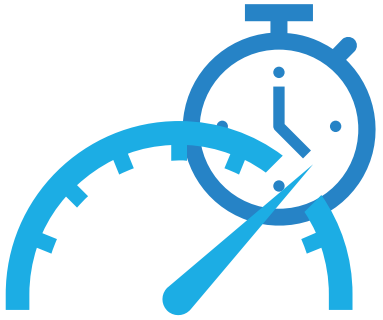
CS3210

Parallel Computing



Lab 6

Mon (4pm)
Tues (2pm)

Admin
Updates

- Assignment 3 FAQ document updated
  - Please check the FAQ document for errata and collated responses to your questions
- If you apply compiler optimization flags, apply them both to the starter code and your final implementation
- Starter code takes a significant amount of time to run with the provided configurations
  - Slowest on the Xeons with no compiler optimization flags

Admin
Roadmap

- You should use multiple machines for benchmarking (at least 2 i7-7700Ks or 2 Xeons)
  - Check if anyone is running the benchmarks on your node
  - You can use any machines with the given MPI programs
- Today's lab
  - Part 1: Integer Sort (IS) Benchmark
  - Part 2: Performance Comparison
- No mandatory lab submission this week

Admin

Continual Assessment

- Lab 6 has an optional submission for bonus 2%
  - Can only be used to make up any lost marks from tutorial quizzes (4%) and lab submissions (6%)
- Tutorial quizzes (4%)
  - 1% for each quiz - full credit awarded for a quiz if you got at least 2 questions correct
- Lab submissions (6%)
  - 2% for each of Labs 1, 2 and 4 - full credit *should* be awarded for each if you submitted according to the requirements

Part 1

Integer Sort (IS) Benchmark

- NASA Parallel Benchmarks (NPB) is a benchmark suite for evaluating performance of supercomputers

- Integer Sort (IS) benchmark
  - Input size configured by a compile-time parameter - in increasing size: S, A, B, C, D
  - Input size D may not run on the lab machines
  - Provided: serial, OpenMP and MPI implementations

Part 2

Performance Comparison

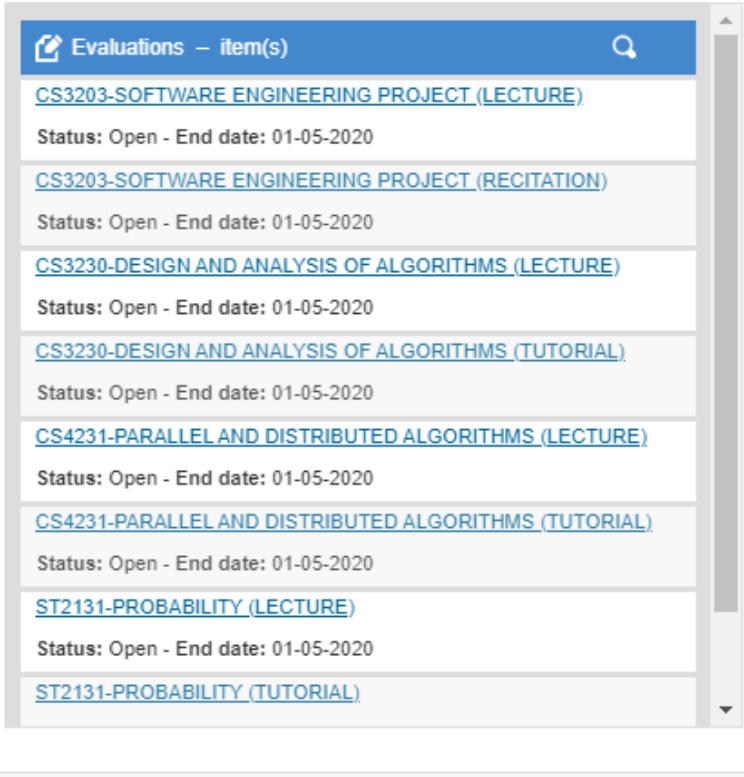
- All NPB benchmarks computes execution statistics of parallel implementation

- Execute the following benchmarks
  - Serial implementation
  - OpenMP implementation (Class C) with increasing number of threads (2, 4, 8, 16, …)
  - MPI implementation (Class C) with a varying number of MPI processes (2, 4, 8, 16, …) on (1) cluster of Core i7-7700Ks and (2) cluster of Xeon 4114s

Admin

Module Feedback

- Module feedback survey closes **20 Nov 2020, 2359h**
  - Please provide feedback, so we can improve in future semesters ☺
  - You can access the surveys via LumiNUS



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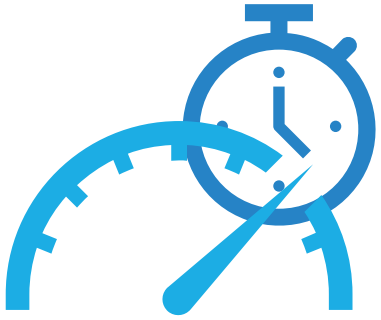
Thank you! Any questions?



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bit.ly/cs3210-t04-qn