ECSE-426 Microprocessor Systems - Quiz 2

Name: ID:

Q1. Which functional block facilitates insertion of breakpoints in ARM Cortex M processors?

Q2. How many instructions in flight are possible in Cortex M4 processors at most?

Q3. What are the main benefits of the FPU? What are the downsides?

Q4. If the program runs from point A to B, what are the values of PC (program counter), RL (link register) and if the value pushed into the stack?

0x0002 ->LDR R0,=SystemInit   <-point A
0x0004 ->BLX R0
0x0006 ->LDR R0,=__main
0x0008 ->BX R0

SystemInit:
0x0A02 -> MOV R7,#78
0x0A04 -> ADD R12,0xFF
0x0A06 -> SUB R12,R12,R7   <- point B

Q5. If you have 3 ADCs in parallel that takes 2us, 2us and 1us respectively to sample analog value from the same input pin, what is the highest consistent sampling rate that you can capture using all the 3 ADCs in interleaved mode. Now, if you have ADCs in interleaved mode that take 1us, 1us and 2us respectively, what is the rate maintaining consistent sampling rate criteria? You can give your answers in time instead of frequency.