

Lenovo Neptune™ Liquid Cooling

# Smarter doesn't sacrifice **energy efficiency or sustainability** for higher performance

Leading the world in liquid cooling technology for more than a decade



Lenovo

A decade ago, we were challenged to deliver an energy efficient supercomputer. Today, Lenovo Neptune™ liquid cooling technologies help solve humanity's greatest challenges the world over.

A revolution at the time, it answered the challenge of creating a supercomputer that delivered groundbreaking power while maintaining energy efficiency. The result was the first ever water cooled x86 server installation, that spent the better part of a decade on the TOP500 supercomputing list.

**As demand for system performance grows across an increasing number of industries, practical applications for this technology continue to expand.**

## Neptune™ enables **performance without compromise**

### Sustainability

Meet environmental goals and align with carbon reduction initiatives without sacrificing the ability to deliver the compute power your organization needs to compete and thrive.

### Density

Neptune™ delivers more computing power in a compact footprint to support your most demanding workloads.

### Competitive edge

Whether your organization is competing for faster time-to-market, scientific breakthroughs, or research grants, benefit from super-efficient high-performance computing that delivers results more quickly.

## Run hot, stay cool, **save energy**

Designed to run the highest core-count, highest frequency, latest generation processors from AMD, Intel and, NVIDIA, Lenovo Neptune™ direct warm water-cooled systems power through the most compute-intensive workloads.



**95%+**  
Heat removal efficiency



**40%**  
Lower power consumption

Lenovo Neptune™ Liquid Cooling delivers whisper quiet high performance with lower power consumption in a compact footprint so you can achieve higher density and more output from your data center.

## Gain a performance advantage

Breakthrough discoveries require breakthrough technologies. Engineering, modeling and simulation workloads, and even animation in movies require compute power at peak performance. Lenovo Neptune™ has already delivered a proven advantage in these sectors:

- Fintech, algorithmic trading and dev environments where frequency matters
- Computer aided engineering and computational fluid dynamics (CAE/CFD)
- Electronic design automation (EDA)
- Weather and climate modeling and forecasting
- Bioinformatics
- Geospatial and energy
- Physical and earth sciences research
- Animation render farms

## Meet Lenovo's Neptune™ cooling technologies

<b>Rack Water Cooling</b>	Keep heat down in the rack with either a <b>Rear-door Heat Exchanger (RDHX) and In-rack Cooling Distribution Units (CDU)</b> .
<b>Direct Water Cooling</b>	With <b>Full Systems</b> and <b>Core Systems</b> available, water removes heat from key components – including power supplies for completely fanless operation.
<b>Liquid Assisted Cooling</b>	With either a <b>Thermal Transfer Module (TTM)</b> or <b>Liquid to Air Heat Exchanger (L2A)</b> , traditional air cooled systems benefit from liquid cooling with specially designed heat handling, without added plumbing.
<b>Energy Aware Runtime Software (EAR) and xClarity Energy Manager</b>	By optimizing power states, turning off unused components, and routing workloads to the most efficient resources, our software helps deliver optimal performance at the lowest possible energy consumption.

## Why choose Lenovo for your most demanding computing needs?

We believe Lenovo provides the best high performance computing solutions in the market, a belief that is backed up by the facts.

- Lenovo is the **world's #1 supercomputer provider** according to TOP500.org
- **#1 on the Green500 list**, we built the world's most energy efficient supercomputer
- Still **#1 in x86 server reliability and leader in server benchmark performance** worldwide
- **Gartner Global Supply Chain Top 10** – global capability to deliver fully integrated factory tested solutions
- Multiple **HPCwire awards**
- Deep partnerships with leading software vendors mean we can deliver engineered, pre-optimized, **tested and certified IT solutions** that are high performance, scalable and cost-effective
- Open, reliable, and **secure platforms with seamless integration**

Performance + efficiency + sustainability... Lenovo Neptune™

### Want to know more?

Discover [Lenovo Neptune™ online](#), reach out to your Lenovo representative or get in touch with us by clicking the link below and you'll be contacted within 2 business days.



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technology  
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