Computer Architecture Lab 1 Report

Fabian Wüthrich

Oktober 2020

1 Introduction

TODO

2 Benchmarks

For the exploration of the cache simulator the programs in `inputs/benchmark` were used:

`stream` A 64KB array is written sequentially and read back afterwards

`locality` Used to test temporal and spatial locality

`strided` Strided access to a 64KB array

Each benchmark starts with a cold cache and the working set size is always 64KB.

3 Cache Parameters

For each benchmark the following cache parameters were tested to measure IPC:

- Cache size from 0 to 256KB (0 is without caching) with a block size of 4 bytes and associativity 1
- Block size from 4 to 2048 bytes with fixed cache size of 32KB and associativity 1
- Associativity from 1 to 512 with cache size 32KB and block size 32 bytes

The differences between each benchmark are discussed for the rest of this section.

3.1 stream Benchmark

TODO Explain Results

4 Replacement/Insertion Policy

TODO

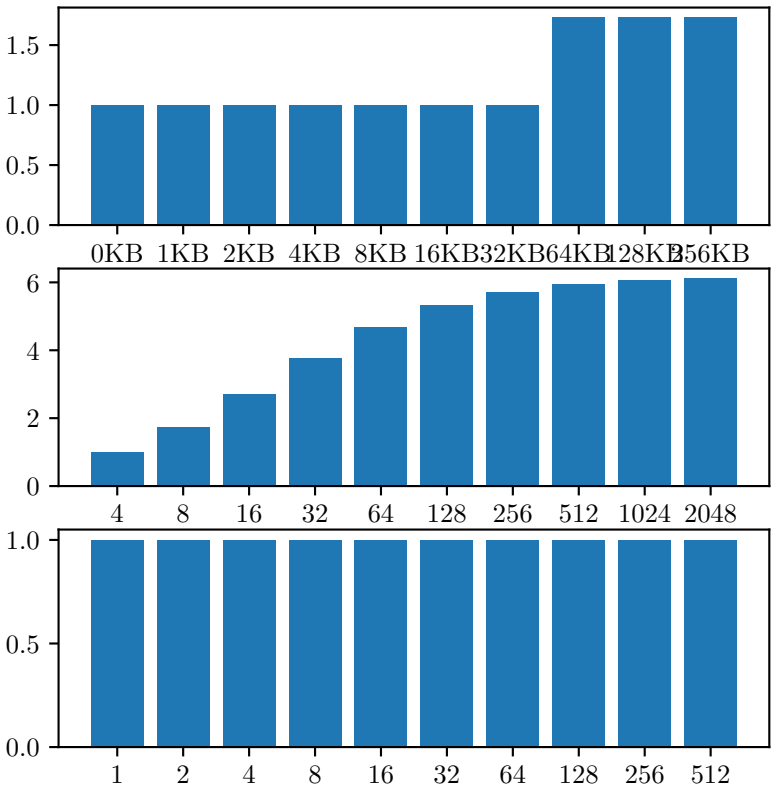

Figure 1: Example figure proudly made with matplotlib's PGF backend.