High-efficiency liquid-cooled micro-module

Overview

This invention introduces advanced liquid-cooled cold plates with localized micro-channel, pin fin, and lattice structures that deliver targeted hotspot cooling, quasi-uniform temperatures, and reduced pumping power for multi-chip modules and 3D-ICs. This turnkey, liquid cooled solution is the fastest and most reliable way to adopt liquid cooling and capture its benefits – without disrupting existing IT operations. Use cases such as AI, OTT, advanced cloud computing and low latency workloads are just some of what MicroModular can handle. 1 software is used for modeling and simulation, coupling fluid mechanics with heat transfer physical field, and finding the best heat dissipation model by comparing and analyzing the. By directly integrating micropillar arrays within the near-junction region of the substrate, efficient forced convection and flow boiling mechanisms are achieved. Finite element analysis was first employed to conduct thermo–fluid–structure simulations of micropillar arrays with different. r environments where liquid-cooling is required for maximum performance. Supermicro delivers Fully validated a o deployment and results in higher quality of the entire infrastructure.

Article Content

Supermicro Delivers Performance and Efficiency Optimized Liquid-Cooled ...

Supermicro is expanding its proven liquid-cooled and air-cooled high-performance fabric 8-GPU system, leveraging the open multi-architecture industry standard OCP Accelerator Module

Uniform and Efficient Embedded Microfluidic Cooling for High-Power ...

To address this, an embedded microfluidic-cooled SiC power module is developed, combining embedded microchannels and nano-silver sintering to enable efficient and uniform cooling.

High-performance integrated thermoelectric coolers for electronics ...

However, high-performance integrated TECs have been rarely explored for electronics cooling. The primary challenge lies in the difficulty of designing and fabricating such integrated TECs.

Thermal Performance Optimization of Integrated

However, reporting on the impact of micropumps on the heat dissipation efficiency of microchannel cooling plates is rare. Further research is

Integrated Microchannel Cooling for Power Electronic

Using wide bandgap power semiconductors in the power modules enables high-frequency and low-loss switching at relatively high temperatures for

Supermicro Delivers Performance and Efficiency

Supermicro is expanding its proven liquid-cooled and air-cooled high-performance fabric 8-GPU system, leveraging the open multi-architecture industry

MICROCHANNEL LIQUID COOLING: A NEXT-GENERATION

This thesis discusses the application of liquid immersion cooling technology in power electronic converter, paying special attention to its potential in improving thermal management, system

Embedded liquid cooling module for high-power ...

We designed a novel embedded liquid cooling module using Si 3 N 4 -based active metal brazing substrates, where microchannels were etched in the bottom copper layer to enhance thermal

Microconvective Liquid Cooling Technology | JetCool

Our collection of liquid-cooled products covers a wide range of applications JetCool''s innovative product suite uses its patented microconvective cooling® technology,

Embedded liquid cooling module for high-power semiconductor devices

The findings demonstrated the improvement in thermal performance of the embedded liquid cooling module with Si 3 N 4 -based active metal brazing substrates for high-power

Orthogonal experimental-based thermal management design and

The present study investigates thermal management of industrially relevant high-capacity, high-rate liquid-cooled battery modules.

MicroModular™ Liquid Cooling Solution | LiquidStack

MicroModular™ by LiquidStack offers efficient liquid cooling in a compact modular container, ideal for scalable infrastructure and flexible data

Advanced Cooling for Power Electronics

The other module is well suited for stacking in series for high voltage applications and provides both top and bottom surfaces for “double sided”

Microconvective Liquid Cooling Technology | JetCool

Our liquid-to-chip solution, SmartLid™, offers exceptional cooling performance for high-power electronics, bringing fluid directly to the processing chip, and

A Novel Substrate-Embedded SiC Power Module With Integrated

To fully leverage the advantages of silicon carbide (SiC) power devices, this study presents a substrate-embedded SiC power module with integrated liquid cooling.

Jet-enhanced manifold microchannels for cooling

In this Article, we report an embedded microfluidic cooling strategy that is capable of dissipating heat fluxes up to 3,000 W cm −2 at a pumping power of

Thermal management of a power electronic module employing a

Abstract In this study, the cooling capability of a novel design liquid jet impingement multi-micro nozzle cooling system for a high heat flux commercial Si-IGBT power modules has been

Supermicro''s New Multi-Node Liquid Cooled

To support the deployment of the FlexTwin architecture at scale, Supermicro offers rack-scale integration services to design, build, validate, and

Super Micro Computer, Inc.

, a Total IT Solution Provider for AI, Cloud, Storage, and 5G/Edge, is accelerating the industry''s transition to liquid-cooled data centers with the NVIDIA

MICROCHANNEL LIQUID COOLING: A NEXT-GENERATION

Traditional air cooling methods are often unable to effectively maintain optimal operating temperatures in high-performance applications. Liquid cooling technology is a promising solution that offers superior

High-Performance Liquid-Cooled Cold Plates for Targeted Hotspot ...

This invention introduces advanced liquid-cooled cold plates with localized micro-channel, pin fin, and lattice structures that deliver targeted hotspot cooling, quasi-uniform temperatures, and reduced

Accelerate Time-to-Deployment with Plug-and-Play Liquid-Cooled

Complete and Integrated Liquid-Cooling Solutions Make Direct Liquid Cooling Infrastructure easy for customers to deploy and maintain, including the facility-side cooling tower.

Heat dissipation analysis and multi-objective

An efficient battery pack-level thermal management system was crucial to ensuring the safe driving of electric vehicles. To address the challenges posed

Project Descriptions_COOLERCHIPS

Their design innovations include efficient heat extraction from CPU and GPU chips with a liquid cooled loop and dissipation of this heat to the ambient by use of high-efficiency, low-cost heat exchangers.

Heat dissipation analysis and multi-objective

To address the challenges posed by insufficient heat dissipation in traditional liquid cooled plate battery packs and the associated high system

Design and Fabrication of Embedded Microchannel

The rapid development of high-power-density semiconductor devices has rendered conventional thermal management techniques inadequate for

Jet-enhanced manifold microchannels for cooling

An embedded microfluidic cooling approach—consisting of an integrated manifold layer, jet plate and sawtooth-shaped microchannels—can

Optimization of Heat Transfer and Flow Performance of

Microchannel liquid-cooled plates are widely used in high-performance electronic devices, but their heat transfer performance and pressure

Supermicro''s Liquid-Cooled SuperClusters for AI Data

San Jose, Calif., – October 15, 2024 – Supermicro, Inc. (NASDAQ: SMCI), a Total IT Solution Provider for AI, Cloud, Storage, and 5G/Edge, is accelerating the

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: https://www.charratcommunication.fr
Email: sales@charratcommunication.fr
Phone: +33 1 42 68 93 17
Address: 15 Rue de la Paix, 75002 Paris, France

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