Template Week 3 – Hardware

Student number: 589871

Assignment 3.1: Examine your phone

What processor is in your phone? Qualcom KRYO 670

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

How much RAM is in it? 8GB

How much storage does your phone have? 256GB

What operating system is running on your phone? Android 15

Approximately how many applications do you have installed? 125

Which application do you use the most? Discord

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

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

Assignment 3.2: Examine your laptop

What processor is in your laptop? AMD Radeon 5800H CPU, Nvidia RTX 3060 Laptop GPU

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used? X86

How much RAM is in it? 64GB

How much storage does your laptop have? 3TB

Which operating system is running on your laptop? Windows 11 & Ubuntu 24

Approximately how many applications do you have installed? 202

Which application do you use the most? Discord

Can your laptop be charged with what type of plug? Yes with a barrel jack(coaxial power connector)

Which I/O ports can you visually see on your laptop? HDMI, LAN, USB C x1, USB A x3

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? 200W

Is the input voltage AC or DC? AC

Is the output voltage AC or DC? DC

AC/DC what is that? AC stands for alternating current and periodically changes the direction of the current. Where as DC is direct current and always the same.

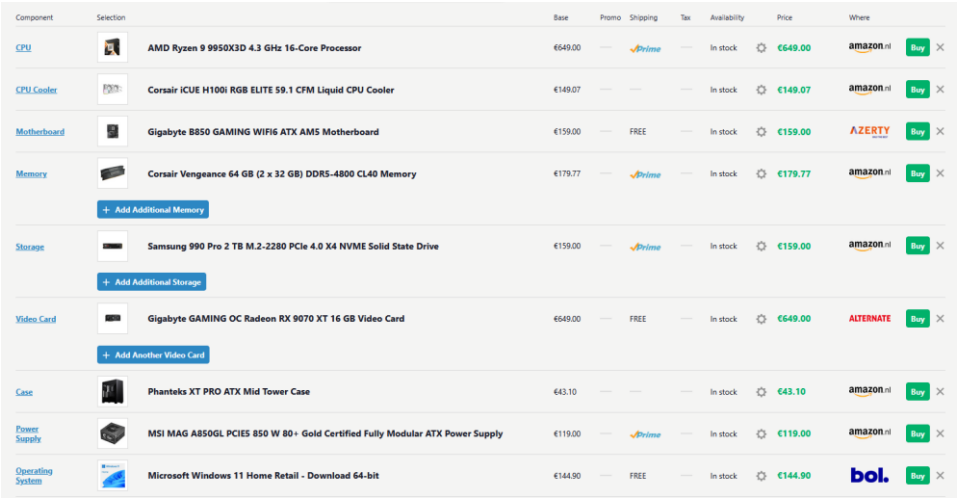
If you reverse the polarity of the output voltage, is that bad for your laptop? No because it's ac power it will have almost no effect.

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.

While it's not 100% safe and is best to use a identical adapter. But almost every single modern laptop laptop will only draw the power it needs so it should still be fine.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



Component	Selection	Base	Promo	Shipping	Tax	Availability	Price	Where
CPU	AMD Ryzen 9 9950X3D 4.3 GHz 16-Core Processor	€649.00	—	Prime	—	In stock	€649.00	amazon.nl Buy
CPU Cooler	Corsair iCUE H100i RGB ELITE 59.1 CFM Liquid CPU Cooler	€149.07	—	—	—	In stock	€149.07	amazon.nl Buy
Motherboard	Gigabyte B850 GAMING WIFI6 ATX AM5 Motherboard	€159.00	—	FREE	—	In stock	€159.00	AZERTY Buy
Memory	Corsair Vengeance 64 GB (2 x 32 GB) DDR5-4800 CL40 Memory	€179.77	—	Prime	—	In stock	€179.77	amazon.nl Buy
	+ Add Additional Memory							
Storage	Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€159.00	—	Prime	—	In stock	€159.00	amazon.nl Buy
	+ Add Additional Storage							
Video Card	Gigabyte GAMING OC Radeon RX 9070 XT 16 GB Video Card	€649.00	—	FREE	—	In stock	€649.00	ALTERNATE Buy
	+ Add Another Video Card							
Case	Phanteks XT PRO ATX Mid Tower Case	€43.10	—	—	—	In stock	€43.10	amazon.nl Buy
Power Supply	MSI MAG A850GL PCIE5 850 W 80+ Gold Certified Fully Modular ATX Power Supply	€119.00	—	Prime	—	In stock	€119.00	amazon.nl Buy
Operating System	Microsoft Windows 11 Home Retail - Download 64-bit	€144.90	—	FREE	—	In stock	€144.90	bol. Buy

I chose for an amd cpu as intel has some bad habits that can make it incompatible with linux. I also chose for an AM5 socket cpu with a lot of cores seeing as it's the most convenient and having a lot of cores is useful for my use case.

For the gpu I chose AMD over NVIDIA as the price to raw power ratio (aka no ai) is much better.

64 GB of ram is usefull for working on multiple big projects at a time. (not the best time to be buying ram tho)

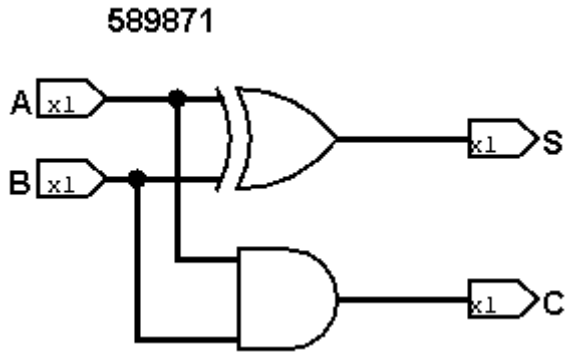
And 1 2TB ssd to start as more storage can be added and might not be necessary because we have a big NAS at home.

Assignment 3.5: Adders

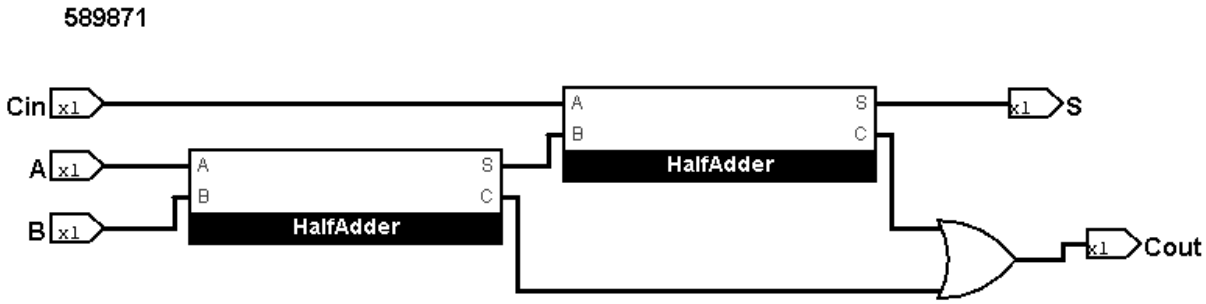
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

Half adder:



Full adder:



Four Bit adder: