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Global Embodied Intelligence Robot Brain Domain Controller Unit Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

https://marketpublishers.com/r/G6B0BCE4E348EN.html
Date: April 2026
Pages: 133
Price: US$ 3,480.00 (Single User License)
ID: G6B0BCE4E348EN

Abstracts

According to our (Global Info Research) latest study, the global Embodied Intelligence Robot Brain Domain Controller Unit market size was valued at US$ 318 million in 2025 and is forecast to a readjusted size of US$ 1674 million by 2032 with a CAGR of 26.7% during review period.

The essence of embodied intelligence is to endow artificial intelligence with a physical body capable of perceiving and acting in the real world. Among various forms, humanoid robots, due to their inherent compatibility with the human environment, are considered the most promising carrier for realizing general embodied intelligence. Currently, the industry generally adopts a three-layer architecture of 'brain, cerebellum, and body' to deconstruct the humanoid robot system. The core idea of ??this architecture is 'intelligent decoupling,' separating complex cognitive tasks from high-precision real-time control. The 'brain' refers to the large AI model, responsible for language understanding, environmental perception, and advanced task decision-making; the 'cerebellum' is the motion control algorithm, which schedules the robot's coordination and balance, and real-time obstacle avoidance; the 'body' is the hardware carrier, including the skeletal structure, joint motors, sensors, and dexterous hands, responsible for the final execution of actions. Embodied Intelligence Robot Brain Domain Controller Unit is the core computing platform responsible for the robot's overall intelligent perception, decision-making, and control. It integrates key functions such as multi-sensor data fusion, environmental perception, localization and mapping, task planning, behavioral decision-making, and execution control, achieving real-time scheduling and dynamic response to the robot's overall behavior through high-performance AI chips and optimized algorithms. Compared to traditional robot motion controllers, the domain controller not only undertakes the mechanical control tasks of

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joints and actuators, but more importantly, it is responsible for advanced perception, intelligent reasoning, and overall coordination, enabling the robot to autonomously perform tasks in complex environments. In 2025, the global production of Embodied Intelligence Robot Brain Domain Controller Unit was approximately 192,790 units, with an average price of approximately US$1,604 per unit and a gross profit margin of approximately 35.61%.

As the core 'brain-level' component of robotic systems, robot domain controllers are entering a critical window of explosive growth. With the significant increase in demand for high autonomy and intelligent behavior in global smart manufacturing, automated services, security, and medical rehabilitation scenarios, humanoid robots and other embodied intelligent equipment are rapidly moving from research and development to commercial deployment. Breakthroughs in AI computing power and sensor technology have endowed domain controllers with powerful real-time perception and reasoning capabilities, enabling robots to better understand their environment, plan their behavior, and autonomously execute tasks. Simultaneously, policy encouragement and active investment from industrial capital are driving the marketization of robots as a whole and their core intelligent components, creating enormous growth potential for the domain controller market. Despite this promising outlook, the robot domain controller industry still faces numerous challenges. The high technical barriers to entry for high-performance domain controllers, integrating AI inference, high-speed communication, and complex sensor data fusion, result in substantial R&D investment and high product costs, creating entry barriers for small and medium-sized manufacturers. Furthermore, the overall robot ecosystem is still immature, standardization across multiple scenarios is difficult to unify, and control algorithms and safety strategies require long-term validation in real-world environments. Fluctuations in the supply chains of core chips and sensors, as well as global trade frictions, may also put pressure on the supply side, all of which could affect the pace of market expansion. Downstream demand is showing a diversified growth trend. Industry and logistics are the first markets where robot domain controllers will be deployed on a large scale, especially in standardized, high-density operation scenarios such as manufacturing lines and warehousing logistics, where the demand for intelligent scheduling and safe collaboration is strong. With declining costs and improved performance, service robots, human-robot collaborative robots, and home assistance robots are also growing rapidly, enabling domain controllers to expand from high-end research fields to a wider commercial market. Overall, the demand for domain controllers will spread from single industrial scenarios to multi-scenario integration, driving the accelerated upgrading of the entire intelligent robot industry chain.

