



## Growing Computing Resources

The HPSC moves forward into 2005-06 with the aggregate peak compute power becoming available to CSIRO through its direct activities reaching about 3000 Gflop/s.

In particular, recent related purchases include:

- IVEC and HPSC co-funding a 160 processor Altix system in Perth
- The APAC National Facility purchasing a 1536 processor Altix system, where HPSC in turn funds CSIRO access to a small share of this system

As a result, HPSC is positioned to provide a significant coverage of computational needs within an efficient set of resource classes.

CSIRO's aggregate compute power available through HPSC is now made up as follows:

- 1700 Gflop/s of cluster compute power through a heterogenous system located at HPSC including both 32 bit and 64 bit processors with some sections (about 40%) funded by and dedicated to the use of particular research groups
- Near 1000 Gflop/s of shared memory computer power via a dedicated Altix at HPSC and shared use of Altix systems at IVEC and the APAC National Facility
- 320 Gflop/s of vector computing power, a share of the large NEC SX-6 system operated by the Bureau of Meteorology to support its production weather forecasting and research

In addition, HPSC enters the new financial year holding just over 100,000 Gbytes of primary scientific data on near-line storage within a fully automated disk/tape system.

## Growing User Base

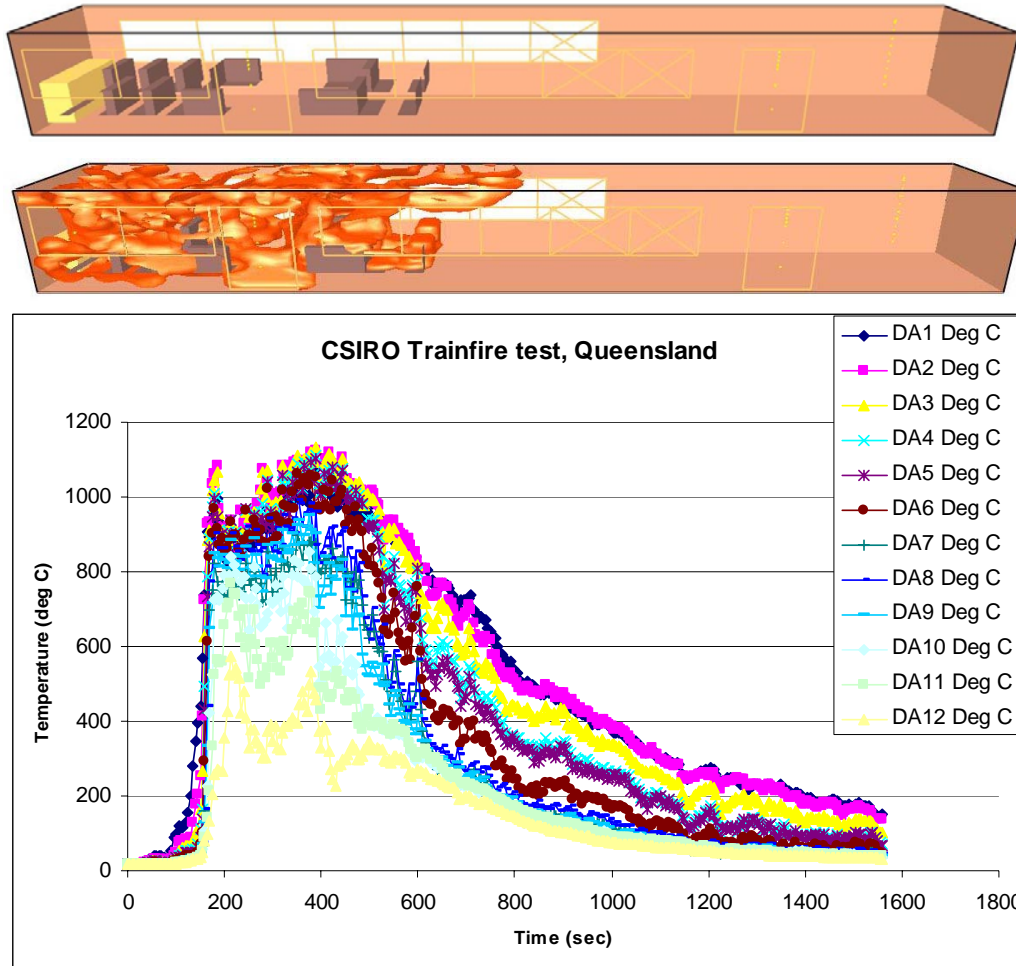
Over this last year, 65 accounts have been issued for new HPSC users, 53 to CSIRO staff and 12 for external users including the Bureau of Meteorology staff. Several groups have also become significant users of HPSC systems. These include:

- CEM/Perth Uses Altix and cluster systems for geoscience modelling, a trans-continental SRB federation for data management, and make use of the MSC and Ensign software licensing scheme
- CMIS/Melbourne Uses Altix and cluster systems for CFD work, are co-investing in an HPSC based cluster, and make use of Ensign software from the software licensing scheme
- CMIS/Floreat Uses Altix and cluster systems for land management projects
- CMIT/Nth Ryde Uses Altix for fire safety work

## Fire Safety Studies

As an example of a new user's work, Yunlong Liu, of CMIT's Fire Laboratory, uses HPSC systems to calculate the effect of fires in a variety of situations.

Below are some computed visualisations of a fire in a train, and graphs of the temperature at the carriage door for a variety of parameters:



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