Design

The parent process is used to be the scheduler, while the child processes represent those jobs to be executed. I use sched_setaffinity to assign parent process to a core and the child processes to another.

Every unit time, the scheduler will check whether the running process has finished its job. Also, the scheduler will use "SELECT" function to find the next process to be executed.

For RR policy, I implement a circular queue by array. When the scheduler decide which process will be the next, it takes O(1). For other policies, it takes O(n) since I didn't implement a heap.

Kernel Version

Linux 4.14.25 x86_64

Analysis

Besides running the 1000000 loops, the scheduler needs to change the priority of child processes, and update the data structures, which cause the timer of the scheduler is not accurate. More important, the time of running the 1000000 loops varies in each process every time. Also, context switch will cause some error.