Template Week 3 – Hardware

Student number: 568524

Assignment 3.1: Examine your phone What

processor is in your phone?

Apple A15 Bionic chip

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

The A15 Bionic uses the ARM ISA, which is a RISC architecture.

How much RAM is in it?

6 GB of RAM

How much storage does your phone have?

256 GB

What operaLng system is running on your phone?

It runs iOS

Approximately how many applicaLons do you have installed?

100 apps

Which applicaLon do you use the most?

Instagram, messages, WhatsApp

Can your phone be charged with what type of plug?

My phone can be charged with a lighting connector, or it can be charged wirelessly using Mag Safe or Qi wireless charging.

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

The only visible I/O port is the **Lightning port** at the bottom of the phone.

Assignment 3.2: Examine your laptop

What processor is in your laptop?

Apple M3 Max chip

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

The M3 Max chip uses the ARM ISA, which is also a architecture.

How much RAM is in it?

36 GB

How much storage does your laptop have?

1 TB

Which operaLng system is running on your laptop?

macOS Sequoia

Approximately how many applicaLons do you have installed?

73 applications

Which applicaLon do you use the most?

PdAdmin24, Apple music, IntelliJ IDEA

Can your laptop be charged with what type of plug?

The MacBook Pro can be charged using a Mag Safe 3 connector or through USB-C ports with compatible power delivery.

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

3 Thunderbolt 4 (USB-C) ports, 1 Mag Safe 3 charging port,1 HDMI port,1 SDXC card slot,1 3.5mm headphone jack.

Assignment 3.3: Power to the laptop

What is the input voltage?

100-240V

What is the output voltage?

20V

How many waZs can your power adapter deliver?

140W power

Is the input voltage AC or DC?

The input voltage is **AC**

Is the output voltage AC or DC? The

adapter converts that AC into DC

AC/DC what is that?

AC is the kind of electricity that flows back and forth and is used for things like household power. **DC (Direct Current)** is steady and flows in one direction, like what batteries and most electronics need.

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

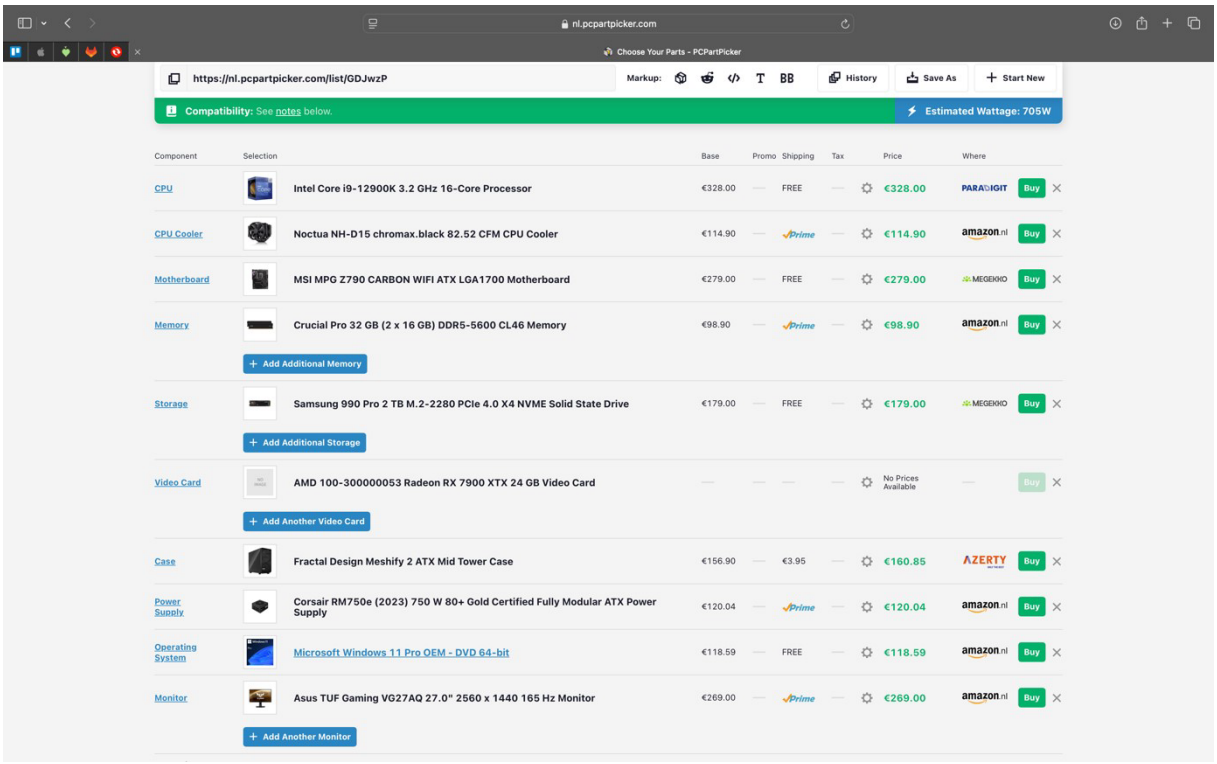
It would damage the laptop because it's not designed for such a thing.

