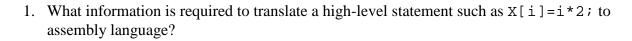
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Lecture 1: Key Questions May 20, 2014



2. Describe how a processor executes a typical instruction.

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6.	Describe each of the addressing modes listed below:	
•	Immediate	
•	Register direct	
•	Register indirect	
•	Memory indirect	
•	Base + displacement	
•	PC-relative	
7.	What are the benefits of having few instruction formats? What a many formats?	are the benefits of having

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8.	What are the pros and cons of fixed vs. variable length instructions	?
9.	Assume a MIPS instruction is represented by the hexadecimal values for each instruction field, assuming that the instruction is	e 0xDEADBEEF. List the
•	An R-type instruction	
•	An I-type instruction	
•	A J-type instruction	

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• lh \$t1, 2(\$t0)

• lb \$t2, 1(\$t0)

• lbu \$t3, 0(\$t0)

• sh \$s0, 0(\$t0)

• sb \$s0, 3(\$t0)

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15. Describe the MIPS arithmetic and logical instructions.

16. Say t0 = 0x00000001, t1 = 0x00000004, t2 = 0xFFFFFFF. What are the results of the following instructions?

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- sub \$t3, \$t1, \$t0
- addi \$t4, \$t1, 0xFFFF
- andi \$t5, \$t2, 0xFFFF
- sll \$t6, \$t0, 5
- slt \$t7, \$t0, \$t1
- lui \$t8, 0x1234

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17. Describe the different classes of MIPS branch instructions.	
18. Explain the use of pseudoinstructions in MIPS assembly.	
19. Describe the different jump instructions in MIPS.	
20. Describe how if statements are compiled to MIPS assembly, using lecture.	the example provided in

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21. Describe how loops are compiled to MIPS assembly, using the example provided in lecture.				
22. Describe the basic semantics of function calls in MIPS assembly.				