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Global Data Center Direct to Chip Cooling Market 2026 by Company, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Data Center Direct to Chip Cooling market size was valued at US$ 2769 million in 2025 and is forecast to a readjusted size of US$ 7484 million by 2032 with a CAGR of 17.1% during review period.

Data Center Direct-to-Chip Cooling is a liquid cooling solution designed for high-power servers, AI chips, GPUs, CPUs, and accelerator cards. It uses cold plates, microchannel cold plates, liquid cooling loops, and coolant distribution systems to deliver coolant directly to or near the main heat-generating components, enabling efficient heat transfer from high-heat-flux devices. Compared with traditional air cooling, direct-to-chip cooling can handle much higher power density, reduce server inlet temperature and fan energy consumption, improve rack-level power density, and enhance overall data center energy efficiency. It is widely used in AI data centers, cloud computing facilities, high-performance computing, edge computing, and large-scale internet data centers.

The main growth drivers for the Data Center Direct to Chip Cooling market come from the rapid increase in cooling demand from AI servers, HPC, high-density cloud computing, and large-scale model training. As the power consumption of GPUs, CPUs, and AI accelerators continues to rise, traditional air cooling is becoming increasingly limited in terms of heat dissipation efficiency, rack power density, and energy consumption control. Direct-to-chip cooling brings coolant directly to cold plates close to the heat source, enabling higher power density, lower PUE, and more stable chip operating conditions, which is accelerating adoption among hyperscale cloud providers, AI data centers, and supercomputing facilities.

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The key restraint for the Data Center Direct to Chip Cooling market is the high system complexity, relatively high upfront investment, and greater operational requirements. Direct-to-chip cooling requires cold plates, CDUs, piping, connectors, pumps, heat exchangers, and monitoring systems, while also needing deep integration with server architecture, rack layout, facility water loops, and data center maintenance procedures. For traditional data centers, retrofit costs, leakage concerns, technical requirements for maintenance teams, supply chain maturity, and compatibility across different server platforms may slow down large-scale deployment in the short term.

Future opportunities mainly come from new AI data center construction, standardization of liquid-cooled servers, green data center policies, and the continuous increase in chip power consumption. As rack power density moves from tens of kilowatts toward hundreds of kilowatts, direct-to-chip cooling is expected to expand from high-end HPC and AI training environments into cloud computing, internet, financial, telecom, and enterprise data centers. In addition, cold plates, CDUs, quick connectors, secondary-loop coolants, monitoring software, and modular liquid cooling infrastructure will create broader supply chain opportunities, while vendors with strong server integration, engineering delivery, and reliability validation capabilities are likely to gain higher market share.

The Data Center Direct-to-Chip Cooling market is expanding rapidly as the power density of AI servers, high-performance GPUs, CPUs, and accelerator cards continues to increase. Traditional air cooling is increasingly constrained by thermal efficiency, energy consumption, and rack power density limitations in high-heat-flux environments. Direct-to-chip liquid cooling uses cold plates, microchannel cold plates, CDUs, liquid cooling piping, and coolant circulation systems to remove heat directly from chip-level heat sources, significantly improving cooling efficiency and reducing fan power consumption. The market is mainly driven by AI data centers, cloud computing, high-performance computing, hyperscale data centers, and edge computing applications. As liquid-cooled servers become more standardized, energy-efficiency requirements tighten, and rack power densities move toward 50kW, 100kW, or even higher levels, direct-to-chip cooling is expected to become a key growth segment in the data center thermal management market.

This report is a detailed and comprehensive analysis for global Data Center Direct to Chip Cooling market. Both quantitative and qualitative analyses are presented by company, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as

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key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Data Center Direct to Chip Cooling market size and forecasts, in consumption value ($ Million), 2021-2032

Global Data Center Direct to Chip Cooling market size and forecasts by region and country, in consumption value ($ Million), 2021-2032

Global Data Center Direct to Chip Cooling market size and forecasts, by Type and by Application, in consumption value ($ Million), 2021-2032

Global Data Center Direct to Chip Cooling market shares of main players, in revenue ($ Million), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Data Center Direct to Chip Cooling

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Data Center Direct to Chip Cooling market based on the following parameters - company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Vertiv, nVent, Lenovo, Supermicro, Schneider Electric, Flex Ltd., CoolIT System, Modine, DCX Liquid Cooling Systems, Inspur, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market segmentation

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Data Center Direct to Chip Cooling market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for Consumption Value by Type and by Application. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Water-based Coolant Direct Cooling

Non-water-based Coolant Direct Cooling

Market segment by System Architecture

Server-grade Direct Cooling System

Rack-level Direct Cooling System

Other

Market segment by Cold Plate Heat Exchange Method

Single-phase Cold Plate Direct Cooling

Two-phase Cold Plate Direct Cooling

Market segment by Application

Cloud Data Centers

AI Data Centers / AI Servers

High-Performance Computing (HPC)

Enterprise Data Centers

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Others

Market segment by players, this report covers

Vertiv

nVent

Lenovo

Supermicro

Schneider Electric

Flex Ltd.

CoolIT System

Modine

DCX Liquid Cooling Systems

Inspur

Malico

ZutaCore

Chilldyne

Accelsius

Delta Power Solutions

Stulz

Iceotope Precision Liquid Cooling

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Iceotope

BOYD

Wiwynn Corporation

Kaori

Rittal GmbH & Co. KG

LiquidStack

Taisol Electronics

Quanta

Shenzhen Green Cloud Map Technology

Goaland Energy Conservation Tech

Market segment by regions, regional analysis covers

North America (United States, Canada and Mexico)

Europe (Germany, France, UK, Russia, Italy and Rest of Europe)

Asia-Pacific (China, Japan, South Korea, India, Southeast Asia and Rest of Asia-Pacific)

South America (Brazil, Rest of South America)

Middle East & Africa (Turkey, Saudi Arabia, UAE, Rest of Middle East & Africa)

The content of the study subjects, includes a total of 13 chapters:

Chapter 1, to describe Data Center Direct to Chip Cooling product scope, market overview, market estimation caveats and base year.

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Chapter 2, to profile the top players of Data Center Direct to Chip Cooling, with revenue, gross margin, and global market share of Data Center Direct to Chip Cooling from 2021 to 2026.

Chapter 3, the Data Center Direct to Chip Cooling competitive situation, revenue, and global market share of top players are analyzed emphatically by landscape contrast.

Chapter 4 and 5, to segment the market size by Type and by Application, with consumption value and growth rate by Type, by Application, from 2021 to 2032.

Chapter 6, 7, 8, 9, and 10, to break the market size data at the country level, with revenue and market share for key countries in the world, from 2021 to 2026.and Data Center Direct to Chip Cooling market forecast, by regions, by Type and by Application, with consumption value, from 2027 to 2032.

Chapter 11, market dynamics, drivers, restraints, trends, Porters Five Forces analysis.

Chapter 12, the key raw materials and key suppliers, and industry chain of Data Center Direct to Chip Cooling.

Chapter 13, to describe Data Center Direct to Chip Cooling research findings and conclusion.

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