

1. (4pts) The authors divide computers into 3 classes. What are the three? Write them down in order of total units sold, most to least.
  
2. (2pts) Between the ARM, SPARC, and IA32 architectures, which has sold more units since the year 2000? Which as sold the fewest?
  
3. (2 pts) Appendix D lists an interesting difference between embedded and desktop architectures. It has to do with a certain register ... what is that difference?
  
4. (2 pts) MIPS does not use condition codes. Does SPARC? The PowerPC?
  
5. (4 pts) Why doesn't MIPS have a subtract immediate instruction?



10. (9pts) What are the three types of instructions in MIPS? For each type, show which bits are assigned to which field, and give the name of each field.
11. (9 pts) How are subroutine calls handled in MIPS? (What are the instructions involved, what happens to the current PC, etc.)
12. (9 pts) The MIPS jump instruction uses the distance field to indicate distance away from the PC. What is that distance measured in? How is this accomplished? What must be done if you need to jump further than that distance?

13. (4 pts) What are the 4 benchmark types we discussed in class?

14. (6 pts) What is a dispatch table? Where (and why) is it used?

15. (10 pts) List 5 things that changed in your design when going from a single cycle to a multiple cycle implementation.

16. (20 pts) Add the control lines to this diagram.

