

Template Week 3 – Hardware

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Assignment 3.1: Examine your phone

What processor is in your phone?

- Apple A13 Bionic

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

- ARMv8.4-A (64-bit)

How much RAM is in it?

- 4 GB

How much storage does your phone have?

- 64GB

What operating system is running on your phone?

- iOS 17

Approximately how many applications do you have installed?

- Around 60 apps

Which application do you use the most?

- WhatsApp and YouTube

Can your phone be charged with what type of plug?

- Lightning cable

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

- Just the one Lightning port at the bottom

Assignment 3.2: Examine your laptop

What processor is in your laptop?

- Intel(R) Core(TM) i7-10510U CPU @ 1.80GHz (2.30 GHz)

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

- x64-based.

How much RAM is in it?

- 20GM

How much storage does your laptop have?

- 477 GB.

Which operating system is running on your laptop?

- Windows 11 Education.

Approximately how many applications do you have installed?

- 109 apps

Which application do you use the most?

- Chrome

Can your laptop be charged with what type of plug?

- Standard Barrel plug

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

- USB ports, a HDMI port, an Ethernet port and a Headphone jack. 

Assignment 3.3: Power to the laptop

What is the input voltage?

- 100V - 240V

What is the output voltage?

- 19V or 19.5V

How many watts can your power adapter deliver?

- 45W or 65W

Is the input voltage AC or DC?

- AC

Is the output voltage AC or DC?

- DC

AC/DC what is that?

- AC is high energy power for long distances, and DC is steady, safe power for electronics.

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

- Yes

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.

- my laptop will be perfectly fine. Even though the new charger can give 50 watts, my laptop will only "sip" the 15 watts it needs.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

https://nl.pcpartpicker.com/list/zxvmyW								
		Compatibility: See details below.						Estimated Wattage: 433W
Component	Selection	Base	Promo	Shipping	Tax	Availability	Price	Where
CPU	AMD Ryzen 7 9800X3D 4.7 GHz 8-Core Processor	€449.00	—	✓Prime	—	In stock	€449.00	amazon.nl
CPU Cooler	ARCTIC Liquid Freezer III Pro 360 77 CFM Liquid CPU Cooler	€84.99	—	✓Prime	—	In stock	€84.99	amazon.nl
Motherboard	Gigabyte B850 AORUS ELITE WIFI7 ATX AM5 Motherboard	€209.00	—	✓Prime	—	Available soon	€209.00	amazon.nl
Memory	Crucial Pro 32 GB (2 x 16 GB) DDR5-5600 CL46 Memory	€399.00	—	FREE	—	—	€399.00	MEGABOX
Memory	Crucial Pro Overclocking 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory	€305.99	—	✓Prime	—	In stock	€305.99	amazon.nl
+ Add Additional Memory								
Storage	Kingston NV3 1 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€117.90	—	FREE	—	In stock	€117.90	ALTERNATE
+ Add Additional Storage								
Video Card	Sapphire PULSE Radeon RX 9060 XT 16 GB Video Card	€389.00	—	FREE	—	In stock	€389.00	AZERTY
+ Add Another Video Card								
Case	Montech XR ATX Mid Tower Case	€59.90	—	FREE	—	—	€59.90	MEGABOX
Power Supply	MSI MAG A650BN 650 W 80+ Bronze Certified ATX Power Supply	€55.68	—	✓Prime	—	In stock	€55.68	amazon.nl
Operating System	Microsoft Windows 11 Pro OEM - DVD 64-bit	€157.76	—	FREE	—	In stock	€157.76	amazon.nl
+ Choose & Monitor								

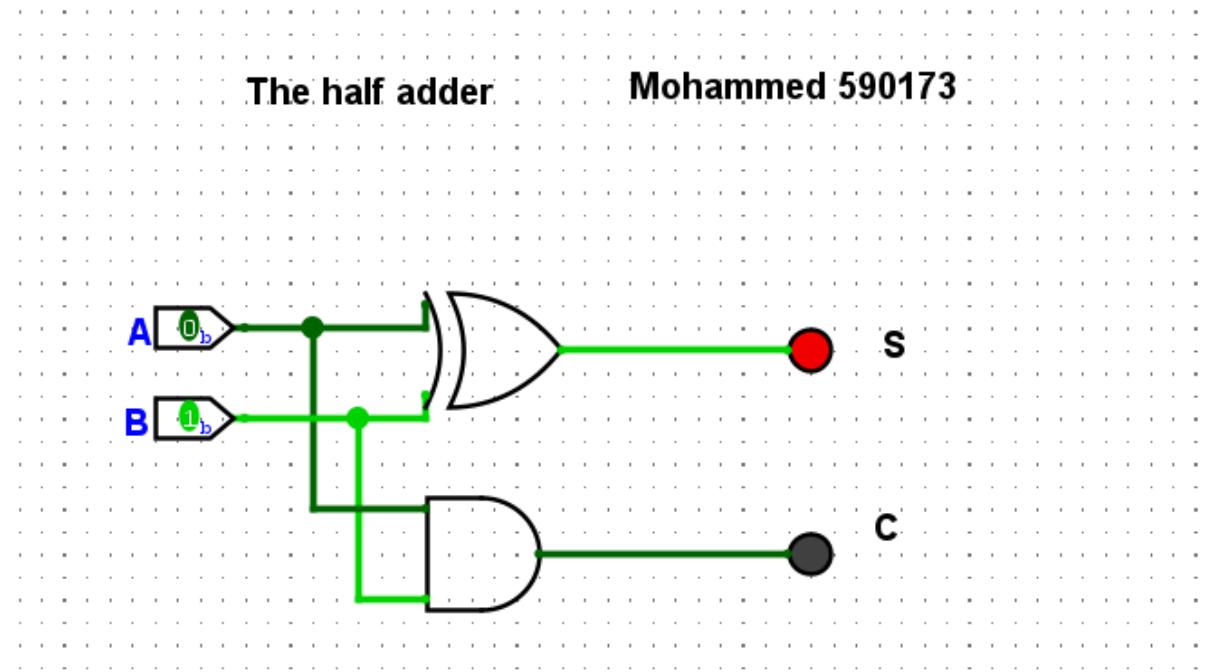
While my current laptop's i7-10510U is built for battery efficiency, the Ryzen 7 9800X3D in my dream build offers massive multi-core power for seamless streaming and gaming. The jump from 2GB of mobile VRAM to the 16GB Radeon RX 9060 XT represents an eightfold increase in graphical memory, enabling high-end AAA gaming and 3D modeling that my current hardware cannot handle. Although I have 20GB of RAM now, the 64GB of DDR5-6000 in the new PC provides a significantly wider and faster data highway for multitasking. Finally, replacing my loud, overheating laptop fans with a 360mm Liquid Cooler ensures the system remains chilled and performs at peak speeds during long sessions.

