Template Week 3 – Hardware

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Assignment 3.1: Examine your phone

What processor is in your phone?

An Apple A16 Bionic chip

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used?

It belongs to the ARM architecture, specifically on a 64 bit ARM based system / ARMv8.6-A instruction set.

How much RAM is in it?

6GB of RAM

How much storage does your phone have?

It has 256GB of storage

What operating system is running on your phone?

My phone is running the iOS 26.1 (beta).

Approximately how many applications do you have installed?

247 applications

Which application do you use the most?

Instagram is the one I use the most

Can your phone be charged with what type of plug?

With a fast-lightning Apple charger and wirelessly.

Which I/O ports can you visually see on your phone?

One port

Assignment 3.2: Examine your laptop

What processor is in your laptop?

An Apple M2 chip.

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used?

To the ARM architecture.

How much RAM is in it?

16GB of RAM.

How much storage does your laptop have?

It has 256GB of storage.

Which operating system is running on your laptop?

It's running the macOS Sonoma Version 14.3.1.

Approximately how many applications do you have installed?

Around 50 applications.

Which application do you use the most?

Safari.

Can your laptop be charged with what type of plug?

USB-C and MagSafe 3

Which I/O ports can you visually see on your laptop?

4 ports

Assignment 3.3: Power to the laptop

What is the input voltage?

100-240V

What is the output voltage?

20V

How many watts can your power adapter deliver?

30W

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

Alternating Current flows power into the adapter and transfers Direct Current (DC) to the charging device.

If you reverse the polarity of the output voltage, is that bad for your laptop?

Yes, it'll fry internal components of my PC.

You forgot your power adapter, your laptop normally needs 15 watts. You will be loaned a power adapter that can deliver 50 watts. Voltage, polarity, etc. are all the same compared to the original power adapter. You can connect the borrowed power adapter to your laptop. What will happen? Also explain why you think that.

