AI Chip Liquid-Cooled Server



Overview

Today, Microsoft announced that it has successfully developed an in-chip microfluidic cooling system that can effectively cool a server running core services for a simulated Teams meeting. Join the world's largest professional organization devoted to engineering and applied sciences and get access to this e-book plus all of IEEE Spectrum's articles, archives, PDF downloads, and other benefits. Learn more about IEEE → In two-phase immersion cooling, a server is dunked into a vat of. Liquid cooling has become a critical enabler for modern AI data centers as facilities scale to handle high-density workloads, such as artificial intelligence (AI) and machine learning. It uses microfluidics, an approach that brings liquid coolant directly inside the silicon – where the. Many AI servers with accelerators (e., GPUs) used for training LLMs (large language models) and inference workloads, generate enough heat to necessitate liquid cooling. These servers are equipped with input and output piping and require an ecosystem of manifolds, CDUs (cooling distribution) and. Servers used to train AI models can consume more than 80 kilowatts per rack, and Nvidia's latest GB200 chip, combined with its servers, can require densities of up to 120 kilowatts, according to data from McKinsey. [Related: What is an AI server?

Most data centers operators say that once rack. Cisco is actively innovating in direct-to-chip liquid cooling for high-performance switches, laying the groundwork for solutions that will enable seamless and scalable AI at unprecedented densities.

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Article Content

Data Center Liquid Cooling: The AI Heat Solution

Advanced AI chips are generating more heat in data centers, necessitating improved cooling solutions. Liquid cooling is becoming a viable

Best practices for deploying liquid-cooled servers in AI

Discover liquid cooling best practices for AI data centers, including design, deployment, maintenance, and sustainability benefits.

AI chips are getting hotter. A microfluidics breakthrough goes straight ...

Today, Microsoft announced that it has successfully developed an in-chip microfluidic cooling system that can effectively cool a server running core services for a simulated Teams meeting.

Navigating Liquid Cooling Architectures for Data Centers with AI

There are two main categories of liquid cooling for AI servers – direct-to-chip and immersion3. There are slight differences in the heat rejection ecosystem that we will cover.

Liquid cooling becoming essential as AI servers proliferate

High-density computing workloads like AI training and inference run too hot for traditional air cooling. Companies are increasingly adopting liquid cooling

Solutions

Cisco is actively innovating in direct-to-chip liquid cooling for high-performance switches, laying the groundwork for solutions that will enable seamless and scalable AI at unprecedented

Best practices for deploying liquid-cooled servers in AI data centers

Start with a comprehensive evaluation of data center design requirements for liquid cooling, taking into account infrastructure and future workload demands. For high-performance

AI-driven cooling technologies for high-performance data centres:

This study presents a comprehensive, system-wide review of next-generation cooling technologies, including direct liquid cooling, immersion cooling, two-phase systems, spray and jet

Liquid cooling in AI data centers: The Complete Guide

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Learn about liquid cooling in AI data centers. Our complete guide covers how this essential technology boosts performance and cuts costs.

Why liquid cooling will dominate AI data centres in 2026

Liquid cooling is essential for AI-driven data centres, efficiently managing the extreme heat generated by high-density AI server racks. It offers

Data Centers and Water Consumption | Article | EESI

The difference between direct server liquid cooling and air cooling through evaporation can be compared to the difference between drip irrigation

AWS rolls out liquid cooling in data centers

Next-gen AI demands smarter cooling tech. Here''s how AWS delivered it in just 11 months. Denser, more powerful chips called for designing a

11 AI Data Center Cooling Stocks to Own After the Ecolab-CoolIT Deal

AI data center cooling stocks just got an M&A signal: Ecolab paid 29x EBITDA for CoolIT. Here are 11 stocks to own the trade before Wall Street catches up.

Tech Forum 2026: AI Servers Turn Liquid Cooling Into the New Data ...

META Green Cooling Technology (MGC) president Clyde Chu said Nvidia''s chip roadmap shows that cooling requirements are doubling in less than a year, with the NVL72 rack based on the

Salute launches groundbreaking Direct-to-Chip Liquid

Today at NVIDIA GTC Washington DC, Salute introduces the industry''s first full-service solution for Direct-to-Chip (DTC) liquid cooling. Industry leaders Applied

10 years ago, AMD was trading at $2 and up 21500% now. AMD was

AMD was losing money, but their technology was powerful. 20 stocks with same set-up as AMD (price target 1 year from now): 1. $SMCI (~$35) Full-rack liquid-cooled AI GPU servers shipped

Blackwell to Account for Over 80% of NVIDIA''s High

TrendForce notes that as shipments of GB200/GB300 racks expand through 2025, the adoption rate of liquid cooling solutions for high-end AI chips is

Accelsius Closes $65 Million Series B Funding Led by Johnson

Accelsius, the leader in two-phase, direct-to-chip liquid cooling, today announced the closing of its Series B funding round, raising $65 million.

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