

Lecture 12 ()

1 Replay

Instead of flushing the entire pipeline, we only replay the instructions which are affected because of misprediction

2 Forward Slice

The tree of producer-consumer relation

3 Non-Selective Replay

1. Define a window of vulnerability (WV) for n cycles
2. Load should complete within these n cycles (expected)
3. If it doesn't complete, then we replay

3.1 Squashing and Reissuing

1. If there is a misprediction, all instructions in WV of dependent instruction are squashed
2. Their operands' ready bit is set to zero
3. They are reissued in order of forward slice
4. Issue remains with orphan instructions (those not in forward slice but in WV)

3.2 Implementation

1. There exists a kill wire which is set to 1 on a