



İDİL ATMACA

22002491

CS224-3

LAB 6 REPORT

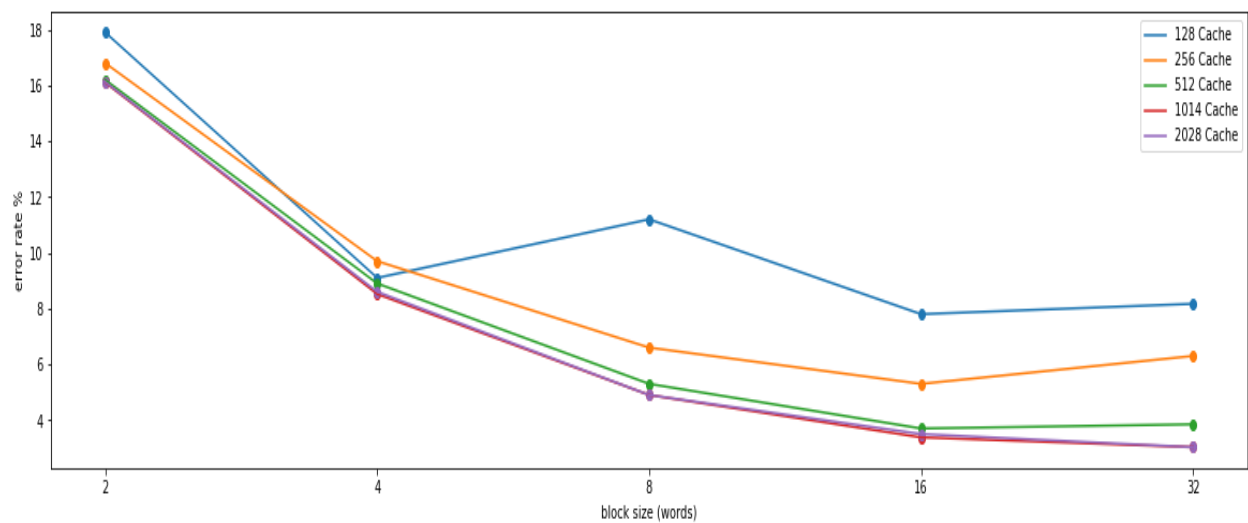
A)

20 x 20 Matrix

Row Major

Block Size (word) Cache Size	2	4	8	16	32
128	Miss count: 153 Miss rate: %17.9	Miss count: 78 Miss rate: %9.1	Miss count: 96 Miss rate: %11.2	Miss count: 67 Miss rate: %7.8	Miss count: 70 Miss rate: %8.17
256	Miss count: 144 Miss rate: %16.8	Miss count: 83 Miss rate: %9.7	Miss count: 57 Miss rate: %6.6	Miss count: 45 Miss rate: %5.3	Miss count: 54 Miss rate: %6.3
512	Miss count: 139 Miss rate: %16.2	Miss count: 76 Miss rate: %8.9	Miss count: 45 Miss rate: %5.3	Miss count: 32 Miss rate: %3.7	Miss count: 33 Miss rate: %3.85
1024	Miss count: 138 Miss rate: %16.1	Miss count: 73 Miss rate: %8.52	Miss count: 42 Miss rate: %4.9	Miss count: 29 Miss rate: %3.38	Miss count: 26 Miss rate: %3.03
2048	Miss count: 138 Miss rate: %16.1	Miss count: 74 Miss rate: %8.6	Miss count: 43 Miss rate: %4.9	Miss count: 30 Miss rate: %3.5	Miss count: 26 Miss rate: %3.03

