EE 445S Real Time Digital Signal Processing Laboratory

Prof. Brian L Evans

Lab 1 Assignment

1. Draw the block diagram for the instruction set architecture of TMS320C6748. Explain how this architecture allows for greater functional parallelism.

2. What is aliasing? How do you manage aliasing in DSP applications?

3. You have written a C program. Explain briefly the steps involved in Code Composer Studio 4 before the executable output program is created. What is the function of the .gel file?

4. Explain briefly circular (modulo) addressing with the 'C6000 family. What registers may be used? Give an example of an algorithm that would be sped up by using modulo addressing.

5. How are 32-bit floating-point results saved on the 'C6000 processors? Explain briefly the IEEE single-precision floating-point format. When does the  'C6000 use IEEE single-precision floating-point format (i.e give an example of an operation)

6. What is the usefulness of implementing a real time Operating System? Briefly explain any four functionalities of DSP/BIOS.

7. What are the different threads present in DSP/BIOS? State the names in descending order of priority and describe in brief the function of each thread.

8.  How will you determine the number of clock cycles required to execute your program?

9. How does the 'C6748 communicate with the host PC?

10. What is the purpose of the board support library?