New AC-DC power supply for supercomputing centers

Overview

Munich, Germany – 10 September 2025 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) is introducing a 12 kW reference design for high-performance power supply units (PSUs), specifically designed for AI data centers and server applications. The explosive growth of AI and its consequent hardware evolution have brought a dramatic increase in power levels of data center IT racks – up to several hundred kW already today. Wide-bandgap (WBG) devices, including gallium nitride (GaN) and silicon carbide (SiC), o!er the potential for up to a 1% e”ciency improvement in applications su h as state-of-the-art two-stage ac-dc. Future Nvidia high-compute-density racks will use 800-volt DC power distribution. Last week's Nvidia GTC conference highlighted new chip architectures to power AI. The power-delivery. ST logo is a trademark or a registered trademark of STMicroelectronics International NV or its affiliates in the EU and/or other countries. All other product or service names are the property of their respective. Infineon's reference design for high-power data center power supplies employs advanced power-conversion topologies in both the AC-DC and DC-DC power stages.

Article Content

Sep 29, 2025

(PDF) Research on AC & DC hybrid power supply

Therein, a multi-port power electronic transformer is used to realise AC & DC multi-level mixing system with high proportion of variety of distributed

Jul 29, 2025

News Center

At Supercomputing 2024, Delta will present a range of innovations designed to optimize power delivery, enabling data centers to meet the growing power demands of AI while minimizing

Dec 16, 2025

12-kW High-Density PSU Ref Design Aimed at AI Data

A new 12-kW reference design for high-performance power-supply units (PSUs) from Infineon Technologies is specifically designed for AI data centers and server

Aug 14, 2025

How Next-Gen AI Data Centers Are Optimizing Power

To address this, data centers are exploring the integration of both high-efficiency AC and 400V DC rack power distribution by leveraging mSiC™

Jun 25, 2026

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

May 14, 2026

High-Voltage DC: The Power Solution for AI Data Centers

New power architectures with integrated control systems are essential for managing AI''s massive energy demands in data centers, writes Brent McDonald.

Jan 07, 2026

New AC & DC hybrid power supply system

The new AC & DC hybrid power supply system contains the use of renewable energy such as photostatic power generation, wind turbine power generation, and solar thermal power generation,

Apr 02, 2026

New AC & DC hybrid power supply system and its

This paper designs a new AC & DC hybrid power supply system for data centres, which includes photostatic power generation, wind power

Mar 23, 2026

Extended Smart-Link Quasi-Single-Stage 3-Phase AC-DC Power

ntil recently, three-phase ac-dc converters are now the preferred choice due to higher power levels. This configuration supplies a 50 V bac plane power bus of each CPU/GPU rack, providing up to 25 kW for

Jul 06, 2025

TIP technical series | Edition 15 | Direct and alternating power supply ...

As long as the product-technical expense for the individual components in AC and DC power supply systems remains disregarded and the eficiency of the latest state-of-the-art equipment and systems

Jan 29, 2026

Current Debate: Will the Data Center of the Future Be

As AI transforms data centers, the industry revisits a fundamental question: is AC or DC power better suited for tomorrow''s high-density computing

Jun 27, 2025

Power Architecture Evolution in Data Centers

To meet the megawatt-scale power demands of modern AI data centers, this work presents an overview of the new high-voltage architecture as it is evolving according to the latest power demands from the

Oct 23, 2025

TI''s new power-management solutions enable scalable AI infrastructures

TI''s new design resources and power-management chips help data center designers implement a comprehensive approach for efficient and secure power management.

Dec 11, 2025

Direct Current for Data Centers

Direct current power distribution systems could be an alternative to traditional alternating current (AC) options.

Mar 03, 2026

Building the 800 VDC Ecosystem for Efficient, Scalable

For decades, traditional data centers have been vast halls of servers with power and cooling as secondary considerations. The rise of generative AI

Nov 16, 2025

New AC & DC hybrid power supply system and its reliability analysis

This paper designs a new AC & DC hybrid power supply system for data centres, which includes photostatic power generation, wind power generation, solar thermal power

Oct 12, 2025

Powering the AI Era: Innovations in Data Center Power

Recently, Data Center Frontier sister publication Electronic Design (ED) released an eBook curated by ED Senior Editor James Morra titled In the Age of AI, A New

Sep 29, 2025

Redefining power infrastructure for AI: the role of 800

Transitioning from traditional 480 VAC or 415 VAC to 800 VDC 4 distribution enables a more efficient, resilient, and scalable power

Jul 27, 2025

Introduction to Supercomputing: Essential Guide for Beginners

HBM is extensively used in high-speed computations. Power Supply The primary function of a power supply is to convert standard alternating current (AC) into low-voltage stable direct current

Nov 13, 2025

(PDF) New AC & DC hybrid power supply system and

The problem of the power supply reliability in the new AC & DC hybrid power supply system in the data centre is analysed in a targeted manner by

Dec 19, 2025

Comprehensive power delivery solution for modern AI data centers

Comprehensive power delivery solution for modern AI data centers Paolo Sandri, Gianni Vitale STMicroelectronics

Jan 08, 2026

Data Center DC Embraces 800V Power Shift

Could switching to 800 V DC be the key to more efficient data centers?

Feb 11, 2026

Pioneer Magnetics PM3326B-6-1-2-E | High-Power Switching Power Supply

Mainframe & Supercomputing Systems: Providing massive, stable current to dense logic arrays and processing nodes. Telecommunications Infrastructure: Powering central office routing

Dec 11, 2025

Infineon releases 12 kW high-density power supply unit | Infineon ...

To achieve high-performance levels, the design leverages advanced power conversion topologies in both the AC/DC and DC/DC power stages. The front-end AC/DC converter features a 3-level flying

Aug 23, 2025

Si, SiC, and GaN Unite in New Power-Supply Unit for AI

Infineon''s 8-kW reference design for data centers features Si, SiC, and GaN technologies to help quench AI''s thirst for power.

Sep 27, 2025

Delta Unveils Advanced Power and Cooling Solutions at Supercomputing ...

Delta showcases energy-efficient cooling and power technologies for AI-driven data centers, addressing thermal and power challenges in high-density HPC and AI workloads.

Contact Us

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