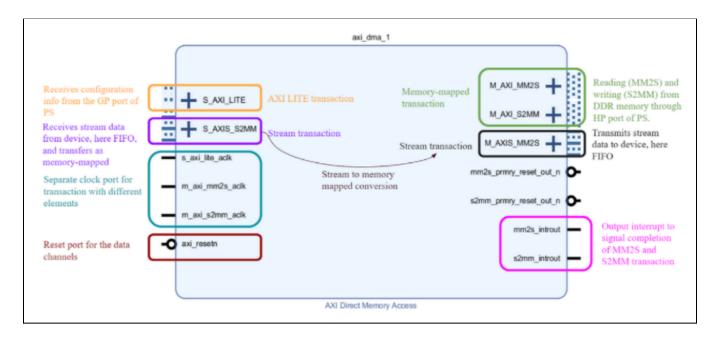
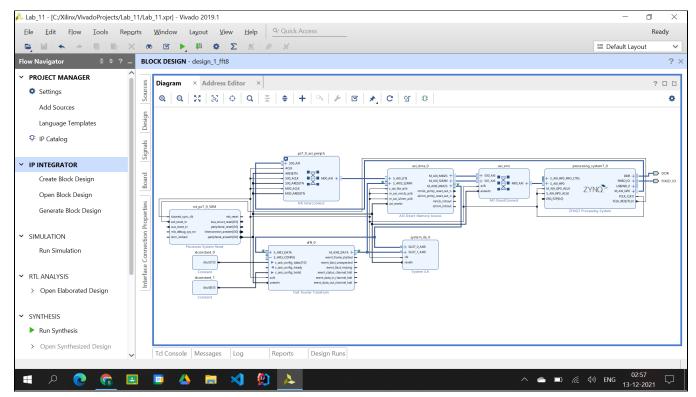
ELD Lab 11

Aim:

- 1. In this lab we will be using FFT IP to perform the 8 point FFT. To perform data transfers between PS and PL, we will be using AXI DMA. First some data will be stored in the DDR memory of the float complex data type. This data will be accessed by the DMA via the HP port of the Zynq Processing system. The DMA will then write this data to the FFT IP in the PL part. Then the DMA will read this data from the FFT, and write it back to the DDR memory again.
- 2. We will also perform the 8 Point FFT in PS using a testbench and then we will compare the software and hardware results.





Block Diagram:

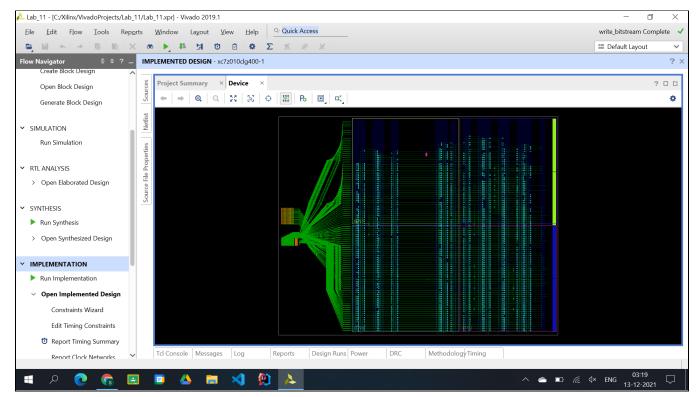
This is a block diagram of PS and PL systems connected through AXI streams.

We connect our Zynq processing system (PS) to our DMA through various AXI Streams via FIFO Block.

Here, the DMA accesses the data stored in the DDR memory through the HP port of the Zynq PS.

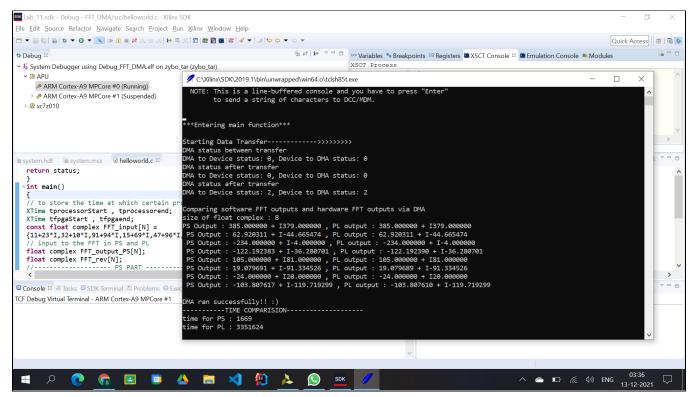
The DMA will write this data to a data FFT IP in the PL part.

