

Server Rack System Immersion Liquid Cooling



AI Overview

Immersion liquid cooling enables high-density, energy-efficient server rack operation by submerging servers in dielectric fluids for superior heat transfer compared to air cooling. Overview Immersion liquid cooling involves submerging servers or components in a thermally conductive, electrically non-conductive fluid, allowing heat to be removed directly from CPUs, GPUs, and memory modules. This method is increasingly adopted in AI, HPC, and high-density data centers where traditional air cooling is insufficient for modern thermal loads. Key Benefits High Power Density: Systems can support up to 4 kW per 1RU or more, with some enclosures handling 140 kW per rack, enabling more compute power in the same footprint. Energy Efficiency: Immersion cooling reduces energy usage significantly, often enabling complete heat recovery and lowering PUE (Power Usage Effectiveness) compared to air-cooled systems. Reduced Noise and Maintenance: Fewer fans are required, lowering noise levels, and servers remain accessible for maintenance without messy tanks or complex disassembly. Scalability and Flexibility: Modular designs allow single or dual-level configurations, supporting standard 19" racks and various server architectures, including 21" and ORV3. Deployment Options Single-Phase Immersion: Servers are submerged in a dielectric fluid that absorbs heat and is circulated to a heat exchanger. Two-Phase Immersion: The fluid boils at a low temperature, and the vapor is condensed externally, providing highly efficient heat removal. Direct-to-Chip (DLC): Combines immersion with targeted cooling of high-heat components, enhancing thermal performance while minimizing fluid volume. Integration Considerations Compatibility: Modern immersion enclosures support standard server form factors, allowing integration into existing racks without major infrastructure ch...

Article Content

AI Data Center Cooling Requirements 2026: Complete GPU Thermal

Comprehensive 2026 guide to AI data center cooling. GPU TDP specs (H100-B300, MI300X-MI355X), ASHRAE guidelines, liquid cooling, immersion cooling, PUE optimization. From 700W to 1,400W

Sustainable Data Center Liquid Cooling Trends for the AI Heat Wave

In liquid cooling applications, compute power is directly tied to the performance of the cooling system because the cooling loop runs all the way to the chip. If cooling goes down, even

LCS ZPServer | Immersion-Cooled Rack Server for

Using our patented Total Liquid Immersion with Directed Flow™ (TIDF) technology, we send the coolest fluid to the hottest electronic components first within our

Waterless Liquid Cooling | Reduce Energy Costs

Waterless direct-to-chip, two-phase liquid cooling using pool boiling to remove heat off the processors and away from the servers. Cool AI. Eliminate Water. Reduce

Data center cooling systems and technologies and how they work

Current data center cooling systems and technologies Air and liquid cooling are two of the most popular data center cooling methods, each with several approaches. Air cooling Air cooling

Data Center Liquid Cooling Market Size, Companies & Share Analysis

Data Center Liquid Cooling Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031) The Data Center Liquid Cooling Market Report is Segmented by Cooling Technology

MSI Brings Liquid-Cooled NVIDIA AI Platforms to COMPUTEX 2026

At the rack level, the liquid-cooled rack-scale system supports up to 4 CG681-S6093 GPU systems within a 48RU configuration, enabling scalable compute for multi-node AI workloads.

GB200 NVL72 | NVIDIA

Energy-Efficient Infrastructure Liquid-cooled GB200 NVL72 racks reduce a data center's carbon footprint and energy consumption. Liquid cooling increases compute density, reduces the amount of floor

Immersion Cooling Solution for Data Centers

By immersing the server directly into a bath of non-conductive liquid, thermal energy generated by the server's components is directly transmitted into the surrounding

GRC The Immersion Cooling Authority®

GRC's immersion cooling solutions increase the performance, enhance the sustainability, and optimize the TCO of your data center. With a legacy spanning

NVIDIA 800 VDC Architecture for AI Data Centers

NVIDIA 800 volts direct current (VDC) has emerged as the optimal architecture for next-generation power distribution. It decreases conversion and routing volumes in the compute space while

Liquid Cooling Rack Integration

AHEAD has a dedicated AI and HPC rack integration facility for air- and liquid-cooled design, build, and deploy services. Individual and multi-rack integrated solutions are customized to handle the

Data Center Liquid Cooling Solutions Provider | Iceotope

The future of AI runs hot. Precision liquid cooling keeps AI systems operating at peak performance. As rack power soars toward 1MW, traditional air cooling can't keep up — resulting in hot spots, thermal

Rack-Scale Liquid Cooling Solutions | Supermicro

Supermicro is an end-to-end solution provider for rack scale liquid cooling solutions. Supermicro's delivers a complete and fully tested solution, including servers, racks, networking and liquid cooling

Server Immersion Cooling Systems

The sealed liquid environment isolates IT hardware from dust, humidity variations, and airborne contaminants, improving system reliability and extending equipment

Understanding liquid immersion cooling

Immersion cooling is a type of liquid cooling used to moderate data centre equipment temperature by submerging it in a cooling fluid. Server immersion cooling helps to dissipate heat and

Server Immersion Enclosure

Featuring a remarkable 850mm immersion depth, the system achieves exceptional heat transfer (61-70 kW), translating to industry-leading power density (3.6-4 kW per 1RU) for your data center. Maintain

What is the liquid cooling system used i

The current liquid cooling system is designed for data centers, with the coolant circulation pipes spread throughout the racks rather than being contained within the TPU servers.

Server Room Standards Guide for AI Infrastructure (2026)

The server room landscape in 2026 is undergoing a massive shift toward AI-centric infrastructure, with standards evolving to support extreme power densities and liquid cooling. The global server market

Contact Us

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