Team Hamsters
Jonathan Lee, Jacob Ng, Roy Wu
IntroCS PD 6
Lab 1

01. Flight Simulator Hikaru is a former pilot who spends many hours on Microsoft Flight Simulator. She is currently running Microsoft FS2019 on her computer, but it is sloooow. Microsoft just announced FS2020 will be released in March 2020, and Hikaru wants you to design a computer to run FS2020 seamlessly.

Hikaru does not want to spend more than $3000 (including peripherals, but not software)

Here are the minimum specs listed on **System Requirements Lab**:

- CPU: Intel Core i5-3570 or AMD FX-8370 or better
- RAM: 8 GB
- OS: Windows 10 64-bit
- VIDEO CARD: Radeon R9 380 or GeForce GTX 960 or better
- DEDICATED VIDEO RAM: 2048 MB

Flight Simulator Recommended Specs:

- CPU: Intel Core i7-7700K or AMD Ryzen 7 1700 or better
- RAM: 12 GB
- OS: Windows 10 64-bit
- VIDEO CARD: Radeon RX 470 or GeForce GTX 1070 or better
- DEDICATED VIDEO RAM: 4096 MB

The Hamster Machine

Component	Name	Price
CPU- unit that takes inputs, translates it, and executes commands and calculations	Intel Core i9-9900K 3.6 GHz 8-Core Processor	$504.99
CPU Cooler- unit that cools the computing system	NZXT Kraken X63 98.17 CFM Liquid CPU Cooler	$149.99
Motherboard- a printed circuit that connects various parts of the computer together	Asus ROG MAXIMUS XI HERO (WI-FI) ATX LGA1151 Motherboard	$289.99
Memory- RAM, which is short-lived memory that is erased after the computer is shut down	G.Skill Ripjaws V Series 32 GB (2 x 16 GB) DDR4-3200 Memory	$241.99
Storage- holds computing data and info for long term memory	Intel 660p Series 2.048 TB M.2-2280 NVME Solid State Drive	$239.00
Video Card- unit that allows the rendering images to be displayed	EVGA GeForce RTX 2080 SUPER 8 GB XC ULTRA GAMING Video Card	$759.99
Case- holds all the components of a computer in one area	NZXT H510 Elite ATX Mid Tower Case	$149.99
Power Supply- allows power to be given to the computer	SeaSonic FOCUS Plus Gold 850 W 80+ Gold Certified Fully Modular ATX Power Supply	$134.99
Monitor- to display the graphical interface	MSI Optix MAG341CQ 34.0" 3440x1440 100 Hz Monitor	$449.99
	Total for Computer	~$2920.00
Flight Simulation Equipment- Yoke and pedals to control the aircraft	Logitech G Flight Yoke System + Flight Rudder Pedals	$339.98
	Total with Equipment	~$3260.00

Why we chose these parts

We prioritized the CPU and GPU first because Flight Simulator is a video game so you want the best graphics and frames per second and to ensure a non-turbulent ride. We first chose the Intel Core i9-9900K 3.6 GHz 8-Core Processor due to its rise as a powerful CPU processor. Currently, it provides the top-edge clock speed, comparable with other CPUs such as the Ryzen 9 series in terms of performance and price. However, our CPU also includes the Intel Turbo Boost, which raises the operating frequency to support large-scale gaming or simulation.

To accommodate our CPU, we use the NZXT Kraken X63 cooling unit, which outshines its X62 brethren as it provides greater durability on its liquid cooling containers and during mishandling. It provides the same silent cooling operations but with a better build for only 10 dollars more.

Moving on to the graphics card, we chose the EVGA GeForce RTX 2080 SUPER 8 GB XC ULTRA GAMING Video Card because it is widely considered to be the best video card for its price. The best graphics card is the EVGA GeForce RTX 2080Ti SUPER 8 GB XC ULTRA GAMING Video Card but it also costs nearly 500 dollars more for only a 20% increase in performance.

We picked the Asus ROG MAXIMUS XI HERO (WI-FI) ATX LGA1151 Motherboard because it was compatible with our Intel CPU but also a high-quality motherboard and is widely recognized by hardcore gamers and computer technicians. Then we chose the SeaSonic FOCUS Plus Gold 850 W 80+ Gold Certified Fully Modular ATX Power Supply because we believed that this power supply was more than enough to run our systems while maintaining a reasonable cost.

Next we chose the NZXT H510 Elite ATX Mid Tower Case because it is compatible with our motherboard, provides a great airflow, grants us enough space to place and plug all of the other parts, and provides a sleek look to your computer. Then, we picked the G.Skill Ripjaws V Series 32 GB (2 x 16 GB) DDR4-3200 Memory because it's one of the higher quality and faster RAMs. Also, 32 GB provides ample memory for playing flight simulators as MFS20 does not store flight simulations but rather load them on startup. Finally, we chose the Intel 660p Series 2.048 TB M.2-2280 NVME Solid State Drive because an SSD reads and writes data faster than HDD. This is also a PCIe SSD which means it's an even faster SSD because it uses one of the highest bandwidth channels in your PC so more data transferred in less time. This speed would be necessary to allow faster bootup speeds and allows you to jump right into the action.

As for peripherals we recommend the Logitech G Flight Yoke System + Flight Rudder Pedals as they produced the standards for flight simulation gear, if you don't have one already. We also used the MSI Optix MAG341CQ 34.0" 3440x1440 100 Hz Monitor as it has a wide display for optimal flight-simulation experience as well as high refresh rates to display images smoother.

Overall, we believe that our build fits great for everyone, as this build provides the top-notch performances at every level while providing a price tag that is reasonable and allows you to experience both gaming and simulation at a seamless and more affordable level. This is the ultimate flight simulation set up for customers such as Hikaru.

To view our parts and specs for those parts:
https://pcpartpicker.com/list/F2Xvhg

IMAGE GALLERY:


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