
SUPERMICRO
Supermicro DLC-2
Up to
40%
Power & Water
Savings
Up to
20%
Lower
TCO
Quiet
50dB
Data
Center

Supermicro DLC-2

Up to 40% More AI per Watt with The Next Generation Direct-to-Chip Liquid Cooling Solutions

Power Savings	Water Savings	System Heat Capture	Quiet Data Center	Space Savings
up to **40%**	up to **40%**	up to **98%**	as low as **50dB**	up to **60%**
Savings in entire data center (vs. Air-cooling) by using Supermicro DLC-2	Savings with 45 °C warm water operation and eliminating chilled water and compressor	Heat capture in DLC-2 Liquid-cooling with CPU, GPU, PCIe Switch, DIMM, VRM, PSU, and more	Significantly reduces noise with less fans and fan speed. As quiet as a library	Savings with more than 2.5x compute density compared to air-cooled systems

Supermicro DLC-2 reduces power costs by up to 40%, accelerate time-to-deployment and time-to-online, and allow data centers to run more efficiently with lower PUE, while **lowering TCO by up to 20%**

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DLC-2 Solution Stack

Total End-to-end Direct-to-Chip Liquid Cooling Solution at Data Center Scale

Liquid-Cooled Systems

Cold Plate Building Blocks

Coolant Distribution Unit (CDU)

Coolant Distribution Manifold (CDM) & Hose Kit

Sidecar (L2A)

Chilled Door (RDHx)

L10-L12 Testing and Validation

Cooling Tower/Dry Cooler

Management Software

Onsite Services

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As Part of Data Center Building Block Solutions®

Service Building Blocks

- Onsite Deployment
- Full Cluster Testing
- Software Integration
- L11 & L12 Testing
- Networking & Cabling
- Racking & Stacking
- PoC Service

Data Center Management Software

Networking Infrastructure

Compute Network | In-band Network | OOB Network | Storage Network

L11 Rack Level Building Blocks

AI-Optimized | Cloud | HPC | Storage

L10 Systems

GPU Server | Rackmount Server | Multi-node Server

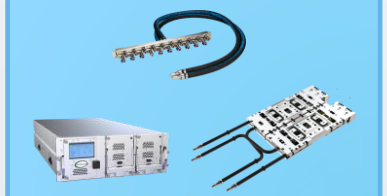
L10 Storage

Storage Server

Liquid Cooling

Cooling Tower

Components



Floor plan design | Power resource planning | Water resource planning | Datacenter Cooling Design | DC Project Management

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1. Liquid-cooled Systems

- Variety of DLC systems optimized for high performance GPU+CPU compute workloads
- Up to 98% heat capture coverage for system components through DLC-2
- Lower fan speeds and fewer required fans save more power, and achieve a quiet data center at as low as 50dB

