Template Week 3 – Hardware

Student number:544483

Assignment 3.1: Examine your phone

What processor is in your phone?

Qualcomm Snapdragon 888

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

The Samsung Galaxy S21 FE belongs to the ARM architecture family

How much RAM is in it?

6 GB (+ a virtual memory option set at 4 GB)

How much storage does your phone have?

128 GB

What operating system is running on your phone?

Android 13

Approximately how many applications do you have installed?

100

Which application do you use the most?

Spotify, Instagram, Google, Google wallet.

Can your phone be charged with what type of plug?

Yes, with a type C charger

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

USB Type-C Port, SIM Card Tray, Speaker Grille

Assignment 3.2: Examine your laptop

What processor is in your laptop?

AMD Ryzen 5 5600H with Radeon Graphics

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

Zen 3 architecture family.

How much RAM is in it?

16Gb

How much storage does your laptop have?

512 GB

Which operating system is running on your laptop?

Windows 11

Approximately how many applications do you have installed

70

Which application do you use the most?

Chrome, League of legends, Obsidian, Notion

Can your laptop be charged with what type of plug?

Yes, proprietary charging plug with a barrel connector for its power supply

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

Left Side:

1 x USB 3.2 Gen 1 Type-A port

1 x USB 3.2 Gen 2 Type-C port (supports data transfer, but not video output)

1 x HDMI 2.1 port

1 x Ethernet (RJ-45) port

1 x 3.5mm audio jack (for headphones/microphone)

2 x USB 3.2 Gen 1 Type-A ports

1 x Power input port (for the charging adapter)

Assignment 3.3: Power to the laptop

What is the input voltage?

100-240V

What is the output voltage?

19V

How many watts can your power adapter deliver?

140 Watts

Is the input voltage AC or DC?

Alternating current

Is the output voltage AC or DC?

Direct current

AC/DC what is that?

The two different types of electricity (Alternating and Direct current)

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

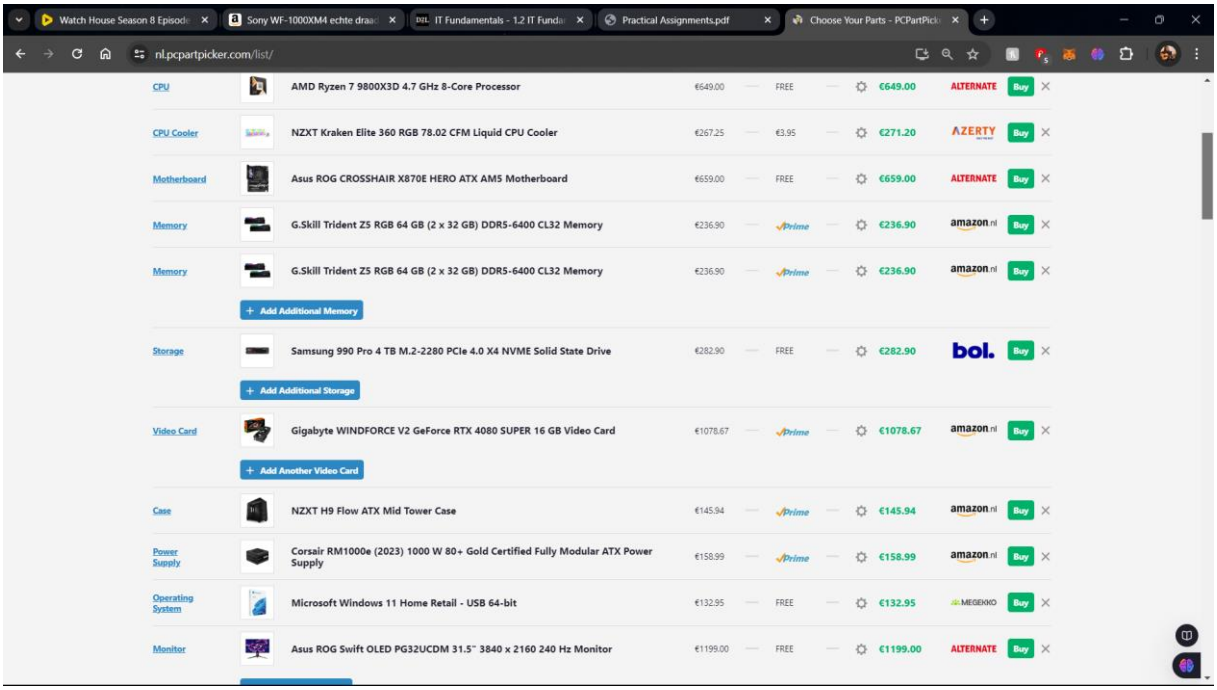
Yes, laptops are designed with specific circuitry that expects a certain polarity. Reversing the polarity can cause current to flow in unintended directions, potentially damaging sensitive components such as the motherboard, power management circuits, and other internal electronics.

