

Report about building a virtu

Môn CEA201, SE2009_SE203727_Hoàng Tiết

Hoang Tien Manh
Manhhoangvipbao@gmail.com

Abstract

In the era of strong information technology development as today, personal computers (PCs) play an essential role in most learning, working and data management activities. A

A. Summary:

1. Overview: In the era of strong information technology development as today, personal computers (PCs) play an essential role in most learning, working and data management activities. Especially in the office environment, a computer with the right configuration will help optimize work efficiency, save investment costs and ensure long-term stability. Understanding the configurations that make up a computer as well as the ability to install a system that suits specific needs is a necessary practical skill for students majoring in information technology and computer engineering.

2. Target:

+Choose a computer configuration suitable for developer checking task and main work is office tasks such as word processing, web browsing, using accounting software and online meetings.

+Build a detailed configuration table with reasons for choosing each component based on performance criteria, compatibility and reasonable cost for current office work.

B. Requirement:

Requires a PC with the potential to perform well in the basic working. The computer must be capable, highly efficient, and energy efficient.

1. Core component of PC: Control Processor Unit, Mainboard, RAM, ROM, Power System Unit.
2. Sub-core component: Coller PC, GPU, Screen, Keyboard, Webcam, Audio Speaker, Mouse, Printer.

+Core component:

CPU – Processor: Most important!

Is the center of all tasks.

Needs to be strong enough to handle multitasking, heavy Excel, accounting software, smooth online meetings.

Recommended: Intel Core i5 or i7 generation 12 or higher (i7-12700 is too good).

RAM – Internal memory

Determining factor for smoothness when opening multiple applications

Many office users often open many Chrome + Excel + Zoom tabs → weak RAM is laggy.

Recommended: 16GB DDR4 is the gold standard. Don't stop at 8GB anymore.

SSD – Data access speed

Very important for fast booting, instant file opening

Compared to HDD, SSD speeds up the machine significantly.

Recommended: 512GB NVMe SSD. If the budget is low, using 256GB is also fine but it fills up easily.

Mainboard – Motherboard

Compatibility and connectivity are important

Should choose the type that supports multiple USB ports, Wi-Fi is good.

Recommended: Main supports DDR4, socket compatible with CPU (eg: ASROCK B760M).

+Sub-core component: Can pay less for save money.

Case (computer case): Does not affect performance, choose a compact, easy-to-install type

Power supply (PSU): Does not need high capacity, just need 500–550W and a reputable brand

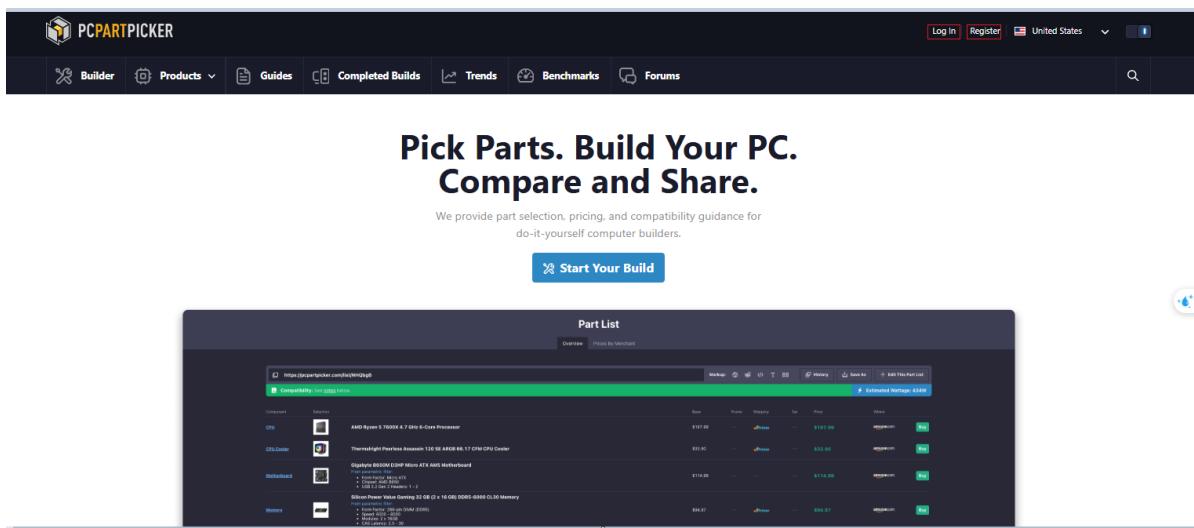
GPU (discrete graphics card): Not necessary because the i7 CPU has an integrated GPU that is enough for office use

Peripherals (mouse, keyboard): Use a popular, durable type – no gaming needed

Steps-to-Step for building a virtual PC on Internet.

