HPCx Quarterly Report
July – September 2006

1 Introduction

This report covers the period from 1 July 2006 at 0800 to 1 October 2006 at 0800.

The next section summarises the main points of the service for this quarter. Section 3 gives details of the usage of the service, including failures, serviceability, CPU usage, helpdesk statistics and service quality tokens. A summary table of the key performance metrics is given in the final section. The Appendices define the incident severity levels and list the current HPCx projects.

2 Executive Summary

- This has been another busy but successful quarter for the HPCx service and reliability has remained very high.
- Usage has improved from last quarter and has returned to the normal levels of more than 75%. Capability usage averaged more than 30%.
- The major focus from a Service perspective has been preparations for the Phase 3 upgrade. The additional nodes and disk storage were all in place for an 'early-access' service from early October. The implementation tests are planned for October and should allow a full, production service from the beginning of November.
- The 4th HPCx Annual Seminar, *Moving Science Forward*, went ahead very successfully on the 4th October in Edinburgh with more than 70 attendees. The talks covered a wide range of applications areas and included talks from both IBM and Cray; we received very positive responses from the participants.
- A well-attended User Group was held as the final session of the Annual Seminar. We solicited input from the users on: the batch queue setup for Phase 3; and the Annual Plan for 2007, including topics for technical reports and possible course locations.

- A workshop on Materials Modelling was held on the preceding day in the same location. This was interesting and interactive.

- There was a STAC meeting in London at which the committee members were positive about our progress against the Annual Plan. The various activities are on target and we have clear plans to complete them successfully.

- A final report on the HPCx-IBM Lifesciences project has been prepared and highlights of the various projects are being developed into web pages.

- The use of Simultaneous Multithreading (SMT) on HPCx has been investigated across a wide range of codes. This activity has contributed to a number of technical reports and a talk at ScicomP.

- The Terascaling team have worked on a wide variety of codes during this quarter. Significant progress has been in improving the parallel performance of MPPCRYSTAL for systems of current scientific interest.

- HPCx supported Peter Coveney and collaborators for various demonstrations at the All Hands Meeting in September 2006 and will repeat this for demonstrations at Supercomputing 2006.

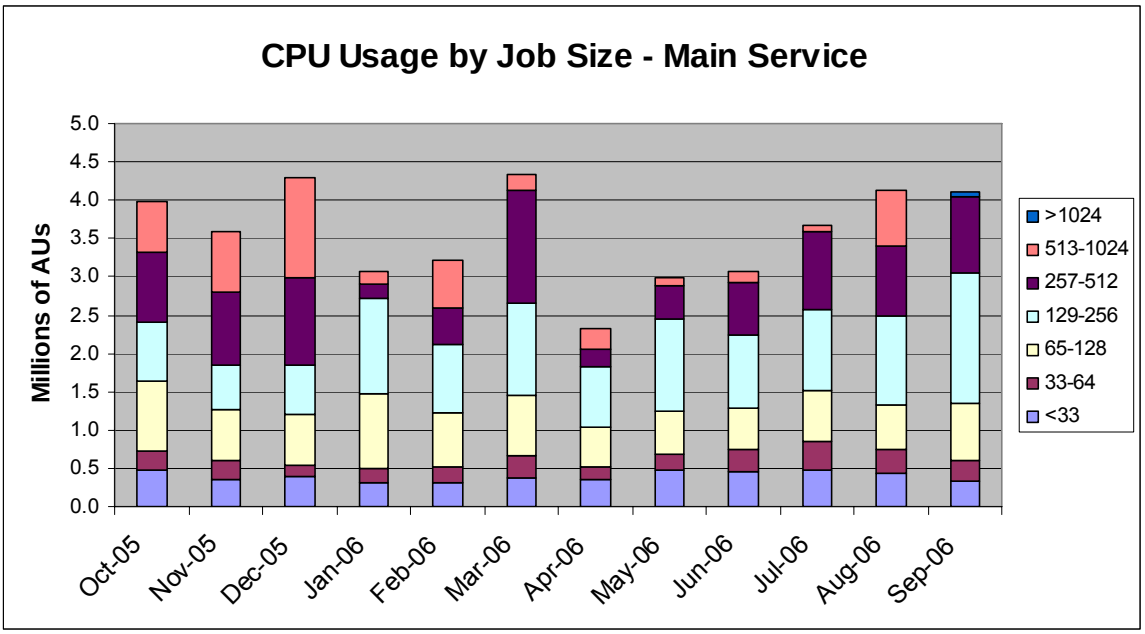
- A number of codes (including the Unified Model) experienced problems after the major software upgrade in May that was required for the Phase 3 upgrade. These problems were tracked down to memory leaks in MPI and have now been successfully resolved. A report, including key recommendations, was approved by the Oversight Committee.

- The Software Engineering team have been investigating the performance of Power 5 and OO programming. This work has been published on the web in technical reports.
- There are now 53 projects on HPCx, including the former CSAR projects, with another approved by EPSRC for access. This leaves one spare place within the new maximum of 55.

