

Immersion Liquid Cooling for Temperature-Controlled Server Racks in Intelligent Computing Centers



Overview

Immersion cooling absorbs 100% of rack heat — but room cooling remains essential for air quality and humidity management. Data center operators are evaluating liquid cooling technologies to increase energy efficiency as processing-intensive computing applications grow. According to the Dell'Oro Group, the liquid cooling market revenue approach \$2B by 2027 with a 60% CAGR for the years 2020 to 2027, as organizations. LiquidCool Solutions is the only company combining Total Liquid Immersion with Directed Flow (direct-to-chip) in a standard 19" rack. Our products are easy to install and suited for. Advanced AI chips are generating more heat in data centers, necessitating improved cooling solutions. Immersion cooling is a liquid-based thermal management technology in which complete servers are fully submerged in a dielectric, electrically non-conductive fluid. It is a core architectural decision.



Article Content

Data Center Cooling Infrastructure Explained: Air, Liquid, and ...

Data Center Cooling Infrastructure Explained: Air, Liquid, and Immersion Systems for High-Density Racks Coase Data center lighting Table of Contents Baseline physics, then choices:

An Overview Of Liquid Immersion Cooling Technology

One form of liquid cooling, known as liquid immersion cooling, is a cutting-edge approach that involves submerging IT components, such as servers

Liquid, Immersion, Hybrid: The Cooling Architectures

As AI facilities move toward higher rack densities and sustained thermal loads, operators are adopting liquid, immersion, and hybrid cooling

Liquid immersion cooling for data centers | Arcadis

Once removed, the server is ready to work on immediately. Typical fluid losses for 2-PIC systems are lower than 2% per year, maximizing efficiency.

A review of the immersion liquid cooling technology for high ...

This paper provides a comprehensive analysis of ILC technology, examining coolant classification and selection criteria, the operating principles and performance of various liquid-cooling

Understanding liquid immersion cooling

Chris Carreiro, CTO at Park Place Technologies, explains the specifics of liquid immersion cooling, as well as the challenges – and benefits – of its

LiquidCool Solutions: Immersion-Cooled Rack Servers

Meet soaring compute demands efficiently with LiquidCool Solutions' versatile, immersion cooling for high-performance GPU dense servers. Perfect for data

Server Immersion Cooling Systems

Supports ultrahigh rack power densities required for AI and HPC workloads. Controlled dielectric environment isolates components from humidity and

Immersion Cooling Data Centers | Hyperscale Builds 2025

Learn why immersion cooling is moving mainstream in hyperscale data centers. Explore benefits, adoption trends, and how AI drives high-density

The immersion cooling technology: Current and future development in ...

Therefore, effective and efficient technology is needed to overcome the increasing operating temperature of computer servers and data centers. One of the most prominent cooling

Enough hot air: the role of immersion cooling

Air cooling is the traditional solution to chill servers in data centers. However, the continuous increase in global data center energy consumption combined with the increase of the

Current Status and Challenges for Liquid-Cooled Data

Then, it re-enters the liquid cooling tank to cool the server when the coolant is cooled by warm water in the heat exchanger. Coolant control is

Immersion Cooling Solution for Data Centers

Implement Immersion Cooling in Your IT Deployment Strategy Submerge your server into a bath of non-conductive liquid and allow thermal generated by

Computational study of single-phase immersion cooling for high

This study conducted a comprehensive analysis of immersion cooling with air and hybrid cooling methods for a high-energy density server rack with a high heat generating electronic

Liquid & Immersion Cooling in Colocation

Discover how colocation sites are adapting to liquid and immersion cooling in 2025. Learn why these technologies are essential for AI, HPC, and

Liquid cooling solutions for AI and high-density data

Next-gen cooling for high-density workloads Schneider Electric's data center liquid cooling solutions are purpose-built for AI workloads, GPU servers, and

Data Center Liquid Cooling: The AI Heat Solution

In two-phase immersion cooling, a server is dunked into a vat of liquid. The liquid actively boils next to the heat-producing components, cooling

Liquid Cooling | Center of Expertise for Data Center

Thus, server-rack outlet air temperature is reduced before it is discharged into the data center, potentially making it room-neutral solution. In the LBNL report Data

Immersion cooling systems: Advantages and

Immersion cooling absorbs 100% of rack heat — but room cooling remains essential for air quality and humidity management. Rack densities are

The data center cooling state of play (2025) — Liquid

The rise of AI, hyperscale clouds, and the general need for performance have significantly transformed the design and cooling of data

A comprehensive review of single-phase immersion cooling in data ...

In recent years, the rapid surge in global computing power demand has posed significant challenges for data centers in terms of chip-level and rack-level cooling, as well as system-level

LCS ZPServer | Immersion-Cooled Rack Server for

DATA CENTER & AI LIQUID COOLING High density computing with Immersion-cooled rack servers for data centers & AI As software becomes more

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

Immersion Cooling Is Ready for its Big Moment in the

If my colocation data center is enabling rack densities in the 50 kW-250 kW range, they must be able to cool the system running and using all that power. From

Liquid and Immersion Cooling Options for Data Centers

Data center operators are evaluating liquid cooling options, as processing-intensive computing applications grow. The market for liquid cooling is slated to reach \$3

Liquid Cooling Steps Up for High-Density Racks and AI

Liquid cooling is the go-to technology for efficiently managing heat in data centers. Learn about options and what's best for your deployment.

Liquid and Immersion Cooling Options for Data Centers

Immersion cooling - Single-phase and two-phase immersion cooling systems submerge servers and other components in the rack in a thermally conductive dielectric liquid or fluid, eliminating the need

Computational study of single-phase immersion cooling for high

Highlights • Immersion cooling for high-energy density data center is analyzed comprehensively. • Server rack with high heat generating electric components is utilized. • Immersion

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