Lab #6: A Divider

ECE352F: Computer Organization

Fall 1999

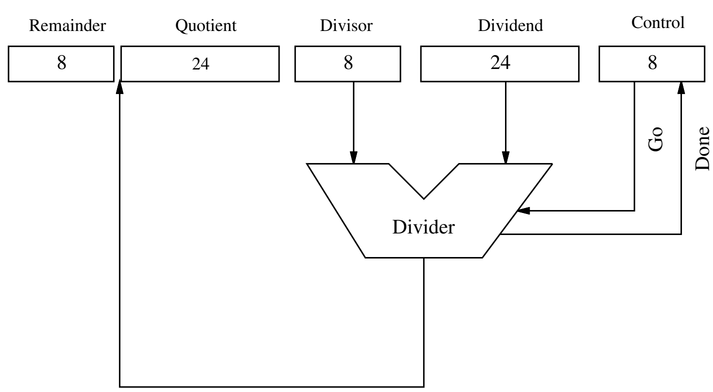
In this lab you will implement a non-restoring integer divider.

The divider should have an 8-bit divisor and a 24-bit dividend. The result will be a 24-bit quotient and an 8-bit remainder. Assume that all operands are positive numbers and that you do not have to preserve the original values of the operands.

As a starting point, you can try using smaller numbers, especially if you are using switches to first test your circuit.

You can try to use your interface circuit and program from either Lab 4 or Lab 5 as the basis for building an interface to your circuit. Otherwise, you can try to devise a scheme using switches and LEDs. In either case, an important task is to figure out a way to communicate with your divider circuit!

You may extend your design to add other registers if you want. The figure below shows a possible configuration.



You should have a control register that has a **Go** bit and a **Done** bit to tell the computation to start and indicate when you are done.

Preparation

- You should have fully simulated VHDL code demonstrating that your circuit works. In particular, show that the divider works. Example waveforms would be useful.
- You will need a C program to input the numbers and display the results if you choose to use a C interface.
- Describe the registers that you require and how they are used.