Template Week 3 – Hardware

Student number: 547201

Assignment 3.1: Examine your phone

What processor is in your phone?

- Apple A17 Pro chip

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

- ARM architecture, RISC - Reduced instruction set computer

How much RAM is in it?

- 8GB RAM

How much storage does your phone have?

- 256GB

What operating system is running on your phone?

- IOS 17

Approximately how many applications do you have installed?

- Approximately 50 Apps

Which application do you use the most?

- Tiktok, 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 port for charging

Assignment 3.2: Examine your laptop

What processor is in your laptop?

- 11th Gen Intel Core i5-11300H @ 3.10GHz

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

- x86-64 architecture (CISC - Complex Instruction Set Computer)

How much RAM is in it?

- 8 GB RAM

How much storage does your laptop have?

- 512GB SSD

Which operating system is running on your laptop?

- Windows 11

Approximately how many applications do you have installed?

- 163 Apps

Which application do you use the most?

- Chrome

Can your laptop be charged with what type of plug?

- Charger tip

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

- USB Type-C
- USB Type-A
- HDMI port
- Ethernet port
- 3.5mm audio jack

Assignment 3.3: Power to the laptop

What is the input voltage?

- 100-240V

What is the output voltage?

- 10-20V

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 (Alternating Current) changes direction back and forth, while DC (Direct Current) flows in one constant direction.

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

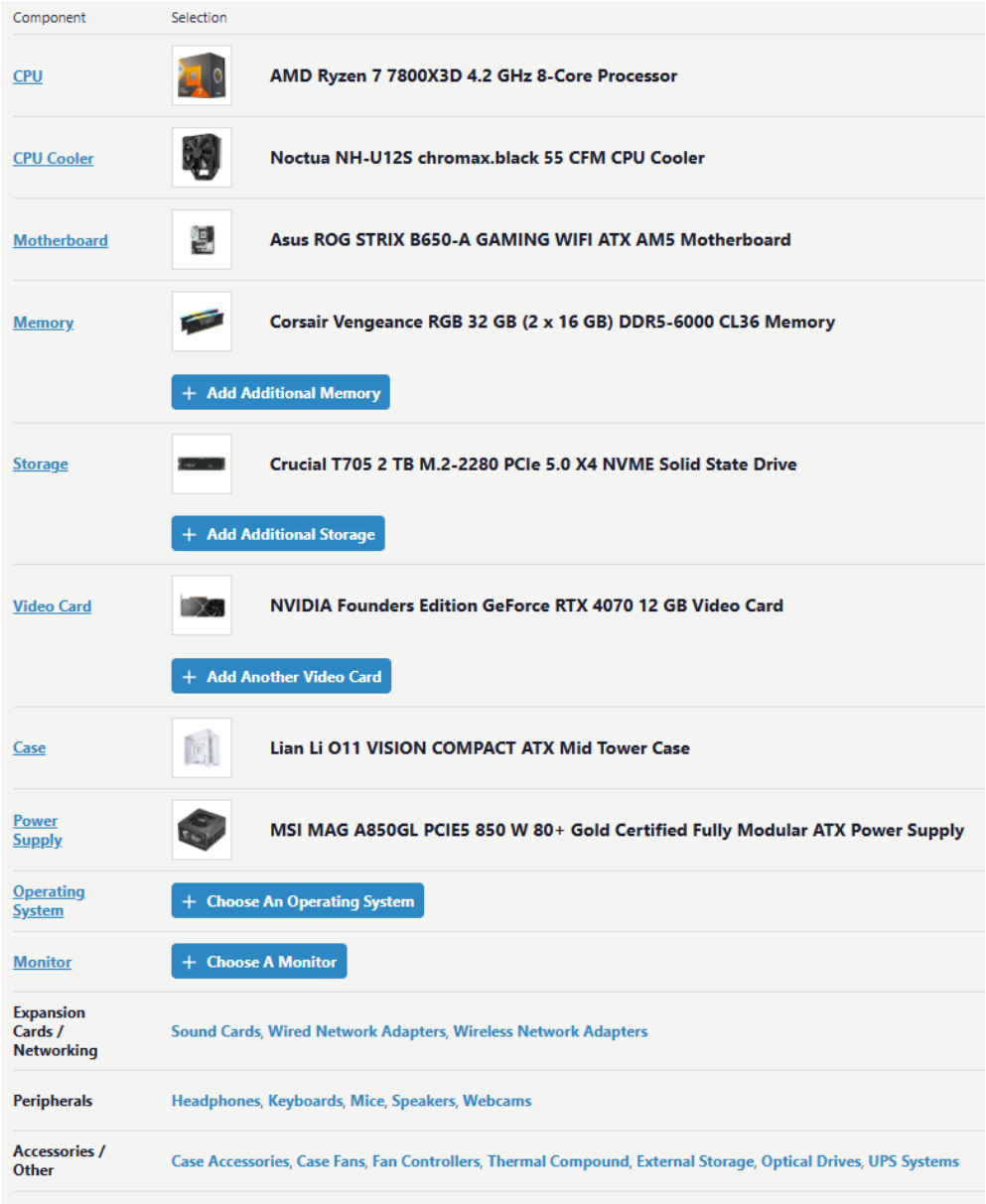
- Yes, it can damage the laptop's internal components, motherboard, and charging circuit.

