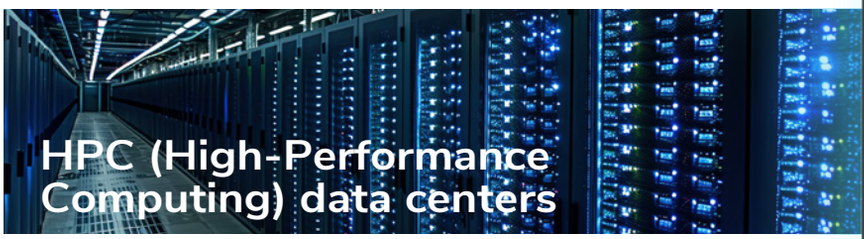
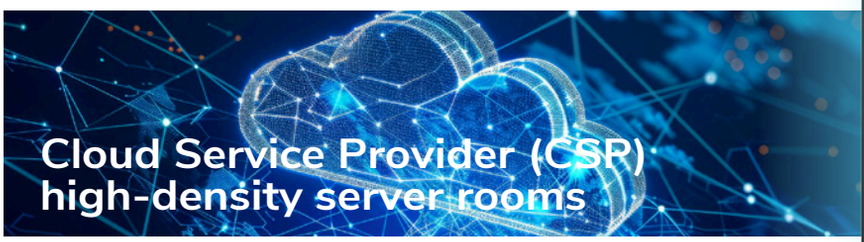
ABLECOM





ABLECOOL™

Built for AI. Cooled by Design

Air cooling hits its limit — don't let it become yours.

- *High heat density*
- *Intensive computing loads*
- *Exceeded the capabilities of traditional air cooling*

A RDHx liquid cooling system is strongly recommended for the following scenarios

Air Cooling Limits

HVAC and fan systems contribute to **40%+ of total DC energy cost**

Air cooling efficiency drops significantly above **20kW per rack**

Fan power increases by **25% - 40%** to compensate for insufficient airflow

RDHx Benefit

Energy savings

30% energy saving: High-efficiency fans for dense loads

High-efficiency cooling

Rack-level cooling: Supports up to **65kW** heat load

Fan Energy Reduced

20% fan energy reduction with ultra-low PUE

Air Cooling Limits

Needs structured hot / cold aisle layouts for effective airflow.

Modular and scalable but requires additional floor space and installation effort.

Overheating shortens hardware life, triggers throttling, and raises downtime risk

RDHx Benefit

Localized cooling Control

Source heat removal prevents air mixing

Deployment Flexibility

Fast integration with existing racks and cooling

Lowers TCO

Rack-mounted design saves space, ROI in 1 year

Future-ready Solution

- Maximize cooling efficiency at the rack level
- Minimize energy costs with exceptional PUE performance
- Eliminate the need for extra cooling aisle space
- Future-ready integration with your existing infrastructure

AbleCool – Liquid-to-Air Heat Exchange

AbleCool is designed to capture and dissipate heat directly at the back of the rack, where servers and IT equipment expel the most thermal energy.

By intercepting this exhaust before it enters the white space, AbleCool ensures stable thermal conditions, enhances overall cooling efficiency, and significantly reduces the burden on CRAC system.

EC (CDR) DC (CDA) Centrifugal Fan
High static pressure Suitable for ducted or high-resistance environments
Highly efficient EC motor, more energy-saving
Precise speed control supports PWM, Modbus control
Low noise and vibration Due to smoother motor operation

Efficient Rear-Door Liquid Cooling

AbleCool is a rear-mounted liquid-to-air heat exchanger designed to cool high-density server racks without altering the rack layout.

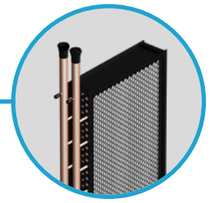
Installed on the back of a standard 42U~60U server rack, it captures the hot exhaust air generated by high-performance computing equipment and cools it in real time using circulating liquid coolant—typically deionized water or a glycol mixture.

