

## Datapath Conclusion

3-28-2003

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## Opening Discussion

- What did we talk about last class?
- Have you seen anything interesting in the news?

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## Designing Datapaths and Control

- Complex instructions are not always faster.
- Increasing number of transistors, faster computers, and better design tools have drastically changed the way that datapaths and controls are done.
- Fig 5.51

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## Chapter Review

- What we are going to do now is go back over the main things that we have discussed in this chapter. There is a bit of a twist to this though. You will be doing most of the talking.

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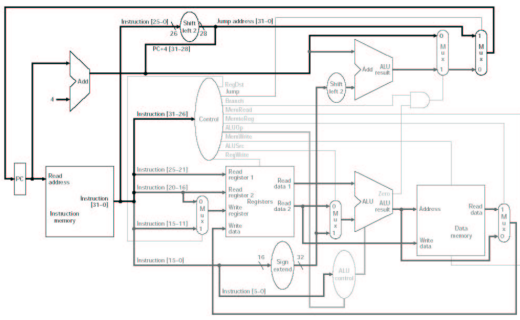
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## The Single Cycle Datapath



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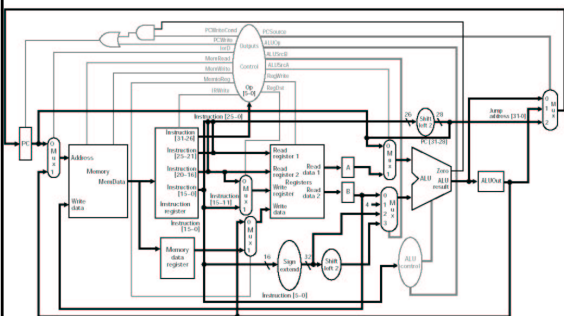
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## The Multicycle Datapath



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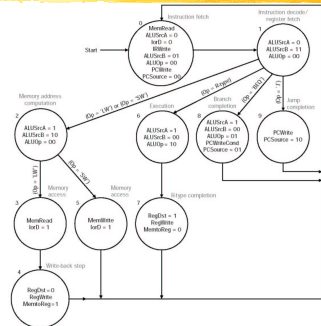
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## Complete Controller FSM




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## Our Microprogram

Label	ALU Co	SRC1	SRC2	Reg Co	Memory	PCWrite	Seq
Fetch	Add	PC	4	Read	Read PC	ALU	Seq
Mem1	Add	PC	Extshft	Write MDR	Read ALU		Dispatch 1
LW2	Add	A	Extend				Seq
SW2	Func code	A	B	Write ALU	Write ALU		Fetch
Rformat1							Seq
BEQ1	Subt	A	B			ALUOut- cond	Fetch
JUMP1						Jump address	Fetch

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## Minute Essay

- Next class we will be starting to talk about pipelining with Chapter 6. That chapter further elaborates on datapaths, adding more complexities that are used in modern implementations. What questions do you have from this chapter that you need answered before that?
- Remember that there will be a quiz at the beginning of next class.

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