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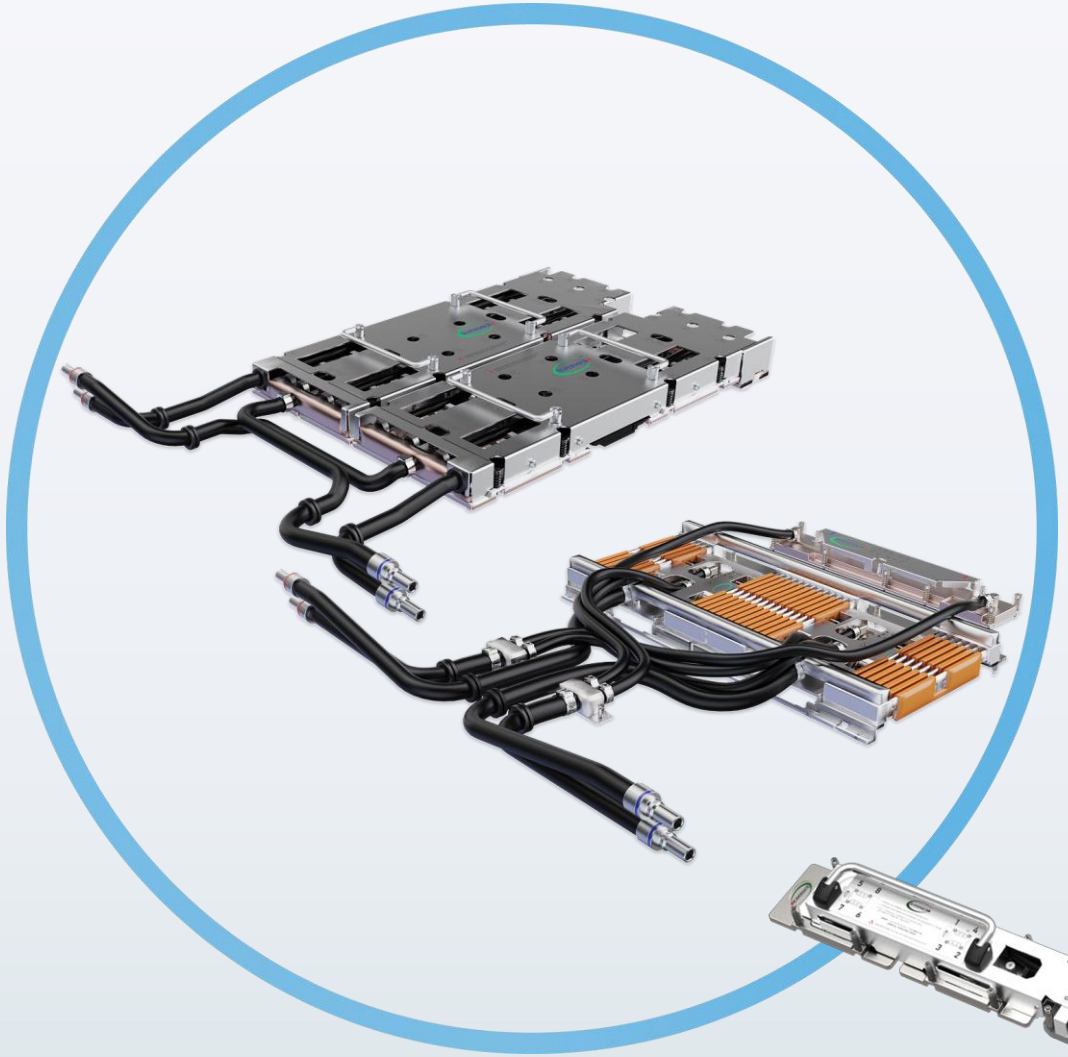
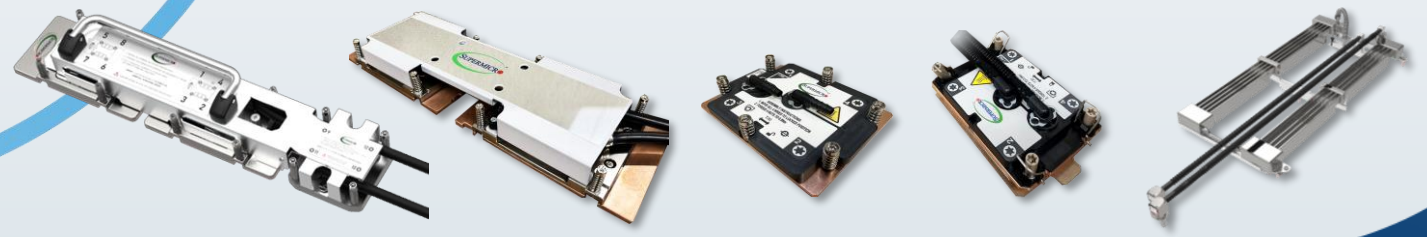
2. Cold Plate Building Blocks



- DLC-2 cold plates are mounted on top of CPUs, GPUs, DIMMs, VRM, PCIe switches, and more for up to 98% heat capture coverage
- GPU cold plate also helps cool other related components that require liquid cooling, such as GPU switches
- Advanced heat dissipation efficiency with micro-sized channels thinner than a human hair



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3. Coolant Distribution Unit (CDU)

- DLC-2's 250kW in-rack CDU capacity and the up to 98% heat capture allow for an increased inlet liquid temperature at up to 45 °C
- Warm water operation eliminates need for chilled water, chiller compressor, and reduces equipment cost, saving up to 40% of water consumption
- Intelligent monitoring and flexible management via CDU touch panel, remote access, and full integration with SuperCloud Composer
- 1.8 MW capacity in-row CDU also available

