Additional Reading for COMP35112

John Gurd

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Lecture 1 – Introduction


Lecture 2 – The World of Parallelism


Lecture 3 – Parallel Programming using Data Sharing

Consult the Java library class documentation on the web for information about the Java features. Google “pthreads” leads to lots of documentation about pthreads.

Lecture 4 – Shared Memory Multiprocessors


Lecture 5 – Other Cache Coherence Protocols


Lecture 6 – Programming with Locks and Barriers

The Art of Multiprocessor Programming, M. Herlihy and N. Shavit, Morgan Kaufman, 2008. This book is generally useful on this topic, especially Chapter 9. Note however that some of the material presented is rather more advanced than that covered in the course unit.

Lecture 7 – Hardware Support for Synchronisation


Lecture 8 – Lock-Free Data Structures

The Art of Multiprocessor Programming, M. Herlihy and N. Shavit, Morgan Kaufman, 2008. This book is generally useful on this topic, especially Chapter 10. As mentioned above, some of the material presented is rather more advanced than that covered in the course unit.
Lecture 9 – OpenMP and MPI

Patterns for Parallel Programming, T. Mattson, B. Sanders B.Massingill, Addison-Wesley, 2005. The lecture was largely based on Appendices A and B of this book. The specification for OpenMP is readily available at http://www.openmp.org.

Lecture 10 – Speculation


Lecture 11 – Transactional Memory (1)

Transactional Memory, T. Harris, J. Larus and R. Rajwar, 2nd Edition, Morgan & Claypool, 2010. This is the definitive book on this topic, but it covers far more material than was presented in this lecture and the next lecture. Chapter 18 of The Art of Multiprocessor Programming, M. Herlihy and N. Shavit, Morgan Kaufman, 2008 is also useful (and again goes well beyond the lectures).

Lecture 12 – Hardware Support for Transactional Memory


Lecture 13 – Memory Consistency


Lecture 14 – GPUs, CUDA and OpenCL


Lecture 15 – Functional Programming and Dataflow Principles
