Template Week 3 – Hardware

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Assignment 3.1: Examine your phone

My phone is a Samsung Galaxy A71

What processor is in your phone?

My phone has a Qualcomm Snapdragon 730 processor.

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

The phone belongs to the ARM architecture.

How much RAM is in it?

It has 6 GB of RAM.

How much storage does your phone have?

It has 128 GB of storage.

What operating system is running on your phone?

It came with Android 10 but I upgraded it to Android 13

Approximately how many applications do you have installed?

Around 120 apps.

Which application do you use the most?

My most used app is Instagram.

Can your phone be charged with what type of plug?

It is with usb type c.

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

USB-C, 3.5mm headphone jack, SIM, Speaker grille, Microphone holes.

Assignment 3.2: Examine your laptop

What processor is in your laptop?

Intel(R) Core(TM) i7-6700HQ CPU @ 2.60GHz

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?

8GB of ram

How much storage does your laptop have?

One ssd with 512 GB and one hard disk with 1 TB

Which operating system is running on your laptop?

Windows 10

Approximately how many applications do you have installed?

Around 70 applications

Which application do you use the most?

Brave browser

Can your laptop be charged with what type of plug?

DC barrel connector with a 4.5 mm outer diameter

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

VGA port, LAN port, HDMI port, 3 USB-A and a 3.5 mm audio jack

Assignment 3.3: Power to the laptop

What is the input voltage?

100 - 240 V

What is the output voltage?

19 V

How many watts can your power adapter deliver?

65 watts

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

A rock group

AC (Alternating Current):
The direction of the current changes back and forth

DC (Direct Current):
Current flows in one direction only

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

Yes, it is very bad, it can damage the electronics inside the laptop.

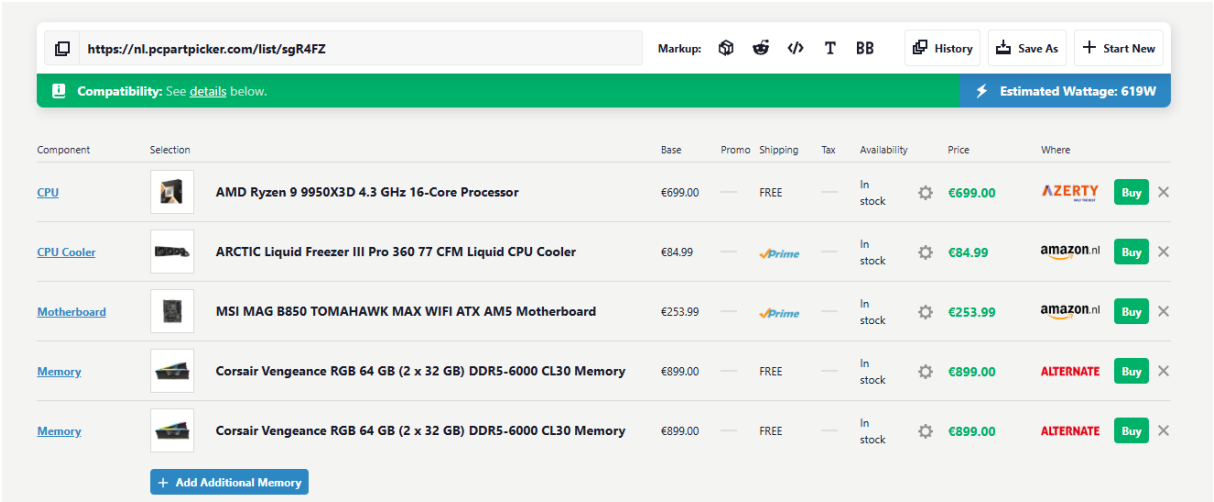
You forgot your power adapter, your laptop normally needs 15 watts. You will be loaned a power adapter that can deliver 50 watts. Voltage, polarity, etc. are all the same compared to the original power adapter. You can connect the borrowed power adapter to your laptop. What will happen? Also explain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

