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Semiconductor Market for Robots by Component (Compute, Sensors, Memory, Power Management ICs), Robot Type (Industrial Robots, Professional Service Robots, Personal & Household Service Robots, Drones), Vertical - Global Forecast to 2030

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Abstracts

The semiconductor market for robots is estimated to be USD 11.23 billion in 2025 and is projected to reach USD 41.24 billion by 2030, at a CAGR of 29.7% %. The integration of 5G and V2X communication technologies is driving the demand for advanced semiconductor solutions, as ultra-low latency and real-time connectivity are essential for autonomous and mobile robots to operate safely and collaboratively in dynamic environments. Simultaneously, the accelerated adoption of robots in emerging economies will drive the demand for chips such as edge-AI processors, sensor ICs, and low-power MCUs, enabling vendors to expand into new markets while supporting localized industrial and service robotics applications.

“The food and beverage vertical is projected to grow at a high rate during the forecast period.”

The semiconductor market for robots in the food and beverage (F&B) sector is projected to grow at a high rate due to increasing automation in this industry. Automation is increasingly critical for efficiency, safety, and compliance. Food products vary widely in size, texture, and fragility, requiring robots with advanced precision and adaptability—capabilities enabled by high-speed processors, AI-enabled vision chips, and sensor fusion technologies. At the same time, stringent hygiene standards in food environments demand ruggedized, IP67-rated semiconductors that can withstand extreme conditions such as humidity, freezing temperatures, and frequent chemical washdowns. Major robotics leaders like ABB, Kawasaki, and Doosan are already

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deploying food-grade robots that leverage semiconductors for high-speed sorting, packaging, bottling, sterilization, and even large-scale cooking tasks, proving their versatility across both primary and secondary processing. Moreover, rising consumer demand for diverse SKUs, personalized packaging, and convenience foods is driving the adoption of reprogrammable robotic systems, further increasing reliance on adaptable semiconductor solutions.

“Asia Pacific is expected to witness a high CAGR in the semiconductor market for robots during the forecast period.”

The semiconductor market for robots in Asia Pacific is projected to grow at a high rate due to the region’s massive consumer base, rapid urbanization, and surging demand for service and personal robots. With rising disposable incomes and shifting demographics, including an aging population in Japan, South Korea, and China, there is strong demand for household service robots, healthcare robots, and companion robots, all of which require advanced semiconductor components for sensing, compute, and connectivity. India and Southeast Asia are witnessing a boom in e-commerce, logistics, and warehousing, which is fueling large-scale deployment of delivery drones, autonomous mobile robots, and automated guided vehicles, further boosting semiconductor adoption. Additionally, Asia Pacific is home to some of the largest electronics and smartphone ecosystems, which accelerate technology transfer, cost efficiency, and integration of robotics into consumer and industrial applications. The region’s strong investment in AI, IoT, and smart city projects provides fertile ground for robotics innovation, while the presence of both established semiconductor giants and emerging startups ensures a diverse, scalable supply chain, positioning Asia Pacific for accelerated semiconductor demand in robotics.

Extensive primary interviews were conducted with key industry experts in the semiconductor market for robots space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report is provided below:

The study contains insights from various industry experts, from component suppliers to Tier 1 companies and OEMs. The break-up of the primaries is as follows:

By Company Type: Tier 1–20%, Tier 2–35%, and Tier 3–45%

By Designation: Managers–20%, Directors–30%, and Others–50%

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By Region: North America–30%, Europe–20%, Asia Pacific–40%, and RoW–10%

The report profiles key players in the semiconductor market for robots with their respective market ranking analysis. Prominent players profiled in this report are Texas Instruments Incorporated (US), Infineon Technologies AG (Germany), NXP Semiconductors (Netherlands), STMicroelectronics (Switzerland), Sony Group Corporation (Japan), SAMSUNG (South Korea), NVIDIA Corporation (US), Intel Corporation (US), Advanced Micro Devices, Inc., (US) Hesai Group (China), and Bosch Sensortec GmbH (Germany), among others.

Apart from this, Renesas Electronics Corporation (Japan), Qualcomm Technologies, Inc. (US), TOSHIBA CORPORATION (Japan), Analog Devices, Inc. (US), Microchip Technology Inc. (US), HEIDENHAIN (Germany), MaxBotix (US), SMC Corporation (Japan), ams-OSRAM AG (Austria), ROHM Co., Ltd. (Japan), RoboSense (China), OMNIVISION (US), onsemi (US), and Ouster Inc. (US) are among the few other companies in the semiconductor market for robots.

Research Coverage:

This research report categorizes the semiconductor market for robots based on component, robot type, vertical, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the semiconductor market for robots and forecasts the same till 2030. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the semiconductor market for robots ecosystem.

Key Benefits of Buying the Report

The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall semiconductor market for robots and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

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Analysis of key drivers (Increasing automation across industries, Surge in AI & edge computing in robotics, Adoption of collaborative robots (cobots), and Government and industrial 4.0 initiatives) influencing the growth of the semiconductor market for robots

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the semiconductor market for robots

Market Development: Comprehensive information about lucrative markets – the report analyzes the semiconductor market for robots across varied regions.

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the semiconductor market for robots

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players, such as Texas Instruments Incorporated (US), Infineon Technologies AG (Germany), NXP Semiconductors (Netherlands), STMicroelectronics (Switzerland), Sony Group Corporation (Japan), in the semiconductor market for robots

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