Step 1: Log in to this website: <https://pcpartpicker.com/>

If you have an account, click login, if you don't, click register



The screenshot shows the PCPartPicker website interface. At the top, there's a navigation bar with links for Builder, Products, Guides, Completed Builds, Trends, Benchmarks, Forums, Log In, Register, and United States. Below the navigation is a search bar. The main heading "Pick Parts. Build Your PC. Compare and Share." is displayed prominently. A sub-headline states: "We provide part selection, pricing, and compatibility guidance for do-it-yourself computer builders." A large blue button labeled "Start Your Build" is centered below the headline. The main content area is titled "Part List" and shows a table of selected computer components:

| Component | Description | Buy | Price | Shipping | Total | Price | Where |
|-------------|--|-----|----------|----------|----------|-------|--------|
| CPU | AMD Ryzen 5 7600X 4.7 GHz 6-Core Processor | | \$172.00 | — | \$172.00 | | Amazon |
| GPU/Cooler | Thermalright Peerless Areszeno 120 SE ARGB 4.17 GPU CPU Cooler | | \$31.95 | — | \$31.95 | | Amazon |
| Motherboard | Gigabyte B550M DS3P Micro ATX AM4 Motherboard | | \$114.00 | — | \$114.00 | | Amazon |
| Memory | Silence-Power Gaming 32 GB (2 x 16 GB) DDR5-4600 CL30 Memory | | \$82.07 | — | \$82.07 | | Amazon |

Create a new account

USERNAME:

E-MAIL:

E-MAIL (AGAIN):

Note: An account activation email will be sent to the email address you provide.

PASSWORD:

- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

PASSWORD (AGAIN):

I have read and consent to the [Terms of Service](#)

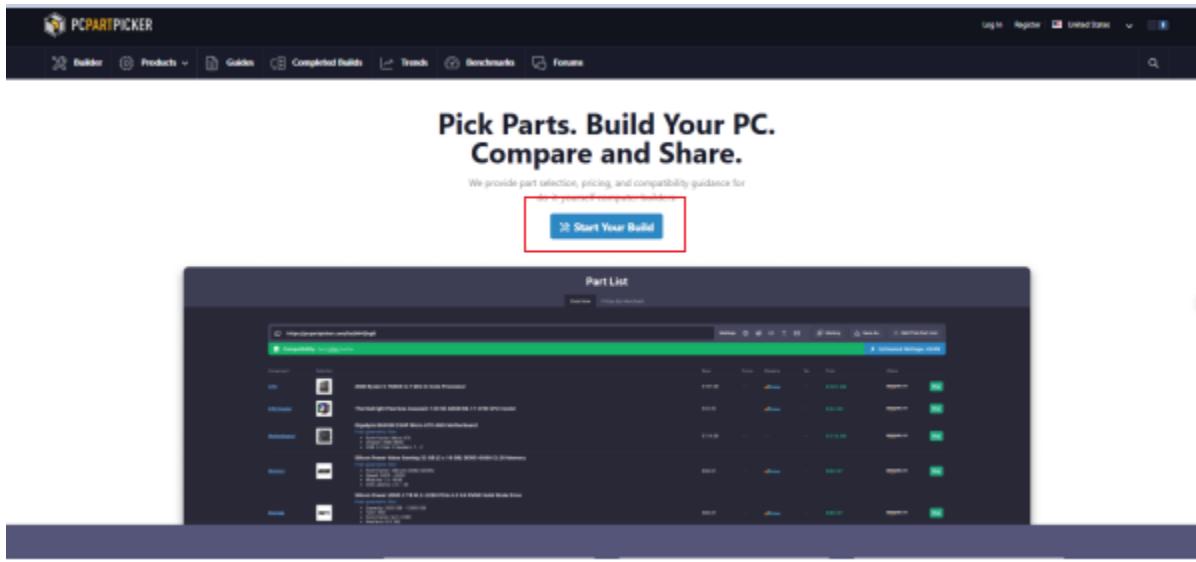
I have read and consent to the [User Code of Conduct](#)

By registering you consent to allow PCPartPicker to retain personal information consisting of your email address and IP addresses used to access the site. PCPartPicker does not sell your personal information. Details on what data we retain and how we use it can be found in our [privacy policy](#).

