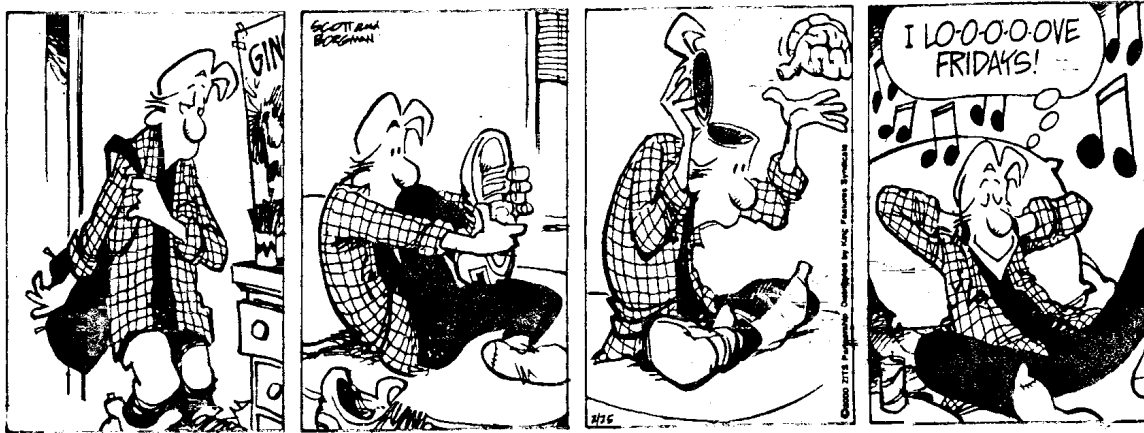


Introduction to CMOS VLSI Design (E158)

Problem Set 6

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Eight wacky freshmen designed the Muddle Chip in Fall of 2003. The chip contains a number of logic functions, some of which operate correctly and some of which do not. Even for the circuits with no logic or electrical bugs, some of the chips may not work because of manufacturing problems (e.g. a speck of dust on the wafer).

Documentation for the Muddle Chip, including a chip report (less the sections on intentional errors and testing), the Electric library, and a .cmd and pinmap file are in:

[\\Charlie.hmc.edu\courses\Engineering\E158\fys1\MuddleFinal](http://Charlie.hmc.edu/courses/Engineering/E158/fys1/MuddleFinal)

Your task is to test one of the circuits on one of the chips. Either prove that it operates according to the specification or show that it does not meet specifications and diagnose the source of the error. You may have to refer to the layout, schematic, or Electric library for your diagnosis. The specific chip you are responsible for will be assigned in class.

The chips and TeststerICs chip are located in the MicroP's lab. Do not remove them from the lab.

Turn in a 1-page report either explaining how you proved the circuit works or explaining where it fails and why. You may work alone or in a pair with the other person testing the same circuit on the same chip. If you work in a pair, turn in a single report with both of your names on it.