

tr-blocked.ref
rand
50

Hit count: 2409316
Miss count: 8188
Clean evictions: 5626
Dirty evictions: 2512
Total references : 2417504
Hit rate: 99.6613
Miss rate: 0.3387

100

Hit count: 2412286
Miss count: 5218
Clean evictions: 3386
Dirty evictions: 1732
Total references : 2417504
Hit rate: 99.7842
Miss rate: 0.2158

150

Hit count: 2413119
Miss count: 4385
Clean evictions: 2749
Dirty evictions: 1486
Total references : 2417504
Hit rate: 99.8186
Miss rate: 0.1814

200

Hit count: 2413678
Miss count: 3826
Clean evictions: 2314
Dirty evictions: 1312
Total references : 2417504
Hit rate: 99.8417
Miss rate: 0.1583

fifo
50

Hit count: 2411128
Miss count: 6376
Clean evictions: 4094
Dirty evictions: 2232
Total references : 2417504
Hit rate: 99.7363
Miss rate: 0.2637

100

Hit count: 2413186
Miss count: 4318
Clean evictions: 2753
Dirty evictions: 1465
Total references : 2417504
Hit rate: 99.8214
Miss rate: 0.178

150

Hit count: 2413268
Miss count: 4236
Clean evictions: 2677
Dirty evictions: 1409
Total references : 2417504
Hit rate: 99.8248
Miss rate: 0.1752

200

Hit count: 2414337
Miss count: 3167
Clean evictions: 1884
Dirty evictions: 1083
Total references : 2417504
Hit rate: 99.8690
Miss rate: 0.1310

LRU
50

Hit count: 2412356
Miss count: 5148
Clean evictions: 2752
Dirty evictions: 2346
Total references : 2417504
Hit rate: 99.7871
Miss rate: 0.2129

100

Hit count: 2413696
Miss count: 3808
Clean evictions: 2640
Dirty evictions: 1068
Total references : 2417504
Hit rate: 99.8425
Miss rate: 0.15

150

Hit count: 2413702
Miss count: 3802
Clean evictions: 2605
Dirty evictions: 1047
Total references : 2417504
Hit rate: 99.8427
Miss rate: 0.1573

200

Hit count: 2413826
Miss count: 3678
Clean evictions: 2431
Dirty evictions: 1047
Total references : 2417504
Hit rate: 99.8479
Miss rate: 0.1521

CLOCK

50

Hit count: 923111

Miss count: 1494393

Clean evictions: 1173136

Dirty evictions: 321207

Total references : 2417504

Hit rate: 38.1845

Miss rate: 61.81

100

Hit count: 1003964

Miss count: 1413540

Clean evictions: 1118969

Dirty evictions: 294471

Total references : 2417504

Hit rate: 41.5289

Miss rate: 58.4711

150

Hit count: 1069387

Miss count: 1348117

Clean evictions: 1056922

Dirty evictions: 291045

Total references : 2417504

Hit rate: 44.2352

Miss rate: 55.764

200

Hit count: 1165864

Miss count: 1251640

Clean evictions: 968902

Dirty evictions: 282538

Total references : 2417504

Hit rate: 48.2259

Miss rate: 51.7741

OPT

50

Hit count: 2413794
Miss count: 3710
Clean evictions: 2592
Dirty evictions: 1068
Total references : 2417504
Hit rate: 99.8465
Miss rate: 0.1535

100

Hit count: 2414493
Miss count: 3011
Clean evictions: 1851
Dirty evictions: 1060
Total references : 2417504
Hit rate: 99.8755
Miss rate: 0.1245

150

Hit count: 2414989
Miss count: 2515
Clean evictions: 1309
Dirty evictions: 1056
Total references : 2417504
Hit rate: 99.8960
Miss rate: 0.1040

200

Hit count: 2415239
Miss count: 2265
Clean evictions: 1011
Dirty evictions: 1054
Total references : 2417504
Hit rate: 99.9063
Miss rate: 0.0937

tr-simpleloop.ref
rand
50

Hit count: 6715
Miss count: 2949
Clean evictions: 210
Dirty evictions: 2689
Total references : 9664
Hit rate: 69.4847
Miss rate: 30.51

100

Hit count: 6928
Miss count: 2736
Clean evictions: 38
Dirty evictions: 2598
Total references : 9664
Hit rate: 71.6887
Miss rate: 28.3113