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4. Coolant Distribution Manifold (CDM)

- CDMs distribute coolant to each server in the rack and return the hot coolant back to the CDU
- DLC-2 vertical CDMs save rack space further and increase density
- Supports 42U, 48U, or 52U rack configuration
- Customizable spacing and size for Quick Disconnect Couplings (QDC) with liquid drip free, one-handed operation and maintenance

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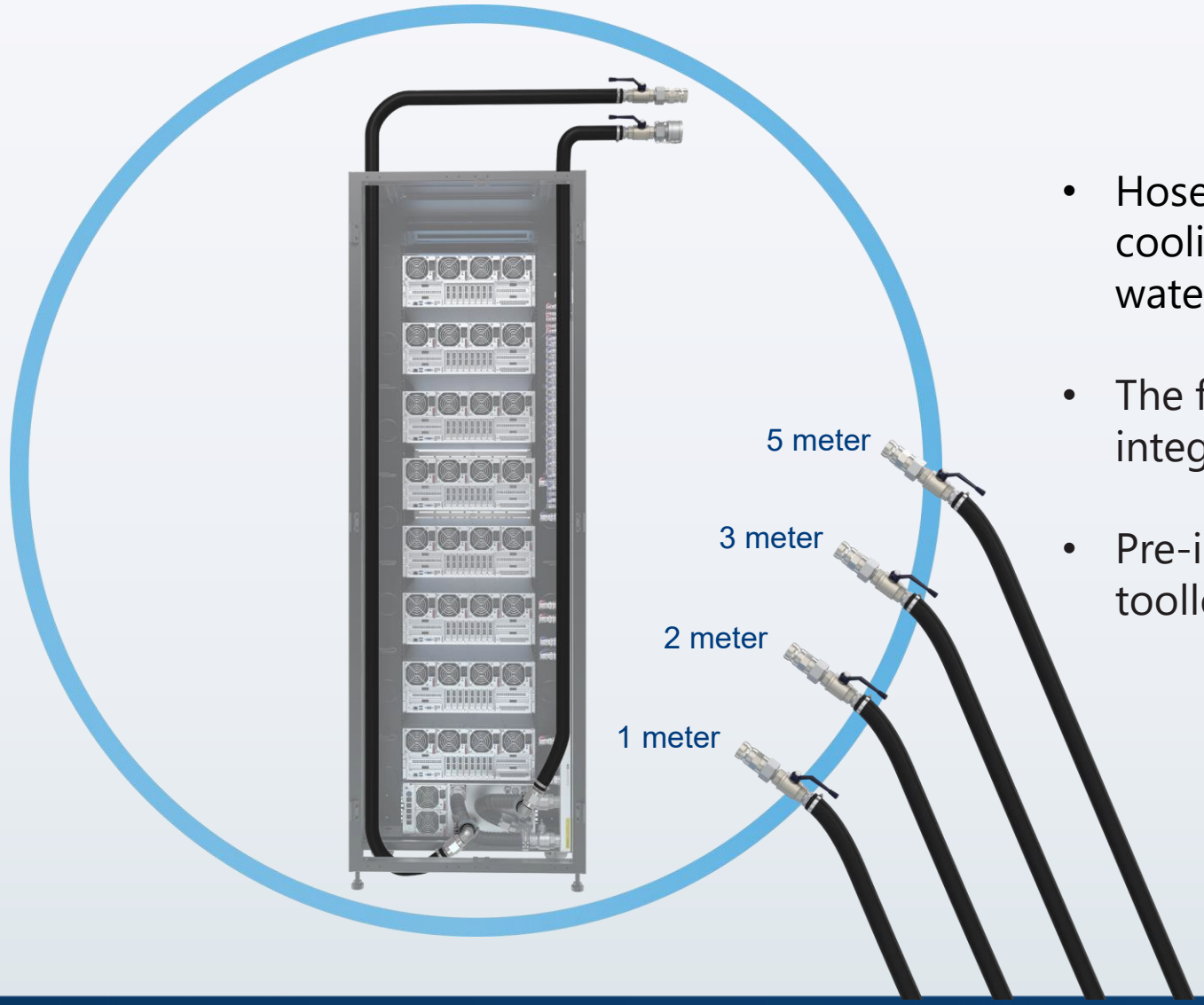
5. Cooling Hose Kit