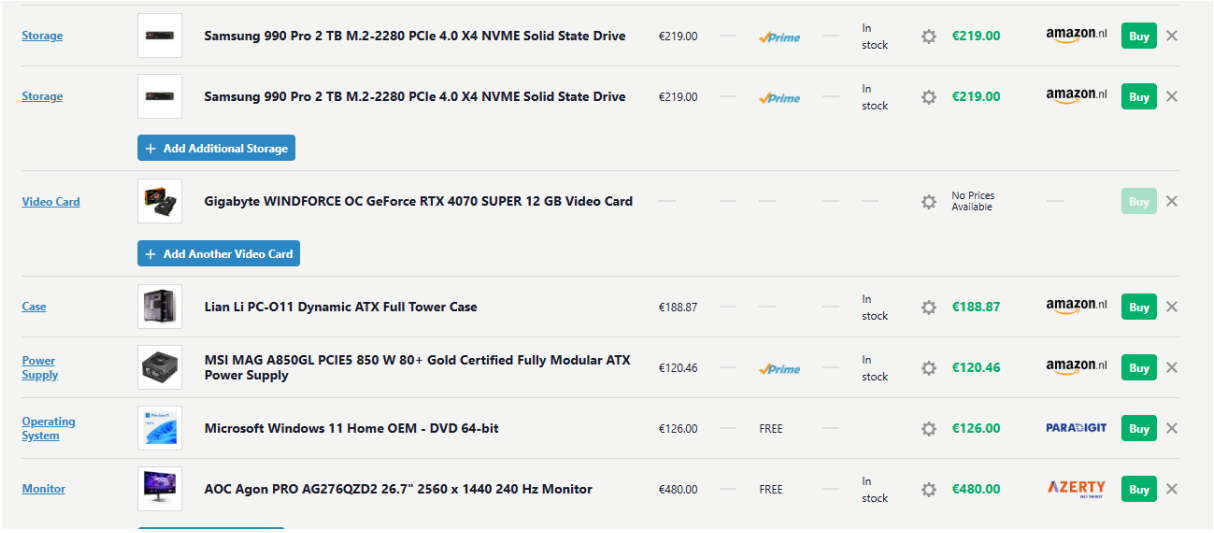
Nothing will happen, the laptop will be able to operate normally.

The laptop will only draw the power it needs as long as the voltage and polarity are correct and the same, and also if the port fits.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:





Motivation for My Dream PC Configuration

I chose these components to build a high-end, future-proof PC that excels in gaming, productivity, and multitasking, while maintaining reliability, efficiency, and upgrade potential.

Processor (AMD Ryzen 9 9950X3D)

I selected the AMD Ryzen 9 9950X3D because it offers outstanding performance for both gaming and professional workloads. With 16 cores and 32 threads, it is ideal for multitasking, content creation, and demanding applications. The 3D V-Cache technology significantly improves gaming performance, making it one of the best CPUs available for high refresh-rate gaming while still being extremely powerful for productivity.

CPU Cooling (ARCTIC Liquid Freezer III Pro 360)

To ensure stable performance under heavy load, I chose the ARCTIC Liquid Freezer III Pro 360. This high-performance liquid cooler provides excellent thermal efficiency and quiet operation, allowing the CPU to maintain high boost clocks without overheating. This is especially important for a high-end processor like the Ryzen 9.

Motherboard (MSI MAG B850 Tomahawk MAX WiFi)

The MSI MAG B850 Tomahawk MAX WiFi was chosen for its strong power delivery, modern features, and long-term reliability. It supports DDR5 memory, PCIe 5.0, and includes built-in WiFi, making it well-suited for future upgrades and high-performance components.

Memory (128 GB DDR5 RAM)

I selected 128 GB of DDR5-6000 CL30 memory to ensure exceptional multitasking capability and future-proofing. This amount of RAM is ideal for heavy workloads such as video editing, virtualization, game development, and running multiple demanding applications simultaneously, while also benefiting from DDR5's higher bandwidth.

Storage (Samsung 990 Pro 2 TB NVMe SSDs)

The Samsung 990 Pro NVMe SSDs were chosen for their extremely fast read and write speeds and high reliability. Using two 2 TB drives provides ample storage for games, applications, and large files while ensuring fast boot times and quick data access. NVMe PCIe 4.0 performance significantly improves overall system responsiveness.

Graphics Card (GeForce RTX 4070 SUPER)

The RTX 4070 SUPER offers an excellent balance between performance and efficiency. It delivers strong performance at 1440p and high refresh rates, supports ray tracing and DLSS, and is powerful enough for modern games and creative workloads without excessive power consumption.

Case (Lian Li PC-O11 Dynamic)

I chose the Lian Li PC-O11 Dynamic because of its clean design, excellent airflow, and spacious interior. It allows for optimal cooling, neat cable management, and showcases high-end components beautifully, making it both functional and visually appealing.

