Nidec Corporation

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Nidec Develops New Product "STC 1.0" Prototype to Enhance Data Center Design Flexibility

Optimizing cooling capacity by stacking up to five CDU units to meet server requirements

Nidec has developed a prototype of the "STC 1.0," a next-generation liquid cooling solution stacking OCP-compliant units to provide customizable cooling capacity. Featuring a stackable structure of up to five units, this next-generation liquid cooling solution enables flexible selection and configuration of units based on the cooling demands of the servers being deployed. The product is scheduled for its debut at "Interop Tokyo 2026" (Chiba, Japan) and "IDCExpo 2026" (Shanghai, China) in June 2026.

As generative AI becomes more prevalent, the heat density of servers installed in data centers continues to rise annually. In response, traditional CDUs with fixed cooling capacities required the implementation of high-capacity equipment in advance to anticipate future server replacements and increased density. “STC 1.0” was developed to achieve a high-level balance between preparing for future scalability and providing an optimal configuration at the time of initial deployment.

Key Features

1. Scalable Cooling Capacity Based on Server Thermal Load Specifications

Up to five In-Rack CDUs can be stacked based on the thermal load specifications of the installed servers, providing a cooling capacity of up to 1MW. This supports flexible facility design tailored to any server implementation plan, ranging from containerized data centers to large-scale facilities. Furthermore, flexible customization of rack specifications allows for adaptable support of high-capacity cooling needs up to 8 tiers and a maximum of 1.6 MW.

2. Balancing Maintainability and Reliability

Each unit in the stack is independently configured, achieving both high system-wide reliability and efficient maintenance operations. The redundant CDU configuration enables maintenance operations while keeping servers online.

Upcoming exhibitions of this prototype will serve as a platform to gather feedback from data center operators and server manufacturers, accelerating the development toward a commercial release. Through the development and mass production of high-performance liquid cooling solutions, contributions to the construction of sustainable AI infrastructure will continue to be made.

*1 CDU: Coolant Distribution Unit

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