- Hose Kits are designed to easily connect liquid cooling racks directly to data center primary water supply or cooling towers
- The flexibility of hose kits ensure seamless integration with new or existing facility piping
- Pre-installed Hose-Kit in rack for plug-and-play toolless deployment

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6. Chilled Door(RDHx) and Side Car(L2A)

- Optional liquid-cooling solutions are also available to enable DLC infrastructure performance in challenging or restrictive environments
- Includes chilled door or rear door heat exchanger (RDHx), liquid-to-air side car, and more

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7. L10 – L12 Testing and Validation

- DLC-2 enabled racks and clusters are tested and validated at L10 system level, L11 rack level and L12 cluster level before shipping
- L11 testing is conducted to ensure components meet performance, reliability, and integration standards before deployment, from compute nodes, networking, power distribution, cooling systems
- L12 testing evaluates cluster systems under different benchmarks, ensuring optimal configuration and functionality across all modern workloads to simplify deployment and accelerate time-to-online

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8. Cooling Tower

- Modular design for various cell sizes and configurations to offer easy scalability that meet diverse needs
- DLC-2 offers hybrid cooling towers as well as water towers that combine the features of dry and evaporative water towers into a single design
    - Especially beneficial in data center locations with strong seasonal temperature variations to reduce usage of resources and costs further
- 1MW or 5MW cooling capacity option with piping design and onsite installation

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9. Dry Cooler

- Air cooled heat rejection system where water consumption is not required
- Closed loop design to optimize system reliability
- Simple mechanical set up due to use of air rather than water
- Integrated controls for real-time monitoring and system management

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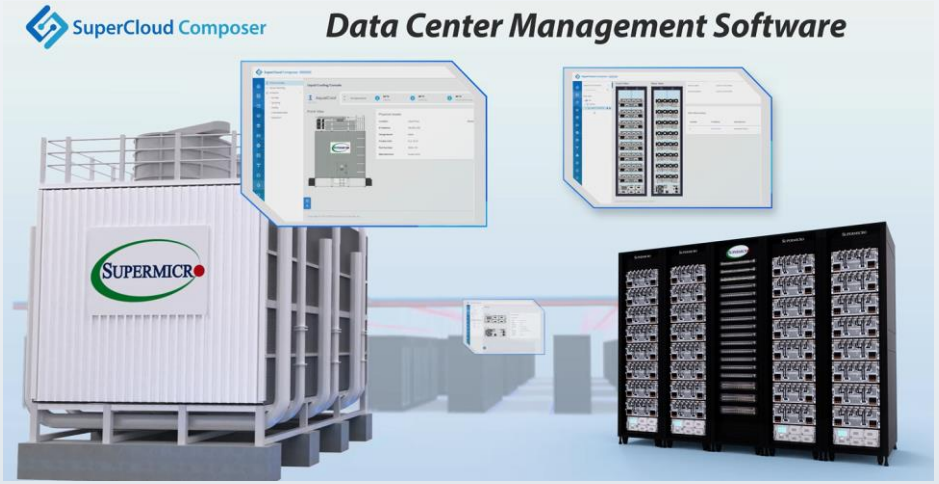
10. Management Software

- SuperCloud Composer® (SCC) Liquid Cooling Consult Module collects and monitors vital real-time information from GPU, CPU, DIMM, CDU, PDU, and Cooling Tower to ensure maximum operating efficiency
- Provides lifecycle management and orchestration of liquid-cooled data centers



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11. Onsite Services and Support

- Comprehensive onsite liquid cooling integration services to assure quick time-to-deployment and time-to-online
- Includes continued on-site support to ensure long-term success, along with a 4-hour onsite response time for mission critical up-time

Global Service Desk	**Digital** Media Retention Service	**Logistics** End-to-End
4-Hour Onsite Response	**Onsite** Integration Service	**Parts** Replacement Service

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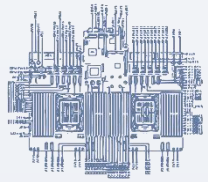
The Supermicro Advantage

Supermicro specializes in building data center scale IT solutions, optimized for customer business goals at every step of our highly integrated supply chain with USA-based program/manufacturing.

With 30 years of technology leadership, Supermicro meets the needs of the entire data center with a portfolio of application-optimized systems, cluster-level design, and on-site services.



