+44 20 8123 2220
info@marketpublishers.com

Industrial Mainboard Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (ATX, Mini ITX, Micro ATX, Nano ITX, Pico ITX, COM Express), By Application (Building Automation, Manufacturing, Military Application, Security & Surveillance, Factory Automation, Transportation, Automotive industry, Medical, Gaming), By Component (CPU, GPU, Chipset, Memory), By Sales Channel (OEM, Aftermarket), By Region, and By Competition, 2018-2028

https://marketpublishers.com/r/I3308BAC7231EN.html
Date: November 2023
Pages: 175
Price: US$ 4,900.00 (Single User License)
ID: I3308BAC7231EN

Abstracts

The Global Industrial Mainboard Market is a vital component of the industrial technology landscape, providing the foundation for reliable and high-performance computing solutions in diverse sectors. Industrial mainboards, often referred to as motherboards or single-board computers, are designed to withstand the demanding conditions of industrial environments, making them essential for automation, manufacturing, energy, transportation, and many other applications.

These mainboards serve as the central nervous system of industrial systems, connecting various components and devices, facilitating data processing, and ensuring seamless operations. They offer a range of features tailored to the industrial sector, such as robustness, extended operating temperature ranges, long product lifecycles, and compatibility with specialized software applications. These characteristics make industrial mainboards well-suited for critical tasks such as process control, data acquisition, monitoring, and more.

+44 20 8123 2220
info@marketpublishers.com

Key drivers of the Global Industrial Mainboard Market include the growing demand for automation, Industry 4.0 initiatives, and the increasing need for reliable computing solutions in industrial settings. Additionally, the rise of the Internet of Things (IoT) has further bolstered the market, as industrial mainboards play a crucial role in connecting devices and collecting data for analysis and decision-making.

Market trends focus on miniaturization, increased processing power, enhanced connectivity options, and growing adoption of embedded systems. Challenges encompass the complexities of managing data security, adapting to evolving industry standards, and addressing the environmental impact of electronic waste.

With North America, Europe, and Asia-Pacific leading the market, the global Industrial Mainboard Market reflects the ongoing digital transformation and technological advancements reshaping industries worldwide. As industrial automation and digitalization continue to gain momentum, the market is expected to grow, offering innovative solutions to meet the evolving needs of the industrial sector.

Key Market Drivers

Rapid Industrial Automation and Industry 4.0 Adoption:

The adoption of Industry 4.0 principles and the drive for increased industrial automation are significant drivers of the Industrial Mainboard market. These technologies require advanced computing capabilities for tasks such as real-time data processing, machine learning, and the Internet of Things (IoT). Industrial mainboards play a pivotal role in supporting these applications, enhancing productivity, efficiency, and data-driven decision-making in various industrial sectors.

Demand for Robust and Reliable Computing Solutions:

Industries such as manufacturing, energy, transportation, and healthcare rely on continuous and uninterrupted operation. Industrial mainboards are designed to withstand harsh environmental conditions, ensuring reliability and longevity. This reliability is a crucial driver, as it reduces downtime, maintenance costs, and the risk of production interruptions.

Expansion of Edge Computing:

+44 20 8123 2220
info@marketpublishers.com

Edge computing involves processing data closer to the data source, reducing latency and enhancing real-time decision-making. Industrial mainboards are a fundamental component of edge computing solutions, supporting data collection, processing, and analytics at the edge. As more industries seek to harness the benefits of edge computing, the demand for high-performance industrial mainboards is growing.

Growth in IoT and IIoT Applications:

The Internet of Things (IoT) and Industrial Internet of Things (IIoT) are transforming the way industries operate. These applications require reliable and powerful computing solutions to manage large volumes of data generated by connected devices and sensors. Industrial mainboards facilitate the connectivity and data processing essential for IoT and IIoT, driving market growth.

Expansion of AI and Machine Learning in Industrial Settings:

Artificial intelligence (AI) and machine learning are being increasingly integrated into industrial processes for predictive maintenance, quality control, and optimization. Industrial mainboards equipped with high-performance processors and GPUs are essential for executing AI and machine learning algorithms. The rising demand for these technologies in manufacturing, healthcare, and logistics sectors propels the market for industrial mainboards.

Customization and Scalability for Specific Applications:

Industrial mainboard manufacturers are offering more customization options, enabling businesses to tailor solutions to their specific industrial applications. This flexibility allows industries to adapt computing solutions to their unique needs, ensuring optimal performance and functionality.

Global Expansion of Smart Manufacturing:

The concept of smart manufacturing, which leverages digital technologies to enhance production and supply chain processes, is expanding globally. Industrial mainboards are key to the implementation of smart manufacturing solutions, providing the computing power required for data analytics, process optimization, and automation.

Renewable Energy and Electric Vehicles (EVs) Growth:

+44 20 8123 2220
info@marketpublishers.com

The renewable energy sector and electric vehicle (EV) production require sophisticated control systems and battery management. Industrial mainboards are essential in these applications, driving market growth as renewable energy adoption and EV production continue to rise.

