

Mini EP7: OMPtimization

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MAC 0219-5742 – Programação Concorrente e Paralela 2021

Due date: June 14th, 2021

1. Introduction

OpenMP is the prettier young brother of Pthreads, not only easier to use, it deliver great performance. But we always want to extract the maximum performance of our applications.

In this mini EP you are going to optimize a program by editing parameters passed to `#pragma omp parallel for`.

2. Tasks

Download from eDisciplinas the file “parallelFor.c”. To compile it you must pass the `-fopenmp` flag to the compiler (MacOS’s clang does not work, please use [gcc](#) in this case).

Edit the first lines such that they contain your name and USP number. After that, compile the program and measure its execution time 10 times (use the REAL time from **time**) and take the arithmetic mean of it.

Write the mean in the line that begins with `// NOPT: 0,000s`.

You must edit the lines with `#pragma omp parallel for` to improve the program performance. This is done by the addition of the `schedule` parameter. You must search online the possible arguments to `schedule` and find the combination that best optimizes the program performance.

When you believe you have found a good combination, measure the execution time 10 times and write the arithmetic mean in the line that begins with `// OPTM: 0,000s`.

3. Submission

Send the edited “parallelFor.c” in eDisciplinas.

The due date is June 14th, 2021.

4. Score Criteria

The mini EPs utilize a binary score criteria (1 or 0). To get 1 you must submit the file as specified to eDisciplinas. Code quality will not be scored, but do your best.

It is worth reinforcing paragraph II of article 23 of the **USP Code of Ethics**:

Article 23 - Members of the student body and other students of the University are prohibited from:
[...]

II. make use of means and devices that can defraud the performance evaluation, yours or of others, in academic, cultural, artistic, sports and social activities, within the scope of the University, and cover up the possible use of these means.

Plagiarized Mini EPs will receive a score of 0.

Any questions, send a message at the forum or send an email to elisa@silva.moe, lucianadacostamarques@gmail.com, or gold@ime.usp.br with *[miniEP7]* in the subject. Have fun!