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Global Liquid-cooled RDMA-capable High-speed Ethernet Switch Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Liquid-cooled RDMA-capable High-speed Ethernet Switch market size is expected to reach $ 2262 million by 2032, rising at a market growth of 10.4% CAGR during the forecast period (2026-2032).

A liquid-cooled RDMA-capable high-speed Ethernet switch is a high-bandwidth lossless Ethernet switching device designed for artificial intelligence compute clusters, cloud data centers, and high-performance computing environments. Its core function is to provide low-latency, high-throughput, low-loss, and predictable data transport among GPU servers, AI accelerator nodes, distributed storage systems, and cross-rack networks. These products typically use 400GE, 800GE, or 1.6TbE ports as their primary interface formats and combine RoCE, PFC, ECN, AI ECN, load balancing, telemetry, congestion visualization, and automated operations capabilities to build a lossless or near-lossless network environment suitable for RDMA traffic. Compared with conventional high-speed Ethernet switches, their key distinction lies in the use of cold-plate liquid cooling, immersion liquid cooling, hybrid cooling, or rack-level coolant delivery designs to reduce the thermal density pressure generated by switch ASICs, optical modules, and high-density ports, while improving system energy efficiency and rack deployment density. These products are commonly delivered as fixed-form-factor switches, open-rack switches, liquid-cooled switch trays, network operating system licenses, and cluster networking solutions. Major customers include hyperscale cloud service providers, AI data center operators, internet platforms, high-performance computing institutions, and large enterprise data centers.

Liquid-cooled RDMA-capable high-speed Ethernet switches are evolving from data center networking devices into critical components of artificial intelligence compute

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infrastructure. Large model training and distributed inference impose much higher requirements on GPU-to-GPU communication. Conventional Ethernet switches are often insufficient in congestion control, tail latency, packet-loss recovery, and bandwidth consistency for large-scale parallel computing. As a result, lossless Ethernet switches with RoCE, PFC, ECN, AI ECN, intelligent load balancing, and telemetry capabilities have become important choices for AI cluster deployment. As port speeds move from 400GE to 800GE and 1.6TbE, and switching capacity advances into the 51.2Tbps and 102.4Tbps tiers, the network traffic and thermal load carried by a single device increase significantly. Liquid cooling is therefore moving from an optional configuration to an important design requirement for high-density AI networking. The core competitiveness of these products no longer comes only from port count and switching capacity, but also from the coordination of switch silicon, network operating systems, congestion algorithms, optical and electrical interconnects, thermal architecture, and cluster tuning. Future data center networks will place greater emphasis on end-to-end performance determinism, and devices that can solve bandwidth, latency, power consumption, and operational complexity at the same time will be more likely to win large-scale cluster deployments.

The product technology roadmap is developing through multiple parallel paths. Cold-plate liquid cooling is suitable for integration with existing racks and standardized data center facilities. Immersion liquid cooling is better suited for deployments seeking higher thermal density and stronger facility-level energy efficiency. Hybrid cooling and open-rack coolant delivery are more suitable for full-rack delivery in hyperscale AI clusters. On the networking side, RoCE remains the mainstream Ethernet transport for RDMA. PFC and ECN provide the foundation for lossless control, while AI ECN, global load balancing, congestion telemetry, slow-node detection, and automated configuration are becoming key differentiators for high-end products. On the interconnect side, conventional pluggable optical modules still benefit from deployment maturity, while LPO, NPO, CPO, and short-reach copper interconnects continue to advance around lower power consumption, reduced latency, and improved reliability. On the software side, SONiC, Junos, and vendor-developed operating systems coexist, and customers select technology paths based on openness, stability, operational tools, ecosystem compatibility, and cluster scale. Overall, the industry is unlikely to be dominated by a single technical architecture. Instead, multiple product combinations will emerge around different deployment scales, power budgets, rack standards, and network architectures.