It'll simply use the 15 watts out of the 50 watts. There's no issue with that.
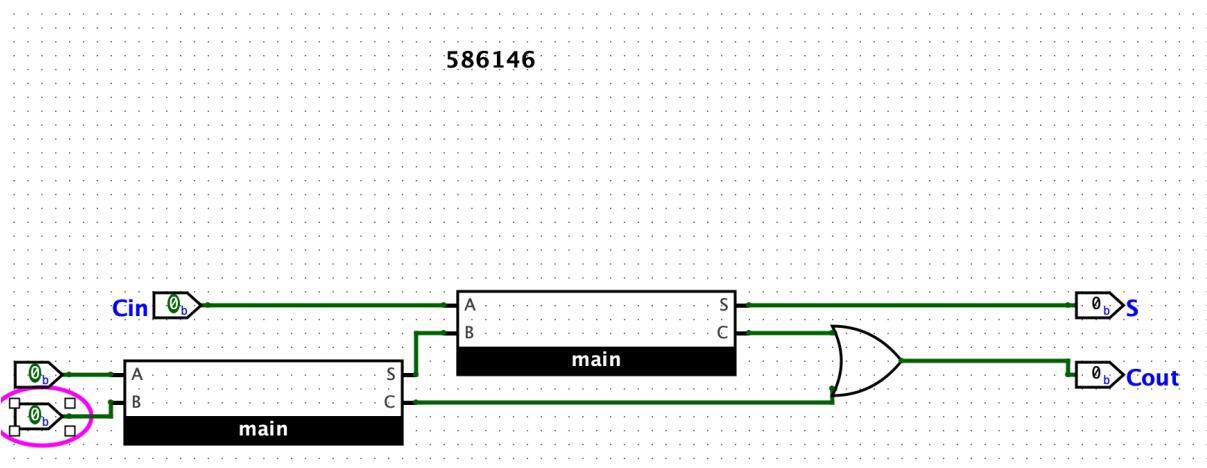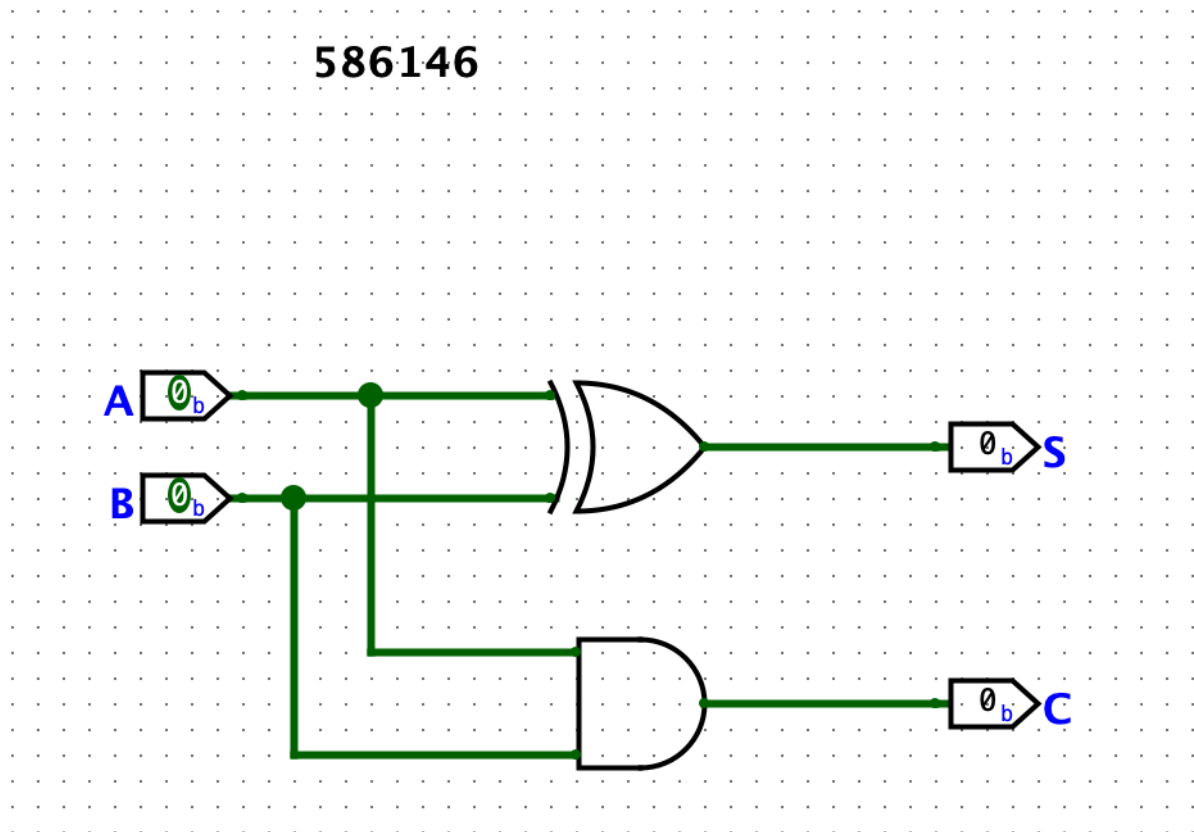
Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation: Me being a huge fan of NVIDIA and NZXT this is my dream PC. It uses the original (founder edition) of the GPU, latest one (AKA 5090) and it uses the latest CPU from Intel.

CPU
Intel Core i9-13900K 3 GHz 24-Core
€532.32

CPU Cooler
ARCTIC Liquid Freezer III Pro 360 77 CFM Liquid
€84.99

Motherboard
NZXT N7 Z790 ATX LGA1700
€259.00

Memory
Crucial Pro Overclocking 32 GB (2 x 16 GB) DDR5-6000 CL36
€289.99

Storage
Western Digital WD_Black SN850X 2 TB M.2-2280 PCIe 4.0 X4 NVME SSD
€182.90

