

Lab 8. Ex 10.5.1. DM. $q \times 8$

1. $\left[\begin{array}{c} \text{---} \text{xxx} \\ \text{---} \text{---} \\ \text{---} \text{---} \\ \text{---} \text{---} \end{array} \right] \text{ cache.}$

stepsize = 8.

$128 / 8 \times q = 64 \text{ misses:}$
 $\hat{r} = 0.1 \in [0, 1]; \quad r = 8.$

xxxxxx

0 18 16.

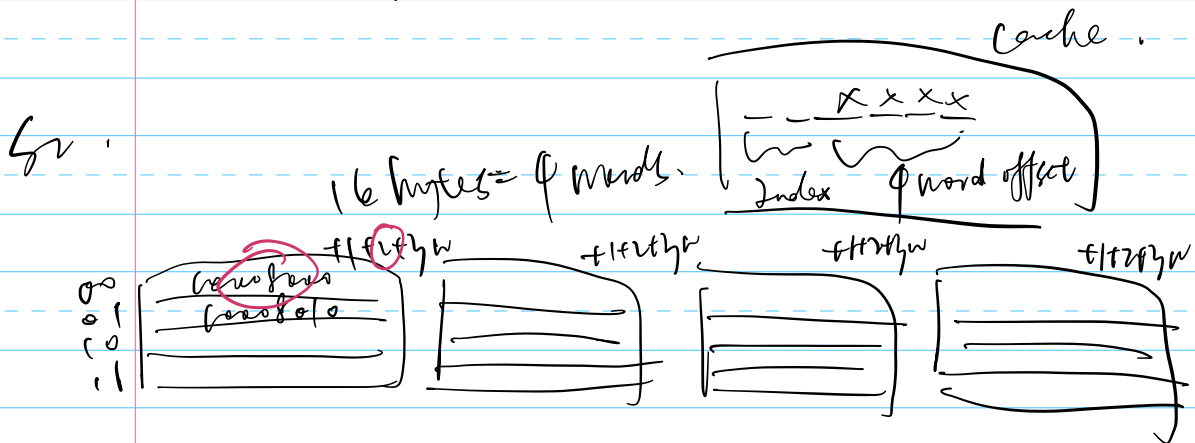
 0000 1001 10000

000000
 000000

000000
 000000

2. 0.

3. Swap inner and outer loops.



1. 1 miss \Rightarrow 3 hits.
75%

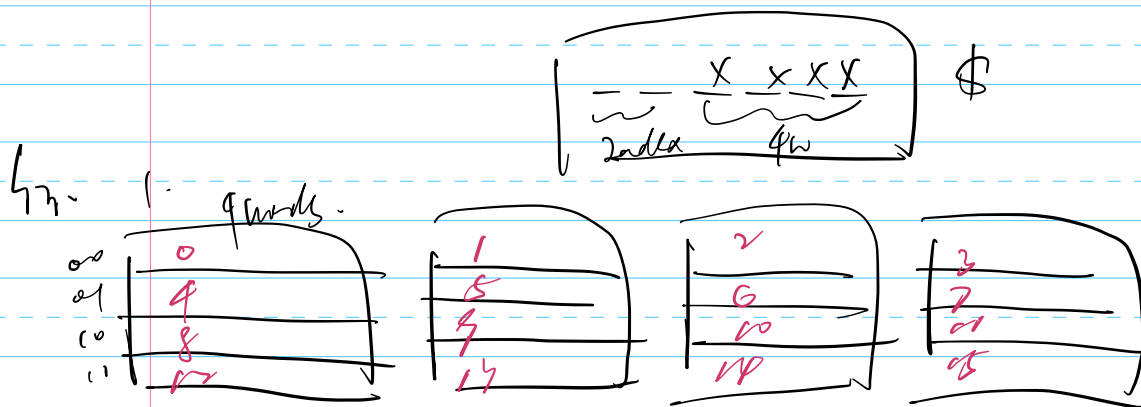
256 bytes.
= 64 words

2. \rightarrow 1 Answer 4.

4. Block size = cache size (256 Bytes)

```
for (j=0; j < arraySize; j += block-size) {
    for (k=0; k < repeat; ++k) {
        for (i=0; i < block-size; i += step) {
            op1(k, array[i+j]);
        }
    }
}
```

3 3 3



0. 671875

0. 59275

0. 609775

0. 671875

0. 578125

0. 71875

1 mips \Rightarrow 1 hit

1 mips \Rightarrow 3 hit

0.5 ~ 0.75

2. Random \Rightarrow CRN.

or Asynchronous: $q \Rightarrow 1$



0.75

1 miss \Rightarrow 3 hits

Q3

for

1	3	11	13
2	4	12	14
5	7		
6	8		
9	10		

$m=5, b=2$

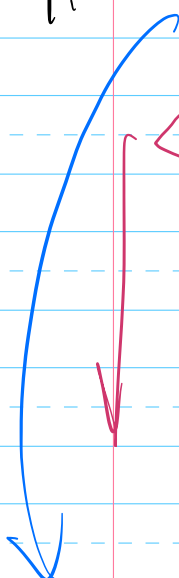
dst

1	2	5	6	9
3	4	7	8	10

naive

1	6			
2				
3				
4				
5				

1.	1000	20	8.019	0.022
	10000	20	12.157	0.967
	20000	20	15.1552	3.857
	50000	20	143.412	26.812
	100000	20	715.084	127.162



cache block offset sent okay.

2.	100000	50	723.689	148.624
rw	10000			114.5
rw	5000			112.785
rw	10000			149.847
rw	5000			722.652

>> cache block offset

722.652