

- a) control hazard
  - b) Move equality comparison and branch address calculation to the decode stage to reduce misprediction penalty. Although this can introduce a new hazard which can be resolved using stalling and forwarding.
  - c) If number of pipeline stages increase the branch misprediction penalty increases
  - d) We can use static Branch Predictors or Dynamic Branch Predictors to statistically determine if a branch is taken or not.
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- 1. ARM/MIPS are RISC processors while x86 is CISC.
  - 2. x86 generally have better performance than ARM & MIPS
  - 3. Because of RISC, ARM/MIPS have better power efficiency than x86.
  - 4. ARMv7 is more popular embedded devices while x86 is more popular in laptops, PCs and cloud
  - 5. x86 have 8 general purpose registers while ARM have 16 registers
  - 6. x86 requires more complex than MIPS/ARM.