The system includes coolant supply and return lines that route chilled liquid through internal coils embedded within the door. As hot air exits the server, it passes through the AbleCool where heat is transferred into the liquid circuit, resulting in significantly cooler air being released back into the room.

This passive, rack-level solution enables up to 65kW heat load dissipation per rack, reduces reliance on energy-intensive CRAC systems, and helps stabilize ambient temperatures in dense data center environments—all without internal airflow turbulence.

Primary Loop Design with Smart Monitoring

Top/bottom feed, electronic valve, and flow sensors with quick-disconnect hose support for easy commissioning.

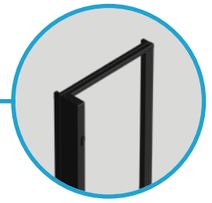


High-Capacity Coil Heat Exchanger

Delivers up to 65kW cooling per rack, designed for high thermal loads and scalable environments.

Advanced Control System

7”touchscreen HMI, with temperature, pressure, and flowrate monitoring; SNMP, Modbus, WebUI, and Redfish API supported.

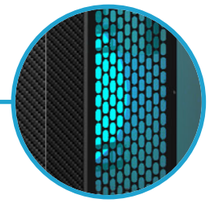


Modular Integration for 42U–60U Racks

Compatible with standard frame widths from 600mm to 800mm for seamless deployment.

Hot-Swappable Redundant EC/DC Fans

Tool-less, zero-downtime fan replacement for maximum uptime and optimized cooling performance.



LED Status Indicator

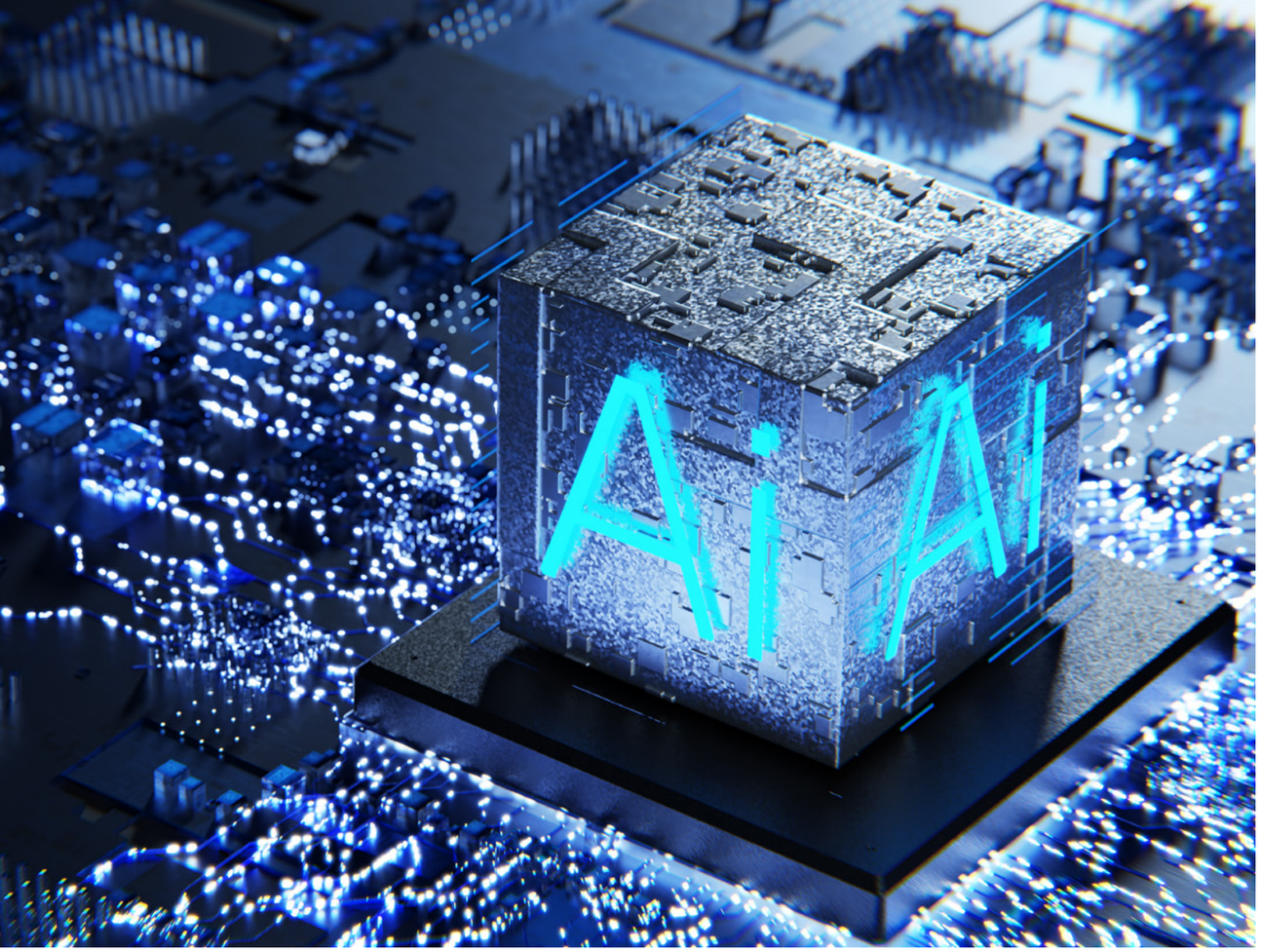
Enables clear visual feedback on system health and operational status.

