THE UNIVERSITY OF TOLEDO
EECS 3100 – Embedded Systems

Lab Project 6 Demonstration Evaluation Record

PROJECT 6	**Student's Name:** ________________________________ **Lab Section No:**______		
Lab Instructor's Name: ________________________________ **Lab Instructor's Signature:** ________________________________			
DEMONSTRATION	**Grader's Evaluation Comments**	**Max Points Achievable**	**Points Earned**
OPERATION		**20**	
Student can show program operation on the TM4C123 board.			
Student can explain how the systick is initialized.			
Student can explain how the systick behaves.			
Student can explain the operation of their Debug_Capture procedure.			
Student can explain the operation of the Phase Lock Loop.			
Student can show the main loop is running at about 62 ms by means of an oscilloscope connected to PF2.			
Student shall present their dump data and can explain what the dump data means.			
QUESTIONS		**5**	
The TA will select 5 questions from the list below. The student is expected to answer them completely and thoroughly.			
Question # __________			
Question # __________			

Question # __________			
Question # __________			
Question # __________			
		POINTS SCORED	

Questions

1. Why did you have to change the delay function after the PLL was activated?
2. How did you change it?
3. The TA will pick an instruction in your program and ask how much time does it take that instruction to execute in μsec. Does it always take same amount of time to execute?
4. You will be asked to create a breakpoint, and add the port pin to the simulated logic analyzer.
5. Is **Debug_Capture** minimally intrusive or non-intrusive?
6. What do you mean by intrusiveness?
7. Is your code “friendly”?
8. How do you define masking?
9. How do you set/clear one bit in without affecting other bits?
10. What is the difference between the **B**, **BL** and **BX** instructions?
11. How do you initialize the SysTick?
12. You should understand every step of the function **SysTick_Init**. How do you change the rate at which SysTick counts?
13. Describe three ways to measure the time a software function takes to execute?
14. How do you calculate the sizes of the port data and the timestamp data?
15. If you used 32-bit data for **DataBuffer** what would be the advantages of 8-bit data?
16. If you used 8-bit data for **DataBuffer** what would be the advantages of 32-bit?
17. Could you have stored the time-stamp data in 8-bit, 16-bit, or 24-bit arrays?
18. Why does the pointer to the time-stamp array need to be incremented by four, if you want to point to the next element in the array?
19. How do you allocate global variables?
20. Consider the four possible data values that could be stored into the **DataBuffer** : 0x00 (meaning In=0, Out=0), 0x01 (meaning In=0, Out=1), 0x10 (meaning In=1, Out=0), and 0x11 (meaning In=1, Out=1). Which of these values would constitute a software bug if it were to occur? How could you change **Debug_Capture** to count the number of times this error state occurs?