Week 3 – Hardware

Student number: 577029

Assignment 3.1: Examine your phone

What processor is in your phone? A16

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used? ARMv8-A

How much RAM is in it? 6GB

How much storage does your phone have? 128GB

What operating system is running on your phone? iOS 26

Approximately how many applications do you have installed? 27 applications

Which application do you use the most? Whatsapp, Spotify, Mail

Can your phone be charged with what type of plug? Lightning port to USB-C

Which I/O ports can you visually see on your phone? Lightning port, mute switch, volume bottoms, power button, sim-card tray,speaker,microphone

Assignment 3.2: Examine your laptop

What processor is in your laptop? Intel64 Family 6 Model 186 Stepping 3 GenuineIntel ~1700 Mhz

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used? Intel 64 / x86-64

How much RAM is in it? 32441 MB / 31.7 GB

How much storage does your laptop have? 19115 MB / 18.70 GB

Which operating system is running on your laptop? Microsoft Windows 11 Education

Approximately how many applications do you have installed? 178 applications, based on (winget list | Select-Object -Skip 2).Count

Which application do you use the most? svchost.exe, firefox.exe, Microsoft Teams, Spotify, Notion.exe

Can your laptop be charged with what type of plug? USB-C

Which I/O ports can you visually see on your laptop? 3x USB-C Gen 1, 1x HDMI 2.1, 1x 3.5mm headphone combo jack, 2x Thunderbolt

Assignment 3.3: Power to the laptop

What is the input voltage? 100 V – 240 V

What is the output voltage? 20 V DC

How many watts can your power adapter deliver? 65W

Is the input voltage AC or DC? The input is AC

Is the output voltage AC or DC? The output is DC

AC/DC what is that? AC alternating current, DC direct current.
the adapter takes AC from the wall, converts it to DC, and feeds the laptop with DC at my laptop

If you reverse the polarity of the output voltage, is that bad for your laptop? Its very bad, the current would flow in the opposite direction

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.

My laptop will be okay because the power adapter is made to be voltage regulated. If my laptop only needs 15W while the adapter can deliver 50W it wouldn't be a problem. It will be using what it requires.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

PCPartPicker Part List: https://nl.pcpartpicker.com/list/GRL4Kq

CPU: Intel Core i7-14700K 3.4 GHz 20-Core Processor (€349.00 @ Megekko)

CPU Cooler: Corsair iCUE LINK TITAN 360 RX LCD 73.5 CFM Liquid CPU Cooler (€259.00 @ Amazon Netherlands)

Motherboard: Asus Z790 GAMING WIFI7 ATX LGA1700 Motherboard

Memory: Corsair Vengeance RGB 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory (€402.00 @ Alternate)

Storage: Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive (€189.00 @ Amazon Netherlands)

Video Card: Asus ROG STRIX-GTX1070-O8G-GAMING GeForce GTX 1070 8 GB Video Card

Case: Corsair 3500X ARGB ATX Mid Tower Case (€129.00 @ Amazon Netherlands)

Power Supply: Corsair RM850e (2025) 850 W Fully Modular ATX Power Supply (€112.91 @ Amazon Netherlands)

Operating System: Microsoft Windows 11 Pro OEM - DVD 64-bit (€157.76 @ Amazon Netherlands)

Monitor: Dell UltraSharp U3425WE 34.1" 3440 x 1440 120 Hz Curved Monitor

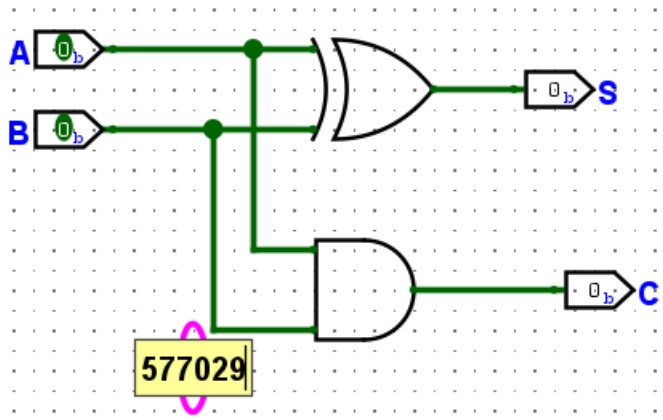
Comparing to my current computer(laptop): Lenovo X1 Carbon Gen 12. My dream PC is more powerful that could do heavy multitasking compared to my laptop. Also, the graphic card is outdated.