ABLECOOL™

CDR52 (EC fan)	CDR42 (EC fan)	CDA42 (DC fan)
		

Model	CDR52 (EC)	CDR42 (EC)	CDA42 (DC)
Form Factor	48U - 52U	42U - 52U	42U - 52U
Dimension (Width)	750 - 800 mm (29.53” - 31.50”)	600 - 800 mm (23.62” - 31.50”)	600 - 800 mm (23.62” - 31.50”)
Dimension (Depth, excluding frame)	390 mm (15.35”)	337 mm (13.3”)	235 mm (9.25”)
Cooling Capability*	58kW / (80kW @ATD = 15°C)	38kW (50 kW @ATD = 15°C)	35kW (50 kW @ATD = 15°C)
Fan Quantity	5 pcs	4 pcs	5 pcs
Air Flow** ***	5030 CFM (142 CMM)	3900 CFM (110 CMM)	2500 CFM (70 CMM)
Design Water Flow	Max : 100 LPM (26.4 GPM)	Max : 70 LPM (18.5 GPM)	Max : 70 LPM (18.5 GPM)
Pressure Drop	38.2 KPa (5.6 PSI)	34.5 KPa (5.0 PSI)	
Water Fluid Quality	ASHRAE D-90564		
Max Power Consumption	2.1 KW	1.7 KW	1.2 KW
Power Supply Voltage (AC)	200 – 240 V (1+1)	200 – 240V (1+1)	DC 48V
Internal Sensor Detection	Temp. , Diff. Pressure, Condensation, Leakage		
Communication	SNMP, Modbus, Redfish API		
Monitor control	Touch Panel, Web UI		
Operating Ambient Temperature	15°C ~ 45°C(59°F ~ 113°F)		
Operating Relative Humidity	8 ~ 80% RH (No Condensing)		
Operating Attitude	0 ~ 3,048m (0 ~ 10,000 ft)		
Water Connection	Quick Dry Connector (FD83)		
Shipping Weight	277 kg (610.7 Lbs)	252 kg (555.6 Lbs)	252 kg (555.6 Lbs)
Dry weight	136 kg (299.8 Lbs)	114 kg (251.3 Lbs)	114 kg (251.3 Lbs)
Wet Weight	155 kg (341.7 Lbs)	130 kg (286.6 Lbs)	130 kg (286.6 Lbs)

*Test condition: 23.9°C (75°F) Room Temperature, 45%RH, Supply Water at 12.8°C (55°F).
** Test condition: All the RDHx fan modules operation by 100% speed in the wind tunnel.
*** Max air flow supply from rack systems to RDHx: 52RD model: 8000+CFM ; 42RDmodel: 7000+CFM.