You forgot your power adapter, your laptop normally needs 15 waZs. You will be loaned a power adapter that can deliver 50 waZs. 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.

Although the borrowed adapter can supply more power (50 watts), your laptop will only draw the amount of power it requires (15 watts). This is because laptops are designed to regulate their power consumption based on their needs. The adapter doesn't push more power than the device requests; it simply provides the maximum capacity available, up to its rating. As long as the voltage, polarity, and connector type match the original adapter, the laptop will operate normally and safely without drawing more power than it needs.

Assignment 3.4: Build your dream PC

Screenshots PC configuraLon + moLvaLon:

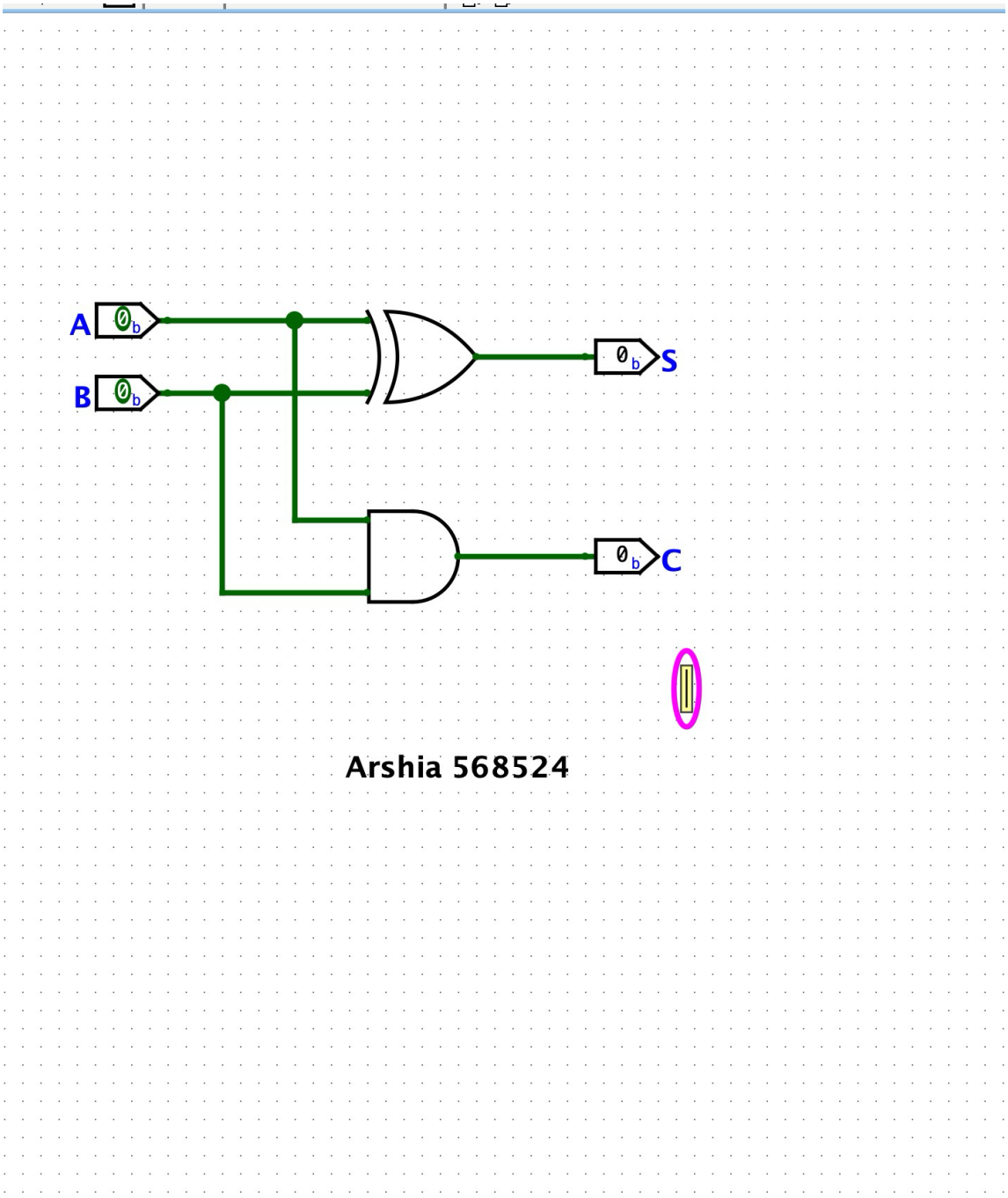


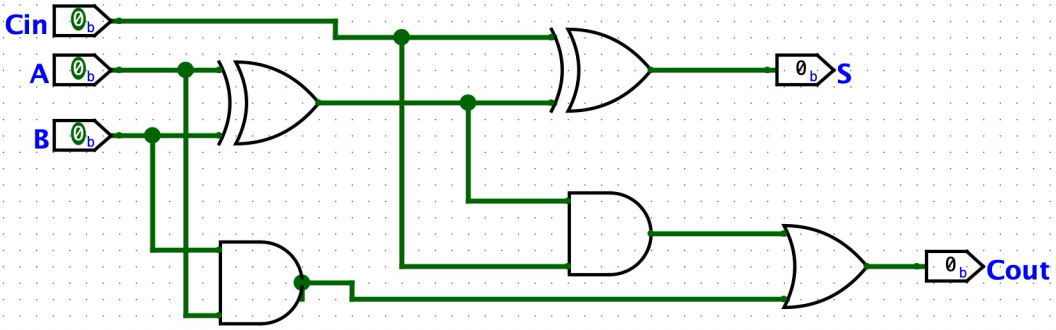
- I picked the Intel Core i9-13900K because it's one of the fastest processors available. It's perfect for both gaming and heavy tasks like video editing.
- For the GPU, I went with the AMD Radeon RX 7900 XTX because it offers incredible performance for 4K gaming and creative work without being as expensive as NVIDIA's top-tier cards.
- I chose 32 GB of DDR5 RAM because it's fast and gives you plenty of room to run modern applications and games.
- A 2 TB SSD like the WD Black SN850X was selected for speed and space. You'll get lightningfast load times for games and software, and 2 TB gives you ample storage for all your games, projects, and media.
- The motherboard is the backbone of the system, and this one supports the latest Intel processors, PCIe 5.0 for future GPUs, and DDR5 RAM. It also has built-in WIFI 6E and Bluetooth 5.3, so you get cutting-edge connectivity. Plus, it's built to handle overclocking, giving you room to push your system if you want extra performance.
- I chose an 850W PSU because it's reliable and efficient, and it provides enough power for all your components with room for future upgrades.
- The case was picked not just for its sleek looks but also for its excellent airflow. High-performance components like these can get hot, and this case keeps them cool while giving you room to build and upgrade.
- I opted for the Noctua NH-D15 air cooler because it's powerful, quiet, and reliable. Liquid coolers are great, but this air cooler avoids potential issues like leaks while keeping your CPU at safe temperatures during heavy workloads or gaming sessions.
- Windows 11 was the obvious choice because it's optimized for the latest hardware and gaming features like Direct Storage. It's also user-friendly, familiar, and works seamlessly with the hardware we've chosen.