Register

Fill in the information in the form and click register

Step 2: Click start your build to begin:



- After clicking, an interface like this will appear to help choose the components of the PC
- Click choose a ... to choose the component

| Component | Selection | Base | Promo | Shipping | Tax | Availability | Price | Where |
|------------------------------|---|------|-------|----------|-----|--------------|-------|-------|
| CPU | + Choose A CPU | | | | | | | |
| CPU Cooler | + Choose A CPU Cooler | | | | | | | |
| Motherboard | + Choose A Motherboard | | | | | | | |
| Memory | + Choose Memory | | | | | | | |
| Storage | + Choose Storage | | | | | | | |
| Video Card | + Choose A Video Card | | | | | | | |
| Case | + Choose A Case | | | | | | | |
| Power Supply | + Choose A 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 | | | | | | | |

| Component | Selection | Base | Promo | Shipping | Tax | Availability | Price | Where |
|-----------|--|----------|-------|----------|-----|--------------|----------|------------|
| CPU | AMD Ryzen 7 9800X3D 4.7 GHz 8-Core Processor | \$451.50 | — | ✓Prime | — | In stock | \$451.50 | amazon.com |

Example:

Component (Indicates what this is): CPU

Selection (Indicates which type to choose): AMD Ryzen 7 9800X3D 4.7 GHz 8-core processor

Base (Price): \$451.50

Promo (Current promotions): none

Shipping (Shipping): Prime (free or fast from Amazon Prime)

Tax (Tax): unknown

Availability (Availability): in stock

Final price (Price): \$451.50

Where to buy (where): amazon dot com

Buy button: Buy

If you press buy bottom you can transfer to amazon.com to get components.

→ If amazon or some e-commerce site do not have it, you can buy it on Google.

#Selecting Components:

Selecting components for an office computer should be based on three main criteria: suitable performance, reasonable cost, and future upgradeability. Based on those criteria, I selected the following components:

Control Processor Unit

Intel Core i7 (12th Gen) i7-12700 Dodeca-core (12 Core) 2.10 GHz Processor - Retail Pack

Visit the Intel Store

4.6 ★★★★☆ 134 ratings

-17% \$289.97

List Price: \$549.99

\$74.11 Shipping & Import Charges to Vietnam [Details](#) ✓
Delivery Monday, August 25.
Order within 20 hrs 35 mins

Deliver to Vietnam

In Stock

Quantity: 1

Add to Cart

Buy Now

Ships from Amazon.com
Sold by Amazon.com
Returns 30-day refund/replacement
Support Product support included
See more

Add to List

- Reasons to choose: Intel Core i7-12700 CPU has strong performance with 12 cores (8 performance cores + 4 power-saving cores) and a clock speed of up to 4.9GHz, very suitable for handling modern office tasks such as multitasking, online meetings, processing large spreadsheets or heavy accounting software.

- Using Intel Core i7-12700 CPU includes an integrated GPU → no need to buy a separate GPU -> Save costs

- In addition, this CPU also supports new technologies such as Intel Thread Director, which helps optimize processing threads when multitasking.

Mainboard – ASROCK B760M PRO RS Wifi DDR4

Amazon Deliver to Vietnam All ASROCK B760M PRO RS WiFi DDR4 EN Hello, sign in Account & Lists Returns & Orders Cart

Electronics > Computers & Accessories > Computer Components > Internal Components > Motherboards

MB ASRock Intel 1700 B760 PRO RS/D4 WiFi

Visit the ASRock Store
4.4 ★★★★★ 153 ratings
100+ bought in past month

\$129⁹⁹
\$59.42 Shipping & Import Charges to Vietnam Details
Style: B760 Pro RS/D4 WiFi

| | | |
|-------------------------|------------------------|---------------------|
| Pro RS/D4 | Pro RS/D4 WiFi White | B760 Pro RS/D4 WiFi |
| 2 options from \$154.05 | 1 option from \$159.99 | \$129.99 |

Brand ASRock
CPU Socket LGA 1700
Compatible Devices Personal Computer
RAM Memory Technology DDR
Compatible Processors Intel Core i3, Intel Core i5, Intel Core i7, Intel Core i9, Intel Pentium, Intel Celeron
See more

\$129⁹⁹
Only 1 left in stock - order soon.
Add to Cart Buy Now
Ships from Amazon Sold by ASRock USA Returns 30-day refund/replacement Support Product support included
See more Add a gift receipt for easy returns

- Reasons to choose: This motherboard is fully compatible with 12th generation Intel CPUs, supports DDR4 RAM to save costs compared to DDR5.

