Introduction to Parallel Programming Lab

Numeric Search

This lab exercise is associated with the lecture "Confronting Race Conditions," Part 6 of the *Introduction to Parallel Programming* video series. It is recommended that you view this and the previous parts in the series before attempting this lab.

Lab instructions

1. Download the source file **NumericSearch.c**.

2. Compile and run the serial application to determine the correct answer for the application. Make note of the answer.

3. Add the appropriate OpenMP pragmas and clauses to implement the most effective data decomposition within the code to parallelize the computation.

4. Compile the program. Be sure to include the OpenMP compiler flag.

5. Execute the parallel program with 1 and 2 threads. Do you notice a difference in the execution time? Try using different numbers of threads up to the number of cores on your system.

6. Check the program outputs to verify they are the same when using multiple threads.

   If you are getting different answers or answers that are not consistent with the serial execution, there is a race condition in the application. You may wish to review Part 6, "Confronting Race Conditions," of the lecture series for a solution to this problem.