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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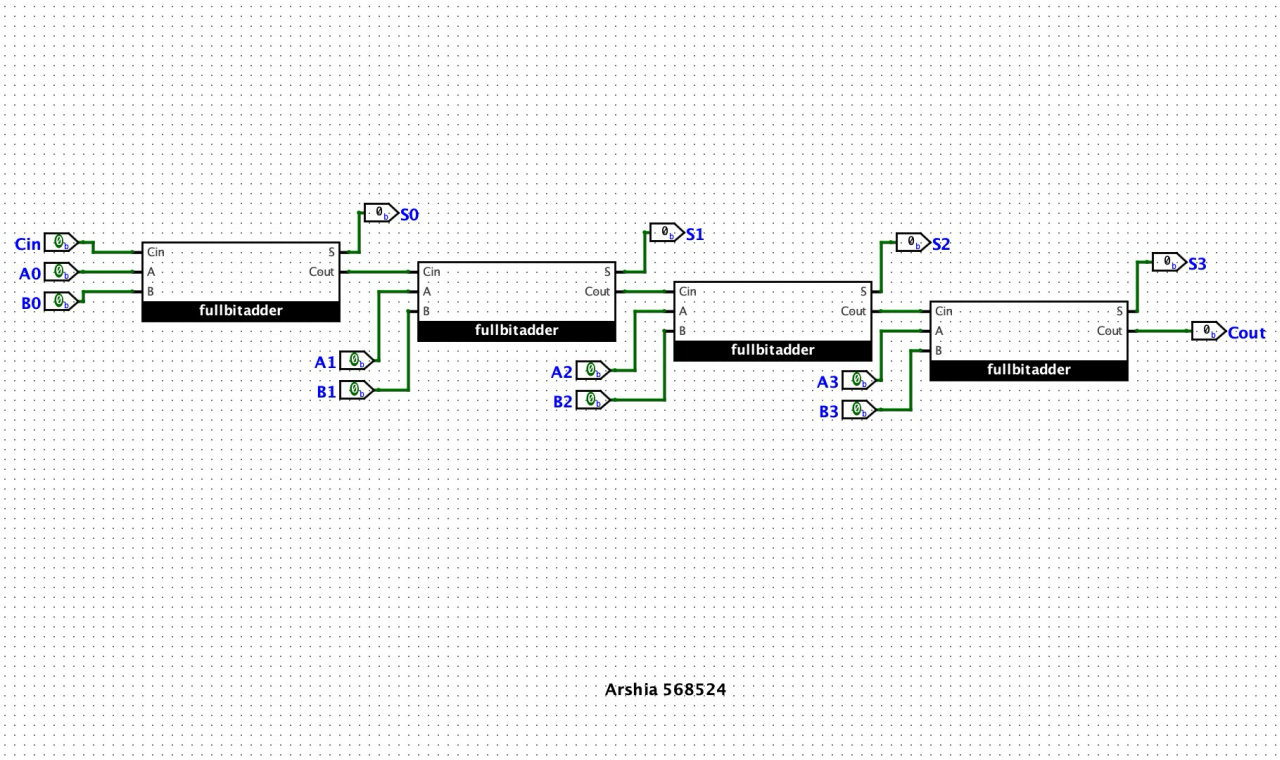

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