Key Market Challenges

Complex and Evolving Industry Standards:

The industrial sector encompasses various applications with distinct requirements. As a result, there's no single set of standards governing industrial mainboards. Manufacturers must navigate a complex landscape of standards, protocols, and certifications to ensure their products meet industry-specific requirements. Keeping up with evolving standards and certifications across different regions and applications can be challenging and expensive.

Long Product Lifecycles and Component Obsolescence:

Industrial equipment often has extended product lifecycles, sometimes lasting decades. However, the rapid pace of technological advancement in consumer electronics can lead to the obsolescence of critical components used in industrial mainboards. Manufacturers face the challenge of ensuring the availability of spare parts and supporting legacy systems while incorporating newer technologies.

Cost Pressures and Budget Constraints:

Many industries with industrial applications operate under tight budget constraints. Cost remains a critical factor in the adoption of industrial mainboards. Manufacturers need to balance the need for high-performance and reliable components with the cost-effectiveness required to meet budget constraints. This challenge becomes even more pronounced when developing customized solutions for niche markets.

Environmental and Regulatory Compliance:

Industrial mainboards often operate in demanding environmental conditions, including extreme temperatures, humidity, and exposure to dust and chemicals. Meeting environmental and regulatory requirements, such as RoHS (Restriction of Hazardous Substances), can be a challenge. Manufacturers must ensure their products are compliant while maintaining performance and durability.

+44 20 8123 2220
info@marketpublishers.com

Cybersecurity and Data Protection:

As industrial systems become more interconnected and reliant on data-driven processes, the risk of cyberattacks and data breaches is a growing concern. Industrial mainboards need to incorporate robust cybersecurity features to protect sensitive data and ensure the integrity of industrial operations. This challenge includes keeping up with evolving cybersecurity threats and adapting to new security standards.

Key Market Trends

Increasing Demand for Rugged and Robust Solutions:

Industrial mainboards are witnessing a growing demand for rugged and robust solutions. Industries such as manufacturing, energy, and transportation require components that can withstand harsh environmental conditions, including extreme temperatures, humidity, and vibration. As a result, manufacturers are focusing on producing industrial mainboards with extended temperature ranges, high resistance to shock and vibration, and improved durability.

Advancements in Industrial IoT (IIoT):

The Industrial Internet of Things (IIoT) is transforming the way industries operate and monitor their processes. Industrial mainboards are becoming a critical component for IIoT applications, enabling real-time data processing, connectivity, and control. With the rise of Industry 4.0, there's an increasing need for mainboards that can support a wide range of sensors, communication protocols, and data processing capabilities.

Increased Integration of AI and Machine Learning:

AI and machine learning are finding applications in various industrial sectors, from predictive maintenance in manufacturing to intelligent automation in logistics. This trend is driving the need for industrial mainboards with powerful CPUs, GPUs, and specialized AI accelerators. These mainboards must provide the processing capabilities required for real-time data analysis and decision-making.

Customization and Long Lifecycle Support:

Many industries rely on specialized equipment and systems. Industrial mainboard

+44 20 8123 2220
info@marketpublishers.com

manufacturers are offering customization options to meet the specific requirements of different applications. Additionally, industries with long product lifecycles, such as aerospace and defense, are seeking mainboards with extended lifecycle support and availability to ensure their systems remain operational for many years.

Emphasis on Security and Reliability:

With the increasing connectivity of industrial systems, cybersecurity is a significant concern. Industrial mainboards are incorporating enhanced security features, including hardware-based encryption and secure boot mechanisms, to protect against cyber threats. Reliability is another crucial aspect, as system failures can have severe consequences. To address this, mainboard manufacturers are focusing on designing highly reliable components with redundant features and thorough testing.

Segmental Insights

Type Insights

ATX segment dominates in the global Industrial Mainboard market in 2022. ATX is known for its standard size and layout, making it versatile and compatible with a wide range of industrial applications. It is widely accepted as the industry standard for full-sized mainboards, providing ample room for components and expansion slots.

The ATX form factor typically offers multiple expansion slots, including PCI, PCIe, and DIMM slots. This high degree of expandability is crucial in industrial settings where customization and scalability are essential.

ATX industrial mainboards are compatible with a broad spectrum of processors, memory modules, and peripheral devices. This compatibility simplifies the integration of ATX mainboards into various industrial systems and machinery.

ATX mainboards allow for efficient cooling solutions, such as large heatsinks and multiple fan headers. These are essential in industrial environments where temperature management is critical for stable operation.

ATX mainboards often come equipped with a comprehensive set of features, including multiple SATA connectors, USB ports, networking capabilities, and audio interfaces. These features are crucial for diverse industrial applications, from automation and control systems to data processing and analytics.

