

CS 6V81: Special Topics in Computer Science—Concurrent Data  
Structures for Multi-Core Systems  
Section 002  
Programming Assignment 2

Instructor: Neeraj Mittal

Assigned on: Wednesday, March 28, 2012

Due date: Wednesday, April 11, 2012

This is a group assignment. The group size should not exceed two. You can do this assignment in C, C++ or Java.

## Project Description

Compare the performance of four different implementations of lock object as described in the textbook: TAS (Test-and-Set), TTAS (Test-Test-and-Set), Backoff and ALock (Array-Based). For the implementation based on Backoff, report the values of minDelay and maxDelay that provide the best performance for your system.

For C/C++ program, use either `atomic_ops` library (more information available at [http://www.hpl.hp.com/research/linux/atomic\\_ops/](http://www.hpl.hp.com/research/linux/atomic_ops/)) or `gnu atomic builtins` (more information available at <http://gcc.gnu.org/onlinedocs/gcc-4.1.1/gcc/Atomic-Builtins.html>). For Java program, use `java.util.concurrent.atomic` package.

You can use `gangotri.utdallas.edu` to run your experiments. To obtain access to the machine, send an email to Aravind Natarajan at `aravindn@utdallas.edu` with a copy to the TA. Please specify the username you would like for your account.