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Generative AI Server Market by Processor Type (GPU, FPGA, ASIC), Function (Training, Inference), Form Factor (Rack-mounted Server, Blade Server, Tower Server), Deployment (On-premises, Cloud), Cooling Technology, End User - Global Forecast to 2030

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Abstracts

The generative AI server market is anticipated to grow from USD 103.92 billion in 2025 to USD 448.60 billion by 2030, at a CAGR of 34.0% between 2025 and 2030. Enterprises are increasingly deploying generative AI for applications such as content creation, customer service automation, drug discovery, and personalized marketing. This widespread adoption is significantly increasing demand for high-performance AI servers capable of handling intensive workloads.

“Cloud deployment will hold the largest market share.”

Cloud deployment is expected to hold the largest market share in the generative AI server market by 2030 due to its unmatched scalability, flexibility, and cost efficiency. Generative AI workloads—such as large language models, image generation, and real-time inference—require massive computational power that is often impractical for enterprises to maintain on-premises. Cloud platforms enable organizations to access high-performance GPU- and ASIC-based servers on demand, eliminating heavy upfront capital investments. Additionally, leading cloud service providers like Amazon Web Services, Microsoft Azure, and Google Cloud continuously invest in advanced AI infrastructure, including specialized AI chips, high-speed networking, and liquid-cooled data centers. This ensures enterprises can leverage cutting-edge capabilities without managing complex hardware. Cloud deployment also supports seamless updates, rapid model deployment, and integration with AI development tools, accelerating time-to-market. As data volumes grow and AI adoption expands across industries, the cloud’s

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ability to deliver elastic, high-performance infrastructure will solidify its dominant position in the generative AI server market by 2030.

“Enterprises are estimated to record the highest CAGR during the forecast period.”

The enterprises segment is projected to register the highest CAGR in the generative AI server market due to the rapid acceleration of AI adoption across business operations. Enterprises are increasingly integrating generative AI into functions such as customer support, software development, marketing automation, and decision-making, creating strong demand for high-performance server infrastructure. Unlike early adoption led by hyperscalers, enterprises are now moving from pilot projects to full-scale deployment of AI models, including large language models and domain-specific AI systems. This transition significantly increases the need for scalable compute, storage, and networking capabilities. Additionally, enterprises often require customized and secure environments, driving investments in dedicated or hybrid AI server deployments. The growing focus on data privacy and regulatory compliance is another key factor, as enterprises prefer controlled environments for sensitive data processing. This is encouraging the adoption of private cloud and on-premise AI servers alongside public cloud usage. Furthermore, industries such as BFSI, healthcare, manufacturing, and retail are leveraging generative AI for competitive advantage, boosting infrastructure demand. As digital transformation intensifies and AI becomes central to enterprise strategy, the enterprise segment is expected to witness the fastest growth rate in the generative AI server market.

“Asia Pacific is expected to grow at the highest CAGR during the forecast period.”

Asia Pacific is expected to register the highest CAGR in the generative AI server market due to a strong combination of digital expansion, government support, and rising enterprise AI adoption. Countries such as China, India, Japan, and South Korea are witnessing rapid growth in data generation, cloud adoption, and AI-driven applications, creating significant demand for high-performance AI servers. Governments across the region are actively promoting AI development through national strategies, funding programs, and digital infrastructure investments. For instance, China’s AI development plans and India’s digital initiatives are accelerating the deployment of AI workloads across sectors. This policy support is encouraging both domestic innovation and foreign investments in AI infrastructure. Additionally, the expansion of hyperscale data centers and the increasing presence of global cloud providers such as Amazon Web Services,

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Microsoft Azure, and Google Cloud are boosting regional capacity for generative AI workloads. Moreover, a large developer base, growing startup ecosystem, and increasing enterprise digitalization are driving widespread adoption of generative AI solutions. As businesses scale AI deployments across industries, the demand for advanced server infrastructure in the Asia Pacific is expected to grow at the fastest pace globally.

Extensive primary interviews were conducted with key industry experts in the generative AI server to determine and verify the market size for various segments and subsegments gathered through secondary research. The breakdown of primary participants for the report is provided below:

The study contains insights from various industry experts, from component suppliers to Tier 1 companies and OEMs. The break-up of the primaries is as follows:

By Company Type: Tier 1–50%, Tier 2–20%, and Tier 3–30%

By Designation: C-level–20%, Directors–30%, and Others–50%

By Region: North America–40%, Europe–20%, Asia Pacific–30%, and RoW–10%

The report profiles key players in the generative AI server market with their respective market ranking analysis. Prominent players profiled in this report are Dell Inc. (US), Hewlett Packard Enterprise Development LP (US), Lenovo (China), Huawei Technologies Co., Ltd. (China), IBM (US), Super Micro Computer, Inc. (US), INSPUR Co., Ltd. (China), H3C Technologies Co., Ltd. (China), Cisco Systems, Inc. (US), Fujitsu (Japan), among others.

Research Coverage:

This research report categorizes the generative AI server market based on processor type, function, cooling technology, form factor, deployment, end user, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the generative AI server market and forecasts the same till 2030. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the generative AI server market ecosystem.

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Key Benefits of Buying the Report

The report will help the market leaders/new entrants in this market with information on the closest approximations of the numbers for the overall generative AI server market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights into the following pointers:

Analysis of key drivers (Rising Adoption of Generative AI Applications), restraints (High Infrastructure Costs), opportunities (Emerging Demand in Enterprises), and challenges (Data Privacy, Sovereignty & Regulatory Hurdles)

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and product launches in the generative AI server market

Market Development: Comprehensive information about lucrative markets–the report analyzes the generative AI server market across varied regions

Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the generative AI server market

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players, such as Dell Inc. (US), Hewlett Packard Enterprise Development LP (US), Lenovo (China), Huawei Technologies Co., Ltd. (China), and IBM (US), in the generative AI server market.

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