

Computer Architecture Lab 1 Report

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TODO short intro

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.

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.

stream Benchmark

TODO Explain Results

Replacement/Insertion Policy

TODO

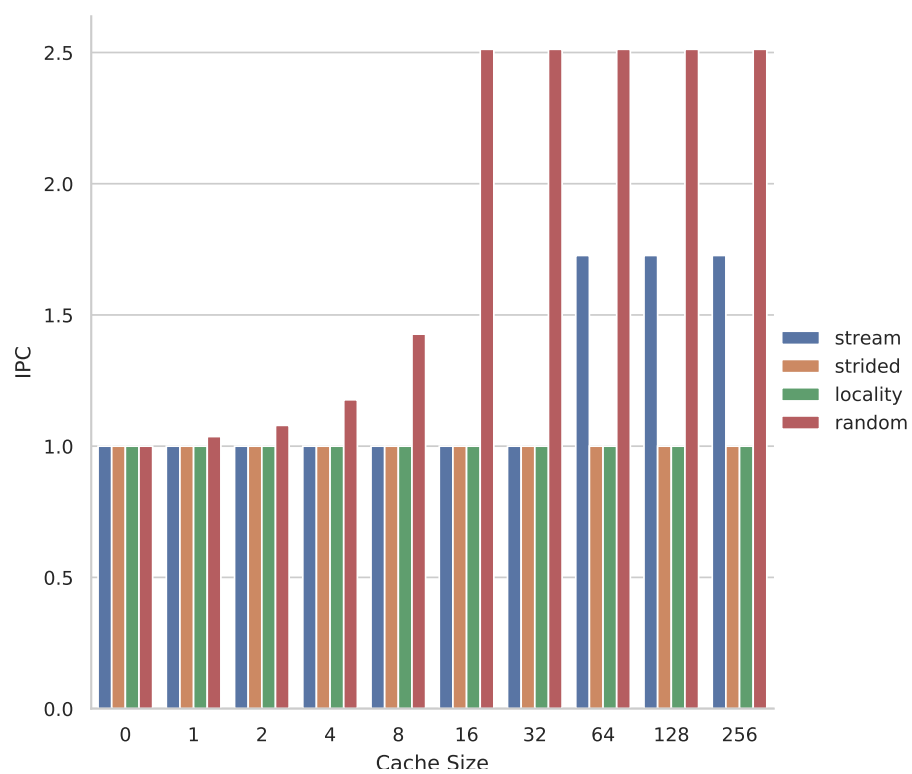


Figure 1: Cache Size

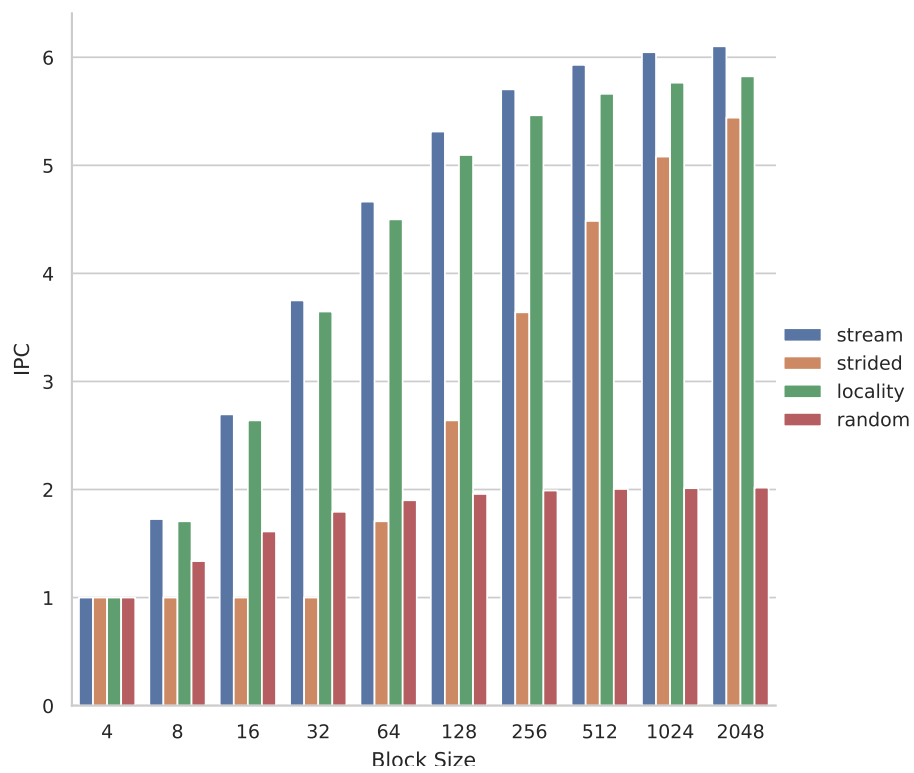


Figure 2: Block Size

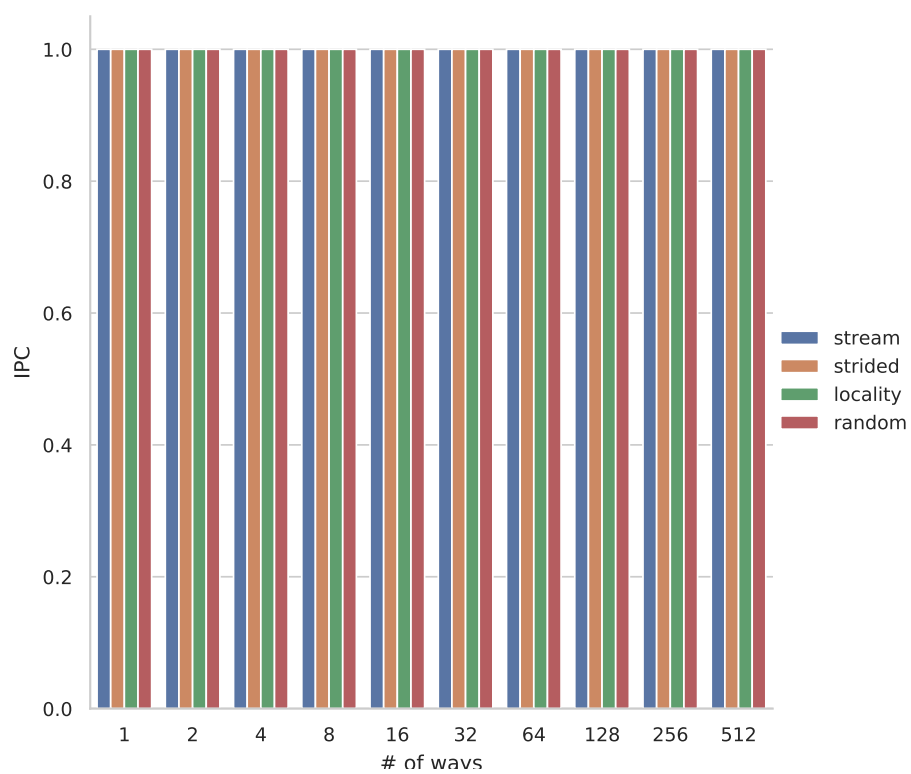


Figure 3: Associativity