Personal Computer Build

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Why Build?

- Have full control over specs/performance
- Easily upgradable and repairability (and more eco-friendly)
- Customizable design and aesthetics
- Learn as you build
- Relatively inexpensive compared to pre-built systems







Selecting Parts

- Do research on each component
- Decide on CPU platform (Ryzen vs. Intel)
- Use online builders (e.g. <u>pcpartpicker.com</u>) to check for compatibility and shopping



| Component | Selection | Base |
|----------------|-------------------------|------|
| <u>CPU</u> | + Choose A CPU | |
| CPU Cooler | + Choose A CPU Cooler | |
| Motherboard | + Choose A Motherboard | |
| Memory | + Choose Memory | |
| <u>Storage</u> | + Choose Storage | |
| Video Card | + Choose A Video Card | |
| Case | + Choose A Case | |
| Power | + Choose A Power Supply | |

Intel vs. AMD

<u>i7 11700k vs. Ryzen 7 5800x</u>

- Similar in many ways
- Intel pros:
 - Slightly faster core speeds
 - Faster turbo boost
 - Includes integrated graphics
- Ryzen pros:
 - Uses a 7-nm process (2x smaller than intel)
 - Slightly faster frame rates in games
- Benchmarks showed very similar results, so I chose Intel mainly because of integrated graphics

Decisions I Made

- Use Intel processor
- Use a liquid cooler for processor
- Hold off on a graphics card
- Use 2 memory channels





Final Part List

- Intel CPU
- Asus motherboard
- G.Skill memory
- Samsung SSD
- Corsair CPU cooler
- SeaSonic power supply
- Lian Li case
- Corsair fans

Link: https://pcpartpicker.com/user/Stormtorch/saved/B9PTYJ

Price: ~\$1550 (always changes)

Motherboard Assembly

- Install CPU, RAM, SSD
- Install retention for CPU cooler
- Mount to case





Cooling Installation

- Mount radiator next to motherboard
- Mount pump on top of CPU using retention
- Mount fans on radiator
- Mount fans on top of case





Cables and Power

- Mount power supply in back
- Connect power supply to components
- Connect fan hub to fans/pump/power
- Attach wifi antenna
- Organize cables



Boot-up

- Plug in all devices to I/O on motherboard
 - Keyboard
 - Mouse
 - Monitor
- Turn on power supply
- Wait for BIOS screen and check for errors



Software Installation

- Plug in a flash drive w/ OS
- Activate Windows
- Install Wi-Fi drivers from flash drive
- Download + install other drivers from internet



First-time mistakes

- CPU cooler retention
- Pump wire to wrong header
- Managing cables

Final product

- Learned a lot since I first did research
 - Building
 - Look at each component closely
 - See in detail how everything fits together
 - Research
 - Examine details of many brands and parts
 - Compare/contrast models to find the fittest
- Can easily repair/upgrade in future
- More confident in building PC systems

