FL24 Studio 1

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Due Date: **October 17, 2024**

TOC

Domain Specific Optimization

Recall the base FIR example from Lecture 3 (slides here). In Excercise 1 of this lecture you were tasked with modifying the code during class to take advantage of the symmetry of the coefficients.

For this studio, you will complete the following 2 tasks:

1. Copy the base FIR example and modify the code in `fir_mod` to take advantage of the symmetric coefficients
   - In this studio, don't focus so much on what might generate the most efficient hardware design.
2. Create a test that verifies the output of your modified function (`fir_mod`) matches the output of the base function (`fir`)

   - The goal of this studio is to, before even involving the Vitis tools, that changes that you made to the base code is functionally correct

   - You should be able to utilize the *NERC* build server to accomplish this task, or you may use your own machine (since nothing is Vitis specific in this studio)

   - Feel free to use a similar verification approach as seen in the Lab 1 Hello World example

   - You should be able to compile your code using:

     ```
     $ gcc fir11_initial.c -o fir
     ```

     > ⓘ **Note**
     >
     > Don't include the $. That just indicates that it's a `bash` terminal command.

And then you should be able to run your binary file by issuing

```
$ ./fir
```

at the command line.

For this exercise, please submit screenshots of

1. your modified `fir_mod` function
2. a screenshot of the code you use to verify your `fir_mod`'s correcntess
3. a screenshot of the output of the `fir` binary proving that your `fir_mod` is functionally correct