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.

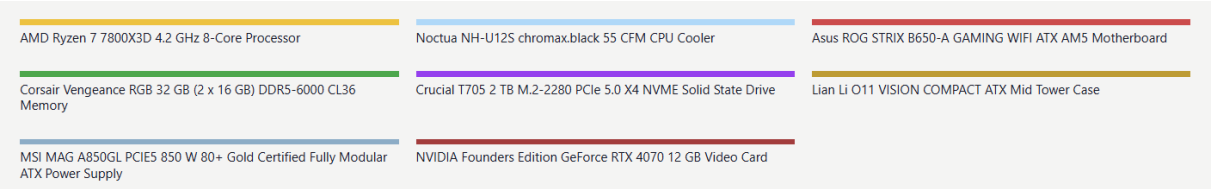
- The laptop will work fine. The wattage rating (50W) indicates the maximum power the adapter can supply. The laptop will only draw the 15W it needs. It's safe to use a higher-wattage adapter as long as the voltage matches exactly and the polarity is correct. The laptop controls how much power it draws.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



Component	Selection
CPU	AMD Ryzen 7 7800X3D 4.2 GHz 8-Core Processor
CPU Cooler	Noctua NH-U12S chromax.black 55 CFM CPU Cooler
Motherboard	Asus ROG STRIX B650-A GAMING WIFI ATX AM5 Motherboard
Memory	Corsair Vengeance RGB 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory
	+ Add Additional Memory
Storage	Crucial T705 2 TB M.2-2280 PCIe 5.0 X4 NVME Solid State Drive
	+ Add Additional Storage
Video Card	NVIDIA Founders Edition GeForce RTX 4070 12 GB Video Card
	+ Add Another Video Card
Case	Lian Li O11 VISION COMPACT ATX Mid Tower Case
Power Supply	MSI MAG A850GL PCIE5 850 W 80+ Gold Certified Fully Modular ATX Power Supply
Operating System	+ Choose An Operating System
Monitor	+ Choose A Monitor
Expansion Cards / Networking	Sound Cards, Wired Network Adapters, Wireless Network Adapters
Peripherals	Headphones, Keyboards, Mice, Speakers, Webcams
Accessories / Other	Case Accessories, Case Fans, Fan Controllers, Thermal Compound, External Storage, Optical Drives, UPS Systems



CPU: Ryzen 7 7800X3D (8 cores) – Excellent for both gaming and programming with much higher performance

RAM: 32GB DDR5 For multitasking and vitual machines

GPU: Desktop RTX 4070 - Great for 1080p/1440p gaming and GPU programming

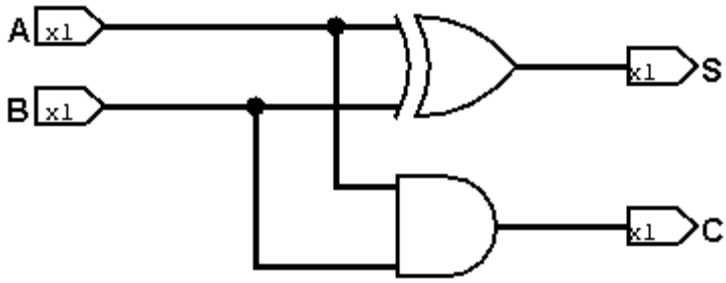
Storage: 2TB PCIe 5.0 SSD - Fast storage for programs + plenty of space for files

