ETH zürich

High-Performance Computing Lab for CSE **2020**

Student: FULL NAME Discussed with: FULL NAME

Solution for Project 1

Due date: 02.03.2020, 11:30pm

HPC Lab for CSE 2020 — Submission Instructions
(Please, notice that following instructions are mandatory: submissions that don't comply with, won't be considered)

- Assignments must be submitted to Moodle (i.e. in electronic format).
- Provide both executable package and sources (e.g. C/C++ files, Matlab). If you are using libraries, please add them in the file. Sources must be organized in directories called:
  Project_number_lastname_firstname
  and the file must be called:
  project_number_lastname_firstname.zip
  project_number_lastname_firstname.pdf
- The TAs will grade your project by reviewing your project write-up, and looking at the implementation you attempted, and benchmarking your code's performance.
- You are allowed to discuss all questions with anyone you like; however: (i) your submission must list anyone you discussed problems with and (ii) you must write up your submission independently.

In this project you will practice memory access optimization, performance-oriented programming, and OpenMP parallelizaton on Euler.

1. Explaining Memory Hierarchies *(30 Points)*

2. Optimize Square Matrix-Matrix Multiplication *(70 Points)*