intelligence (AI), is expected to lead to demand for real-time embedded systems globally.

“The automotive segment of the embedded system market is projected to grow at the highest CAGR during the forecast period.”

Among applications, the automotive segment of the embedded system market is projected to witness the highest CAGR from 2020 to 2025. Embedded devices are used in automobiles in heads-up displays, airbags, electronic brake systems, infotainment systems, power steering systems, ADAS, etc. The growth of this segment can be attributed to the large-scale production of cars and the rise in demand for electric vehicles and hybrid vehicles. Additionally, advancements in autonomous vehicles and connected mobility are also contributing to the growth of the automotive segment of the embedded system market.

“APAC is projected to hold the largest share of the embedded system market in 2025.”

APAC is expected to hold the largest share of the embedded system market in 2025. The growing per capita income and the ongoing large-scale industrialization and urbanization are factors driving the growth of the embedded system market in this region. In addition, the availability of low-cost electronic products in APAC is expected to contribute to an increased demand for microprocessors and microcontrollers in the region. The rising use of autonomous robots and embedded vision systems is also projected to lead to an increased demand for embedded system hardware such as microprocessors and controllers for use in industrial applications in APAC.

Breakdown of profiles of primary participants:

By Company: Tier 1 = 30%, Tier 2 = 45%, and Tier 3 = 25%

By Designation: C-level Executives = 35%, Directors = 40%, and Others (sales, marketing, and product managers, as well as members of various organizations) = 25%

By Region: APAC = 40%, Americas = 35%, Europe = 20%, and RoW = 5%

Major players profiled in this report:

Intel

Renesas

STMicroelectronics

NXP Semiconductors

Texas Instruments

Microchip

Cypress Semiconductors

Qualcomm

Analog Devices

Infineon Technologies

## Research coverage

This report offers detailed insights into the embedded system market based on hardware, software, functionality, system size, industry, and region. Based on hardware, the embedded system market has been segmented into application-specific integrated circuits (ASIC), microcontrollers, microprocessors, power management integrated circuits (PMIC), field-programmable gate arrays (FPGA), digital signal processors (DSP), and memories. Based on software, the market has been segmented into operating systems (OS) and middleware. Based on functionality, the embedded system market has been divided into real-time embedded systems and standalone embedded systems. Based on system size, the market has been classified into small-scale embedded systems, medium-scale embedded systems, and large-scale embedded systems. Based on industry, the embedded system market has been segmented into automotive, consumer electronics, industrial, aerospace and defense, energy, healthcare, and communication. The market has been studied for APAC, North America, Europe, and RoW.

## Reasons to buy the report

The report is expected to help the market leaders/new entrants in the following ways:

1. This report segments the embedded system market comprehensively and provides the closest approximations for the overall size of the market, as well as its segments and subsegments.
2. The report is expected to help stakeholders understand the pulse of the market and provide them with information about key drivers, restraints, challenges, and opportunities.
3. This report aims at helping stakeholders in obtaining an improved understanding of their competitors and gaining insights to enhance their position in the market. The competitive landscape section includes the competitor ecosystem of the market, as well as growth strategies such as product launches, expansions, agreements, joint venture, partnerships, collaborations, merger, and acquisitions adopted by the leading market players.

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