Architecture

Extensive R&D capabilities to scale up and scale out data center and enterprise clusters.

Designed on Industry Standards

Ease of transition and upgrade with cost saving benefits

Solution Design

Building block solution offers gen-to-gen compatible server designs

High Flexibility and Customization

Product fit for wide range of customer use cases

Production

5,000 (2,000+ liquid cooled) racks per month worldwide accelerating time-to-market

Short Lead Time

Sooner you get IT working the sooner IT works for you

Deployment

L10 to L12 integration from design to validation to deployment with global service

Pain-free Data Center Plug and Play Deployment

Ready-to-go solution with minimal set up required

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Global Manufacturing with Leading Capacity

4 Production Locations

US, BV, TW, MY

Approx. **2,000** Liquid Cooled Racks per month

Approx. **1,200** Manufacturing Capacity For NVIDIA GB200 NVL72 per month

80-Racks Burned at 48 Hrs. in Parallel
120kW/GB200 NVL72 Rack
10-Racks = 1.2MW

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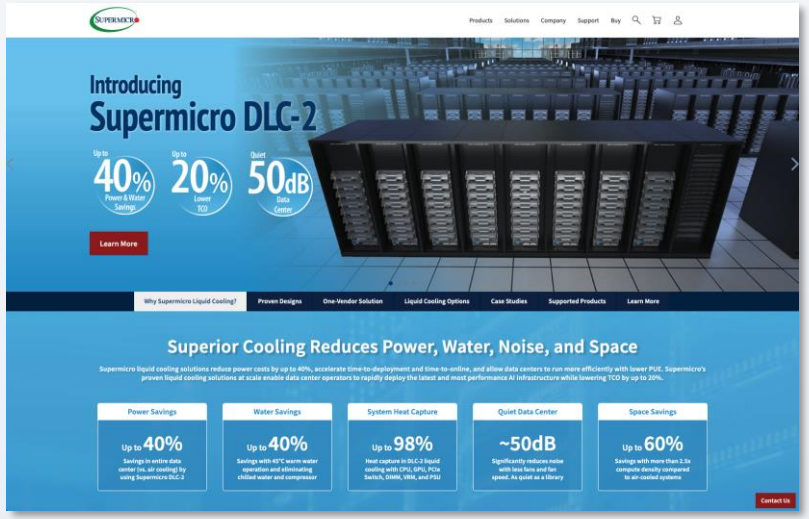
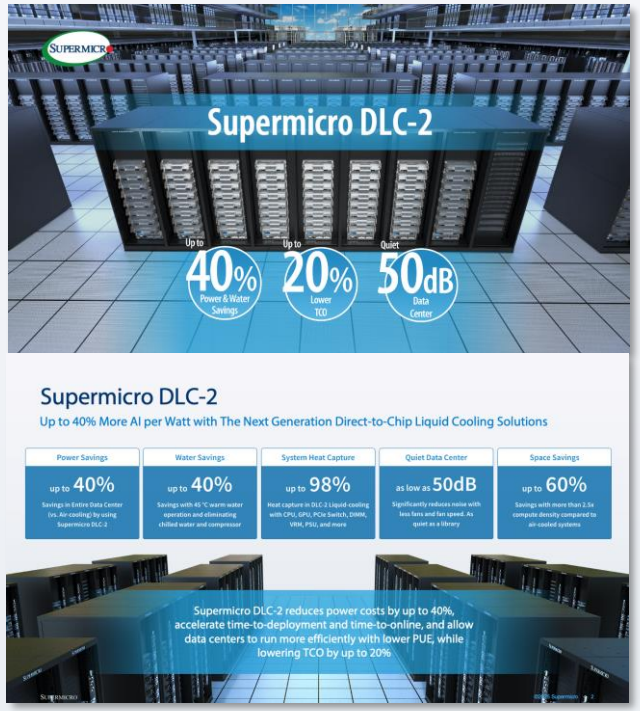
DLC-2 Resources



Liquid Cooling (DLC-2) Webpage

Datasheet/Brochure and whitepaper



Presentation Slides

www.supermicro.com/liquid-cooling

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DCBBS Resources

DCBBS Webpage

Datasheet/Brochure

Presentation Slides

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