

Sheet #

① a) P0,0: read 100

Read hit at B0 in L1 of P0,0.

Nothing changes in caches

Return 00 10

b) P0,0: read 128

Read Miss at B1 in L1 of P0,0 replace that block

Read Miss at B1 in L2\$,0, replace that block

M1 directory entry for 128 will be (128, DS, C0, 00 28)

B1 in L2\$,0 will be (DS, P0,0, 128, 00 28)

B1 in L1 of P0,0 will be (S, 128, 00 28)

Return 00 28

c) P0,0: write 128 ← 78

Write miss at B1 in L1 of P0,0, replace that block.

Write miss at B1 in L2\$,0 replace that block.

M1 directory entry for 128 will be (128, ~~DS~~PM, C0, 00 28).

B1 in L2\$,0 will be (PM, P0,0, 128, 00 28)

B1 in L1, P0,0 will be (M, 128, 00 78)

d) P0,0: read 120

Read miss at B0 in L1 of P0,0, replace that block.

Read miss at B0 in L2\$,0, replace that block.

M1 directory entry for 120 will be (120, DS, ~~SC0~~, C13, 00 20)

B0 in L2\$,0 will be (DS, P0,0;E, 120, 00 20)

B0 in L1 of P0,0 will be (S, 120, 00 20)

Return 00 20

e) P0,0: read 120

Read Miss at B0 in L1 of P0,0 Replace block.

Read Miss at B0 in L2,0 replace that block.

M1 directory entry for 120 will be (120, BS, SC, CB, 00 20)

B0 in L2,0 will be (DS, P0,0; E, 120, 00 20)

B0 in L1 of P0,0 will be (S, 120, 00 20)

Return 00 20

P1,0: read 120

Read Miss at B0 in L1 of P1,0, replace that block.

B0 in L2,0 will be (DS, P0,0, P1,0; E, 120, 00, 20).

B0 in L1 of P1,0 will be (S, 120, 00 20)

Return 00 20

f) P0,0: read 120

Read Miss at B0 in L1 of P0,0, replace that block.

Read Miss at B0 in L2,0, replace that block

M1 directory entry for 120 will be (120, DS, SC, CB, 00 20)

B0 in L2,0 will be (DS, P0,0; E, 120, 00 20)

B0 in L1 of P0,0 will be (S, 120, 00 20)

Return 00 20

P1,0: Write 120 ← 80

Write miss at B0 in L1 of P1,0, replace that block.

B0 in L1 of P0,0 will be (I, 120, 00 20)

B0 in L1 of P3,1 will be (I, 120, 00 20)

B0 in L2,1 will be (DI, ..., 120, 00 20)

B0 in L2,0 will be (DM, P1,0, 120, 00 20)

B0 in L1 of P1,0 will be (M, 120, 00 80)

M1 directory entry for 120 will be (120, DM, CB, 00 20)

Q) P0,0: write 120 \leftarrow 80

NOTES

Write miss at B0 in L1 of P0,0 replace that block.

Write miss at B0 in L2\$,0 replace that block.

M1 directory entry for 120 will be (120, DM, C0, 0020).

B0 in L1 of P3,1 will be (I, 120, 0020)

B0 in L2\$,1 will be (PI, ..., 120, 0020)

B0 in L2\$,0 will be (PM, P0, 0, 120, 0020)

B0 in L1 of P0,0 will be (M, 120, 0080)

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