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.

Nothing out of the ordinary will happen laptop will be just fine. 50 watts is the max amount it will deliver, not the amount that will enter the machine. The laptop will take the 15 watts it needs to. Having a 50-watt charger means the charger can handle more power if needed but it wont force it into the laptop if it doesn't. Most laptops (mine included) have a power management system, that controls how much power the laptop draws from the charger

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



CPU: AMD Ryzen 7 9800X3D

Motivation: With 8 cores and a boost clock of 4.7 GHz, this processor is a powerhouse for both gaming and productivity. Its 3D V-Cache technology enhances performance in gaming and multitasking, making it perfect for demanding applications and future-proofing your build.

2. CPU Cooler: NZXT Kraken Elite 360

Motivation: This cooler not only keeps your CPU temperatures low but also adds stunning RGB aesthetics to your build. The 360mm radiator ensures efficient cooling, allowing you to push your CPU to its limits without overheating.

3. Motherboard: Asus ROG CROSSHAIR X870E HERO

Motivation: This motherboard is designed for high performance and overclocking. With robust power delivery, extensive connectivity options, and premium features like Wi-Fi 6E, it provides a solid foundation for your build and supports future upgrades.

4. Memory: G.Skill Trident Z5 RGB (128 GB total)

Motivation: With 128 GB of high-speed DDR5 RAM, you'll have more than enough memory for gaming, content creation, and multitasking. The RGB lighting adds a personal touch, making your build visually stunning.

5. Storage: Samsung 990 Pro 4 TB NVMe SSD

Motivation: This SSD offers lightning-fast read and write speeds, drastically reducing load times for games and applications. With 4 TB of storage, you can store your entire library without worrying about space.

6. Video Card: Gigabyte WINDFORCE V2 GeForce RTX 4080 SUPER

Motivation: The RTX 4080 SUPER is a top-tier graphics card that excels in 4K gaming and ray tracing. It ensures smooth gameplay and stunning visuals, making it ideal for both gamers and creators who demand the best performance.

7. Case: NZXT H9 Flow ATX Mid Tower

Motivation: This case combines aesthetics with functionality, featuring excellent airflow and cable management. Its sleek design and tempered glass panels showcase your components beautifully while keeping them cool.

8. Power Supply: Corsair RM1000e (1000W)

Motivation: A reliable power supply is crucial for system stability. The RM1000e is fully modular, and 80+ Gold certified, ensuring efficient power delivery and reducing cable clutter for a clean build.

9. Operating System: Microsoft Windows 11 Home

Motivation: Windows 11 offers a modern interface and improved performance for gaming and productivity. It supports the latest technologies and provides a seamless experience for all your applications.

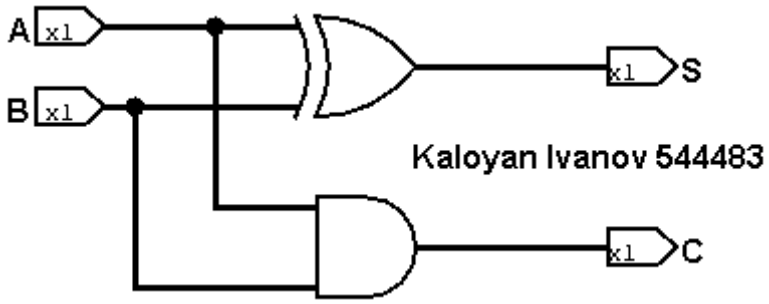
10. Monitor: Asus ROG Swift OLED PG32UCDM

