EE 445S Real Time Digital Signal Processing Laboratory

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Lab 1 Assignment

1. Draw the block diagram for the architecture of TMS320C671x core. Explain how this architecture allows for greater functional parallelism. (The architecture of TMS320C6748 is similar)
2. What is aliasing? How do you manage aliasing in DSP applications?
3. Draw a block diagram of a generic DSP system and a talk-through system.
4. Change the code in the “ISRs.c” file to implement: talk-through with swap (left channel🡪right channel; right channel🡪left channel). You don’t have to run the project or show the result. Just write down the necessary code.
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. How does the scheduler work in 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 an external processor access the entire memory space of the DSP?
10. What is the purpose of the board support library?