

EE 308 – Homework 2

Due Jan. 28, 2002

1. Consider the following 8-bit hexadecimal numbers as unsigned. Find their decimal equivalents:
 - (a) 0xC5
 - (b) 0x81
 - (c) 0x79
 - (d) 0x32
2. Repeat Problem 1, considering the numbers as signed.
3. Do the operations indicated below. The operations are performed in an 8-bit accumulator. Find the 8-bit results for the operations. Indicate the state of the N, Z, C and V bits after each operation.
 - (a) 0x43 + 0x5C
 - (b) 0x9A + 0x83
 - (c) 0x82 + 0x7E
 - (d) 0x43 - 0x5C
 - (e) 0x5C - 0x43
4. Problem 8 on Page 70 of Pack and Barrett.
5. Consider the program in Figure 1 of Lab 2.
 - (a) Hand assemble the program. Determine the hex numbers which will be generated when this program is assembled, and at what locations they will be stored in the HC12. For example, the `ldab #23` instruction will result in

mnemonic	addr	code	Addressing Mode
ldab #23	\$0800	\$c6	Immediate
	\$0801	\$17	

- (b) Determine the values of the N, Z, C, and V bits after each instruction. (Assume that all the bits are 0 before the execution of the first instruction.)
 - (c) How many instruction cycles will it take the HC12 to execute this program? (Do not consider the `swi` instruction.) How many microseconds will this take the HC12 with an 8 Mhz E-clock?
6. Consider the program of Figure 3 of Lab 2.
 - (a) How many instruction cycles will it take to execute this program? (Do not consider the `swi` instruction.)
 - (b) How long will this take on your EVBU?