# Imperial College London installs Lenovo-cooled Intel HX2 supercomputer to slash research energy use



Intel's recent announcement regarding the deployment of the new HX2 supercomputer at Imperial College London underscores a significant step towards integrating advanced computational technology with sustainability initiatives in academic research. This high-performance computing system, developed in partnership with Lenovo, is powered by the latest Intel Xeon 6 processors with Performance-cores (P-cores) and is set to play a pivotal role in the university's Research Computing Service.

The HX2 supercomputer, which will be situated in a co-location data centre in London, is designed with a robust emphasis on sustainability. According to Intel, the water-cooled system aims to enhance energy efficiency significantly. Leveraging Lenovo's innovative Neptune direct liquid cooling technology, this setup can dissipate up to 98% of system heat using warm water, which leads to a 40% reduction in power consumption and less reliance on traditional air conditioning methods. This approach aligns with broader sustainability trends, highlighting a shift towards more circular energy models where waste heat can be recaptured for reuse, potentially saving up to one million kilowatt-hours per year for large-scale data halls.

Kate Steele, EMEA HPC lead at Lenovo Infrastructure Solutions Group, remarked on the initiative’s importance, stating, “The selection of Lenovo Neptune liquid cooling for the HX2 supercomputer marks a significant step forward in sustainable research infrastructure.” This sentiment reflects a growing consensus within the academic community about the necessity of aligning cutting-edge technology with environmental responsibility.

The investment of £10 million in the HX2 supercomputer will enable Imperial College London not only to refresh its HPC resources but also position itself at the forefront of research innovation. Andrew Richards, director of Research Computing Services at Imperial, expressed optimism about the new capabilities, emphasising the project's potential to accelerate research workflows across disciplines. Furthermore, Dugan Witherick, head of RCS Platforms at Imperial, noted that the direct water-cooled system will bolster the institution’s commitment to sustainability while providing high-quality computational resources.

In parallel, the ICICLE (Imperial College Innovation for Collaborative Learning in Engineering) collaboration marks an ambitious partnership between Imperial, Intel, and Lenovo dedicated to enhancing sustainable HPC and AI capabilities. This initiative is poised to not only address pressing global challenges through advanced computational power but also promote diversity within the STEM fields by nurturing the next generation of researchers across various faculties, including Engineering and Natural Sciences, and extending into Medicine and Business.

Additionally, this collaboration will include the implementation of workshops focused on deep learning, water cooling, and hybrid cloud technologies, thereby preparing students for future opportunities in these evolving fields. As Kelly Zhang, a lecturer in Statistics at Imperial, noted, the integration of both CPUs and GPUs in their research efforts will foster innovative solutions in decision-making algorithms within healthcare.

Collectively, these developments signify a transformative period for computational research at Imperial College London, as they not only enhance scientific capability but also underscore a commitment to environmental responsibility. This multifaceted approach serves as an exemplar for other institutions aiming to harness the dual power of technology and sustainability in research initiatives.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://insidehpc.com/2025/06/imperial-college-london-chooses-intel-xeon-6-for-10m-lenovo-supercomputer/), [[4]](https://www.computerweekly.com/news/366537563/Imperial-College-London-teams-up-with-Intel-and-Lenovo-for-HPC-push)
* Paragraph 2 – [[1]](https://insidehpc.com/2025/06/imperial-college-london-chooses-intel-xeon-6-for-10m-lenovo-supercomputer/), [[2]](https://news.lenovo.com/pressroom/press-releases/icicle-partnership-sustinable-hpc-and-ai/), [[5]](https://insidehpc.com/2023/05/lenovo-and-intel-partner-for-sustainable-hpc-and-ai-capabilities-at-imperial-college-london/)
* Paragraph 3 – [[3]](https://www.imperial.ac.uk/news/253875/transforming-research-through-computing-with-icicle/), [[6]](https://digitalisationworld.com/news/65474/icicle-to-revolutionise-research-thanks-to-sustainable-hpc-and-ai)