Video Card
NVIDIA Founders Edition GeForce RTX 5080 16 GB
€1589.99

Case
NZXT H5 Flow (2024) ATX Mid Tower
€84.90

Power Supply
NZXT C850 (2024) 850 W 80+ Gold Certified Fully Modular ATX
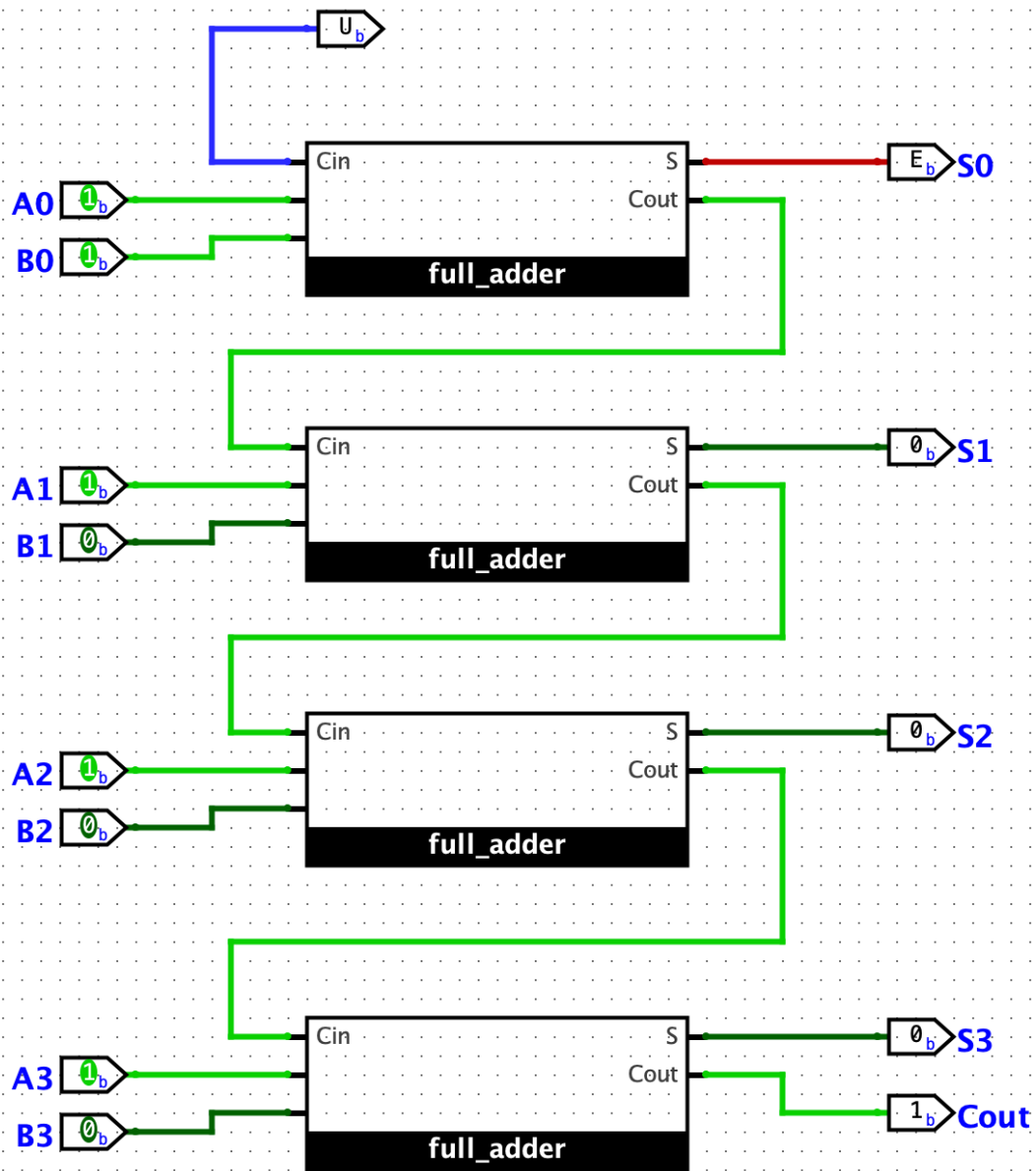€135.85

Assignment 3.5: Adders

Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

David Denis 586146

Ready? Save this file and export it as a pdf file with the name: **week3.pdf**