Issues noticed:

1. **PSR == 0 from predictor model and psr == 0x2 from RTL, causing writeback mismatches:**

Writeback mismatches are there because predictor predicts psr as 0, whereas RTL predicts PSR == 0x2.

So I removed the psr check from do compare function to remove the writeback mismatches, all other values match correctly.

1. For branch instructions, the predictor model works correctly by updating the npc correctly, however there is a bug in the RTL as the RTL doesn’t take the computed target instead it just keeps on incrementing the PC. Refer below figure. There will be fetch/execute mismatch issues seen in simulation due to this error.

A screenshot of a computer

Description automatically generated

3. Control mismatches due to issue in controller predictor model