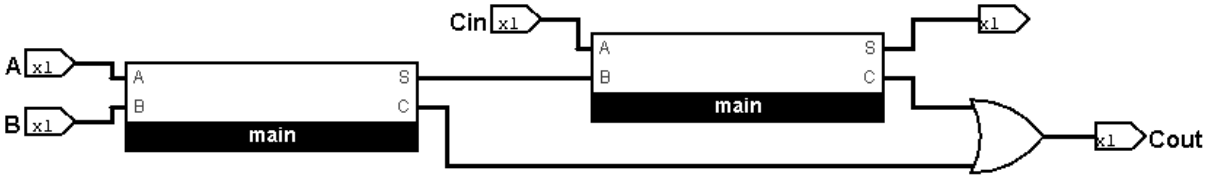
Cooling: Dedicated CPU cooler + case fans

Assignment 3.5: Adders

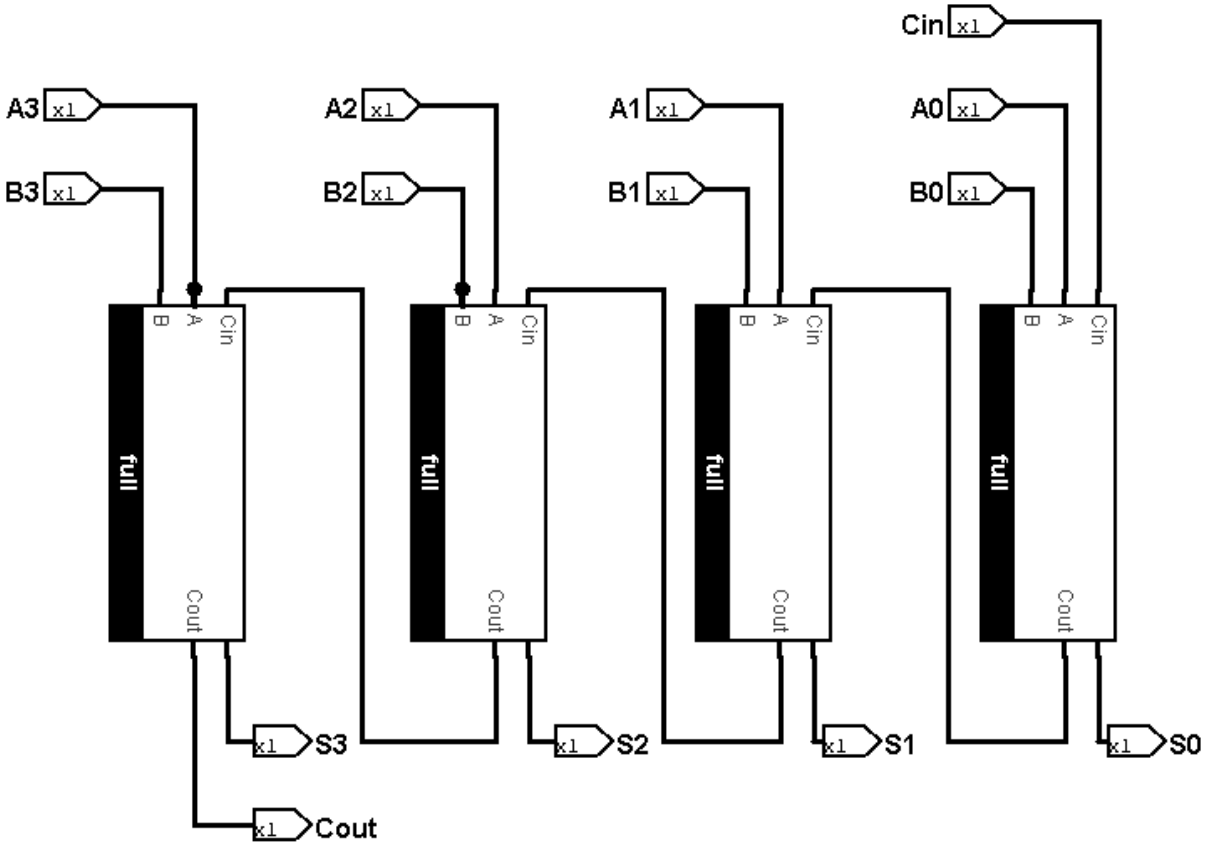
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.





The name should be half adder but I couldn’t find a way to change the name so I keep it but I understand what is it


Cin
A3
A2
A1
A0
B3
B2
B1
B0
full
B
A
Cin
Cout
S3
S2
S1
S0
Cout