

CS520—Spring 2013—Homework 2
Wednesday February 6

Question 1

Show how -257 (base 10) would be represented in memory as a 16-bit 2's complement integer. Show your answer in hexadecimal and show all the hex digits, even if they are zero. Clearly label the order in which the bytes would lie in memory. Assume the machine is Little Endian.

Question 2

Add together the following two 8-bit 2's complement integers (shown in hexadecimal): B7 and C1. Show the 8-bit 2's complement answer in hexadecimal and show all the hex digits, even if they are zero. If the answer overflows, please indicate that. Also check your answer using decimal: What decimal values do the two input values represent? What is the answer in decimal?

Question 3

Represent -257.75 as an IEEE single-precision floating point value and show how the value would lie in memory. Show your answer in hexadecimal and show all the hex digits, even if they are zero. Clearly label the order in which the bytes would lie in memory. Assume the machine is Little Endian.

Question 4

Decode the following IEEE single-precision floating-point value (shown in hex) and show the answer in scientific notation in decimal.

C347E000

Question 5

Write a C function that will return 1 if the function is executed on a Little Endian machine; and will return 0 otherwise.