Algorithm Engineering
Project 2

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Implementation code and test results: `http://github.com/kasper0406/AlgEng/project2`

Contents

1 Introduction

In this project we have chosen to implement matrix multiplication. We will investigate how hardware architecture affects the running time of different algorithms, and try to optimize the performance of these algorithms with respect to the hardware.

2 Algorithms

In this section we will describe the different algorithms and memory layouts we have used.

2.1 Simple multiplication

We started out implementing the simple conventional matrix multiplication algorithm where we stored the matrices using a row based layout.

Expectations of cache faults here.... We do not expect any significant amount of branch mispredictions.

In order to improve the number of cache faults, we have tried to use a column base layout in the right operand in the multiplication. We expect this to give us a bit better cache performance. This approach has the drawback of limiting a matrix only to be used on one side of a multiplication.