

Università della Svizzera italiana	Institute of Computing CI

High-Performance Computing Lab

Institute of Computing

Student: FULL NAME

Discussed with: FULL NAME

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## Solution for Project 1

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

- Assignments must be submitted to iCorsi (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 parallelization on the ICS Cluster .

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| <b>1. Explaining Memory Hierarchies</b>                | <i>(25 Points)</i> |
| <b>2. Optimize Square Matrix-Matrix Multiplication</b> | <i>(60 Points)</i> |
| <b>3. Quality of the Report</b>                        | <i>(15 Points)</i> |