

In this report, we successfully implemented Synopsys multiplier and divider IPs, creating an out of order processor that can execute reg/reg and reg/imm instructions (including multiplies and divides) and verified our functionality using the random testbench and various assembly files.

**Bugs:**

Rs1 vs Rs2 numbering issues

Rob indexing

Reservation station status update timing issues

Issues with rs1 and rs2 ready bits and the cdb

**Contributions:**

Alex: I helped implement the reservation stations and multiplier part of mul\_div unit, as well as general debugging.

Erin: I worked on parts of the reservation stations, rob, alu\_unit, rat/arf, and commit stages as well as debugging

Sujin: I contributed to the implementation of the multiplication extension unit and debugging the frontend (fetch, decode, dispatch).