High-power AI server power supply

Overview

The GPU, which supports 48 V, has changed the output of PSU from 12 V to 48/54 V and has become the mainstream in the market. Lite-on advocate single PSU power levels to rise to 5. GaN and SiC devices are the best solutions to. The ever-increasing power demand driven by AI data centers is forcing an expedited evolution of power supply units (PSUs) designs, growing from 800 W to an astounding 12 kW, with projections heading to 3-phases designs. The rise of artificial intelligence (AI) has significantly increased computing. utions that adhere to strict standards. 5~8 kW in 2025 due to AI server applications. In collaboration with NVIDIA, Infineon will develop the next generation of power systems based on a new architecture with centralized power generation through 800V high-voltage direct current. Global AI High Power Server Power Supply Market 2026 AI High Power Server Power Supply Market Size, Share & Industry Analysis, By Power Rating (3kW to 5. 5kW), By Cooling Method (Air Cooling, Liquid Cooling) and Regional Forecast 2026-2032.

Article Content

How to Choose an AI Server Power Supply Unit (PSU)?

Therefore, the PSU inside an AI server must supply more power than regular servers to drive these high-performance components, while also ensuring

Meeting the Demanding Energy Needs of AI Servers

Utilizing high-efficiency MOSFETs, sophisticated gate drivers and dsPIC DSCs equipped with high-performance and advanced peripherals enables

A New Generation of GaN Devices to Meet AI Server

Conclusion Fulfilling the power demands of massive AI workloads, complying with the established CRPS form factor, and meeting 80 PLUS

Revolutionizing High Power Server PSU:

To support GPUs, AI servers require 3~10 times higher power than traditional servers The GPU, which supports 48 V, has changed the output of PSU from 12 V to 48/54 V and has become the

High-Density Power for the AI Revolution

An AI data center server power supply built using devices such as GaNSafe can achieve significantly better performance and support enhanced system safety and reliability versus a unit that utilizes

12KW high frequency and high power density PSU for AI data centers

The growing demand for power in AI applications has created a pressing need for power conversion solutions that are both highly efficient and compact. To support the development of next-generation

High-Voltage Data Centers: AI Driving 48V and Beyond

The proliferation of AI has significantly reshaped data center infrastructure, pushing the limits of power systems to meet unprecedented

Infineon: Architecture for power supply in AI servers of the future ...

The new system architecture significantly improves energy-efficient power distribution in the data center and enables power conversion directly at the AI chip (Graphic Processing Unit, GPU) within the server.

POWER ICs FOR AI SERVERS Selector Guide

High Efficiency, Compact DC/DC Regulators Optimize Power Delivery ited for AI server power architectures. Models such as the SiC461, SiC431, and SiC450 offer wide input voltage ranges, high

Powering AI data centers: the role of power supply

Discover how AI features like "Hey Siri" rely on powerful data centers. Learn about the technology behind smart factories and the importance

Meeting AI Demands With SiC and GaN Power Supplies

New architectures and AC-DC distribution configurations are increasing demand for data center rack and PSU power, necessitating more processing power. This article examines some

Introducing the New High-Power ATE Power Supplies | Keysight

Learn how to new Keysight high-power ATE system power supplies deliver superior density paired with robust automation software not available from any other vendor – so engineers can validate complex

Meeting the AI Data Center Power Challenge

When operating hyperscale AI data centers, 120 kW of rack power is required. The efficiency to convert grid power to the voltage for the GPUs is about 88%, so it produces 15 kW of wasted heat that must

Infineon: Architecture for power supply in AI servers of

May 20, 2025. Infineon Technologies AG is revolutionizing the power architecture required for future AI data centers. In collaboration with NVIDIA, Infineon will

A New Generation of GaN Devices to Meet AI Server Power Demands

As server power demand is set to increase 2x-3x, designers now face an even tougher challenge to satisfy the demands for greater power delivery and significantly higher efficiency within the CRPS

Meeting the Demanding Energy Needs of AI Servers with Advanced ...

Explore how innovations in power devices, gate drivers, and DSP-based controllers tackle AI servers'' high energy demands, optimizing efficiency in data centers.

8KW high frequency and high power density PSU for AI data centers

Scope and purpose This document introduces a new, complete power supply unit (PSU) for AI data centers and servers.

Global AI High Power Server Power Supply Market 2026

Between 2024 and 2026, strategic momentum in AI high power server power supplies increasingly centered on enabling higher power density and better thermal/electrical performance for

AI PSU | Infineon Technologies

The ever-increasing power demand driven by AI data centers is forcing an expedited evolution of power supply units (PSUs) designs, growing from 800 W to an astounding 12 kW, with projections heading

Revolutionizing High Power Server PSU:

Hybrid TCM/CCM control strategy offers a comprehensive approach, combining the strengths of both modes to achieve higher efficiency, performance, and reliability in high-power AI server PSUs.

Global AI High Power Server Power Supply Market 2026

The AI High Power Server Power Supply Market was valued at USD 5.60 Billion in 2025 and is projected to reach USD 19.53 Billion by 2032, growing at a CAGR of 19.5%.

Powering AI Hardware

Powering the Next Generation of AI Hardware Partner with engineering teams to invent next gen solutions Nimble product development process allows customers

Contact Us

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