AI-Ready Intelligent Control System for Adaptive Thermal Response

Intelligent Hardware Control System

AbleCool integrates an advanced control logic that dynamically adjusts fan performance based on **real-time differential pressure** or **temperature readings**, ensuring precision cooling under vary-ing workloads. The control system development includes:

- Implementation of **preliminary fan control** algorithms tailored to thermal response
- Coordination with suppliers to finalize base board design
- Sequential initiation of **interposer board development**

Customizable Rear Door Solutions Tailored to Your Infrastructure

At Ablecom, we understand that no two data centers are alike. That's why our RDHx solutions are fully customizable to meet your specific thermal, mechanical, and operational requirements.

We offer：

Tailored Dimensions

Support for non-standard rack heights, widths, or legacy enclosures.

Coolant Compatibility

Options for different coolant types including DI water, glycol mixtures, or custom-er-specified fluids.

Interface & Connector Customization

Quick-connect fitting types, hose placement, and valve integration according to your facility's cooling layout.

Exterior Finish & Panel Design

Branding-ready panel colors, powder coating, or ventila-tion patterns tailored to your environment.

Thermal Load Planning

Engineering support to match RDHx capacity to your rack-level heat output (30–50kW+).

Integration with Existing CDU Systems

Ensuring compatibility with your facility's liquid cooling infrastructure, including pres-sure and flow testing.

From design to deployment, our team works closely with customers to co-engineer RDHx systems that enhance efficiency, simplify mainte-nance, and align with long-term cooling strategies.

Introduction To Ablecom's Product Lines

Tower Chassis

Ablecom also have tower types of chassis. State-of-art outlook, Swappable device bays and easy for assembly are the amazing features embedded in the catagory of products are popular in NAS and NVR applications, which need good stylish, as well as server applications.

Embedded Chassis

Ablecom provides several kinds of embedded chassis to support different applications. Some Biscuit box dimension chassis may provide enclosure for Mini-ITX form factor computer boards. External 12VDC or 19VDC adapter is proposed to be the power source of this kind of chassis. Ablecom also provides moderately optional internal DC / DC power module for the CPU boards, which have standard ATX power output interface, to be installed in the chassis. Both force ventilation with fans and fan-less solution chassis can be provided by Ablecom. User may choose most suitable one to fulfill his applications.

Rackmount Chassis

As the core competences of the company are in server chassis designs, more than 1000 molded models recognized by one of top three world-wide server suppliers, and 50 patents have been effective in several countries. Ablecom can provide several standard chassis, and also excel at customer oriented OEM and OEM services. Ablecom has a number of molds and own NCT machines in own factory to do them.

HDD Tray & Storage Kit

Server chassis requires device trays with either key lock or non-key lock; meanwhile, 3.5" tray, 2.5" tray, 2.5" tool-less tray and 3.5" to 2.5" HDD converter tray are required in markets. Ablecom provides all kinds of trays to service customer's needs. Customization services are supported, too.

Slide Rail

Slide rails are usually required for rackmount chassis when the chassis must be installed in rack. Ablecom has had several patents for slide rails and is able to provide different types and different length of slide rails. Either tool-free or screw-type rails can be selected upon the way to install them in racks.

Thermal Solution

As key supplier of server chassis, Ablecom also provides abundant high quality coolers and heatsinks for servers. Products are provided from fan-less solution, high performance fan, and widely expanded both for Intel and AMD's CPUs and Chipsets.

ABLECOM

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- **Rack-level integration with Ablecom servers and RDHx**
- **Thermal consulting, fluid layout planning, and OCP compatibility**
- **Full pre-shipment leak & pressure validation**
- **Taiwan-based manufacturing, global field support**

www.ablecom.com