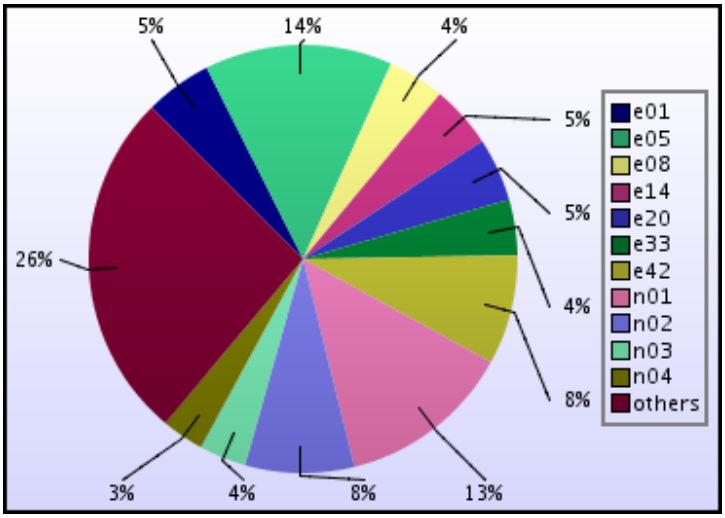
3 Utilisation

Main service

3.1.1 by Job Size

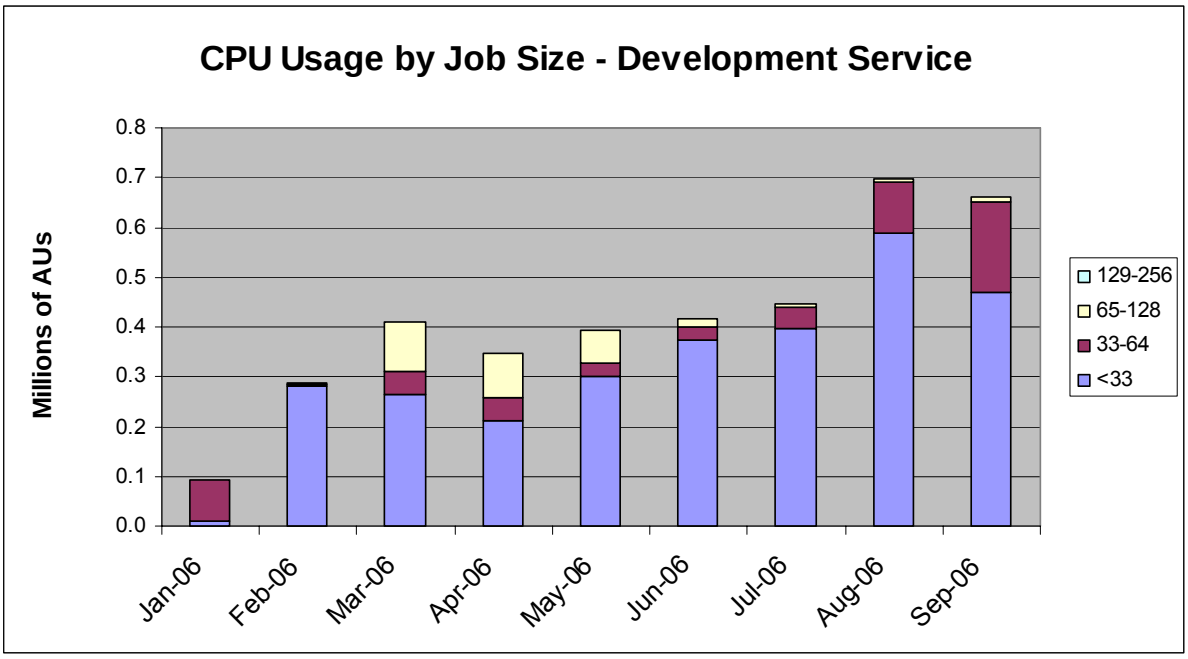


3.1.2 By Consortium

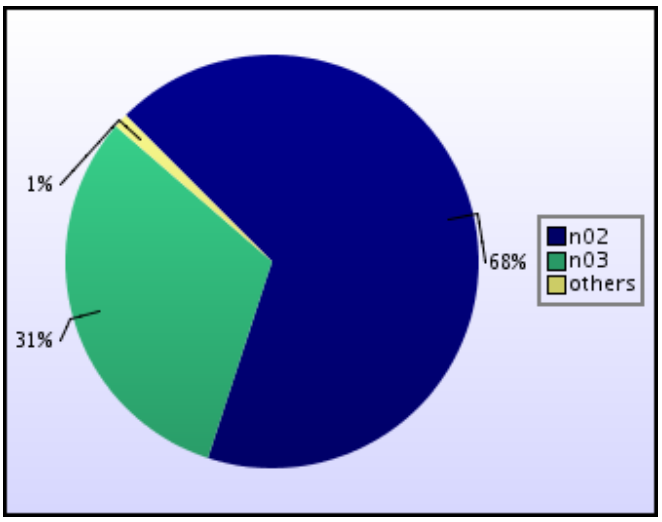


Development Service

3.1.3 By job size



3.1.4 By Consortium



4 Summary of Performance Metrics

Metric	*TSL*	*FSL*	*July*	*August*	*September*
Technology serviceability	80%	99.2%	100.0%	99.9%	100.0%
Technology MTBF (hours)	200	300	∞	732	∞
Number of AV FTEs	7.5	10	14.5	14.9	13.8
Number of training days per month	22.5/12	30/12	21/7	21/8	22/9
Non in-depth queries resolved within 3 days	85%	97%	98.9%	98.8%	96.3%
Number of A&M FTEs	3.75	5.75	5.5	5.8	6.0
A&M serviceability	80%	99.6%	97.0%	100.0%	99.4%

Colour	*Meaning*
	Exceeds FSL
	Between TSL and FSL
	Below TSL

Note 1: The number of training days is reported as a running total since the start of the year.

Note 2: The above table includes the revised FSL targets for *training days* and *A&M serviceability*, which have been provisionally agreed with EPSRC.