

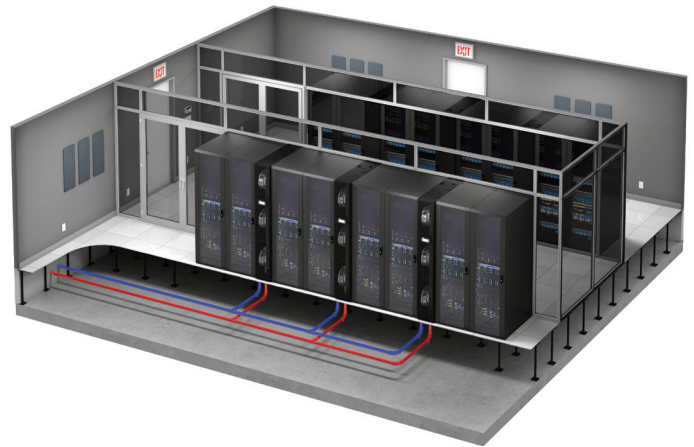
Chip-to-Atmosphere™

Data Center Cooling Solutions

STULZ and CoolIT Systems have partnered to deliver innovative cooling solutions to the data center industry. Chip-to-Atmosphere Cooling Solutions allow customers to capture dense heat loads at the source (inside the servers) and efficiently move it to the outside atmosphere.

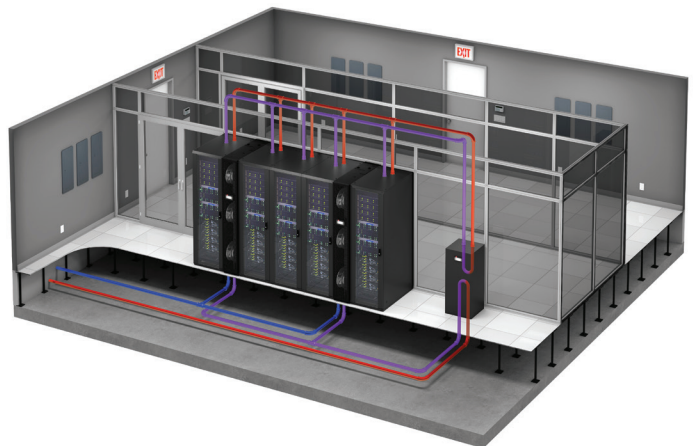
Standard DC Precision Cooling

In a typical data center application, standard row mounted air conditioners provide 100% rack cooling efficiently and reliably. STULZ row cooling is ideal for low to medium density loads.



Hybrid Chip-to-Atmosphere™

In hybrid configurations of typical air cooled servers and liquid cooled servers, the heat load requiring removal by room air conditioning is reduced significantly. With Direct Chip Level Cooling (DCLC) solutions, approximately 70% of the heat load of the server is cooled at the chip level. The 30% of the rack heat load not captured by DCLC and the remaining room load is conditioned by a reduced quantity of room air conditioners. This allows for more internal rack usage, while using less white space and fewer room air conditioners to efficiently cool higher density applications.



Micro-DC

STULZ Micro Data Center (Micro DC) offers further reduction in size for highly dense heat load applications and where space is at a premium. Micro DC's provide a completely enclosed, high density computing environment that is suitable for applications beyond the typical white space. 70% of the entire server load will be liquid cooled and only the remaining 30% discharged into the Micro DC environment will be cooled by an integral precision cooling unit. Configurations can be purpose built to include various options for heat rejection.

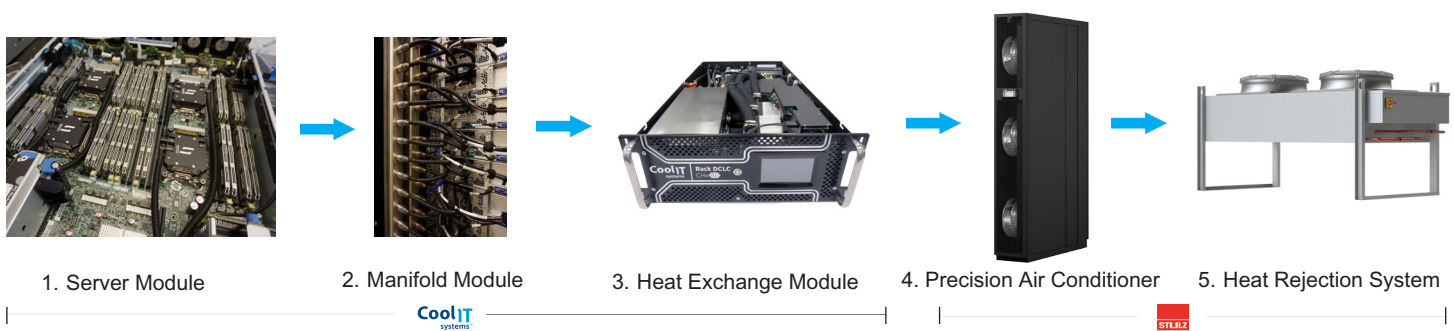


High Density Chip-to-Atmosphere™ Data Center Cooling Solutions

CoolIT Systems and STULZ have partnered to offer a full range of data center cooling solutions that actively transport heat from Chip-to-Atmosphere. STULZ is world-renowned for its precision cooling products which can now be combined with CoolIT's industry leading Direct Contact Liquid Cooling (DCLC™) systems. The result is ultra-efficient total thermal solutions that support any OEM server at even the highest density configurations.

When integrated, CoolIT Systems' DCLC solution can capture 60-80% of the servers' heat directly into liquid. To compliment this, STULZ precision cooling products capture the balance of the lower density heat efficiently. A considerable benefit forms when the total heat energy from both systems is consolidated, transported outside and then dissipated or recaptured for reuse, to heat nearby buildings, for example.

The modular Chip-to-Atmosphere approach combines CoolIT's DCLC solutions with STULZ-engineered precision cooling systems to address high density server configurations for today and tomorrow.



Optimize Data Center Potential

Work with the STULZ-CoolIT technical teams during planning stages to strategize unique Chip-to-Atmosphere solutions that can be optimized for the highest efficiency while minimizing capital cost. Once installed, feel confident that the complete solution is supported by the STULZ worldwide service organization for years of trouble-free operation. Chip-to-Atmosphere data center cooling solutions will enable customers to benefit from immediate OPEX results with minimal footprint, even in the most compute-heavy environments.



Performance
Facilitate peak performance for higher powered or overclocked processors



Efficiency
Benefit from a significant reduction in total data center energy consumed



Density
Enable 100% utilization of rack and data center spaces



Modular
Customized module configurations to fit any unique application or environment



Scalability
Meet fluctuating demands through the ability to modify data center capacity



Savings
Generate immediate and measurable OPEX benefits and reduce overall TCO

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