Lab 6 : Cache

Table of Contents

Program 1: Hello.c

Performance data for hello_c.LI.mem
misses: 8831
total accesses: 180723
Miss rate: 4.89
Way bits: 2
Set bits: 10
Tag bits: 18
Associativity: 2
Cache Size: 32768
Replacement: LRU

Performance data for hello_c.L.mem
misses: 4765
total accesses: 33884
Miss rate: 14.06
Way bits: 2
Set bits: 9
Tag bits: 19
Associativity: 2
Cache Size: 16384
Replacement: LRU

Performance data for hello_c.I.mem
misses: 5231
total accesses: 146839
Miss rate: 3.56
Way bits: 2

Set bits: 8
Tag bits: 20
Associativity: 2
Cache Size: 8192
Replacement: LRU

Comparison

((4765 + 5231) / (33884 + 146839))* 100 = 5.53 miss rate as compare to 4.89 miss rate of hello_c.LI.mem

Program 2: Hello.cpp

Performance data for hello_cpp.LI.mem
misses: 38350
total accesses: 2829662
Miss rate: 1.36
Way bits: 2
Set bits: 10
Tag bits: 18
Associativity: 2
Cache Size: 32768
Replacement: LRU

Performance data for hello_cpp.L.mem
misses: 31332
total accesses: 545012
Miss rate: 5.75
Way bits: 2
Set bits: 9
Tag bits: 19
Associativity: 2
Cache Size: 16384
Replacement: LRU

Performance data for hello_cpp.I.mem
misses: 28272
total accesses: 2284650

Miss rate: 1.24
Way bits: 2
Set bits: 8
Tag bits: 20
Associativity: 2
Cache Size: 8192
Replacement: LRU

Comparison

((31332 + 28272) / (545012 + 2284650))* 100 = 2.106 miss rate as compare to 1.36 miss rate of hello_cpp.LI.mem

Program 3: matrix-mul-col-major

Performance data for matrix-mul-col-major.LI.mem
misses: 46256
total accesses: 3566455
Miss rate: 1.30
Way bits: 2
Set bits: 10
Tag bits: 18
Associativity: 2
Cache Size: 32768
Replacement: LRU

Performance data for matrix-mul-col-major.L.mem
misses: 37776
total accesses: 781626
Miss rate: 4.83
Way bits: 2
Set bits: 9
Tag bits: 19
Associativity: 2
Cache Size: 16384
Replacement: LRU

Performance data for matrix-mul-col-major.I.mem
misses: 30476
total accesses: 2784829

Miss rate: 1.09
Way bits: 2
Set bits: 8
Tag bits: 20
Associativity: 2
Cache Size: 8192
Replacement: LRU

Comparison

((37776 + 30476) / (781626 + 2784829))* 100 = 1.913 miss rate as compare to 1.30 miss rate of **matrix-mul-col-major.LI.mem**

Program 4: matrix-mul-row-major

Performance data for matrix-mul-row-major.LI.mem
misses: 46285
total accesses: 3566455
Miss rate: 1.30
Way bits: 2
Set bits: 10
Tag bits: 18
Associativity: 2
Cache Size: 32768
Replacement: LRU

Performance data for matrix-mul-row-major.L.mem
misses: 37739
total accesses: 781626
Miss rate: 4.83
Way bits: 2
Set bits: 9
Tag bits: 19
Associativity: 2
Cache Size: 16384
Replacement: LRU

Performance data for matrix-mul-row-major.I.mem
misses: 30476
total accesses: 2784829
Miss rate: 1.09
Way bits: 2
Set bits: 8
Tag bits: 20
Associativity: 2
Cache Size: 8192
Replacement: LRU

Comparison

((37739 + 30476) / (781626 + 2784829))* 100 = 1.912 miss rate as compare to 1.30 miss rate of **matrix-mul-row-major.LI.mem**