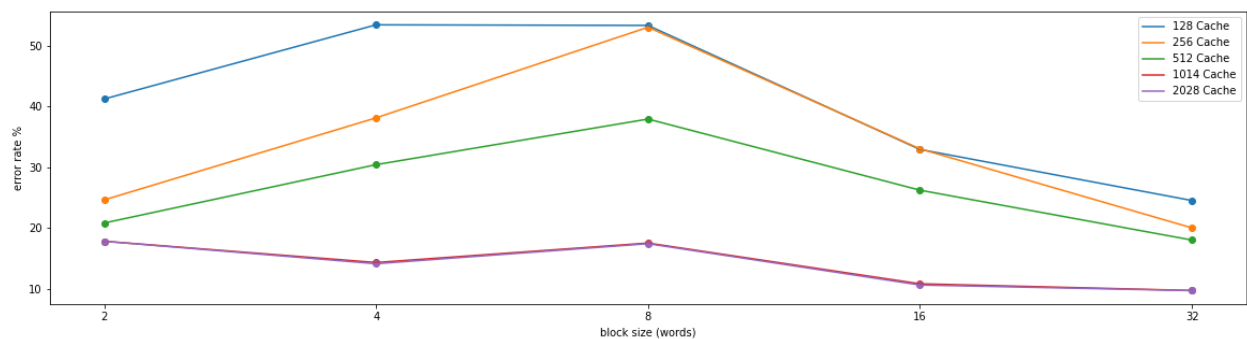
Row Major addition Graph



Column Major

Block Size (word) Cache Size	2	4	8	16	32
128	Miss count: 379 Miss rate: %41.2	Miss count: 491 Miss rate: %53.4	Miss count: 490 Miss rate: %53.3	Miss count: 303 Miss rate: %32.9	Miss count: 225 Miss rate: %24.5
256	Miss count: 226 Miss rate: %24.6	Miss count: 350 Miss rate: %38.1	Miss count: 487 Miss rate: %53.0	Miss count: 303 Miss rate: %33.0	Miss count: 184 Miss rate: %20.0
512	Miss count: 192 Miss rate: %20.8	Miss count: 279 Miss rate: %30.4	Miss count: 348 Miss rate: %37.9	Miss count: 241 Miss rate: %26.2	Miss count: 165 Miss rate: %18.0
1024	Miss count: 164 Miss rate: %17.8	Miss count: 131 Miss rate: %14.3	Miss count: 161 Miss rate: %17.5	Miss count: 99 Miss rate: %10.8	Miss count: 89 Miss rate: %9.7
2048	Miss count: 164 Miss rate: %17.8	Miss count: 130 Miss rate: %14.1	Miss count: 160 Miss rate: %17.4	Miss count: 98 Miss rate: %10.6	Miss count: 89 Miss rate: %9.68

Column Major addition Graph



b)

	Good Hit (Cache = 2048, Block Size = 32)	Medium Hit (Cache Size = 512, Block Size = 8)	Poor Hit (Cache Size = 128, Block Size = 4)
Direct Mapping	Miss count: 89 Miss rate: %9.68	Miss count: 348 Miss rate: %37.9	Miss count: 491 Miss rate: %53.4
Fully Associative (LRU)	Miss Count: 12 Miss Rate: %1.3	Miss Count: 490 Miss rate: %53.3	Miss Count: 498 Miss Rate: %54.2
Fully Associative (Random)	Miss Count: 12 Miss Rate: %1.3	Miss Count: 326 Miss Rate: %35.5	Miss Count: 480 Miss Rate: %52.2

c)

N	Good Hit (Cache = 2048, Block Size = 32)	Medium Hit (Cache Size = 512, Block Size = 8)	Poor Hit (Cache Size = 256, Block Size = 8)
4	Miss Count: 12 Miss Rate: %1.3	Miss Count: 74 Miss Rate: %7.9	Miss Count: 454 Miss Rate: %48.7
8	Miss Count: 12 Miss Rate: %1.3	Miss Count: 72 Miss Rate: %7.7	Miss Count: 472 Miss Rate: %50.6
16	Miss Count: 12 Miss Rate: %1.3	Miss Count: 72 Miss Rate: %7.7	Miss Count: 472 Miss Rate: %50.6

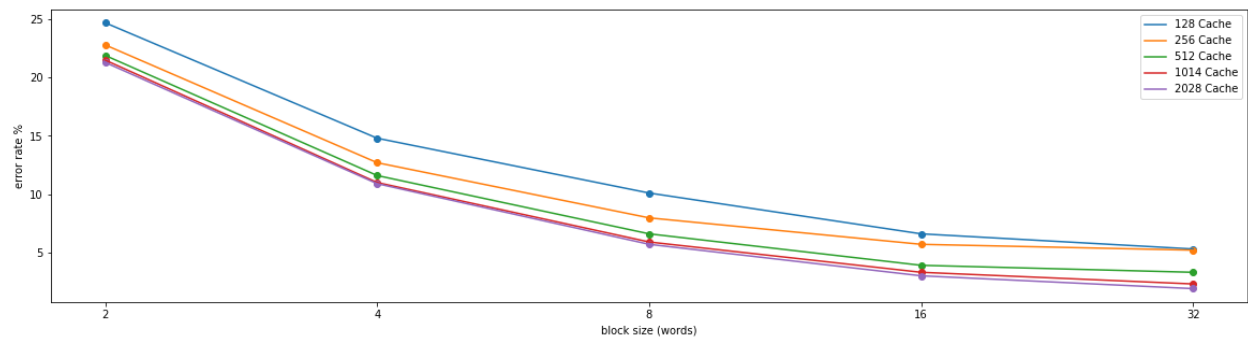
60x60 matrix

a)

Row Major

Block Size (word)	2	4	8	16	32
Cache Size					
128	Miss count: 1101 Miss rate: %24.7	Miss count: 660 Miss rate: %14.8	Miss count: 451 Miss rate: %10.1	Miss count: 292 Miss rate: %6.6	Miss count: 238 Miss rate: %5.3
256	Miss count: 1017 Miss rate: %22.8	Miss count: 564 Miss rate: %12.7	Miss count: 355 Miss rate: %7.97	Miss count: 256 Miss rate: %5.7	Miss count: 230 Miss rate: %5.2
512	Miss count: 975 Miss rate: %21.9	Miss count: 516 Miss rate: %11.6	Miss count: 295 Miss rate: %6.6	Miss count: 175 Miss rate: %3.9	Miss count: 146 Miss rate: %3.3
1024	Miss count: 956 Miss rate: %21.5	Miss count: 493 Miss rate: %11	Miss count: 264 Miss rate: %5.9	Miss count: 149 Miss rate: %3.3	Miss count: 104 Miss rate: %2.3
2048	Miss count: 947 Miss rate: %21.3	Miss count: 484 Miss rate: %10.9	Miss count: 255 Miss rate: %5.7	Miss count: 137 Miss rate: %3	Miss count: 86 Miss rate: %1.9

