Lab 2 Scoresheet

Group Members:

Basics (25 points possible)  _____ / 25
1. Module compiles  _____ / 5
2. Module loads  _____ / 5
3. Module unloads  _____ / 5
4. Does not crash the machine or panic/oops the kernel
   a. With 4 threads  _____ / 5
   b. With 8 threads  _____ / 5

Kernel Module Development (50 points possible)  _____ / 50
1. General Module Design  _____ / 10
   a. Invokes barrier twice  _____ / 2
   b. Maintains current position variable  _____ / 2
   c. Correctly sets atomic completion variable in all threads  _____ / 2
   d. Manipulates cross-out counters via per-thread void * variable  _____ / 2
   e. All dynamically allocated memory is freed  _____ / 2

2. Barrier Implementation  _____ / 10
   a. Design is appropriate  _____ / 4
   b. Works with 1 thread  _____ / 2
   c. Works with 4 threads  _____ / 2
   d. Works with 8 threads  _____ / 2

3. Locking Version  _____ / 15
   a. Position variable updated correctly (atomically)  _____ / 5
   b. Integer element cross-out protected from concurrent access in position update phase  _____ / 5
   c. Correctly calculates primes up to an upper bound of 1000 with 4 threads  _____ / 5
4. Atomic Variable Version
   a. Position variable updated correctly (atomically) ___ / 5
   b. Integer element cross-out protected from concurrent access in position update phase ___ / 5
   c. Correctly calculates primes up to an upper bound of 1000 with 4 threads ___ / 5

Analysis (25 points possible) ___ / 25
1. Experimental analysis ___ / 15
   a. Clear description of experimental setup (upper bounds, # threads, module configurations) ___ / 3
   b. Analysis performed across
      i. Reasonable number of upper bounds (at least 3, over reasonable space) ___ / 2
      ii. Reasonable number of kernel threads (at least: less than 4, 4, greater than 4) ___ / 2
      iii. Multiple trials performed in each configuration to improve confidence in results and understand run-to-run variation ___ / 2
   c. Trends analyzed across module locking configurations
      i. Initialization time ___ / 2
      ii. Prime processing time ___ / 2
      iii. Number of redundant cross-out operations performed ___ / 2

2. Graph Generation ___ / 10
   a. Understandable graphs for locking module ___ / 5
   b. Understandable graphs for atomic module ___ / 5

Extra Credit (5 points possible) ___ / 5
1. Discussion of module implementation ___ / 1
2. Correctness of implementation ___ / 2
3. Analysis / discussion of performance differences from initial problem configuration ___ / 2

Total ___ / 100