Global AI Infrastructure Market

Market Research Report | 2025-12-26 | 273 pages | BCC Research

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Report description:

Description

Report Scope
This report analyzes the advances in the global market for AI infrastructure. It segments the market into component infrastructure; network infrastructure; storage infrastructure; and support infrastructure.
- Component infrastructure: Hardware, including graphics processing units (GPUs), application-specific integrated circuits (ASICs), and field-programmable gate arrays (FPGAs), AI compute clusters, and software
- Network infrastructure: Switches, routers, network interface cards (NICs) and software.
- Storage infrastructure: Storage systems, including direct-attached storage (DAS), storage area networks (SANs), and network-attached storage (NAS); storage media, including hard disk drives (HDDs) and solid-state drives (SSDs).
- Support infrastructure: Power systems, including uninterruptible power supplies (UPS), energy storage systems (ESS), and backup generation; onsite/renewable generation and advanced cooling systems, which include onsite/renewable generation, air cooling, liquid cooling and immersion cooling), physical access control (PAC) systems and physical identity and access management (PIAM) systems; video surveillance, and fire and life safety), and data center infrastructure management (DCIM).

The report also segments the market by end-use industry, including cloud service providers, BFSI, IT and telecom, healthcare, manufacturing, retail and e-commerce, media and entertainment, and government organizations.
The study also analyzes the market by region: the Americas, Europe, Asia-Pacific, and the Middle East and Africa (MEA). This report focuses on emerging technologies, patents, leading companies' strategies, market shares, and environmental, social and governance (ESG) initiatives, and macroeconomic factors, including economic growth, global interest rates, and the cost of capital.
It also includes global revenue ($ millions) for the base year 2024, estimated data for 2025, and projections of compound annual growth rates (CAGRs) for the period of 2025 through 2030. All market values are in U.S. dollars ($ millions).
Report Includes
- 143 data tables and 55 additional tables

- An overview of the global market for AI infrastructure
- In-depth analysis of global market trends, featuring historical revenue data for 2024, estimated figures for 2025, as well as forecasts for 2026 and 2029. This analysis includes projections of compound annual growth rates (CAGRs) through 2030
- Evaluation of the current market size and revenue growth prospects specific to the AI infrastructure market, accompanied by a market share analysis by component infrastructure, network infrastructure, storage infrastructure, support infrastructure, end-use industry, and region
- Analysis of current and future demand in the AI infrastructure market, along with a detailed analysis of the competitive environment, market regulations and reimbursement practices
- Analysis of drivers, challenges and opportunities affecting market growth
- Coverage of evolving technologies, the current and future market potential, R&D activities, growth strategies, new product pipeline, regulatory framework and reimbursement scenarios, and ESG trends of the market
- Market share analysis of the key market participants, along with their research priorities, product portfolios, global rankings and competitive landscape
- Profiles of major companies within the industry, including Nvidia Corp., Alphabet Inc. (Google), Amazon Web Services Inc., Microsoft, Advanced Micro Devices Inc.

Executive Summary

Summary:

The global market for artificial intelligence (AI) infrastructure is expected to grow from $158.3 billion in 2025 and is projected to reach $418.8 billion by the end of 2030, at a compound annual growth rate (CAGR) of 21.5% during the forecast period of 2025 to 2030.

Technological Advances and Applications

Technological advances in the AI infrastructure market involve innovations in highly specialized hardware. The computational demands of large language models (LLMs) and other complex AI algorithms have necessitated a shift away from general-purpose processors toward specialized GPUs, which excel at the parallel processing required for deep learning, as well as ASICs such as Google's tensor processing units (TPUs) and custom chips from major hyperscalers. These custom chips are optimized for specific AI tasks -- either model training or inference -- through features such as lowprecision arithmetic and optimized on-chip memory access, which dramatically improve the speed and energy efficiency required to handle the power consumption demands of today's AI data centers.

Enhanced processing power fuels the development and scaling of generative AI applications, from creating hyper-realistic content to deploying AI agents capable of complex reasoning and multi-step workflows in enterprise environments. Furthermore, technological advances are driving the shift to edge AI, where inference and real-time processing are performed closer to the data source, such as on factory floors, in autonomous vehicles, or via IoT devices. This is enabled by more efficient, lower-power AI accelerators that can be seamlessly integrated with 5G networks, thereby reducing latency. This capability allows for instantaneous decision-making in safety-critical systems, predictive maintenance in manufacturing, and personalized customer experiences in various industries.

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