

**CpE213 Assignment 4**  
Due at 3:00 pm on Friday 9/23

Note: Just as on tests, I expect you to show all your work. A correct answer with no work might not be given full credit.

1. The 8051 comes in many different styles and flavors. You can find a nice summary of 8051 chips at [www.8052.com](http://www.8052.com), under the “chips” heading. There is also some nice information from Philips at [http://www.semiconductors.philips.com/acrobat\\_download/literature/9397/75014621.pdf](http://www.semiconductors.philips.com/acrobat_download/literature/9397/75014621.pdf) (see the last section of the line card). Using this information (or information you find elsewhere on the web), give:
  - a. The names of at least 10 companies that produce 8051-family products
  - b. The approximate range of the number of I/O lines that are available on 8051 chips (rather than number of I/O ports).
  - c. The approximate range of MIPS that are available.
2. From the information given at Philips ([http://www.semiconductors.philips.com/acrobat\\_download/literature/9397/75014621.pdf](http://www.semiconductors.philips.com/acrobat_download/literature/9397/75014621.pdf)), would you say it is common or uncommon to have an analog-to-digital converter on-chip along with the microcontroller?
3. Many 8051 manufacturers give application notes to help the designer. Check out the application notes at <http://www.semiconductors.philips.com/markets/mms/products/microcontrollers/documentation/appnotes/>. List at least 3 application notes that are available.
4. Answer the following questions from Mazidi, page 93-94 (end of Chapter 4):  
1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27