

Merging the Data Paths

Tom Kelliher, CS 240

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1 Administrivia

Announcements

Assignment

Read 5.3. Remember, you have an assignment due (first three problems, only) Mar. 27.

From Last Time

Individual data path designs.

Outline

1. Merging data paths class exercise.

Coming Up

Single cycle implementation.

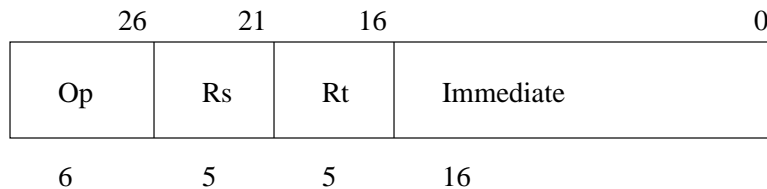
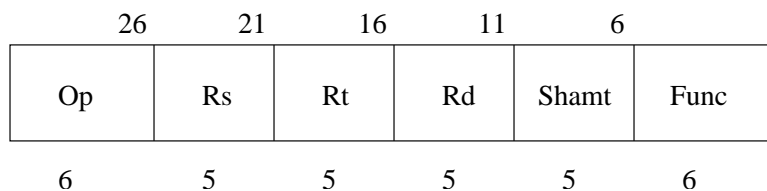
2 Merging the Data Paths

Working in groups of two, design a single data path capable of handling all the following tasks:

- Instruction fetch.
- R-Format instructions.
- I-Format instructions: arithmetic as well as load/store word.
- Branch instructions.

Notes:

1. You'll need to use muxes to select the correct inputs at various points within your design.
2. Use labels to indicate exactly which instruction bits you're sending to your sub-modules. (For instance, **Rs** is the input to the register file's RA1 port.) Here are the instructions formats:



We'll be seeing these a lot over the next couple weeks, so make sure you know what each field does!

3. Indicate on your design where the control signals are, input and output.