Assignment 3.5: Adders

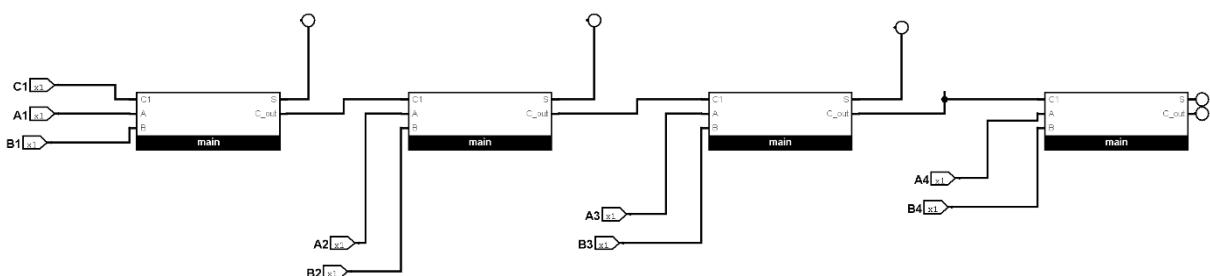
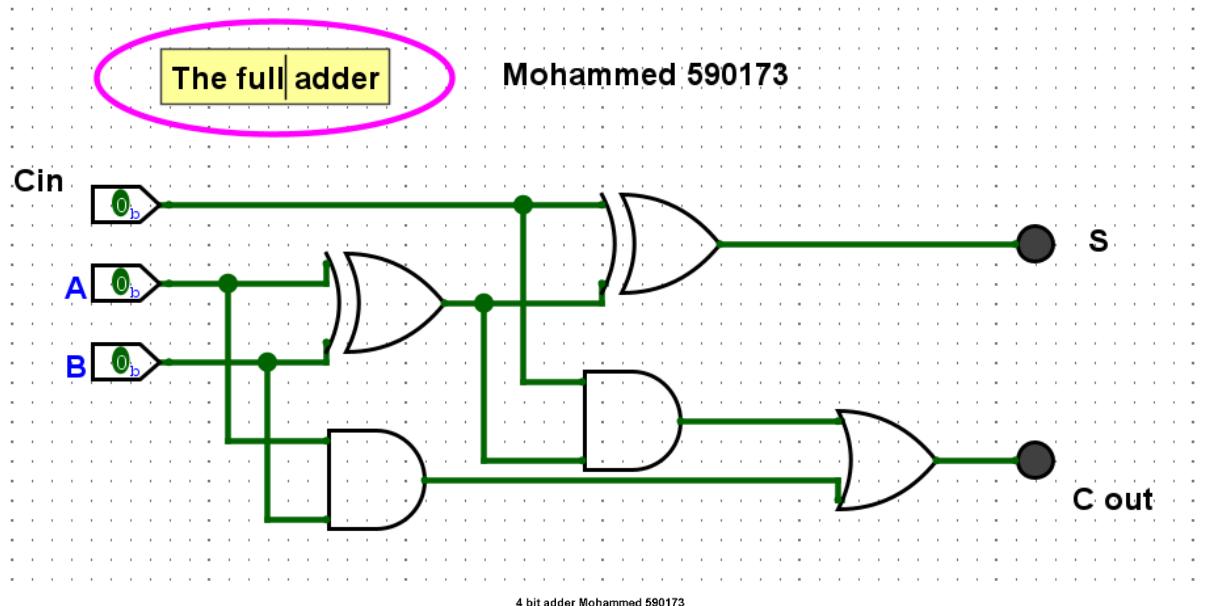
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

Half adder



Full adder



4 bit adder

Ready? Save this file and export it as a pdf file with the name: [week3.pdf](#)