150

Hit count: 6960
Miss count: 2704
Clean evictions: 17
Dirty evictions: 2537
Total references : 9664
Hit rate: 72.0199
Miss rate: 27.9801

200

Hit count: 6977
Miss count: 2687
Clean evictions: 15
Dirty evictions: 2472
Total references : 9664
Hit rate: 72.1958
Miss rate: 27.

fifo
50

Hit count: 6764
Miss count: 2900
Clean evictions: 162
Dirty evictions: 2688
Total references : 9664
Hit rate: 69.9917
Miss rate: 30.00

100

Hit count: 6940
Miss count: 2724
Clean evictions: 34
Dirty evictions: 2590
Total references : 9664
Hit rate: 71.8129
Miss rate: 28.1871

150

Hit count: 6969
Miss count: 2695
Clean evictions: 16
Dirty evictions: 2529
Total references : 9664
Hit rate: 72.1130
Miss rate: 27.887

200

Hit count: 6978
Miss count: 2686
Clean evictions: 12
Dirty evictions: 2474
Total references : 9664
Hit rate: 72.2061
Miss rate: 27.793

LRU
50

Hit count: 6943
Miss count: 2721
Clean evictions: 53
Dirty evictions: 2618
Total references : 9664
Hit rate: 71.8440
Miss rate: 28.1560

100

Hit count: 7002
Miss count: 2662
Clean evictions: 0
Dirty evictions: 2562
Total references : 9664
Hit rate: 72.4545
Miss rate: 27.545

150

Hit count: 7003
Miss count: 2661
Clean evictions: 0
Dirty evictions: 2511
Total references : 9664
Hit rate: 72.4648
Miss rate: 27.5352

200

Hit count: 7003
Miss count: 2661
Clean evictions: 0
Dirty evictions: 2461
Total references : 9664
Hit rate: 72.4648
Miss rate: 27.535

CLOCK

50

Hit count: 6265
Miss count: 3399
Clean evictions: 760
Dirty evictions: 2589
Total references : 9664
Hit rate: 64.8282
Miss rate: 35.171

100

Hit count: 6983
Miss count: 2681
Clean evictions: 60
Dirty evictions: 2521
Total references : 9664
Hit rate: 72.2579
Miss rate: 27.7421

150

Hit count: 7043
Miss count: 2621
Clean evictions: 0
Dirty evictions: 2471
Total references : 9664
Hit rate: 72.8787
Miss rate: 27.1

200

Hit count: 7043
Miss count: 2621
Clean evictions: 0
Dirty evictions: 2421
Total references : 9664
Hit rate: 72.8787
Miss rate: 27.1213

OPT
50

Hit count: 7023
Miss count: 2641
Clean evictions: 14
Dirty evictions: 2577
Total references : 9664
Hit rate: 72.6718
Miss rate: 27.3282

100

Hit count: 7044
Miss count: 2620
Clean evictions: 0
Dirty evictions: 2520
Total references : 9664
Hit rate: 72.8891
Miss rate: 27.1109

150

Hit count: 7044
Miss count: 2620
Clean evictions: 0
Dirty evictions: 2470
Total references : 9664
Hit rate: 72.8891
Miss rate: 27.1109

200

Hit count: 7044
Miss count: 2620
Clean evictions: 0
Dirty evictions: 2420
Total references : 9664
Hit rate: 72.8891
Miss rate: 27.1109

tr-matmul.ref
rand
50

Hit count: 1891572
Miss count: 995692
Clean evictions: 956098
Dirty evictions: 39544
Total references : 2887264
Hit rate: 65.5143
Miss rate: 34.485

100

Hit count: 2563825
Miss count: 323439
Clean evictions: 315857
Dirty evictions: 7482
Total references : 2887264
Hit rate: 88.7977
Miss rate: 11.2023

150

Hit count: 2791068
Miss count: 96196
Clean evictions: 93719
Dirty evictions: 2327
Total references : 2887264
Hit rate: 96.6683
Miss rate: 3.3317

200

Hit count: 2830840
Miss count: 56424
Clean evictions: 54575
Dirty evictions: 1649
Total references : 2887264
Hit rate: 98.0458
Miss rate: 1.954

fifo
50

Hit count: 1760085
Miss count: 1127179
Clean evictions: 1083162
Dirty evictions: 43967
Total references : 2887264
Hit rate: 60.9603
Miss rate: 39.0397