- Built-in Wi-Fi makes it easy to connect to the network without having to buy an additional network card, and has many expansion ports (USB 3.2, M.2 NVMe, HDMI, etc.), making it flexible to use.

RAM – KingSpec 16GB DDR4 3200MHz

Amazon Deliver to Vietnam All KingSpec 16GB DDR4 3200MHz EN Hello, sign in Account & Lists Returns & Orders Cart

Electronics > Computers & Accessories > Computer Components > Internal Components > Memory

KingSpec 32GB (2x16GB) DDR4 RAM 3200MHz for Desktop – Plug-and-Play, Home & Office Use, Standard Version, 288-Pin DIMM CL18 1.35V Computer Memory Compatible with Most Intel/AMD PCs

Visit the KingSpec Store
4.6 ★★★★★ 77 ratings
50+ bought in past month

\$49⁹⁷
FREE International Returns
\$35.02 Shipping & Import Charges to Vietnam Details
Size: 32GB Kit (2x16GB)
Color: 3200MHz

| | |
|-----------------------|----------|
| Brand | KingSpec |
| Computer Memory Size | 32 GB |
| RAM Memory Technology | DDR4 |
| Memory Speed | 3200 MHz |
| Compatible Devices | Desktop |

\$49⁹⁷
Only 1 left in stock - order soon.
Add to Cart Buy Now
Ships from Amazon Sold by KingSpec SSD Payment Secure transaction
Add a gift receipt for easy returns
Add to List

- Reason for choosing: 16GB capacity is the current optimal standard for office machines, allowing multiple applications to be opened simultaneously without delay.

- DDR4 3200MHz RAM helps increase data retrieval speed, compatible with the selected mainboard and CPU.

Stronge – SSD Patriot P300 512GB M.2 NVMe



[Click to see full view](#)

Patriot P300 M.2 PCIe Gen 3 x4 512GB Low-Power Consumption SSD

Visit the [Patriot Memory Store](#)

4.6 ★★★★☆ 4,154 ratings

300+ bought in past month

\$33.99
-8% **\$33.99**
List Price: \$36.99

[FREE International Returns](#) ✓
\$32.80 Shipping & Import Charges to Vietnam [Details](#) ✓
Delivery Friday, August 22.
Order within 2 hrs 46 mins

[Deliver to Vietnam](#)

In Stock

Quantity: 1

[Add to Cart](#) [Buy Now](#)

Ships from Amazon
Sold by Official Patriot Memory Store
Payment Secure transaction

Add a gift receipt for easy returns

- Reasons to choose: M.2 NVMe SSD standard has superior read/write speed compared to HDD, helping the computer boot up quickly, opening applications in just a few seconds.

- 512GB capacity is enough for the operating system, office software and personal data storage without needing an additional hard drive.

PSU – Antec META V550 (550W)

The screenshot shows a product page for an Antec META V550 550W power supply. At the top, there's a navigation bar with the website logo (STAR TINHCONGSAU.COM), search bars, and user account options. Below the header, a breadcrumb navigation shows 'Trang chủ / Linh kiện mới / Nguồn Antec META V550 - 550W (UPC 0761345204286)'. The main content area features a large image of the power supply unit and its retail box. To the left is a sidebar with smaller images of the product from different angles. On the right, there's detailed product information, including the model name, part number (PAT.META.V550), a star rating, and a price of 619,000đ. A red dashed box highlights a promotional offer: 'TẤT CẢ KHUYẾN MÃI TẠI ĐÂY ĐÓI TRẢ TẠI ĐÂY' (All discounts here are paid back here) and 'Miễn phí vận chuyển đến 100K Tại đây' (Free shipping up to 100K here). Below this, there's a 'Xem thêm:' section with links to related products like SSD, HDD, and PC components. At the bottom, there's a quantity selector (set to 1), a 'THÊM VÀO GIỎ' button, a 'MUA NGAY' button, and a 'TRẢ GÓP' button.

- Reason for choosing: 550W capacity is enough to operate the system stably, and has extra capacity if you want to upgrade the graphics card or add a hard drive later.
- Antec is a reputable brand, the power source meets real capacity standards, helping to protect other components from voltage risks.

