2024, 41th NATIONAL RADIO SCIENCE CONFERENCE (NRSC 2024)

Horus University in Egypt (HUE)

International Coastal Road, New Damietta

April 16th - 18th 2024

Title of the Poster

Supervised By: Prof.*******
Students WHO DID THE STUDY**
UNIVERSITIES THEY ARE AFFILIATED WITH

Abstract

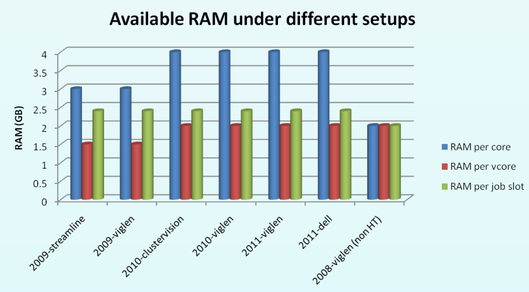
A poster is a visual support for discussion about your work with other scientists. This poster layout gives you some guidelines for the preparation of posters for NRSC2016.

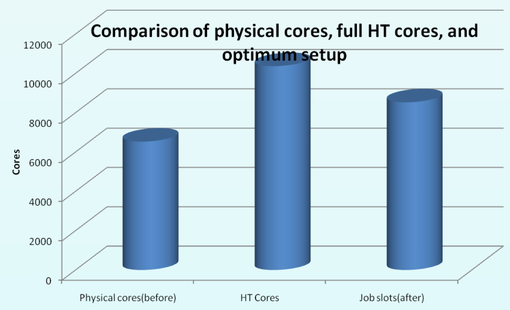
This document provides a guideline for preparation of posters for the NRSC2016 and can be used as a template for the conference poster. The authors must produce the poster PowerPoint (PPT) file following this guideline or using this template, and print it in **colour**.

The poster must be printed on **One Portrait page** rollup with resolution of 4750*2000 pixels.

Methodology & System Setup

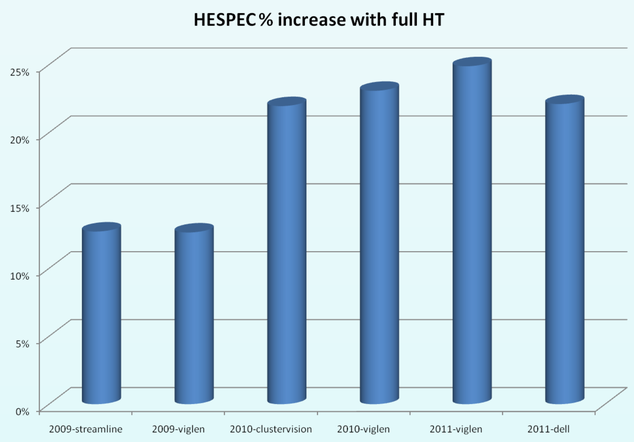
The RAL TIER1 batch farm consists of several multicore, hyperthreading capable CPUs. Increases in the amount of memory per node combined with experiences from other sites made hyperthreading an attractive option for increasing job throughput.
RAL supports all LHC VOs, with prime users being Atlas, CMS and LHCB, and a 10% of resources is devoted to non-LHC VOs
The virtual cores provided by hyperthreading could double the batch farm capacity, however the amount of memory available in the batch nodes did not permit that. LHC jobs require more than 2GB RAM to run smoothly.





Introduction

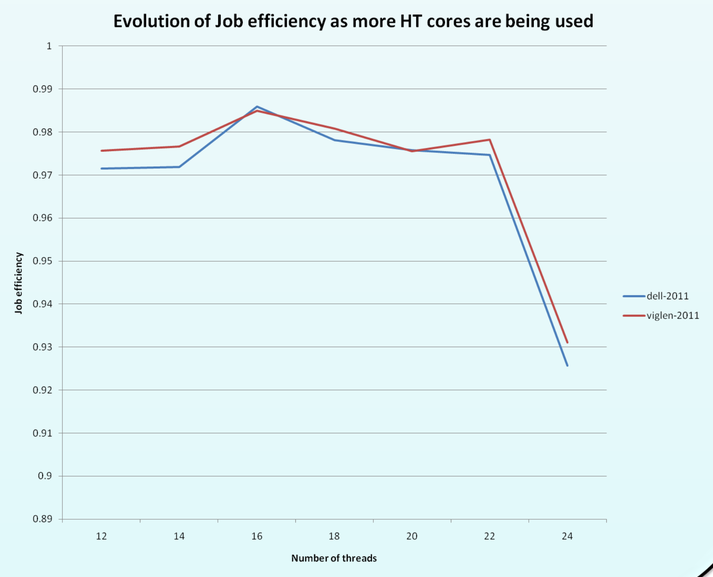
Each generation of batch farm hardware with hyperthreading capability was benchmarked with HEPSPEC, progressively increasing the number of threads up to the total number of virtual cores Benchmarks at that time were conducted using Scientific Linux 5. Scientific Linux 6 benchmarks were run later as the batch farm was set to be



Results

- Overall, 2000 extra job slots and 9298 extra hepspec were added in the batch farm using already available hardware
- Average job time increases as expected, but overall job throughput increased
- Network/disk/power/temperature usage did not increase in a way that could negatively affect the overall throughput or require additional maneuvers
- Batch server was able to handle the extra job slots
- **Of critical importance is the sharp drop in job efficiency as job slots approach the upper hyperthreading limit. This means that real world VO jobs would suffer if we went for full batchfarm HEPSPEC performance!**

Make	Job Slots per WN	Efficiency	Average Job Length (mins)	Standard Deviation (mins)	Number of jobs
Dell	12	0.9715	297	370	19065
Viglen	12	0.9757	320	390	23864
Dell	14	0.9719	238	326	6118
Viglen	14	0.9767	270	341	11249
Dell	16	0.9859	343	254	6550
Viglen	16	0.985	304	249	8756
Dell	18	0.9781	377	390	5014
Viglen	18	0.9808	350	391	6263
Dell	20	0.9758	318	346	11339
Viglen	20	0.9756	260	285	11229
Dell	22	0.9747	387	315	6317
Viglen	22	0.9783	305	236	6307
Dell	24	0.9257	544	373	6650
Viglen	24	0.9311	372	278	6713



System Parameters

Conclusions

- New procurements now take into account the hyperthreading capabilities
- For 2012, dual 8 core CPU systems go up to 32 virtual cores
- Systems were procured with 128 GB RAM in order to exploit full hyperthreading capabilities
- Dual Gigabit links, in the future single 10 GB as they became more cost effective
- So far RAID0 software raid setup has proven sufficient for disk I/O
- Performance gains so far on par with previous generations
- By spending a bit extra on RAM, we save more by buying fewer nodes
- This also saves machine room space, cables, and power

References

Biography

- Details about each contributor and Personal Photo