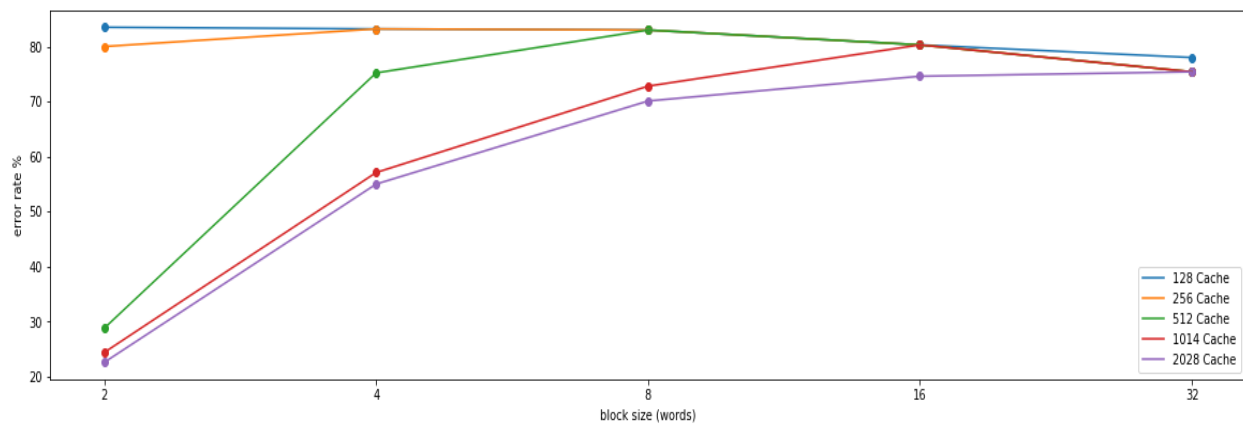
Row Major Graph for 60x60



Column Major

Block Size (word) Cache Size	2	4	8	16	32
128	Miss count: 3874 Miss rate: %83.5	Miss count: 3858 Miss rate: %83.2	Miss count: 3850 Miss rate: %83.0	Miss count: 3727 Miss rate: %80.3	Miss count: 3621 Miss rate: %78.0
256	Miss count: 3715 Miss rate: %80.0	Miss count: 3858 Miss rate: %83.2	Miss count: 3850 Miss rate: %83	Miss count: 3727 Miss rate: %80.3	Miss count: 3500 Miss rate: %75.4
512	Miss count: 1334 Miss rate: %28.8	Miss count: 3487 Miss rate: %75.2	Miss count: 3850 Miss rate: %83	Miss count: 3727 Miss rate: %80.3	Miss count: 3500 Miss rate: %75.4
1024	Miss count: 1131 Miss rate: %24.4	Miss count: 2649 Miss rate: %57.1	Miss count: 3379 Miss rate: %72.8	Miss count: 3727 Miss rate: %80.3	Miss count: 3500 Miss rate: %75.4
2048	Miss count: 1048 Miss rate: %22.6	Miss count: 2551 Miss rate: %55	Miss count: 3252 Miss rate: %70.1	Miss count: 3459 Miss rate: %74.6	Miss count: 3500 Miss rate: %75.4

Column Major Graph for 60x60



b)

	Good Hit (Cache = 2048, Block Size = 2)	Medium Hit (Cache Size = 1024, Block Size = 4)	Poor Hit (Cache Size = 128, Block Size = 2)
Direct Mapping	Miss count: 1048 Miss rate: %22.6	Miss count: 2649 Miss rate: %57.1	Miss count: 3874 Miss rate: %83.5
Fully Associative (LRU)	Miss Count: 937 Miss Rate: %20.2	Miss Count: 501 Miss Rate: %10.8	Miss Count: 3874 Miss Rate: %83.5
Fully Associative (Random)	Miss Count: 1049 Miss Rate: %22.6	Miss Count: 1522 Miss Rate: %32.8	Miss Count: 3832 Miss Rate: %82.6

c)

N	Good Hit (Cache = 2048, Block Size = 32)	Medium Hit (Cache Size = 512, Block Size = 8)	Poor Hit (Cache Size = 128, Block Size = 4)
4	Miss Count: 501 Miss Rate: %12.4	Miss Count: 1292 Miss Rate: %31.99	Miss Count: 3874 Miss Rate: %95.9
8	Miss Count: 501 Miss Rate: %12.4	Miss Count: 1647 Miss Rate: %41.4	Miss Count: 3874 Miss Rate: %95.9
16	Miss Count: 501 Miss Rate: %12.4	Miss Count: 1610 Miss Rate: %39.9	Miss Count: 3874 Miss Rate: %95.9