Case – VSP V600



Thùng máy văn phòng VSP V600 | Kèm sẵn 1 fan 90mm, thép 0.8mm

Mã sản phẩm: Ca.VSP.V600.Black

☆☆☆☆☆ 0 đánh giá

359,000đ

Xem siêu thị còn hàng

Khuyến mãi - ưu đãi

TẤT CẢ KHUYẾN MÃI TẠI ĐÂY ĐỔI TRẢ TẠI ĐÂY

Miễn phí vận chuyển đến 100K Tại đây

Xem thêm :

1. SSD, HDD, Thẻ nhớ [Tại đây](#)
2. Bàn, ghế gaming [Tại đây](#)
3. Chuột, Bàn phím, Tai nghe [Tại đây](#)
4. Bộ máy tính PC văn phòng [Tại đây](#)

Gọi đặt mua: 1900 0243 (8:30 - 21:00)

Số lượng:

MUA NGAY

TRẢ GÓP

- Reason for choosing: The case has a compact design, suitable for office space. 0.8mm thick steel material creates sturdiness and aesthetics.

Sub-components - estimated total

In addition to the main components inside the case, for the computer to operate fully in an office environment, it is necessary to equip some additional peripherals:

ViewSonic VA2432-H 24 inch IPS Full HD monitor Displays images, supports clear work with IPS panel ~2,300,000



[Click to see full view](#)

ViewSonic VA2456A-MHD 24 Inch IPS 1080p Monitor with 120Hz, Eye Care, HDMI, DisplayPort, and VGA Inputs for Home and Office

Visit the [ViewSonic Store](#)

4.5 ★★★★★ 373 ratings

This item cannot be shipped to your selected delivery location. Please choose a different delivery location.

Style: 24-Inch

22-Inch

19 options

from \$119.99

22-Inch Dual Pack

2 options from

\$234.99

24-Inch

2 options from

\$118.79

24-Inch Dual Pack

Currently unavailable.

27-Inch

2 options from

\$134.99

27-Inch 4K

4 options from

\$279.99

Brand

ViewSonic

Screen Size

24 Inches

Resolution

FHD 1080p

Aspect Ratio

16:9

Screen Surface Description

Matte

About this item

No featured offers available

[Learn more](#)

This item cannot be shipped to your selected delivery location. Please choose a different delivery location.

[See Similar Items](#)

[Deliver to Vietnam](#)

[Add to List](#)

Logitech K120 USB keyboard Data entry, durable design, reasonable price ~250,000



[Click to see full view](#)

Logitech K120 Wired Keyboard for Windows, Plug and Play, Full-Size, Spill-Resistant, Curved Space Bar, Compatible with PC, Laptop - Black

Visit the [Logitech Store](#)

4.6 ★★★★★ 8,595 ratings

[Overall Pick](#)

1 sustainability feature

6K+ bought in past month

-7% \$11.99

Typical price: \$12.95

[FREE International Returns](#)

\$36.99 Shipping & Import Charges to Vietnam [Details](#)

Style: Keyboard

Protective Keyboard...
Currently unavailable.

Keyboard

\$11.99
\$12.95

Brand

Logitech

Compatible Devices

Laptop

Connectivity Technology

wired

\$11.99

[FREE International Returns](#)

\$36.99 Shipping & Import Charges to Vietnam [Details](#)

\$31.13 delivery

[Deliver to Vietnam](#)

Only 1 left in stock - order soon.

[Add to Cart](#)

[Buy Now](#)

Ships from Amazon

Sold by Fobpallets

Packaging Ships in product packaging

Payment Secure transaction

Add a gift receipt for easy returns

[Add to List](#)

Logitech M100r USB mouse Flexible mouse movement and control ~180,000



[Click to see full view](#)

Logitech M100 Corded Mouse – Wired USB Mouse for Computers and Laptops, for Right or Left Hand Use, Black

Visit the [Logitech Store](#)

4.5 ★★★★★ 6,388 ratings

1 sustainability feature

400+ bought in past month

-11% \$9.78

List Price: \$10.99

[FREE International Returns](#)

\$30.99 Shipping & Import Charges to Vietnam [Details](#)

Brand

Logitech

Color

Black

Connectivity Technology

USB

Special Feature

Lightweight

Movement Detection Technology

Optical

\$9.78

[FREE International Returns](#)

\$30.99 Shipping & Import Charges to Vietnam [Details](#)

Delivery Friday, August 22.

Order within 1 hr 37 mins

[Deliver to Vietnam](#)

Only 15 left in stock - order soon.

