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Exam 1 - 2 EECE 344 Spring 2008

1. General information question:
   a) What is the basic tenet of all stored program computers?

the fetch, decode, execute cycle

   b) Identify the four different types of instructions and give an example of each from the PowerPC instruction set.

reg to reg → lwz r1, 0(r2) (load)
reg to mem → stw (register), (mem location) (store)
mem to reg → lis (mem), (reg)
mem to mem → does not exist in PPC

   c) When a non-critical interrupt occurs, where is the current value of the Machine State Register stored?

at the address of the exception which i dont remember exactly but it's something like 0x[1]0 00

SRR1

   d) We have used a mnemonic instruction `lis` to load the upper 16 bits of a register. What is the instruction that is actually invoked in order to do this work?

memory to reg

addis

   e) Assume that the 4 LEDs at the edge of the trainer board have been associated with the base address of 0x81410000. What value at what address is used to make sure the pins associated with the 4 LEDs are established as outputs?

you offset to address by 4 and a value of 1's used to signify the LEDs are established with pins as outputs

   f) Assume that register 7 contains 0xffff1080. What address is accessed by the instruction '`lwz r6, 0x40(r7)`'?

lwz r6, 0x40(r7) # load word

0x FFFF1080 + 0x40 =

1111 1111 1111 1111 0001 0000 1000 0000 + 0100 0000
0100 0000
1100 0000

0xFFFF10C0