Then the DMA will read this data from the FFT, and write it to the DDR memory again.



Implemented Netlist:

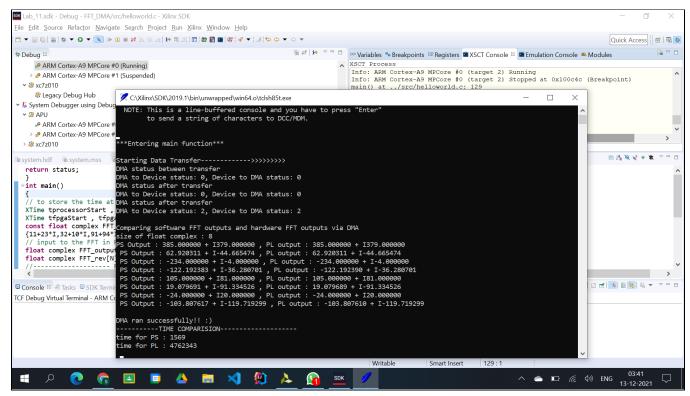
This is the netlist of the block diagram. Here, we have the PL as the blue boxes and the PS as the orange part with the AXI interface as the green connections.



Debug jtagterminal:

Now, we observe the output of the jtagterminal by running the C codes.

We see that the output of PS and PL are the same and that the time taken by the PS to transfer data is significantly less than the PL due to the DMA operations in the PL part.

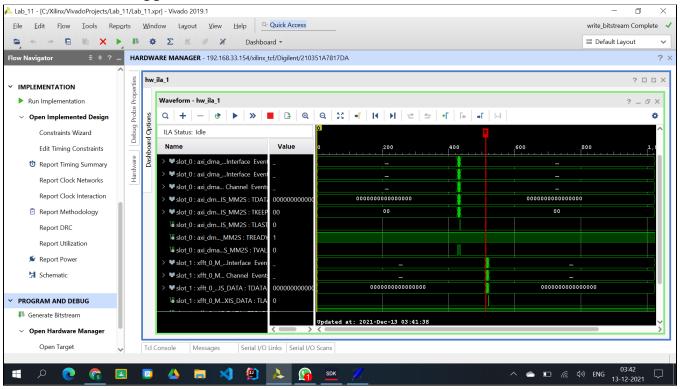


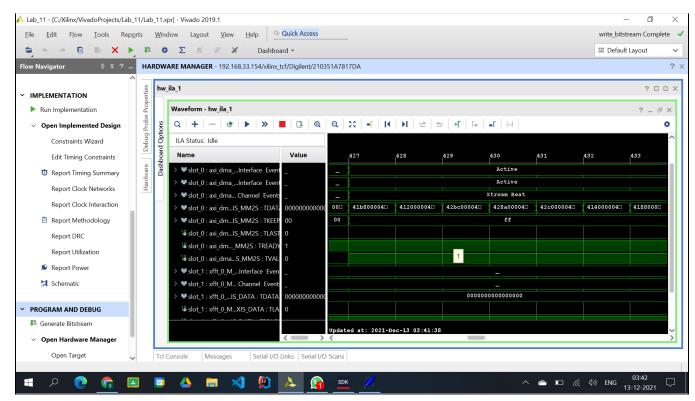
Debug jtagterminal after ILA trigger:

Now, we observe the output of the jtagterminal by running the C codes and catch the trigger set in the vivado simulation.

We see that the output of PS and PL are the same and that the time taken by the PS to transfer data is significantly less than the PL due to the DMA operations in the PL part.

Simulation after trigger:





We observe the Address slot here and observe the data transfer/handshake.