

412 CPU Scheduler Testing Homework

September 30, 2008

Your task in this assignment is to implement an awesome CPU scheduler, which you'll eventually place into geekos as part of programming assignment 3. The assignment is due October 14. Turnin details will be worked out a little later.

You will turn in two things:

1. `my_scheduler.c`, which will loosely copy `round_robin.c` and add anything you like. You may also modify `geekos/kthread.h`, and turn that in, if you need to store extra per-thread state.
2. `my_special_test.script`, which will describe the scenario you've optimized for. These "special test" scripts will be combined with my randomly generated scripts to generate 50% of the score for your scheduler. Code for generating the script format is in `generate_script.rb`.
3. `my_scheduler_rock.txt`, which is a short writeup: one paragraph describing your scheduler, one paragraph describing `my_special_test.script`, and a summary describing why you think your scheduler will perform near the best on that script. 500 words max.

I don't think you'll need to modify any other code files. You may alter the global variables `g_Quantum` and `g_needReschedule` (potentially set when a thread is made runnable to cause the scheduler to be invoked again).

1 Collaboration

You may post thread scripts to the forum. You may describe in general terms how your scheduler works (variables it sets, design inspiration). You may assert that the simulator has bugs and post fixes. You may ask if missing features can be added.

2 Changes

I will likely make changes to the simulator core. Among them:

- to stop the simulation after two minutes of cpu time (forward progress would be counted). (may only apply on the submit server, if we use it.)
- the precise scoring function, currently (smaller is better): $(\text{context switches} + \text{ticks to execute}) \times \text{cpu time used in the process}$. (this change would happen somewhat soon.)