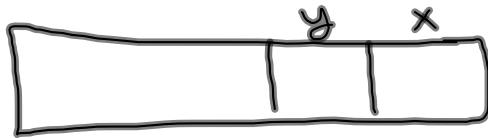


$$\begin{array}{r}
 R2 \quad R1 \\
 \hline
 100101001011 \\
 + 10000000 \\
 \hline
 \end{array}$$



$$\begin{array}{r}
 37 = \underbrace{100101}_{4 \quad 5} \\
 \quad \quad \quad \downarrow \\
 \underbrace{100110}_{4 \quad 6}
 \end{array}$$

$$\begin{array}{r}
 37 \quad 100101 \\
 +8 \quad +1000 \\
 \hline
 45 \quad 101101
 \end{array}$$

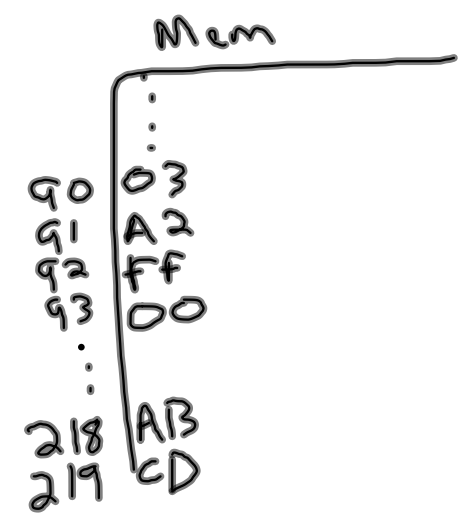
merge



$$pos = (R2 \ll 6) + \cancel{R1} (pos \& 077)$$

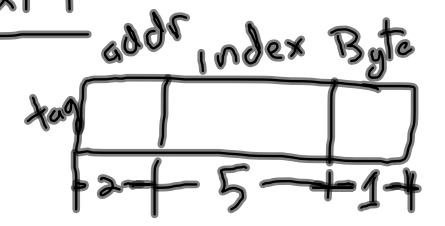
Mem Size 256 Bytes
 Cache Size 32 lines
 Cache Block 2 Byte
 Direct Mapped

	Cache Tag	data
	11	CD AB
13	01	A2 03
14	01	00 FF



Mem 90, 91, 92, 219

miss	90:	01011010
hit	91:	01011011
miss	92:	01011100
miss	219:	11011011



Mem Size 256 Bytes

Cache Size 16 lines

2-way set associative

Cache Block 2 Bytes

index	v	tag	data	v	tag	data
0						
2	1	000	CD	1	000	12 AB
	1	100	56 EF			
15						

Mem	Mem
4	AB
5	12
...	...
36	34
37	CD
...	...
132	EF
133	5C

Mem access:

37, 4, 132

miss

LRU
↳ victim

4: 0000 0100

37: 0100 0101

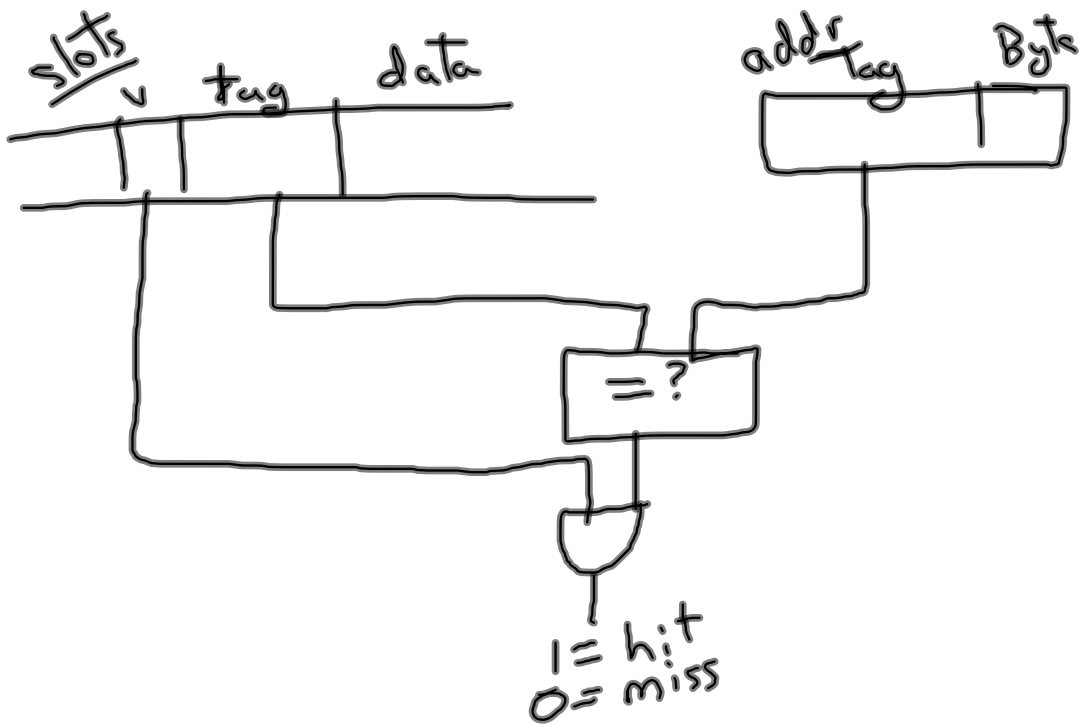
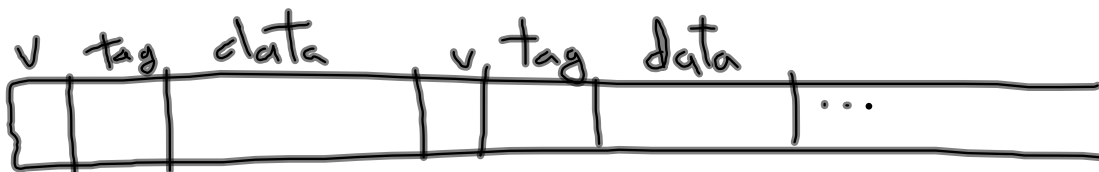
132: 1000 0100

tag	index	Byte
3	4	1

Mem Size 256 B

Cache Size 1 Line (fully associative)
8-way set assoc.

Cache Block 4 Bytes



CAM - content addressable memory

Multi-level Cache

