Michael Weyman Homework #4

1. a. 15tag 11line 5word

b. 16tag 10line 5word

c. 18tag 8line 5word

d.26tag 0line 5word

1. C8 - Miss

C9 -Hit

CA - Hit

FD - Hit

FE - Hit

83 - Hit

84 - Miss

85 - Hit

C3 - Miss

C4 - Miss

FF - Hit

00 - Miss

01 - Hit

0B - Miss

0C - Miss

C7 - Hit

C8 - Miss

C9 - Hit

CC - Miss

CD - Hit

1. Loop uses temporal locality to access the instructions in the loop, when functions are within the loop call the loop uses sequential locality
2. a. .5 + .038( 2.5 + .008 \* 20) = 0.60108ns on average

b. (.5 + .011 \* 20)+(.5 + .038( 2.5 + .008(20 + .000015 \* 75000)) = 1.321422ns on average

1. computer
2. a. 1+1=2ns possible

b. 1+1+4=6ns possible

c. 1+25+1=27ns possible

d. 1+25+1+4+25= 56ns possible

e. 1+25+1+4+25= 56ns possible

f. not possible, cant access hard disk

g. not possible, page table hits but the rest misses

1. address used to write to or read from

count register used to count the number of bytes still to be transferred

1. a. interrupt driven I/O

b. channel I/O

c. Programmed I/O

d. DMA I/O

1. a. the bus arbiter uses a priority scheme to select the device that next gets to use the bus

b. The interrupt controller prioritizes interrupts from the devices based on the importance of the device

1. a. it improves disk access

b. we do not use raid 4 because all parity information is on one spindle and therefore it becomes a bottleneck which negates any advantage of having strips of the size needed to handle parallel accesses.

c. RAID 3 or 5