100

Hit count: 1803755
Miss count: 1083509
Clean evictions: 1061201
Dirty evictions: 22208
Total references : 2887264
Hit rate: 62.4728
Miss rate: 37.5272

150

Hit count: 2852879
Miss count: 34385
Clean evictions: 32936
Dirty evictions: 1299
Total references : 2887264
Hit rate: 98.8091
Miss rate: 1.190

200

Hit count: 2853401
Miss count: 33863
Clean evictions: 32425
Dirty evictions: 1238
Total references : 2887264
Hit rate: 98.8272
Miss rate: 1.1728

LRU
50

Hit count: 1846107
Miss count: 1041157
Clean evictions: 1040021
Dirty evictions: 1086
Total references : 2887264
Hit rate: 63.9397
Miss rate: 36.0603

100

Hit count: 1880835
Miss count: 1006429
Clean evictions: 1005264
Dirty evictions: 1065
Total references : 2887264
Hit rate: 65.1425
Miss rate: 34.8575

150

Hit count: 2854402
Miss count: 32862
Clean evictions: 31648
Dirty evictions: 1064
Total references : 2887264
Hit rate: 98.8618
Miss rate: 1.1382

200

Hit count: 2854414
Miss count: 32850
Clean evictions: 31586
Dirty evictions: 1064
Total references : 2887264
Hit rate: 98.8622
Miss rate: 1.1378

CLOCK

50

Hit count: 1106011

Miss count: 1781253

Clean evictions: 1400818

Dirty evictions: 380385

Total references : 2887264

Hit rate: 38.3065

Miss rate: 61.6935

100

Hit count: 1146806

Miss count: 1740458

Clean evictions: 1380042

Dirty evictions: 360316

Total references : 2887264

Hit rate: 39.7195

Miss rate: 60.2805

150

Hit count: 1224673

Miss count: 1662591

Clean evictions: 1306534

Dirty evictions: 355907

Total references : 2887264

Hit rate: 42.4164

Miss rate: 57.5836

200

Hit count: 1339867

Miss count: 1547397

Clean evictions: 1197741

Dirty evictions: 349456

Total references : 2887264

Hit rate: 46.4061

Miss rate: 53.5939

OPT
50

Hit count: 2299839
Miss count: 587425
Clean evictions: 586304
Dirty evictions: 1071
Total references : 2887264
Hit rate: 79.6546
Miss rate: 20.3454

100

Hit count: 2794491
Miss count: 92773
Clean evictions: 91603
Dirty evictions: 1070
Total references : 2887264
Hit rate: 96.7868
Miss rate: 3.2132

150

Hit count: 2860674
Miss count: 26590
Clean evictions: 25370
Dirty evictions: 1070
Total references : 2887264
Hit rate: 99.0791
Miss rate: 0.9209

200

Hit count: 2868024
Miss count: 19240
Clean evictions: 17970
Dirty evictions: 1070
Total references : 2887264
Hit rate: 99.3336
Miss rate: 0.6664

Comparison between the Algorithms:

Running on the tr-matmul.ref trace file, we notice that clock does significantly worse than the rest of the algorithms. LRU, random, and fifo show similar performance levels with rand leading the pack. OPT, course does significantly better at ~80% hit rate outperforming all the other algorithms.

Running on the tr-simpleloop.ref trace file at the smallest memory size (50), we get quite a different performance view of these algorithms. Here, all the algorithms offer close performance levels with clock being the slowest and the rest being within 3% of each others' hit rates.

Running on the tr-blocked.ref trace file, we get again a different performance view of these different algorithms. Here, every algorithm except for clock does extremely well (+99%). Clock is doing significantly worse here.

LRU scaling with memory size:

LRU scales slowly until memory size goes to 150, in the case of matmul, the increase in hit rate going from memory size 100 to 150 is significant.

Running tr-simpleloop.ref, which contains far less memory references than tr-matmul.ref, the scaling with memory size is very small at each step.

Testing the blocked.ref trace file, we notice superior hit rate (over 99%) at memory size 50. The performance barely changes with the higher memory sizes, but it seems that the way LRU performs strongly depends on the memory access patterns.