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SerDes Market Forecasts to 2030 – Global Analysis By Product Type (Stand-Alone SerDes and SerDes IP Core), Architecture (Parallel SerDes and Serial SerDes), Component, Data Rate, Channel Count, Power Consumption, Protocol, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global SerDes Market is accounted for $863.5 million in 2024 and is expected to reach $1976.6 million by 2030 growing at a CAGR of 14.8% during the forecast period. A technology called SerDes (Serializer/Deserializer) is used in data transmission to transform parallel data into serial form for effective long-distance communication. At the receiving end, the data is then converted back to parallel. It minimizes power consumption while increasing speed and bandwidth by reducing the number of data lanes needed. SerDes is widely used in applications where quick data transfer is essential, like data centers, high-speed networking, and telecommunications.

According to the Semiconductor Industry Association (SIA), the global semiconductor industry sales reached a record $555.9 billion in 2021, a 26.2% increase compared to 2020.

Market Dynamics:

Driver:

Increasing demand for high-speed data transmission

The increasing demand for high-speed data transmission is driving the SerDes market.

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With the proliferation of data centers, 5G networks, and AI applications, the need for efficient and reliable data transfer solutions has surged. SerDes technology enables high-speed communication between integrated circuits, ensuring better signal integrity and reduced latency. Its adoption is further fueled by advancements in cloud computing and IoT devices.

Restraint:

Power consumption concerns

Power consumption concerns are restraining the growth of the SerDes market. As data rates increase, SerDes devices require more power to maintain performance, which can lead to higher operational costs and thermal management challenges. This issue is particularly critical in applications like data centers and automotive systems, where energy efficiency is a priority. Manufacturers are working on low-power designs, but these solutions often come with trade-offs in cost or performance, which might limit the market growth.

Opportunity:

Rising use in autonomous vehicles

The rising use of SerDes in autonomous vehicles presents significant opportunities for market growth. Autonomous systems rely on high-speed data communication for advanced driver-assistance systems (ADAS), infotainment, and vehicle-to-everything (V2X) communication. SerDes technology ensures seamless data transfer between sensors, cameras, and processing units within vehicles. As the automotive industry shifts toward electrification and autonomy, the demand for robust and efficient SerDes solutions is expected to grow.

Threat:

Regulatory and standardization challenges

Regulatory and standardization challenges pose a threat to the SerDes market. The technology must comply with stringent standards across industries like telecommunications, automotive, and consumer electronics. Variations in regional regulations can complicate product development and delay market entry. Additionally, evolving standards for 5G networks and automotive safety require continuous

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adaptation by manufacturers, increasing costs and complexity.

Covid-19 Impact:

The COVID-19 pandemic had mixed effects on the SerDes market. While disruptions in supply chains and manufacturing delayed projects, the pandemic accelerated digital transformation across industries. Increased reliance on cloud computing, remote work, and online services drove demand for high-speed data transmission solutions like SerDes. As economies recover, investments in 5G infrastructure and data centers are expected to further boost market growth.

The medium-speed (10-25 Gbps) segment is expected to be the largest during the forecast period

The medium-speed (10-25 Gbps) segment is expected to account for the largest market share during the forecast period. This segment addresses the growing demand for reliable data transmission in applications like telecommunications, consumer electronics, and enterprise networking. Medium-speed SerDes solutions balance performance with cost-effectiveness, making them ideal for widespread adoption across industries. Their compatibility with existing infrastructure further supports their dominance in the market.

The automotive OEMs & suppliers segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the automotive OEMs & suppliers segment is expected to witness the highest CAGR due to increasing adoption of advanced driver-assistance systems (ADAS) and autonomous vehicle technologies. Automotive manufacturers require high-performance SerDes solutions to enable seamless communication between sensors, cameras, and processors within vehicles. The shift toward electric vehicles (EVs) further amplifies demand as these systems rely heavily on efficient data transmission technologies.

Region with largest share:

The Asia Pacific region is anticipated to account for the largest market share during the forecast period. Rapid growth in telecommunications, consumer electronics, and data center infrastructure drives regional demand for SerDes technology. Countries like China, Japan, and South Korea are investing heavily in 5G networks and cloud

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computing infrastructure, further boosting adoption rates. The presence of major semiconductor manufacturers also strengthens Asia Pacific's position as a leading region in this market.