Power Supply (MSI MAG A850GL PCIe5 – 850 W)

An 850 W 80+ Gold fully modular power supply ensures stable and efficient power delivery to all components. This wattage provides enough headroom for future upgrades while maintaining high efficiency and reliability.

Operating System (Windows 11 Home)

Windows 11 was selected for its modern interface, gaming optimizations, and compatibility with the latest hardware technologies such as DirectStorage and advanced CPU scheduling.

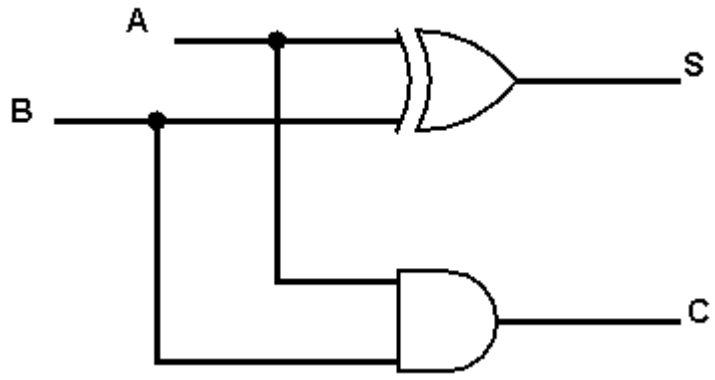
Monitor (AOC Agon PRO AG276QZD2 – 1440p 240 Hz)

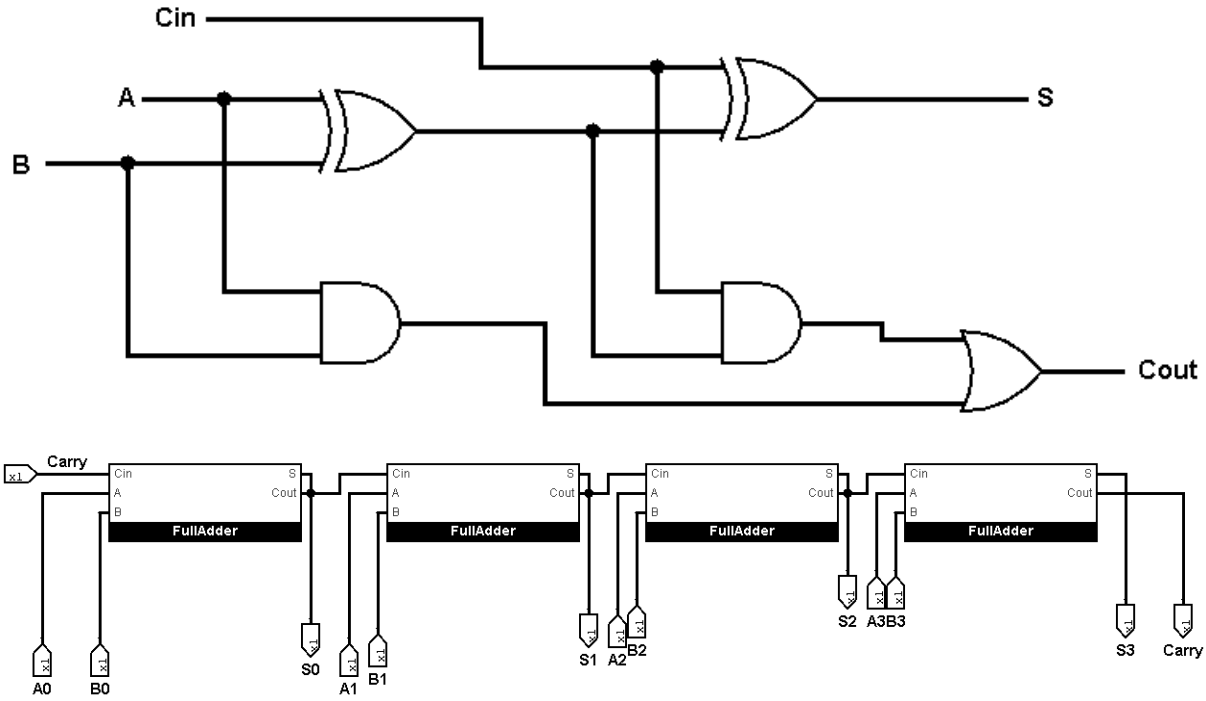
The AOC Agon PRO 1440p 240 Hz monitor perfectly complements the system's power. Its high refresh rate and resolution allow for smooth, competitive gaming while still delivering excellent image quality for everyday use.

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.





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