

ELEC3025 Integrated Circuit Design

Content

- An introduction to VLSI Design in CMOS

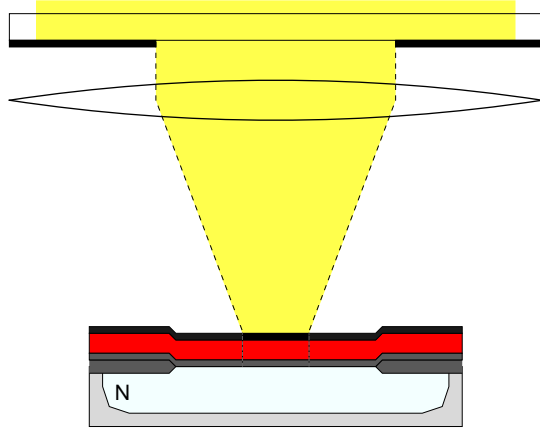
Taught by

- Iain McNally
- Koushik Maharatna

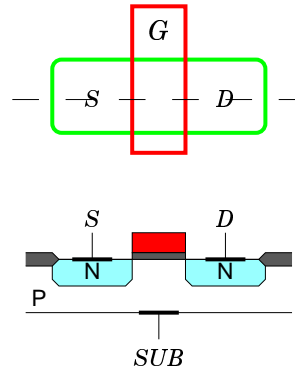
Assessment

- Examination 100%
 - Informal Coursework 0%
- L-Edit Logic Gate Design and Layout

