Pipeline Hazards

4-4-2003

Opening Discussion

- What did we talk about last class?
- Have you seen anything interesting in the news?
- Do pipeline hazards produce a fundamental change in control? If so, what is it?

Example Data Hazard with Forwarding
Fixing the Data Hazard with Forwarding

Simple Pipeline with Forwarding

Example Data Hazard that Stalls
Fixing the Execution

- Need to stall one cycle to fix this.

New Datapath

Example Branch Hazard
**Minute Essay**

- Consider the computer in front of you. It has a 20 stage pipeline. What is this going to do to the datapath? What are the implications for performance?
- Next class we will finish up chapter 6.