Lab 7 grading sheet

Students name 1) Last_____ First_____ EID_____

Use same spelling as listed on Blackboard

Students name 2) Last_____ First_____ EID_____

Circle instructor:

Valvano	TTh5
Telang	MWF2
Yerraballi	TTh3:30 or MW3
Gerstlauer	TTh2

1. Deliverables 20%:

0) This sheet

Before your checkout, you will be uploading two files to BB. The first is a doc docx or pdf file (named UTEID1_UTEID2 .DOC) with the following. Have it open during demonstration. You are allowed to print these instead of creating the doc file.

1) Circuit diagram showing the DAC and any other hardware used in this lab, PCB Artist or hand drawn

2) Software Design

Draw pictures of the data structures used to store the sound data

If you organized the system different than lab manual, then draw its data flow and call graphs

3) A screenshot showing the IO and scope (part f), or a printout using a real oscilloscope.

4) Measurement Data

Show the theoretical response of DAC voltage versus digital value (part c, Table 7.2)

Show the experimental response of DAC voltage versus digital value (part c, Table 7.2)

Calculate resolution, range, precision and accuracy

5) Final version of the complete system (intermediate testing software is not required)

The second file to upload to BB is a single zip file with

All your source code files: *.C, *.H, *.ASM (do not include project, lst, UC, IO, rtf files)

There should be absolutely no spaces in file and/or folder names.

The ZIP file name should be UTEID1_UTEID2.ZIP where 1 and 2 are in alphabetical order.

Both partners should submit the same zip file through Blackboard.

If you are doing an electronic submission, each student should be submitting two files: UTEID1_UTEID2.ZIP and UTEID1_UTEID2.DOC (DOC, DOCX and PDF are acceptable.) However, if a student is doing a paper submission, each student should still submit UTEID1_UTEID2.ZIP through Blackboard.

2. Performance 40%:

Does it handle correctly all situations as specified?

How pretty is the software?

1)	2)

3. Demonstration 40% (TAs will ask similar, but not exactly identical questions):

You should be able to demonstrate the three notes. Be prepared to explain how your software works. You should be prepared to discuss alternative approaches and be able to justify your solution. The TA may look at your data and expect you to understand how the data was collected and how DAC works. In particular, you should be able to design a DAC with 5 to 10 bits. What is the range, resolution and precision? You will tell the TA what frequency you are trying to generate, and they may check the accuracy with a frequency meter or scope. TAs may ask you what frequency it is supposed to be, then ask you to prove it using calculations. Just having three different sounding waves is not enough, you must demonstrate the frequency is proper and it is a sinewave (at least as good as you can get with a 4-bit DAC). You will be asked to attach your DAC output to either the scope (part g). Many students come for their checkout with systems that did not operate properly. You may be asked OC interrupt and DAC questions. If the desired frequency is **f**, and there are **n** samples in the sine wave table, what OC interrupt period would you use.

This lab mentions 32 samples per cycle. Increasing the DAC output rate and the number of points in the table is one way of smoothing out the "steps" that in the DAC output waveform. If we double the number of samples from 32 to 64 to 128 and so on, keeping the DAC precision at 4-bit, will we keep getting a corresponding increase in quality of the DAC output waveform?

	1)	2)
Total:		