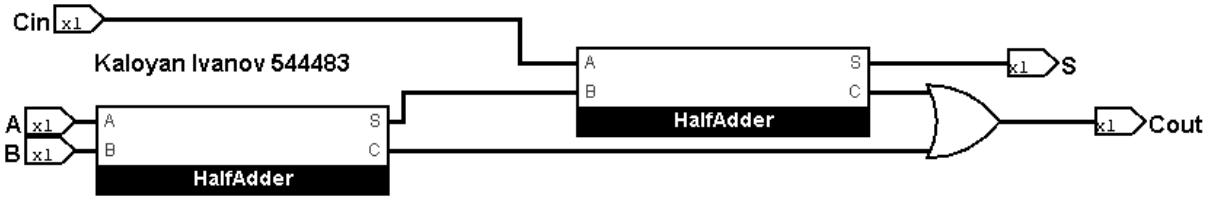
Motivation: This 31.5" 4K monitor with a 240 Hz refresh rate delivers breathtaking visuals and smooth gameplay. The OLED technology provides vibrant colors and deep blacks, enhancing your gaming and media consumption experience.

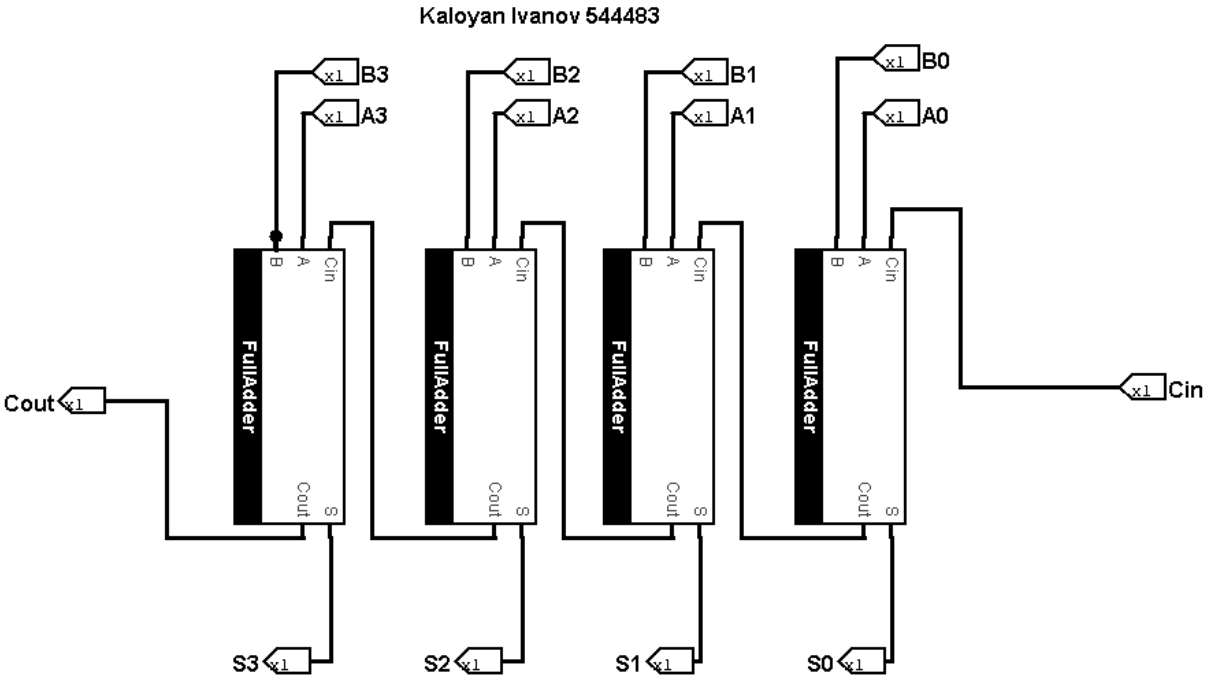
Bonus point assignment – week 3

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.







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