Part 1

| Block Size | No. of Blocks | Cache Size | Hit Rate |
| --- | --- | --- | --- |
| 4 B | 512 | 2048 B | 98.88% |
| 8 B | 128 | 1024 B | 99.38% |
| 16 B | 32 | 512 B | 99.33% |
| 32 B | 16 | 512 B | 99.45% |
| 64 B | 8 | 512 B | 30.08% |

Part 2

The best results were attained when block size is 32 B, number of blocks were 16 and Cache Size was 512 B and the resulting hit rate was 99.45%

Part 3

Unfortunately not and there are several reasons why:

1. Diminishing Returns**:** Increasing cache size often results in diminishing returns**.**
2. Access Time**:** Larger caches can be slower to access which can increase latency
3. Workload Characteristics**:** The best cache size also depends on the nature of the specific workload therefore each application might respond better to increased cache size.

Appendix

