

media release

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SUPERCOMPUTER SAVES 5000 YEAR WAIT FOR GENE RESEARCHER

Australia's fastest supercomputer has saved a PhD student a 5,700-year wait to analyse his genetic research data.

For the past three years the UNSW PhD student, Chris Cotsapas, has researched the role that a few genes have on thousands of others within the mouse genome.

But when he started analysing his data he realised he was going to run out of time. He calculated it would take his desktop computer 5,700 years to analyse the data from over 15,000 mouse genes in his dataset.

That was when he turned to Australia's fastest high performance computer, officially opened in Sydney today at the Australian Centre for Advanced Computing and Communication.

"My computer does 20,000 of calculations per minute, but the maths I'm doing involves 6×10^{13} , or 60 billion calculations," said Mr Cotsapas. "Said another way, I'm trying to solve 2 million analyses, each requiring 60 billion calculations.

"At that rate it would take my PC three billion minutes – or about 5,700 years to get an answer. Frankly I can't wait that long – I want to hand in my thesis next March," he said.

In contrast, the new supercomputer knocked over the problem in a mere 32 hours.

The machine's raw power is delivered by a cluster of 155 Dell dual processor Pentium nodes running at 3 GHz on a Linux operating system. At top speed the Dell Cluster can crunch 1.1 teraflops or 1.1 trillion floating-point calculations per second. That puts it among the speediest 20 per cent of supercomputers in the world.

The head of Biotechnology and Biomolecular Sciences at UNSW said genetics research was becoming more maths driven.

"Our ability to describe the nature of living systems relies more and more on collaboration between biologists, mathematicians and computer scientists," said Professor Peter Little, who is the chief investigator of the mouse gene research project.

Mr Cotsapas is one of hundreds of researchers using three supercomputers based at the Australian Centre for Advanced Computing and Communication (ac3).

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