Fast Fourier Transformation (FFT)

In this lab, you implement a 64 point FFT. The input to the FFT routine is 64 complex numbers, where both real and imaginary parts are in Q31 format. The output is also an array of 64 complex numbers. To prevent overflow, you can do scaling in every stage.

Task 1: Implement FFT in C.

Task 2: Implement FFT in assembly.

Task 3: Compare the performance of your C code and assembly code. How many cycles do you need to do 64-point FFT?