HYDER SHAD
MIRA SEHGAL
3/3/16

EE 319K LAB 4

Estimate of Intrusiveness for Debug_Capture Subroutine:

13 instructions × 2 cycles/instruction estimate = 26 cycles

1 cycle = 12.5 ns → 26 cycles = 0.325 uS to execute Debug_Capture.

Percentage overhead:

1000070 cycles between calls → .125000875 seconds between calls

Percentage overhead = $100 \times \left(\frac{.325\,uS}{.125000875\ \text{seconds}}\right)$ → time between debug executions with delay.

Percentage overhead = 0.000259999818 %

∴ minimally intrusive.

Heart beat toggle rate:

Desired frequency is 16 Hz, clock is set to run at 80 MHz

$$\frac{80\ MHz}{\text{cycles for delay routine}} = 16\ MHz$$

$$16\ MHz\ \left(\frac{1}{f}\right) = 16\ MHz\ \left(\frac{1}{16\ Hz}\right) = 1E6$$ ← period in seconds

executions of delay subroutine.