Region with highest CAGR:

The Asia Pacific region is anticipated to register the highest growth rate over the forecast period due to increasing investments in advanced technologies like AI, IoT devices, and autonomous vehicles. Rising consumer demand for high-speed connectivity solutions fuels market expansion across industries such as automotive and telecommunications. Additionally, emerging economies like India are also contributing significantly through infrastructure upgrades and technological advancements, which are fueling the market expansion.

Key players in the market

Some of the key players in SerDes Market include Texas Instruments, Broadcom, STMicroelectronics, NXP Semiconductors, Renesas Electronics, ON Semiconductor, ROHM Semiconductor, Maxim Integrated, Cypress Semiconductor, Rambus, Synopsys, Marvell Technology Group, Cadence Design Systems, Lattice Semiconductor, Analog Devices and Microchip Technology.

Key Developments:

In December 2024, NXP Semiconductors is to acquire US SerDes startup Aviva Links for $242.5m in cash. This is important for NXP for advanced driver-assistance systems (ADAS) and in-vehicle infotainment (IVI), such as in-cabin digital cockpits for software-defined vehicles (SDVs) that need highly-asymmetric camera and display networks with high downstream and low upstream bandwidth.

In April 2024, Renesas Electronics Corporation a premier supplier of advanced semiconductor solutions, today expanded its timing solutions portfolio with a new ultra-low 25fs-rms clock solution for wireline infrastructure, data center and industrial applications. The new FemtoClock™ 3 family includes ultra-low jitter clock generators and jitter attenuators with 8 and 12 outputs, enabling high-performance, easy-to-use, and cost-effective clock tree designs for next-generation, high-speed interconnect systems.

In October 2022, ROHM has developed full-HD (1980?1080 pixels) compatible SerDes

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ICs (Serializer: BU18TL82-M, Deserializer: BU18RL82-M) – optimized for multi-screen vehicle displays. ROHM's new BU18RL82-M deserializer can be daisy-chained to enable video transmission over multiple routes – using just a single serializer. Reducing the number of connectors and cables simplifies the video transmission paths – lowering both system costs and failure risks. The new products are also capable of monitoring whether video data is correctly transmitted end-to-end (from the SoC to the displays) by comparing CRC values. This feature supports functional safety in automotive applications.

Product Types Covered:

- Stand-Alone SerDes
- SerDes IP Core

Architectures Covered:

- Parallel SerDes
- Serial SerDes

Components Covered:

- Transmitters
- Receivers
- Physical Coding Sub-block (PCS)
- Clock Data Recovery (CDR)
- Retimers/Redrivers

Data Rates Covered:

- Low-Speed (25 Gbps)

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Channel Counts Covered:

- Single Channel
- Dual Channel
- Quad Channel
- Multi-Channel (>4 Channels)

Power Consumptions Covered:

- Ultra-Low Power (500mW)

Protocols Covered:

- Peripheral Component Interconnect Express (PCIe)
- Serial Advanced Technology Attachment (SATA)
- Ethernet
- Universal Serial Bus (USB)
- Mobile Industry Processor Interface (MIPI)
- High Definition Multimedia Interface (HDMI)
- DisplayPort (DP)

Applications Covered:

- Data Centers & Cloud Computing

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- Optical Communication
- 5G Infrastructure
- Industrial Automation
- High-Performance Computing
- Advanced Driver Assistance Systems (ADAS)
- Vehicle Networks
- Medical Diagnostics & Imaging

End Users Covered:

- Automotive OEMs & Suppliers
- Consumer Electronics Manufacturers
- Telecom & IT Companies
- Aerospace & Defense
- Industrial Manufacturing
- Healthcare Equipment Manufacturers
- Semiconductor Manufacturers

Regions Covered:

- North America
  - US
  - Canada

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- Mexico

Europe

- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

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

South America

- Argentina
- Brazil

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Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

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 2022, 2023, 2024, 2026, and 2030
- 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)

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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 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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