

Imported liquid-cooled exchanger PAM4



Article Overview

Liquid-cooled exchangers for PAM4 systems enable high-speed data transmission with improved thermal management, essential for PCIe 6.0 and AI/HPC workloads.

Overview

Liquid-cooled exchangers are designed to dissipate heat efficiently from high-speed components such as PAM4-based PCIe 6.0 links, 400G/800G optical transceivers, and AI accelerators. These systems are critical in immersion or direct liquid cooling environments, where traditional air cooling is insufficient for high-density, high-power racks .

Key Features

- **High Thermal Conductivity:** Liquid cooling uses water or dielectric fluids, which can be up to 3000 times more effective than air, allowing stable operation of PAM4 links at 64Gbps per lane .
- **Compatibility with PAM4 Signaling:** Immersion cooling can affect impedance and signal integrity. Standard air-cooled interconnects may degrade in liquid environments, requiring specialized designs to maintain low bit error rates .
- **Reliability and Leak Prevention:** Advanced sealing and pressure-tested modules ensure leak-proof operation under high hydraulic pressure and continuous immersion at elevated temperatures (up to 60°C), .
- **Support for Optical Modules:** Many liquid-cooled exchangers integrate with multi-mode and single-mode optical transceivers, supporting distances from 100 meters to 10 kilometers, depending on the application

Article Content

Liquid Cooling Systems for EV Batteries

An active liquid cooling system for electric vehicle battery packs using high thermal conductivity aluminum cold plates

HS Code 841950 Tariff Classification and Products For United States

HS code 841950 classification and tariffs for Plate Heat Exchanger, Shell and Tube Heat Exchanger, Air Cooled Heat

400G Liquid/Immersion Cooling Transceivers for Data

NADDOD 400G InfiniBand and ethernet liquid/immersion cooling transceivers are designed to meet the

20L-UM002.book

Operating Principle The operating principle of the heat exchanger is based on liquid-to-liquid transfer of heat (Figure P.1). The drive

Liquid-cooled heat exchanger (liquid-liquid) | chillers

There are many types of liquid-to-liquid heat exchangers, and they come in a variety of shapes, but here

Industrial air cooled heat exchangers

Take a look at our range of air-cooled heat exchangers and find out which cooling solution is ideal for your

DOE Prioritizes Liquid-Cooled C&I ESS Imports

On July 12, 2026, the U.S. Department of Energy (DOE) updated its technical prioritization list for imported commercial

Ciena at OFC25: 448G PAM4 and WL6e Coherent Routing

- Features include 448Gbps PAM4, liquid-cooled coherent modules, and AI-powered network automation via

Advanced Heat Exchange Technology | Conflux Technology

Advanced heat exchanger technology for applications that demand more. Our gas-liquid, liquid-liquid, gas-gas, and cold plates

Heat exchangers | Eaton

Heat exchangers Optimize the performance of your liquid cooling system with the best-fit liquid heat

Liquid Heat Exchanger | BV Thermal Systems

The energy efficient and economical Liquid Heat Exchanger provides closed loop circulation of temperature controlled coolant.

224 Gbps-PAM4 High-Speed Data Center Technology

Built for 224 Gbps-PAM4, these robust cables offer superior mechanical durability and excellent shielding

A Comprehensive Guide to 800G DR4/DR8 Transceivers

This article provides a comprehensive guide of the technical features and diverse application of 800G DR4/DR8

Liquid vs Air Cooling for Data Centers 2026: Cost & Efficiency Analysis

Data Center Cooling 2026: Liquid Immersion vs Air — TCO & Performance Institutional TCO comparison of liquid immersion vs air

Immersion Liquid Cooling Interconnect Solutions

Immersion Liquid Cooling Solutions Learn about immersion liquid cooling optical transceivers, active optical cables (AOC) and direct

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

Among various liquid cooling methods, single-phase immersion cooling, which utilizes high-boiling-point dielectric fluids

Immersion Liquid Cooling Interconnect Solutions

GrowsFiber's immersion cooling optical transceivers are widely used in data centers adopting liquid-cooling

Design Manual

The Design Manual is the comprehensive reference for HTRI's thermal design recommendations for all types of heat exchangers. It

Emmegi Inc. | Water, Oil, & Air Cooled Heat Exchangers

Heat Exchanger Products Explore EMMEGI Inc.'s full range of standards and custom heat exchanger

The Technology of Cooling Part 4: Closed Loop Liquid

Liquid Cooling Solutions like Air to Water Heat Exchangers or Chillers are especially well

Tubular heat exchangers | liquid processing systems

Tubular heat exchangers are at the heart of all process plants for heating, cooling, pasteurizing or UHT heating.

Liquid Cooling Heat Exchanger Assembly is

The heat exchanger supports any installation with a liquid cooling loop, utilizing glycol and water mixtures

Liquid cooling heat exchanger units

Heat exchanger core The heat exchanger core is positioned to transfer heat effectively from the liquid coolant to the surrounding air.

Comparative Evaluation of 100G-PAM4 Ethernet Link ...

Download Citation | On Oct 6, 2024, Dan Liu and others published Comparative Evaluation of 100G-PAM4 Ethernet Link

Deep Dive into Direct Liquid Cooling

What is Direct Liquid Cooling? At a high level, liquid cooling refers to any cooling technology that brings liquid, such as water or

Custom Liquid Cold Plate Manufacturer

With over two decades of dedicated experience in custom thermal management, we design and manufacture high-reliability custom

Water Heat Exchangers | Tark Thermal Solutions

Water cooling heat exchangers (WL, LA and WW Series) are designed to circulate water or a water glycol

HS Code 84195080

Can be used for an export declaration. Heat-exchange units (excl. those used with boilers and those made of fluoropolymers with

Contact Us

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