

A 3D rendering of a server rack with liquid cooling. The server is shown from a top-down perspective, with two large square chips on the motherboard. Red and blue liquid cooling tubes are connected to the chips. The server is housed in a black metal rack with perforated sides.

DIRECT-TO-CHIP HIGH DENSITY PRECISION LIQUID COOLING

Increased heat densities of IT Equipment in high performance data centers continues to drive the need for more efficient and effective cooling technologies. Traditional air cooling is not a sustainable solution in these settings. While liquid cooling offers far greater efficiencies than air cooling, many liquid cooling options require large capital expenditures, are difficult to integrate with existing infrastructure, and present complications when upgrades or added capacity are needed.

A rack level Hybrid Liquid Cooling System that couples direct-contact liquid cooling with a rear door air-to-water heat exchanger advances synergistic energy efficiencies as it enables reuse of waste energy from the air cooling loop to supply the liquid cooling loop. The rack-level Hybrid Liquid Cooling System presents a unique entry point to achieving much higher efficiencies of liquid cooling as well as built-in components that provide flexibility and scalability for attaining additional efficiencies long term.