

Template Week 3 – Hardware

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Assignment 3.1: Examine your phone

What processor is in your phone?

Apple A14 Bionic

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

ARM 64-bit (ARMv8-A family)

How much RAM is in it?

6 GB

How much storage does your phone have?

128 GB

What operating system is running on your phone?

iOS 17.7

Approximately how many applications do you have installed?

31

Which application do you use the most?

Safari

Can your phone be charged with what type of plug?

Lightning

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

Lightning port (no headphone jack)

Assignment 3.2: Examine your laptop

What processor is in your laptop?

13th Gen Intel(R) Core(TM) i7-13620H (2.40 GHz)

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

X86-64 (64-bit)

How much RAM is in it?

32gb ram

How much storage does your laptop have?

1TB

Which operating system is running on your laptop?

Windows (64-bit)

Approximately how many applications do you have installed?

20

Which application do you use the most?

Chrome

Can your laptop be charged with what type of plug?

Standard laptop power adapter :barrel

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

Usb-a , usb-c, HDMI , headphone jacket, type c , LAN Cable

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?

135 W

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

- AC = Alternating Current (electricity from the wall, changes direction)
- DC = Direct Current (steady one-direction current used inside electronics)

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

Yes, reversing the polarity of the output voltage could damage the laptops internal components

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.

- You can safely use the 50 W adapter because the voltage and polarity are the same as the original. The laptop will only draw the 15 W it needs, even though the adapter can supply more, since the device controls how much power it takes. The extra capacity of the adapter does not harm the laptop

Assignment 3.4: Build your dream PC

<https://nl.pcpartpicker.com/list/9Tf2pK>

Why I chose this dream PC

I picked these parts because I want a super smooth, fast, and future-proof setup. The CPU, GPU, and 64 GB DDR5 RAM will give me better performance and graphics, plus the big 57" 240 Hz monitor will make games look way sharper. Overall, I built it for power, quality, and a better experience.

Laptop vs. Dream PC

My laptop is decent, but it can't match this PC. The dream build will be much smoother, have better graphics, faster loading, and more upgrade options. The laptop is fine for normal use, but the dream PC is made for the best possible performance and quality.

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.



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