p4B\_worksheet.pdf: For given cache config, determine hits (H) and misses (M) for each instr uction in the trace. All addresses are in hexadecimal. All sizes are 1,2,4, or 8 bytes.

./csim [-hv] -s <s> -E <E> -b <b> -t <tracefile>

-h: Optional help flag that prints usage info

-v: Optional verbose flag that displays trace info

-s <s>: Number of s bits for set index

-E <E>: number of lines per set (associativity)

-b <b>: Number of b bits for block offsets

-t <tracefile>: Name of the valgrind trace to replay

./csim -s 4 -E 2 -b 4 -t traces/trace1 operation address,size

L 0,1

Cache\_Set\_0

L 1,1

Cache\_line\_1

Cache\_line\_0

V | tag | block of memory

L 2,1

V | tag | block of memory

L 3,1

S 4,1

L 5,1

Cache\_Set\_1

S 6,1

L 7,1

V | tag | block of memory

Cache\_line\_1

Cache\_line\_0

V | tag | block of memory

S 8,1

L 9,1

S a,1

Cache\_Set\_2

L b,1

S c,1

V | tag | block of memory

Cache\_line\_1

Cache\_line\_0

V | tag | block of memory

L d,1

S e,1

M f,1

Cache\_Set\_3

./csim -s 4 -E 1 -b 4 -t traces/trace2

1. 10,1

V | tag | block of memory

V | tag | block of memory

Cache\_line\_0

Cache\_line\_1

1. 20,1

L 22,1

S 18,1

L 110,1

1. 210,1
2. 12,1

./csim -s 2 -E 3 -b 3 -t traces/trace3

L 10,4

S 18,4

L 20,4

S 28,4

S 50,4

./csim -s 3 -E 4 -b 5 -t traces/trace4 (this only partical list of trace4)

S 00600aa0,1

I 004005b6,5

S 7ff000398,8

I 0040051e,1

S 7ff000390,8

I 0040051f,3

I 00400522,4

S 7ff000378,8

I 00400526,4

S 7ff000370,8

I 0040052a,7

S 7ff000384,4

I 00400531,2

I 00400581,4

L 7ff000384,4

Draw memory diagram (in whitespace above) of a cache with S=4 and E=2.

Label struct members of cache\_line\_t and memory type of each mem location:

cache\_line\_t, cache\_set\_t, cache\_t