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## Bibliography

1. <https://insidehpc.com/2025/06/imperial-college-london-chooses-intel-xeon-6-for-10m-lenovo-supercomputer/> - Please view link - unable to able to access data
2. <https://news.lenovo.com/pressroom/press-releases/icicle-partnership-sustinable-hpc-and-ai/> - Lenovo, Intel, and Imperial College London have formed the ICICLE collaboration to advance sustainable High Performance Computing (HPC) and Artificial Intelligence (AI). This partnership aims to nurture the next generation of researchers, promote diversity, and support life-changing discoveries through sustainable technology upgrades. The initiative will enable parallel computing workloads across all faculties, including Engineering, Natural Sciences, Medicine, and the Business School, providing researchers and industry partners with next-generation HPC capabilities to address global challenges. The collaboration also focuses on long-term research, emerging technology, and gender balance initiatives to prepare students for opportunities in the HPC and AI fields.
3. <https://www.imperial.ac.uk/news/253875/transforming-research-through-computing-with-icicle/> - Imperial College London, Intel, and Lenovo have launched the ICICLE partnership to revolutionise research through sustainable HPC and AI capabilities. The collaboration supports Imperial's strategy and recognises its mission to apply research to industry. The new supercomputing facility, named HEX, will provide researchers with advanced computing resources to accelerate their investigations. The partnership also includes workshops on deep learning, water cooling, and hybrid cloud, aiming to nurture the next generation of HPC and AI scientists and promote diversity in the field.
4. <https://www.computerweekly.com/news/366537563/Imperial-College-London-teams-up-with-Intel-and-Lenovo-for-HPC-push> - Imperial College London has partnered with Intel and Lenovo to enhance its High-Performance Computing (HPC) capabilities, aiming to become one of the UK's largest Tier 3 HPC universities. The collaboration focuses on providing sustainable HPC resources and supporting the development of a gender-balanced workforce skilled in HPC and AI. The initiative will enable parallel computing workloads across all faculties, including Engineering, Natural Sciences, Medicine, and Business, to accelerate research efforts. The partnership also includes the implementation of Lenovo's Neptune water cooling system to improve energy efficiency and reduce carbon emissions.
5. <https://insidehpc.com/2023/05/lenovo-and-intel-partner-for-sustainable-hpc-and-ai-capabilities-at-imperial-college-london/> - Lenovo and Intel have partnered with Imperial College London to deliver sustainable High Performance Computing (HPC) and AI capabilities as part of the university's Research Computing Service (RCS). The collaboration, known as ICICLE, aims to nurture the next generation of researchers and prepare students for opportunities in the HPC and AI fields. The initiative will enable parallel computing workloads across all faculties, providing researchers and industry partners with next-generation HPC capabilities to address global challenges. The partnership also focuses on long-term research, emerging technology, and gender balance initiatives.
6. <https://digitalisationworld.com/news/65474/icicle-to-revolutionise-research-thanks-to-sustainable-hpc-and-ai> - The ICICLE collaboration between Imperial College London, Intel, and Lenovo is set to revolutionise research through sustainable High Performance Computing (HPC) and AI capabilities. The partnership aims to nurture the next generation of researchers, promote diversity, and support life-changing discoveries through sustainable technology upgrades. The initiative will enable parallel computing workloads across all faculties, including Engineering, Natural Sciences, Medicine, and the Business School, providing researchers and industry partners with next-generation HPC capabilities to address global challenges. The collaboration also focuses on long-term research, emerging technology, and gender balance initiatives.
7. <https://www.student-circuit.com/news/lenovos-uk-university-supercomputing-collaboration-powering-research/> - Lenovo, along with Intel, is supporting Imperial College London to deliver more sustainable High Performance Computing (HPC) through the ICICLE collaboration. This partnership aims to nurture the next generation of HPC and AI researchers, promote diversity, and advance life-changing discoveries. The university's Research Computing Service (RCS) is now equipped with Lenovo's Neptune Water Cooling Technology to ensure server components and high bandwidth memory (HBM) run efficiently with cooling capabilities otherwise not achievable using traditional methods. The collaboration also includes workshops on deep learning, water cooling, and hybrid cloud.