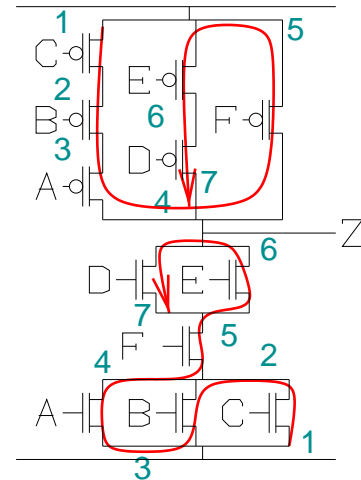
Processing



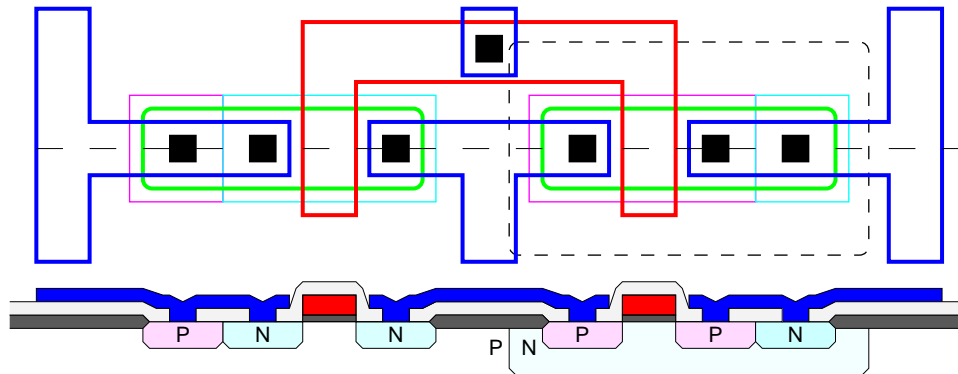
Transistor Construction



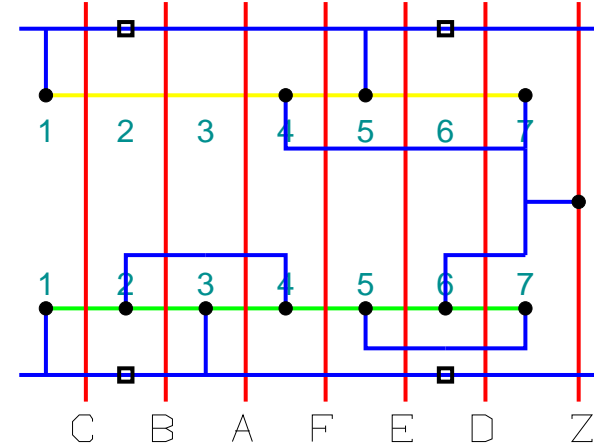
Euler Path Design



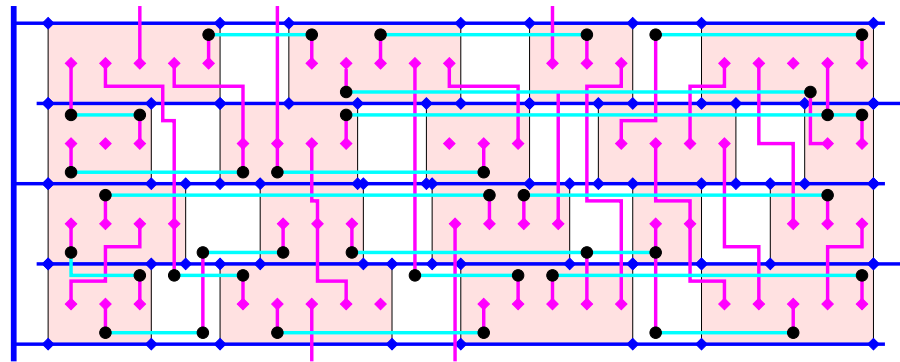
Mask Level Circuit Design



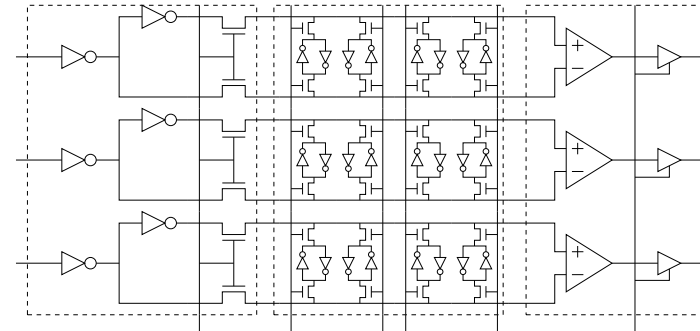
Stick Diagram Layout



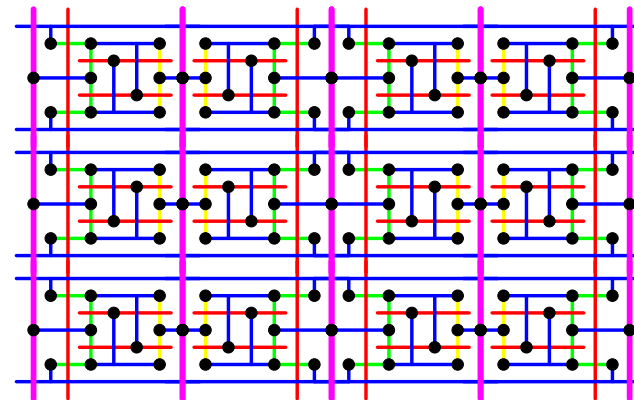
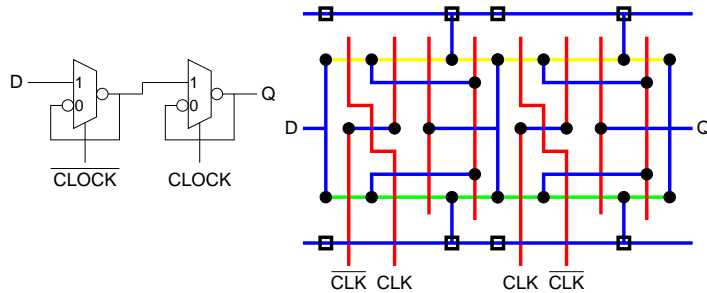
System Design using Standard Cells



Structured Macros



Static CMOS Circuits



For more details see:

<http://users.ecs.soton.ac.uk/bim/notes/icd>

- Inverter transfer characteristics, noise margins, SPICE simulation
- Transient response and transistor sizing, SPICE simulation
- Speed-area trade-off
- Circuit Power Consumption, design tradeoffs speed-power, introduction to low power circuit design
- Capacitance estimation, buffer design, area-speed design tradeoffs
- Dynamic logic

Part II

D2 IC Design Exercise

Simple Digital System Design using "Black Box" Standard Cells

Part III

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An Introduction to VLSI Design in CMOS

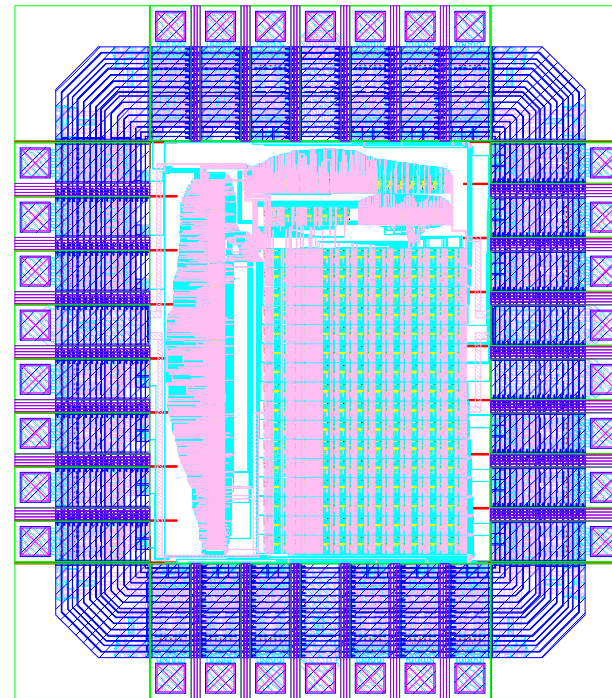
Part IV

ELEC6010 Digital IC Design

Lots of hands-on CAD

ELEC6027 VLSI Design Project

Complex System Design
Complete Custom IC Design Flow



ELEC6027 Novel 16-bit Microprocessor
(The best design from each year is fabricated)