Multicore Semantics and Programming

Pratical Report

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Abstract

A written report for Tim Harris' section of the course

1 Summary of Experimental Conditions and Methods

1.1 Hardware

Experiments were carried out on a HP Spectre Laptop, which was plugged in and on maximum performance settings.

The laptop has a quad core, hyperthreaded, intel i7 8550u processor for a total of 8 physical threads (two threads per core) [1].

1.2 Experimental Methods

Experiments were written in Java and run under Windows 10. The laptop was set not to sleep for the duration of each experiment and other user processes were kept to a minimum to improve reliability of the results.

1.3 Code Written

The code used to run experiments and process the resulting data can be found on a dedicated Github repository[2].

2 The Experiments

2.1 Set Up and Initial Test

The code ran correctly.

[1] https://ark.intel.com/products/122589/Intel-Core-i7-8550U-Processor-8M-Cache-up-to-4-00-GHz-

[2] https://github.com/Al153/MulticoreSemantics

2.2 Simple Multithreading

2.3 Read Only Shared-Arrays

2.4 TATAS Lock

2.5 Reader-Writer Lock

2.6 Flag-Based Lock

2.7 Write Mode

3 Summary