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Global Data Center 800V DC Power Supply System Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Data Center 800V DC Power Supply System market size is expected to reach $ 672 million by 2032, rising at a market growth of 10.5% CAGR during the forecast period (2026-2032).

A Data Center 800V DC Power Supply System is an emerging power infrastructure architecture designed for high-density AI servers, high-performance computing clusters, and megawatt-scale IT racks. The system centrally or distributively converts incoming medium- or low-voltage AC power into approximately 800V DC and delivers it to computing racks through DC busways, power sidecars, protection devices, and distribution networks. Rack-level DC/DC converters subsequently step the voltage down to 48V, 12V, or lower point-of-load voltages required by processors and accelerators. Compared with conventional AC distribution and 48V DC architectures, an 800V DC system reduces transmission current, conductor losses, copper requirements, and intermediate power-conversion stages while improving power efficiency, rack-space utilization, and scalability for high-density computing loads. A typical system includes AC/DC rectifiers, 800V DC busways, DC switching and protection equipment, rack-level DC/DC converters, monitoring and control systems, and battery or supercapacitor-based energy storage, and may be deployed through centralized facility-level, row- or sidecar-level, or modular rack-level configurations.

The Data Center 800V DC Power Supply System market remains at an early stage of commercialization, and leading suppliers generally provide project-specific quotations based on system capacity, bus architecture, redundancy level, energy-storage configuration, protection scheme, and site installation requirements. As a result, standardized catalog pricing has not yet been established. For sidecar-based or modular systems designed for high-density AI racks with capacities ranging from

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approximately 400 kW to 1.2 MW, equipment-level pricing in 2026 is estimated at around US$300?700 per kW when the scope includes AC/DC rectifier modules, an 800V DC bus, DC protection devices, and control systems, but excludes upstream transformers, civil works, and in-rack DC/DC converters. On this basis, an 800 kW system may cost approximately US$240,000?560,000, while a 1.2 MW system may cost around US$360,000?840,000. When N+1, 2N, or multi-bus redundancy, lithium-ion batteries, supercapacitors, solid-state DC circuit breakers, busways, and on-site commissioning services are included, the total delivered system price may increase to approximately US$600?1,200 per kW. Because the 800VDC supply chain has not yet reached full scale, high-voltage power-conversion and DC protection components remain relatively expensive, and project customization is substantial, early-stage system prices are expected to remain higher than those of mature conventional AC power architectures. However, unit pricing is likely to decline as AI data-center deployment expands, system designs become more standardized, and manufacturing volumes increase.

The global Data Center 800V DC Power Supply System market is currently transitioning from technology development and ecosystem formation toward early commercial deployment, primarily driven by generative AI, large-model training, high-performance computing, and rapidly increasing rack power density. As next-generation GPU platforms and AI clusters move toward several hundred kilowatts or even megawatt-scale power per rack, conventional AC and 48V DC architectures face growing challenges related to high current, copper consumption, space requirements, heat generation, and conversion losses. This is accelerating the development of 800V DC rectifiers, power sidecars, busways, protection equipment, DC/DC converter modules, and energy-storage solutions. NVIDIA is working with Vertiv, Eaton, Schneider Electric, and other power-infrastructure suppliers to establish an 800V DC ecosystem, with certain platforms and product portfolios expected to enter the market from the second half of 2026 through 2027 alongside next-generation AI computing systems. In the near term, sidecar-based and modular 800V DC solutions are expected to support upgrades of existing data centers, while centralized facility-level 800V DC distribution is likely to become an important long-term architecture for newly constructed hyperscale AI data centers. However, DC fault protection, grounding, interoperability, technical standards, workforce readiness, and initial capital costs remain key constraints on widespread adoption.

This report studies the global Data Center 800V DC Power Supply System production, demand, key manufacturers, and key regions.

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This report is a detailed and comprehensive analysis of the world market for Data Center 800V DC Power Supply System 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 Data Center 800V DC Power Supply System that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Data Center 800V DC Power Supply System total production and demand, 2021-2032, (Units)
Global Data Center 800V DC Power Supply System total production value, 2021-2032, (USD Million)
Global Data Center 800V DC Power Supply System production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Data Center 800V DC Power Supply System consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Data Center 800V DC Power Supply System domestic production, consumption, key domestic manufacturers and share
Global Data Center 800V DC Power Supply System production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Data Center 800V DC Power Supply System production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Data Center 800V DC Power Supply System production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Data Center 800V DC Power Supply System 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 Vertiv, Eaton, Schneider Electric, Siemens, ABB, Hitachi Energy, GE Vernova, Mitsubishi Electric, Delta Electronics, 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 Data Center 800V DC Power Supply System market

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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 Type, 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 Data Center 800V DC Power Supply System Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Data Center 800V DC Power Supply System Market, Segmentation by Type:

Single-Bus Architecture

Dual-Bus Architecture

Multi-Bus Redundant Architecture

Global Data Center 800V DC Power Supply System Market, Segmentation by In-Rack Voltage Conversion Path:

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800V-to-48V Architecture

800V-to-12V Architecture

Others

Global Data Center 800V DC Power Supply System Market, Segmentation by Application:

AI Data Center

High-Performance Computing (HPC)

Cloud Computing and Enterprise Data Center

Others

Companies Profiled:

Vertiv

Eaton

Schneider Electric

Siemens

ABB

Hitachi Energy

GE Vernova

Mitsubishi Electric

Delta Electronics

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Key Questions Answered:

1. How big is the global Data Center 800V DC Power Supply System market?
2. What is the demand of the global Data Center 800V DC Power Supply System market?
3. What is the year over year growth of the global Data Center 800V DC Power Supply System market?
4. What is the production and production value of the global Data Center 800V DC Power Supply System market?
5. Who are the key producers in the global Data Center 800V DC Power Supply System market?
6. What are the growth factors driving the market demand?

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