Market demand will continue to be driven by AI compute clusters and will gradually expand into cloud data centers, high-performance computing, converged storage, and data center interconnect. Large cloud service providers and internet platforms are

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typically the earliest adopters of high-end liquid-cooled RDMA switches because their training clusters are large, network utilization is high, power costs are sensitive, and requirements for cluster expansion efficiency and fault localization are stringent. AI data center operators and compute leasing platforms place greater emphasis on delivery cycles, rack-level energy efficiency, operational visibility, and compatibility with mainstream AI servers. High-performance computing institutions place more weight on low latency, deterministic forwarding, and long-term stable operation. As liquid-cooled servers, liquid-cooled racks, and high-power AI accelerators become more widely adopted, liquid cooling for switches will advance in parallel with full-rack infrastructure. Future competition will shift from standalone product sales toward complete networking solutions, software subscriptions, operations platforms, and ecosystem lock-in. Vendors with strong product validation capabilities, scaled delivery capabilities, and cross-hardware-and-software coordination will be more likely to establish long-term customer relationships.

This report studies the global Liquid-cooled RDMA-capable High-speed Ethernet Switch production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Liquid-cooled RDMA-capable High-speed Ethernet Switch and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Liquid-cooled RDMA-capable High-speed Ethernet Switch that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch total production and demand, 2021-2032, (Units)
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch total production value, 2021-2032, (USD Million)
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Liquid-cooled RDMA-capable High-speed Ethernet Switch domestic production, consumption, key domestic manufacturers and share
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch production by manufacturer, production, price, value and market share 2021-2026, (USD Million) &

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(Units)
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch production by Port Speed, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Liquid-cooled RDMA-capable High-speed Ethernet Switch production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Liquid-cooled RDMA-capable High-speed Ethernet Switch market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include NVIDIA Corporation, Huawei Technologies Co., Ltd., H3C Technologies Co., Limited, Ruijie Networks Co., Ltd., Super Micro Computer, Inc., Celestica Inc., Hewlett Packard Enterprise Company, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Liquid-cooled RDMA-capable High-speed Ethernet Switch market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (US$/Unit) by manufacturer, by Port Speed, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Liquid-cooled RDMA-capable High-speed Ethernet Switch Market, By Region:

United States

China

Europe

Japan

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South Korea

ASEAN

India

Rest of World

Global Liquid-cooled RDMA-capable High-speed Ethernet Switch Market, Segmentation by Port Speed:

100G Primary Port Switch

400G Primary Port Switch

1.6T Primary Port Switch

Others

Global Liquid-cooled RDMA-capable High-speed Ethernet Switch Market, Segmentation by Switching Capacity:

10T-Class and Below Switch

51.2T-Class Switch

102.4T-Class Switch

Others

Global Liquid-cooled RDMA-capable High-speed Ethernet Switch Market, Segmentation by Port Density:

56-Port-Class Switch

64-Port-Class Switch

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128-Port-Class Switch

Others

Global Liquid-cooled RDMA-capable High-speed Ethernet Switch Market, Segmentation by Application:

AI Computing

Cloud Data Center

Converged Storage

Others

Companies Profiled:

NVIDIA Corporation

Huawei Technologies Co., Ltd.

H3C Technologies Co., Limited

Ruijie Networks Co., Ltd.

Super Micro Computer, Inc.

Celestica Inc.

Hewlett Packard Enterprise Company

Key Questions Answered:
1. How big is the global Liquid-cooled RDMA-capable High-speed Ethernet Switch market?
2. What is the demand of the global Liquid-cooled RDMA-capable High-speed Ethernet

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Switch market?
3. What is the year over year growth of the global Liquid-cooled RDMA-capable High-speed Ethernet Switch market?
4. What is the production and production value of the global Liquid-cooled RDMA-capable High-speed Ethernet Switch market?
5. Who are the key producers in the global Liquid-cooled RDMA-capable High-speed Ethernet Switch market?
6. What are the growth factors driving the market demand?

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