+44 20 8123 2220
info@marketpublishers.com

Application Insights

Manufacturing segment dominates in the global Industrial Mainboard market in 2022. In the manufacturing sector, automation is paramount. Industrial mainboards are the backbone of automated systems that control various aspects of production lines, from robotic assembly to quality control. These mainboards provide the necessary computing power and interfaces for sensors and actuators that enable precision and consistency in manufacturing processes.

The Manufacturing segment relies on industrial mainboards to power quality control and inspection systems. These mainboards enable high-speed data processing, image recognition, and measurement accuracy, ensuring that products meet stringent quality standards.

Modern manufacturing processes generate vast amounts of data. Industrial mainboards equipped with powerful processors and extensive storage options are essential for managing and processing this data. These mainboards facilitate real-time data analysis and reporting for process optimization and quality improvement.

Manufacturing environments require seamless communication between various machines and systems. Industrial mainboards support multiple communication interfaces, including Ethernet, USB, and fieldbus protocols, to ensure smooth data exchange and coordination among different parts of the production line.

Manufacturing processes often demand tailor-made solutions to accommodate specific production requirements. Industrial mainboards offer a high degree of configurability and expansion possibilities, allowing manufacturers to adapt their systems as needed.

Regional Insights

North America dominates the Global Industrial Mainboard Market in 2022. North America, particularly the United States, has been at the forefront of technological innovation. The region is home to some of the world's most prominent technology companies, which have developed cutting-edge industrial mainboards and related components. This innovation has given North American manufacturers a competitive edge in the global market.

The United States and Canada have substantial industrial sectors spanning

+44 20 8123 2220
info@marketpublishers.com

manufacturing, energy, transportation, healthcare, and more. These industries have a high demand for industrial mainboards to support automation, data processing, and control systems. This strong industrial base creates a significant domestic market for these products.

North American industries have been quick to embrace Industry 4.0 principles and industrial automation. This adoption has led to a substantial need for high-performance computing solutions such as industrial mainboards, which are essential for implementing smart factories, IoT applications, and data analytics.

The region benefits from significant investments in research and development. This results in the creation of advanced industrial mainboards that meet the rigorous requirements of industries such as aerospace, defense, and healthcare.

Edge computing, which involves processing data closer to the source, is a growing trend. North America's industries are increasingly reliant on edge computing solutions, creating a higher demand for industrial mainboards designed to handle real-time data processing at the edge.

Key Market Players

ASUSTeK Computer Inc.

Gigabyte Technology Co., Ltd.

ASRock Inc.

Super Micro Computer Inc.

Advantech Co., Ltd.

Micro-Star International Co., Ltd.

Biostar

Axiomtek Co., Ltd.

ICP DAS Co., Ltd.

+44 20 8123 2220
info@marketpublishers.com

Kontron AG

Report Scope:

In this report, the Global Industrial Mainboard Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Industrial Mainboard Market, By Type:

ATX

Mini ITX

Micro ATX

Nano ITX

Pico ITX

COM Express

Industrial Mainboard Market, By Application:

Building Automation

Manufacturing

Military Application

Security & Surveillance

Factory Automation

Transportation

Automotive industry

Medical

+44 20 8123 2220
info@marketpublishers.com

Gaming

Industrial Mainboard Market, By Component:

CPU

GPU

Chipset

Memory

Industrial Mainboard Market, By Sales Channel:

OEM

Aftermarket

Industrial Mainboard Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

+44 20 8123 2220
info@marketpublishers.com

Spain

South America

Brazil

Argentina

Colombia

Asia-Pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

Saudi Arabia

UAE

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Industrial Mainboard Market.

Available Customizations:

Global Industrial Mainboard Market report with the given market data, Tech Sci

+44 20 8123 2220
info@marketpublishers.com

Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

+44 20 8123 2220
info@marketpublishers.com

Contents

+44 20 8123 2220
info@marketpublishers.com

8. NORTH AMERICA INDUSTRIAL MAINBOARD MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

9. EUROPE INDUSTRIAL MAINBOARD MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

10. SOUTH AMERICA INDUSTRIAL MAINBOARD MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

11. MIDDLE EAST & AFRICA INDUSTRIAL MAINBOARD MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

12. ASIA PACIFIC INDUSTRIAL MAINBOARD MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Industrial Mainboard Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (ATX, Mini ITX, Micro ATX, Nano ITX, Pico ITX, COM Express), By Application (Building Automation, Manufacturing, Military Application, Security & Surveillance, Factory Automation, Transportation, Automotive industry, Medical, Gaming), By Component (CPU, GPU, Chipset, Memory), By Sales Channel (OEM, Aftermarket), By Region, and By Competition, 2018-2028

Product link: https://marketpublishers.com/r/I3308BAC7231EN.html

Price: US$ 4,900.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/I3308BAC7231EN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms

+44 20 8123 2220
info@marketpublishers.com

& Conditions at https://marketpublishers.com/docs/terms.html

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970