

REPORT

CHAPTER 6

Information and Communication Technology Development



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CLASS 1I (INTERNATIONAL)

INFORMATICS ENGINEERING

INFORMATION TECHNOLOGY






















































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A. Design and build my dream PC

Link : <https://pcpartpicker.com/list/YLYv34>

Component	Selection	Base	Promo	Shipping	Tax	Price	Where	
CPU	 AMD Threadripper 3990X 2.9 GHz 64-Core Processor	\$3855.00	—	—	—	 \$3855.00	 Buy	
CPU Cooler	 Thermaltake Water 3.0 Ultimate 99 CFM Liquid CPU Cooler	\$1223.00	—	—	—	 \$1223.00	 Buy	
Motherboard	 Asus ROG ZENITH II EXTREME ALPHA EATX sTRX4 Motherboard	\$2059.00	—	—	—	 \$2059.00	 Buy	
Memory	 G.Skill TridentZ RGB 32 GB (2 x 16 GB) DDR4-4800 CL20 Memory	—	—	—	—	 No Prices Available	— Buy	
Memory	 G.Skill TridentZ RGB 32 GB (2 x 16 GB) DDR4-4800 CL20 Memory	—	—	—	—	 No Prices Available	— Buy	
+ Add Additional Memory								
Storage	 Samsung 980 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	\$129.99	—	FREE	—	 \$129.99	 Buy	
Storage	 Sabrent Rocket 4 Plus 8 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	\$999.99	—		—	 \$999.99	 Buy	
+ Add Additional Storage								
Video Card	 MSI SUPRIM X GeForce RTX 4090 24 GB Video Card	\$2599.50	—	—	—	 \$2599.50	 Buy	
+ Add Another Video Card								
Case	 Lian Li O11 Dynamic EVO XL ATX Full Tower Case	\$234.99	—	\$17.06	—	 \$252.05	 Buy	
Power Supply	 Asus ROG THOR 1600T Gaming 1600 W 80+ Titanium Certified Fully Modular ATX Power Supply	\$699.99	—	FREE	—	 \$699.99	 Buy	
Operating System	 Microsoft Windows 11 Pro Retail - USB 64-bit	\$198.99	—	FREE	—	 \$198.99	 Buy	
Case Fan	 Corsair iCUE LINK QX120 RGB Starter Kit 63.1 CFM 120 mm Fans 3-Pack	\$159.99	—		—	 \$159.99	 Buy	
+ Add Another Case Fan								
Monitor	 Asus ROG Swift 360Hz PG27AQN 27.0" 2560 x 1440 360 Hz Monitor	\$999.00	—		—	 \$999.00	 Buy	
+ Add Another Monitor								

B. Pc components and their functions

1. Central Processing Unit (CPU)



- Function: The CPU is the brain of the computer. It performs arithmetic and logical operations and executes instructions from software programs.

2. Motherboard



- Function: The motherboard is the main circuit board that connects and coordinates all computer components. It houses the CPU, RAM, and other essential components.

3. Random Access Memory (RAM)



- Function: RAM stores data and instructions that the CPU is currently using. It provides fast, temporary storage for actively running programs and data.

4. Graphics Processing Unit (GPU)



- Function: The GPU is responsible for rendering and controlling graphics output on the monitor. It handles tasks related to 2D and 3D graphics rendering.

5. Storage (SSD/HDD)



- Function: Storage devices, such as Solid State Drives (SSDs) and Hard Disk Drives (HDDs), store data, the operating system, programs, and files.

6. Power Supply Unit (PSU)



- Function: The PSU converts electrical power from your power source into voltages that can be used by the computer's components.

7. Computer Case



- Function: The case houses and protects all the internal components of the computer, providing physical support and cooling.

8. CPU Cooler



- Function: The CPU cooler dissipates heat generated by the CPU to prevent overheating.

9. Case Fan



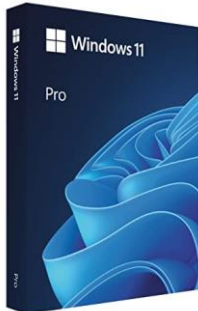
- Function: Case fans help regulate airflow within the computer case. They help cool components like the motherboard, GPU, and storage.

10. Network Card (Ethernet/Wireless)



- Function: Network cards provide connectivity to networks, either through wired (Ethernet) or wireless (Wi-Fi) connections.

11. Operating System (OS)



- Function: The OS manages and controls hardware components, provides user interfaces, and runs software applications.

C. How to build a PC

The steps to build a pc, from planning to execution are as follows:

1. Planning

- Determine your computer's purpose
- Set a budget and make a list of components you'll need.

2. Choose Components

- Select a CPU.
- Choose a compatible motherboard.
- Decide on a GPU if your CPU doesn't have integrated graphics.
- Pick the amount and type of RAM.
- Select storage options SSD and/or HDD.
- Choose a power supply unit (PSU).
- Decide on a computer case.
- Determine the cpu cooler to be used, if you don't want to use a cpu cooler supply from the cpu purchase.

3. Prepare the tools used to assemble the PC

- We need screwdrivers, bolts, etc. to assemble a PC

4. Assembly

- a. Place the motherboard inside the computer case.
- b. Install the CPU by aligning the notches and securing it in the CPU socket.
- c. Attach the CPU cooler, following the manufacturer's instructions.
- d. Insert RAM sticks into the memory slots.
- e. Install the GPU into the appropriate PCIe slot.
- f. Attach storage devices (SSD/HDD) to the motherboard.
- g. Connect all necessary power cables from the PSU to the motherboard, CPU, GPU, and storage devices.
- h. Connect case fans, front panel connectors, and I/O ports to the motherboard.
- i. Secure all components with screws and ensure proper cable management.

5. Install the Operating System

- Create a bootable USB drive with the OS of your choice.
- Boot the computer from the USB drive.
- Follow the OS installation instructions, including partitioning your storage if necessary.

6. Optimization (Optional)

- Configure BIOS settings, including boot order and RAM timings.
- Overclock components for increased performance if desired.

D. The advantages and disadvantages of the dream pc I built

Advantages :

1. High Performance: The AMD Threadripper 3990X processor, high-speed RAM, MSI SUPRIM X GeForce RTX 4090 graphics card, and Samsung 980 Pro SSD are all very powerful components. They will deliver exceptional performance in various applications and games.
2. Multitasking Capability: With 64 cores and 128 threads, the Threadripper 3990X is well-suited for multitasking and heavy workloads such as rendering, video editing, and tasks that require substantial processing power.
3. High GPU Speed: The MSI SUPRIM X GeForce RTX 4090 is a very powerful graphics card, suitable for gaming at high resolutions and complex graphics rendering.
4. Fast Storage: The Samsung 980 Pro SSD and Sabrent Rocket 4 Plus 8 TB NVME with PCIe 4.0 provides very high data read/write speeds, which will accelerate system boot times and application launches.

Disadvantages :

1. Cost: This PC build will be very expensive. High-powered components like the Threadripper 3990X and RTX 4090, along with high-speed RAM and SSD, can significantly strain the budget.
2. High Power Consumption: This computer will consume a lot of electrical power, especially with your 1600W PSU. This can result in high electricity costs and require efficient cooling to prevent overheating.
3. Hard to find components: Components like Threadripper 3990X and MSI SUPRIM X RTX 4090 may still be hard to find or have very high prices at times.