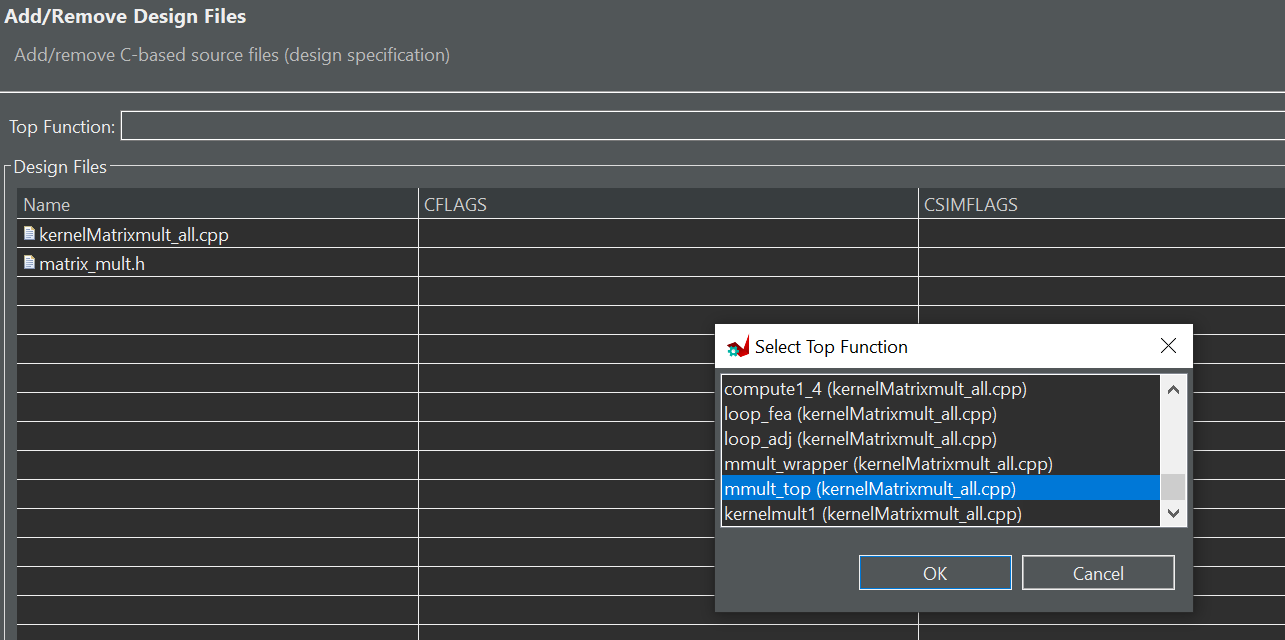
BASIC SETUP of gFADES GNN accelerator.

1.Create project with Vitis HLS 2022.1 targeting device available in Pynq z2 device. Set clock to 10 ns (100MHz).

Add source files and select the right top function:

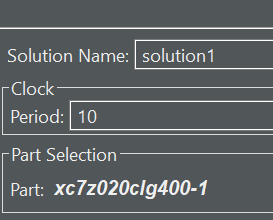


Add testbench files:

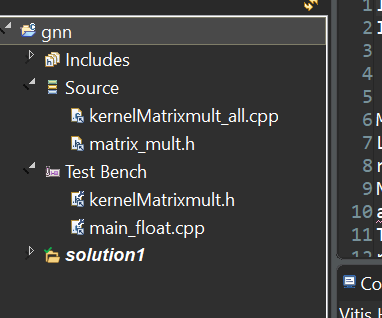
A screenshot of a computer

Description automatically generated

Select the right device for pynqz2 board:



Finish project generation and check that the sources look like this:



2. Simulation

Open matrix\_mult.h

Comment out the simulation setting (I use this to collect some values)

//#define simulation

Set precision to HALF (16bit floating point)

**#define** **HALF**

Most other precisions are not currently supported.

Set the configuration as below so there is 1t1t2c (1 adjacency thread, 1 feature thread, 2 compute units per thread) This should fit on the Pynq Z2.

**#define** **FEA\_THREADS** 1

**#define** **ADJ\_THREADS** 1

**#define** **A\_HEIGHT\_BLOCK** 1// 4096 //(512/4)

**#define** **B\_WIDTH\_BLOCK** 2 //the width of compute1 BLOCK BUFFER A\*B = C 16 //32 //64 //64 //128 // 64 //64 //64 //8//8// //16//32//1//32//1//32//1// 1//32//(128/4)

**#define** **C\_WIDTH\_BLOCK** 2 //the width of compute2 BLOCK BUFFER C\*D = F

**#define** **B\_BLOCK\_PARALLEL** 1

Do project -> run c simulation to check initial functionality. Things should look like this:

Running GNN accelerator

CPU  Total execution time = 5942.11 msec

out :data index= 0 0 kernel = 0.00196838

out :data index= 0 1 kernel = 0.477783

out :data index= 0 2 kernel = 0.59668

out :data index= 0 3 kernel = 0.0311279

out :data index= 0 4 kernel = 0.0022583

out :data index= 0 5 kernel = 0.564453

out :data index= 0 6 kernel = 0.53125

out :data index= 0 7 kernel = 0.0110474

out :data index= 0 8 kernel = 0.114624

out :data index= 0 9 kernel = 0.71582

out :data index= 0 10 kernel = 0.0994873

out :data index= 0 11 kernel = 0.142456

out :data index= 0 12 kernel = 0.652832

.....

3. Synthesis.

Do solution -> run c synthesis to perform C synthesis to RTL.

After the process completes you are ready to export project to Vivado as described in my notes.