**RTDSP Labs**

**Lab1:**

**Questions**

1. NOP statements consume one clock cycle. These are necessary in TI assembly due to the architecture of the processor. If they weren’t there then the instruction count wouldn’t be 8 and so wouldn’t fill one instruction block which is loaded from memory.
2. The – and ++ operators in the code

While(size--){

\*output++ = \*input++ \* gain;

}

Are for post increments and decrements of the pointers and integer counts size, \*output and \*input.

1. The \* operators in the above code indicate that the variables are pointers to memory locations.
2. The ++ operator on an integer variable increments the value of the variable by one. On a pointer to an integer variable it increments the pointer, i.e moves to the next memory location of an array, i.e output, rather than modifying the value contained in the pointer reference location.
3. The I/O buffer size is 64 in hex, 100 in decimal.
4. The initial gain of the signal will be 1 as defined by MINGAIN.
5. Execution time = 4.4e^-9 \* 30 \* 8 = 1.056us
6. After making changes to the C code and/or assembly the code must be recompiled to regenerate therunnable .out file.
7. The pre-processor directive

#define GRAVITY = 10;

Is incorrect. It should be

#define GRAVITY 10

So no equals sign or semicolon. This corrected statement does not produce any of its own machine code, the precompiler merely replaces any mention of the variable GRAVITY with the number 10.

1. The instruction shru .s2 b0,3,b0 can be removed since N is already eight times smaller. This will save one instruction.