Threads

Threads are “lightweight processes” that enable you to parallelize executions with a smaller cost compared to traditional processes. In the following exercise, you will be using the “pthreads” library. Here’s a useful tutorial that will help you do the lab.

http://www.yolinux.com/TUTORIALS/LinuxTutorialPosixThreads.html

Processes vs Threads

Evaluate the following expression **using the same number of tasks** : (a+b) – [(c*d) / (e-f)] + (g+h)

- with processes
- with threads

1. Measure the performance of both solutions using the “times” function (man 2 times)
2. Display the number of I/O and context switches using the “getrusage” function (man 2 getrusage)

In your report, you should explain the following :

1. How you implemented the parallelized calculation
2. List the differences between the process and the thread versions and which one is more adapted in this case ?
3. Explain how performance measurement has been conducted and state which version of the solution is better based on your results.
4. Give the results concerning I/O and context switches. Is there a difference between the two versions and why ?