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Global Data Center GPU Market Size Study, by Deployment (On-Premises, Cloud), by Function, by End-Use, and Regional Forecasts 2022-2032

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Abstracts

The Global Data Center GPU Market was valued at approximately USD 14.87 billion in 2023 and is anticipated to expand at a CAGR of 28.5% over the forecast period from 2024 to 2032. The exponential growth in AI-driven applications, cloud computing, and deep learning technologies has significantly fueled the demand for high-performance computing (HPC) solutions, where GPUs (Graphics Processing Units) play a crucial role. With businesses and enterprises increasingly shifting to cloud infrastructure, real-time data analytics, and high-speed computing, the data center GPU market is set to witness a robust expansion.

The escalating adoption of machine learning, AI-based workloads, and blockchain processing has intensified the need for advanced GPU architectures that deliver enhanced computational efficiency. Enterprises are integrating data center GPUs to accelerate workloads such as image processing, large-scale simulations, autonomous computing, and virtual desktop infrastructure (VDI). Furthermore, the proliferation of gaming, metaverse applications, and real-time rendering is driving demand for cloud-based GPU solutions. However, high initial investment costs, power consumption constraints, and compatibility challenges with legacy systems pose potential obstacles to market expansion.

From a regional standpoint, North America dominates the data center GPU market, driven by the presence of major cloud service providers, AI research hubs, and advanced data center infrastructures. The United States leads in GPU-powered AI adoption, with key players such as NVIDIA, AMD, and Intel heavily investing in HPC and AI-driven innovations. Meanwhile, Asia Pacific is projected to experience the fastest growth, fueled by rising investments in hyperscale data centers, AI research, and the

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expansion of cloud computing in China, India, and Japan. Additionally, Europe is witnessing increased adoption of cloud-based GPU solutions, propelled by regulatory compliance, growing digital transformation initiatives, and enterprise-level AI deployments.

Major Market Players Included in This Report Are:

NVIDIA Corporation

Advanced Micro Devices, Inc. (AMD)

Intel Corporation

Qualcomm Technologies, Inc.

Google LLC

Microsoft Corporation

Amazon Web Services (AWS)

IBM Corporation

Alphabet Inc.

Cisco Systems, Inc.

Huawei Technologies Co., Ltd.

Arm Holdings

Oracle Corporation

Graphcore Limited

Tenstorrent Inc.

The Detailed Segments and Sub-Segments of the Market Are Explained Below:

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By Deployment:

- On-Premises
- Cloud

By Function:

- AI & Deep Learning
- Graphics Rendering
- High-Performance Computing (HPC)
- Blockchain Processing
- Others

By End-Use:

- IT & Telecom
- BFSI
- Healthcare
- Gaming & Entertainment
- Government & Defense
- Energy & Utilities
- Others

By Region:

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North America:

U.S.

Canada

Europe:

UK

Germany

France

Spain

Italy

Rest of Europe

Asia Pacific:

China

India

Japan

Australia

South Korea

Rest of Asia Pacific

Latin America:

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Brazil

Mexico

Middle East & Africa:

Saudi Arabia

South Africa

Rest of Middle East & Africa

Years Considered for the Study Are as Follows:

Historical Year – 2022

Base Year – 2023

Forecast Period – 2024 to 2032

Key Takeaways:

Market estimates & forecasts for 10 years from 2022 to 2032.

Annualized revenue and regional-level analysis for each market segment.

In-depth insights into AI-powered computing, cloud adoption trends, and HPC advancements.

Competitive landscape analysis, including company profiles, investments, and key strategic developments.

Assessment of regulatory impacts, power efficiency trends, and evolving GPU architectures.

Actionable recommendations for data center operators, cloud service providers,

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and enterprises investing in AI and deep learning infrastructure.

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Contents

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CHAPTER 4. GLOBAL DATA CENTER GPU MARKET INDUSTRY ANALYSIS

CHAPTER 5. GLOBAL DATA CENTER GPU MARKET SIZE & FORECASTS BY DEPLOYMENT 2022-2032

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CHAPTER 9. COMPETITIVE INTELLIGENCE

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CHAPTER 10. RESEARCH PROCESS

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