LEBANESE AMERICAN UNIVERSITY
SCHOOL OF ARTS AND SCIENCES
DEPARTMENT OF COMPUTER SCIENCE & MATHEMATICS
BYBLOS

CSC 447: Parallel Programming for Multicore and Cluster Systems

Instructor: Haidar M. Harmanani
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Lab 5
OpenMP
Due: February 21, 2018

This assignment has two purposes: (1) to introduce you to shared-memory parallel programming, and (2) to help you gain experience with computer science systems experimentation.

You are required to do the following:

1. Write a sequential version of Jacobi iteration. I doubt this will be hard, as the code is everywhere on the Internet.
2. Find the approximate point at which sequential Jacobi iteration becomes out of core, meaning that on each iteration, significant page faulting must occur just to shuffle the data sets between memory and disk. Determine if this makes any sense given the amount of disk storage on your machine.
3. Using OpenMP in order to write a shared-memory parallel Jacobi iteration. Make sure that there is only one thread per processor (coarse granularity).
4. Perform speedup measurements on 2, 3, and 4 processors. Note that speedup is computed relative to the sequential program, not the one-processor parallel program.