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The two implementations, namely the 1) nester for-loops 2) interrupt based were developed to measure and implement clocks on the Keil board. The end result is the same but there are a lot of differences associated with respect to how the software is written and overall performance of the system. Some of the differences are listed below:

Accuracy: This is a big difference between the two implementation and can be clearly seen in the performance of the two. The two nested for-loop approaches use “magic numbers” to get as close as possible to the real definition of a second. On the other hand, the interrupt based logic uses software interrupts and the actual hardware clock to trigger interrupts when the timer runs out. This can be seen by the outcome of the two as the nested for-loop case, no matter how closely tweaked, always gets outperformed when it comes to measuring one second in real life time.

Hardware based interrupt logic is much more efficient in terms of performance as the CPU is not busy-waiting or doing __nop()’s while waiting for the timer to run out. This leaves the CPU in the case of the interrupt logic, to do other things in the meantime.