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Latest research: Current robots contain multiple controllers, including a brain controller, a cerebellum controller, and a chassis controller. To a certain extent, this dispersed hardware module leads to low space utilization and increases the complexity of hardware and software integration, such as wiring connections and system communication, causing difficulties in power supply and heat dissipation. The limited size of robots also restricts their ability to 'think' quickly. With the rapid iteration of large models, the AI ??computing power of the robot's edge chips is insufficient to effectively run the required AI models, especially VLA models (Visual Language Action Models). Using an external high-performance GPU chassis would severely hinder robot movement; while connecting to cloud-based AI computing power via a network makes the robot susceptible to network latency, even failing to function in the event of a network outage.

Robot domain control also requires strong CPU processing power to achieve high-frequency, precise joint movement control. To address this, Joyson Electronics recently launched an integrated 'full-domain controller' chest and chassis assembly for embodied intelligent robots, combining 'cerebellum-cerebellum fusion + power supply + heat dissipation.' Compared to current controller solutions, the chest cavity assembly solution saves over 50% of space, allowing it to be inserted into the robot's chest cavity; compared to the size of an external main unit chassis, the chassis assembly solution saves nearly 45% of space, allowing it to be directly placed into the robot's chassis.

This report is a detailed and comprehensive analysis for global Embodied Intelligence Robot Brain Domain Controller Unit market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Embodied Intelligence Robot Brain Domain Controller Unit market size and forecasts, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Embodied Intelligence Robot Brain Domain Controller Unit market size and forecasts by region and country, in consumption value ($ Million), sales quantity (K

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Units), and average selling prices (US$/Unit), 2021-2032

Global Embodied Intelligence Robot Brain Domain Controller Unit market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Embodied Intelligence Robot Brain Domain Controller Unit market shares of main players, shipments in revenue ($ Million), sales quantity (K Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries
To assess the growth potential for Embodied Intelligence Robot Brain Domain Controller Unit
To forecast future growth in each product and end-use market
To assess competitive factors affecting the marketplace
This report profiles key players in the global Embodied Intelligence Robot Brain Domain Controller Unit market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Tesla (Optimus), Suzhou StellarMind Technology Co., Ltd., SEER Robotics, JOYSON ELECTRONICS, JWIPC TECHNOLOGY, Desay SV, Horizon Robotics, iMotion Technology, Chengdu Apq Science And Technology Co., Ltd., AgiBot, etc.
This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Embodied Intelligence Robot Brain Domain Controller Unit market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Low TOPS

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Medium TOPS

High TOPS

Market segment by Integrated

Cerebral Controller

Integrated Cerebral-Cerebellar Controller

Market segment by Power Consumption

Low Power Consumption

High Power Consumption

Market segment by Application

Robot Dog

Wheeled Humanoid Robot

Bipedal Humanoid Robot

Other

Major players covered

Tesla (Optimus)

Suzhou StellarMind Technology Co., Ltd.

SEER Robotics

JOYSON ELECTRONICS

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JWIPC TECHNOLOGY

Desay SV

Horizon Robotics

iMotion Technology

Chengdu Apq Science And Technology Co., Ltd.

AgiBot

DexForce

Beijing Innovation Center of Humanoid Robotics Co.,Ltd.

UBTech Robotics

Beijing Xingyuan Intelligent Robot Technology Co., Ltd.

Zhejiang Sanhua Intelligent Controls Co.,Ltd.

NIIC

Independent variable: Robotics Technology (Jinan) Co., Ltd

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)
Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)
Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)
South America (Brazil, Argentina, Colombia, and Rest of South America)
Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

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Chapter 1, to describe Embodied Intelligence Robot Brain Domain Controller Unit product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Embodied Intelligence Robot Brain Domain Controller Unit, with price, sales quantity, revenue, and global market share of Embodied Intelligence Robot Brain Domain Controller Unit from 2021 to 2026.

Chapter 3, the Embodied Intelligence Robot Brain Domain Controller Unit competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Embodied Intelligence Robot Brain Domain Controller Unit breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Embodied Intelligence Robot Brain Domain Controller Unit market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Embodied Intelligence Robot Brain Domain Controller Unit.

Chapter 14 and 15, to describe Embodied Intelligence Robot Brain Domain Controller Unit sales channel, distributors, customers, research findings and conclusion.

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