

1. [20 points] Download the program given at the following link: PORTSQ.ASM Then complete the following steps.

- Make a new project containing the downloaded program and start debugging.
- Go to memory location 40h put the integer 2.
- Go to memory location 41h put the integer 4.
- Go to memory location 50h put the integer 5.
- Go step by step without going into any functions.
- Run till the first instruction of the FINDr function using a breakpoint.
- Open Logic analyser and setup Port1.
- Run the entire code and find the frequency.

For instructions on how to start debugging, go step by step etc, please watch the demo by Nihar which was part of the orientation lecture on Jan 10. The recording is in the course team on MS Teams. See **Files** -> **Recordings** folder.

TA Checkpoints

1. Check that the student knows how to create a new project in Keil μ Vision with the right settings for the Pt-51 board.
2. Check that the student knows how to compile the assembly program.
3. Check that the student knows how to modify memory at a particular location.
4. Check that the student knows how to step through the program in debug mode.
5. Check that the student knows how to set a breakpoint at a particular line in the program.
6. Check that the student knows how to examine the contents of registers.
7. Check that the student has found the correct frequency.