



Imperial College makes research mobile

Mobile workstations give Imperial College researchers the freedom to collaborate



Company

Imperial College London is the only UK university to focus entirely on science, engineering, medicine, and business. With a strong international reputation for excellence in teaching and research, it is often ranked in the top 10 universities worldwide. In the academic year 2013 - 14, the university had 5,800 postgraduate students, split evenly between taught courses and research.

Challenge

Postgraduate research in engineering, physics, and pure mathematics can be extremely computing-intensive, and has in the past, been carried out on fixed workstations. Researchers would have to visit the lab to carry out research in areas such as fluid modeling, high-energy physics, and aeronautical or mechanical engineering; or to program software for the high-performance computing (HPC) infrastructure. Collaboration with other academics would involve using remote desktop sessions.

Solution

Imperial College provided 100 researchers with mobile workstations from the HP Z Workstation* range, including HP ZBook Workstation* Ultrabook™ devices, which offer up to 1TB of storage and 16GB in a device that is less than an inch thick. The workstations are based on the Intel® Core™ i5 and i7 processors, and run Microsoft Windows* 7 or Windows 8.1. They are certified to run demanding applications including Pro/ENGINEER*, AutoCAD*, and Solidworks*.

Impact

The new devices have enabled researchers to work more flexibly, in a variety of locations. They can take their research with them wherever they go. For mathematics and physics researchers, the devices enable them to prototype software before it is deployed on the HPC infrastructure. Intel® software tools enable researchers to quickly and efficiently develop high-performance parallel algorithms and software. The researchers use the Intel® Fortran Compiler and Intel® C++ Compiler to create code optimized for Intel® processors, and test and refine it using Intel® vTune™ Amplifier before deploying it on the HPC system, minimizing the risk of error. Intel vTune Amplifier provides researchers with the powerful analysis tools they need to sort, filter and visualize results on the timeline and on their source code. It also provides them the insight they need to optimize hotspots, threading, locks and waits, OpenCL, and bandwidth.

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