

UNCC, Department of Electrical and Computer Engineering
ECE 306, Fall 2003, Homework #2, Due: 9/10/03, at the beginning of class (20 points)

1. Read the Jim Turley article “The Two Percent Solution.” Mr. Turley believes processors make up only a small percentage of semiconductor volume yet generate most of the revenue. In four lines of correct English, state why you agree or disagree with him. (4 points)
2. Read the Jim Turley article “The Death of ASICs.” Mr. Turley believes the days of custom logic are numbered. In four lines of correct English, state why you agree or disagree with him. (4 points)
3. I have an LED whose average current drain is 20mA. I am using 1000 mAH cells as power supply for this LED each of which has enough voltage to turn the LED on. If I want my LED to powered on for 150 hours continuously, how many cells do I need and in what configuration (i.e. how do I connect them)? (2 points)
4. For the SKP30262 board, what is the maximum addressable memory size? Can you, the user, store a value at memory location 00BA5h? Why or why not? (2 points)
5. Assume that the supply voltage (V_{cc}) to a M16C/262 group microcontroller (like the one on our starter kit board which is M30262F8) is 2.9V. If an ADC takes $3\mu s$ to convert an analog value to a digital value, at the minimum how many clock cycles need to pass from the time the microcontroller issues the read command to the ADC until the value is ready? (4 points)
6. Assume that the memory/register contents are as shown. Show the contents of the listed registers after ALL of the following instructions are executed. (4 points)

04FFh	23h
0500h	25h
0501h	27h
~	~
08FEh	11h
08FFh	12h
0900h	13h
0901h	14h

FB	0900h
R0	0100h
R1	789Fh
R2	1E78h

Before

```
mov.b 0500h,R1L
mov.b -2[FB],R0L
mov.w 0[FB],R2
mov.b -1[FB],R0H
```

FB	
R0	
R1	
R2	

After