Assignment 3.5: Adders

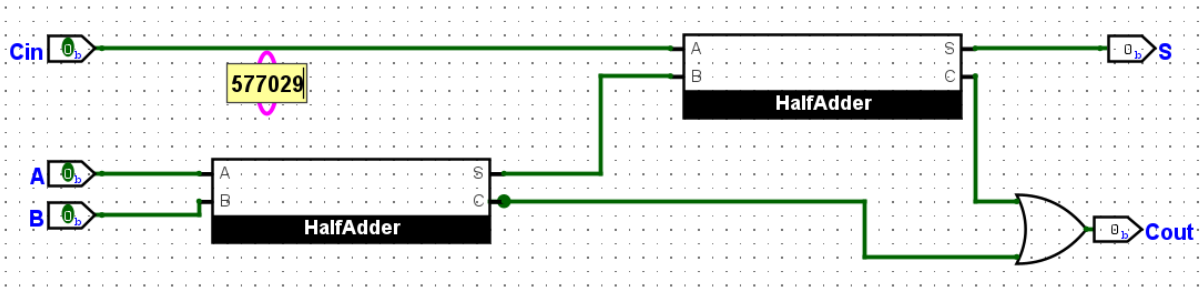
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

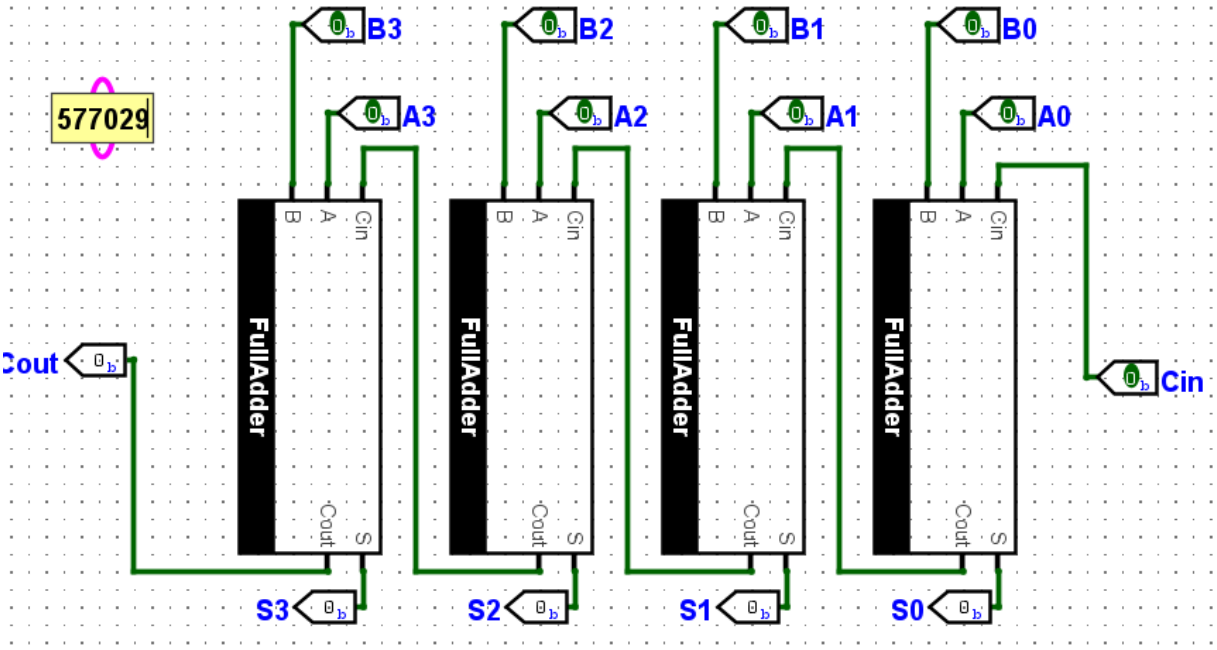
#half adder



#full adder



#4-bit adder



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