Seth Pregler
ECEN 489-508
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Lab 4 Pre-lab Submission

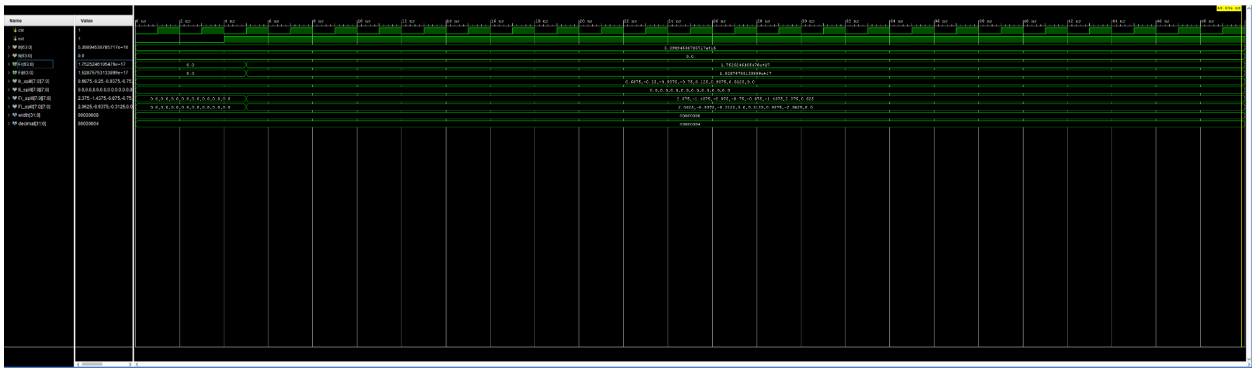

Figure 1 - Behavior Simulation of Radix-2 Decimation in Time FFT

Figure 1 shown above, displays the behavioral simulation for the radix-2 decimation in time FFT. In the testbench, we pass as input a series of points from a discrete Sine wave. The result is a series of Fourier coefficients with both a real and imaginary part. The figure below shows the output of the simulation; the top row contains the real part while the bottom row contains the imaginary part of the Fourier coefficients.

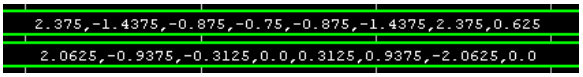

Figure 2 - Fourier Coefficients: Real (Top) and Imaginary (Bottom)

Lastly, I verified the results from the behavioral simulation with the outputs generated from the Matlab test file. The image below displays this output; the first column is the Fourier coefficients and begins with F_0 at the top and ends with F_7 at the bottom. Our results are within the error threshold of 0.1 so we can conclude that the implementation was a success. Note that this error is due to the limited number of bits used in our computation.

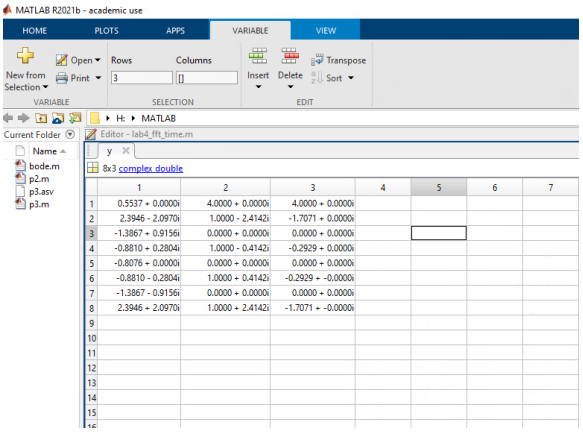

Figure 3 - Output of Matlab Test