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Logic Integrated Circuits Market Forecasts to 2032 – Global Analysis By Product (Application-Specific Integrated Circuits, Application-Specific Standard Products, Programmable Logic Devices, Field-Programmable Gate Arrays and Other Products), Logic Type, Technology, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Logic Integrated Circuits Market is accounted for $538.87 billion in 2025 and is expected to reach $833.56 billion by 2032 growing at a CAGR of 6.43% during the forecast period. Logic Integrated Circuits (Logic ICs) are semiconductor devices that generate a digital output by applying logical operations to one or more digital input signals. They are essential parts of digital electronics and are utilised in the construction of industrial machinery, mobile gadgets, and computers. Gates like AND, OR, NOT, NAND, NOR, XOR, and XNOR are examples of logic integrated circuits (ICs), as are more intricate components like multiplexers, flip-flops, and counters. Data processing, control systems, and communication all depend on these circuits, which are made with CMOS or TTL technologies.

Market Dynamics:

Driver:

Growing demand for consumer electronics

Advanced logic integrated circuits are necessary for the processing and operation of gadgets such as laptops, tablets, smartphones, and smart home appliances. Manufacturers incorporate high-performance logic integrated circuits (ICs) to suit

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consumer demands for devices that are faster and more efficient. The demand for logic circuits with high reliability and low power consumption is further increased by the growth of IoT-enabled gadgets. Market expansion is also aided by ongoing innovation in game consoles and wearable gadgets. Global demand for logic integrated circuits is generally directly fuelled by growing consumer electronics output.

Restraint:

High design complexity and manufacturing costs

Project expenses will increase as a result of the need for sophisticated tools, knowledge, and verification procedures. Advanced fabrication technologies, which are costly, are also necessary for the production of these intricate ICs. Production costs are further increased by the requirement for specialised machinery and cleanroom settings. It could be difficult for small and medium-sized businesses to make such expensive infrastructure investments. These restrictions consequently restrict market access and impede the growth of the market for logic integrated circuits.

Opportunity:

Expansion of AI and IoT applications

High-speed data processing is necessary for AI algorithms, which increases the need for sophisticated logic integrated circuits. Specialised logic ICs are becoming more and more necessary as IoT devices depend on low-power, efficient chips. High-performance logic circuit usage is also fuelled by AI integration in edge devices. Moreover, logic integrated circuits (ICs) are essential for smooth connectivity and control in smart cities, smart homes, and industrial automation. Global demand for logic integrated circuits is increasing in both volume and complexity as a result of this rising integration.

Threat:

Supply chain disruptions and chip shortages

The supply chain experiences bottlenecks as a result of these disturbances, which restrict the availability of vital components and raw materials. Consequently, semiconductor producers have to deal with longer lead times and decreased output capacity. Additionally, the shortages limit the supply of logic integrated circuits (ICs) for lower-margin applications by forcing manufacturers to prioritise high-margin items.

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Furthermore, erratic pricing and unclear delivery dates deter new project investments. In general, the volatility inhibits market expansion and erodes consumer trust.

Covid-19 Impact

The COVID-19 pandemic disrupted the Logic Integrated Circuits market by causing significant supply chain interruptions, manufacturing halts, and labor shortages. Lockdowns and restrictions led to reduced production capacities and delayed product launches. However, the surge in remote work and digital transformation increased demand for consumer electronics and data centers, partially offsetting the downturn. As economies reopened and semiconductor shortages eased, the market began recovering, supported by rising investments in automation, 5G, and AI-driven applications.

The application-specific standard products segment is expected to be the largest during the forecast period

The application-specific standard products segment is expected to account for the largest market share during the forecast period, due to optimized performance for dedicated functions in high-volume applications. ASSPs reduce design complexity and time-to-market for consumer electronics, automotive systems, and communication devices. Their cost-effectiveness and reliability make them ideal for integration in embedded systems. Growing demand for smart devices and IoT applications boosts the adoption of ASSPs in compact, power-efficient circuits. As industries seek customized yet scalable logic solutions, ASSPs continue to drive market growth and innovation.

The industrial automation & manufacturing segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the es segment is predicted to witness the highest growth rate, due to increasing demand for efficient and high-speed processing systems. Integrated circuits are essential in controlling machinery, sensors, and robotics, ensuring precision and reliability in automated operations. With the rise of Industry 4.0, factories are adopting smart systems that rely heavily on logic ICs for real-time data processing and decision-making. These circuits help reduce downtime and optimize production, improving overall efficiency. Additionally, the growing focus on energy-efficient manufacturing further fuels the adoption of advanced logic ICs.

Region with largest share:

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During the forecast period, the Asia Pacific region is expected to hold the largest market share due to the rising demand for consumer electronics, growing smartphone penetration, and expanding industrial automation. Countries like China, South Korea, and Japan lead due to strong semiconductor manufacturing ecosystems. Additionally, government initiatives supporting digitalization and AI adoption are accelerating market expansion. The region benefits from a high concentration of OEMs and low manufacturing costs, making it a global production hub for logic ICs.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGRby by innovation and technological advancements. The presence of major players, such as Intel and AMD, along with significant investments in R&D and AI, fuels market growth. Demand is high in sectors like aerospace, defense, and data centers. However, compared to Asia Pacific, North America relies more on overseas manufacturing, making its supply chain more vulnerable to global disruptions. Market dynamics here emphasize quality and cutting-edge capabilities over mass production.

Key players in the market

Some of the key players profiled in the Logic Integrated Circuits Market include Intel Corporation, Texas Instruments Inc., Infineon Technologies AG, Broadcom Inc., Analog Devices, Inc., NXP Semiconductors N.V., Renesas Electronics Corporation, Toshiba Electronic Devices & Storage, ON Semiconductor, STMicroelectronics N.V., Microchip Technology Inc., Maxim Integrated Products, Qualcomm Inc., MediaTek Inc., Samsung Electronics Co., Ltd., Marvell Technology Group Ltd., Taiwan Semiconductor Manufacturing Company (TSMC) and Diodes Incorporated.

Key Developments:

In October 2024, TI launched a programmable logic portfolio (TPLDs)—up to 40 logic/analog functions per device with low power and compact packaging (down to 2.56 mm?). This also included the InterConnect Studio no-code configuration tool.

In January 2024, Intel partnered with UMC to co-develop a 12-nanometer process platform aimed at expanding mature-node foundry offerings. The platform will be fabricated at UMC's Taiwan facility, with potential integration into Intel’s internal fabs for wider adoption.

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In January 2024, Intel acquired Silicon Mobility to strengthen its automotive SoC portfolio. The acquisition was unveiled with AI-enhanced EV system-on-chips and an open chiplet platform, aimed at boosting energy efficiency, flexibility, and computing performance in electric vehicles.

Products Covered:

- Application-Specific Integrated Circuits
- Application-Specific Standard Products
- Programmable Logic Devices
- Field-Programmable Gate Arrays
- Complex Programmable Logic Devices
- Digital Signal Processor
- Other Products

Logic Types Covered:

- Digital Logic Chips
- Analog Logic Chips
- Mixed-Signal Logic Chips
- Specialized Logic Chips
- Other Logic Types

Technologies Covered:

- Transistor-Transistor Logic

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Complementary Metal Oxide Semiconductor

Mixed-Signal ICs

End Users Covered:

Consumer electronics

Automotive

Telecommunications & networking

Industrial automation & manufacturing

ICT, aerospace & defense

Healthcare

Other End Users

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

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- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE

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Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical

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presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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