

AC3'S DELL CLUSTER FUELS UNSW 'REDBACK' RACING TEAM!

Michael Schumacher's crew at Ferrari don't know it, but come December, the Redback Racing Team at UNSW is ready to torch the competition at this year's Australasian Formula SAE race in Melbourne!



The UNSW Redback Racing car, powered by a 600cc engine, was designed with the assistance of **ac3's** Dell Linux Cluster.

Led by UNSW PhD student James Neale, the team of 30 mechanical and manufacturing engineering students have designed, built and tested their \$60,000 formula-style race car—the RB-2004—with the aid of **ac3's** Dell Linux Cluster.

Powered by a Yamaha 600cc engine that zips from 0–100 kph in an incredible 3.4 seconds, the team modified the engine's fuel injection and inlet and outlet manifolds by using computational fluid dynamics (CFD) to model design options.

"CFD is a way of using a computer to model the airflow inside an engine," says Neale, who plans to finish his PhD within six months.

"It means we can simultaneously analyse different designs and evaluate them without the great time and cost it would take to build and test them.

"The three-dimensional transient airflows we modelled were computationally intensive. If we had done them on a standard PC, it might have taken a month or more to get a result, whereas it only took us a day or two on the Dell Cluster, because it can run multiple analyses very quickly."

Formula SAE racing

Conceived by the Society of Automotive Engineers in the US, Formula SAE racing has run since 1981 to raise tertiary students' awareness of the automotive industry.

Students assume the role of a vehicle production team to produce a small high-performance race car prototype for evaluation. The cars are assessed against performance criteria such as acceleration, braking and handling, and points are awarded for designs that are low cost, reliable and easy to maintain.

MORE HORSEPOWER FOR AC3'S LINUX CLUSTER

ac3's Dell Linux cluster has been upgraded with an additional 32 nodes, increasing the number to 187, providing processing power around 1.25 teraflops.

The additional nodes were acquired with ARC funds for the *CUDOS* Centre of Excellence, to provide dedicated computing capacity to the Centre.



ac3's Dell Linux Cluster has been upgraded with an additional 32 dual processor nodes to bring the total number of nodes to 187.

ac3's University Services Director, Professor Lindsay Botten, is leader of the *CUDOS* computational modelling program, based at UTS.

AC3 HOSTS ABS PORTAL FOR NSW GOVERNMENT

The latest Australian Bureau of Statistics data is now a mere keystroke away for NSW government agencies as a result of a whole of government licence deal brokered and funded by New South Wales Treasury.

Known as **ABS@NSW**, the web-based electronic container of ABS data, information and publications is now available free to NSW government agencies. ABS information in the container is updated daily.

The State Library of New South Wales is managing the rollout, contract signing and ongoing management of access to the service.

The whole-of-government service will replace existing contracts between the ABS and individual agencies for provision of ABS data.

"The service means that agencies will have the latest statistical data for research and decision making in government," says Lucy Arundell, the State Library's Assistant State Librarian and CIO of *eLibrary Services*.

"**ac3** is hosting the web-based service and is a critical partner in making the service available. They have the capacity to handle the anticipated traffic volumes, and can guarantee agencies with secure 24/7 access to **ABS@NSW**."

"NSW Government Agencies will now have desktop access to all ABS publications released from 1998, as well as a substantial range of other products," says Ms Arundell.



ac3 is hosting a portal for ABS data for the NSW Government

The deal means that all areas of government have access to data, irrespective of their size, budget, location or function.

The State Library provides first level agency support, while the ABS provides advanced support and training on how to navigate and best use the service.

VIRTUAL TOOL DESIGN PAYS OFF

ac3 business partner, Austool, has completed a landmark project which shows that *virtual tool design* can significantly enhance a tooling company's profitability.

The project, funded by the NSW Department of Environment and Conservation, examined a recent tool build to determine the extent to which computer simulation could have predicted the problems that required six tooling iterations to be built before the final design emerged.



Tool Designer Willi Spiller of Hawill Tool Design, discusses tooling issues with simulation engineers.

An independent auditor was engaged to closely monitor and report on the before and after results.

"The results show that the use of computer simulation, as well as improved communication between the product designer and the tool designer, would have produced 25% savings in tooling costs, 30% savings in environmental costs, and nearly 50% savings in production time," said Austool CEO, Bob Lundie-Jenkins.

A summary of the project is available at http://www.ac3.com.au/reports/Austool_EPA_project.pdf.

"**ac3**'s support for these demonstration projects has been invaluable," said Mr Lundie-Jenkins.

Based at Ingleburn in Sydney's south west, Austool works with tooling companies to increase their competitiveness through technology transfer, joint ventures, training and new product development. For more information see <http://www.austool.com.au>.

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