Quantity: 1

[Add to Cart](#)

[Buy Now](#)

Ships from Amazon

Sold by Interfaceglobal

Payment Secure transaction

Add a gift receipt for easy returns

Headphones (if needed for meetings) DareU EH469 or equivalent Online meetings, ensuring clear sound and quality microphone ~300,000

Tai nghe chụp tai Gaming DareU EH469

★ 4.5 (2 đánh giá)

Yêu thích | Hỏi đáp | Thông số | So sánh

Giá dành riêng cho SNEW

382.000đ 499.000đ

Màu sắc

Hồng
390.000đ

Đen
390.000đ

Quà tặng đặc quyền SNEW

1 Giảm thêm 5% (tối đa 200.000đ) khi thu cũ l

Giá Bao Rẻ - Đâu Rẻ Hơn
CellphoneS GIẢM THÊM

Thông tin vận chuyển

Chọn địa chỉ giao hàng để nhận ưu đãi Mới

Màu Hồng đang tạm hết hàng tại Bình Dương.
từ tinh còn hàng để tiếp tục mua hàng online.



Cam kết sản phẩm



Đặt giao từ tinh c

Power splitter + power cord 4-5 socket type, with safety switch Safe power connection for the entire device ~150,000



3 Core 1 To 2 3 4 5 Socket Power Cord Split Indoor Outdoor Cable with Socket Power Extension Cable for Computer LED Stage Lights

2 sold

\$14.51 - \$24.46 41% off \$24.93-\$41.72

Color:



Webcam (if needed) Hikvision DS-U02 Online meeting, clear image ~400,000



Webcam HIKVISION DS-U02 1920 × 1080

Mã SP: WCHI0009 | Đánh giá: ★★★★★ (4) | Bình luận: 10 | Lượt xem: 100

Thông số sản phẩm

- CMOS 2 MP
- Hình ảnh chất lượng cao với độ phân giải 1920 x 1080
- Tối thiểu. chiều sáng: 0,1 Lux @ (F1.2, AGC ON)
- AGC cho độ sáng tự thích ứng
- Micrô tích hợp với âm thanh rõ ràng

Xem thêm ▾

Giá khuyến mãi:

449.000đ 599.000đ Tiết kiệm **150.000đ**

Giá đã bao gồm VAT

Bảo hành: 24 Tháng

- Total estimated cost for peripheral components: ~3,580,000 VND
- Total cost of the entire system (components in the case + peripherals):
→ PC: ~11,700,000 VND + Peripherals: ~3,580,000 VND = Total: ~15,280,000 VND

Suggested Component Upgrades to Boost Performance

Depending on specific work requirements and the user's budget, some components can be replaced or upgraded to increase processing speed, improve multitasking, storage, or graphics performance. Below are some upgrade suggestions with flexible price ranges:

| Component | Upgrade Option | Advantages | Estimated Price (VND) |
|---------------------------|---------------------------------------|--|-------------------------|
| CPU | Intel Core i7-13700 / i9-13900 | More cores and threads → faster processing for heavy tasks, better multitasking | ~9,000,000 – 14,000,000 |
| RAM | 32GB (2x16GB DDR4 3200MHz) | Excellent for multitasking, running multiple applications simultaneously without lag | ~1,300,000 – 1,800,000 |
| SSD | 1TB M.2 NVMe (Samsung 980 / WD Black) | Increases access speed, stores more data, allows installation of more software | ~1,500,000 – 2,800,000 |
| Power Supply (PSU) | 650W – 750W (80 Plus Bronze/Gold) | Provides good headroom for future upgrades of the graphics card and storage drives | ~1,200,000 – 2,000,000 |

| Component | Upgrade Option | Advantages | Estimated Price (VND) |
|----------------------------|---------------------------------------|---|------------------------|
| Graphics Card (GPU) | NVIDIA GTX 1650 / RTX 3050 / RTX 4060 | Supports graphic design, video editing, gaming, or basic AI tasks | ~3,000,000 – 9,000,000 |
| Mainboard | B760 or Z690 supporting DDR5 RAM | Increases future upgrade potential (new RAM standard, more expansion slots) | |

Note: Upgrades require checking for component compatibility, especially between the CPU, mainboard, RAM, and PSU. Additionally, when upgrading to a more powerful GPU or CPU, ensure the cooling system and power supply are adequate.

C. Conclusion:

- + Building an office computer requires not only a solid understanding of hardware components but also the ability to evaluate performance, cost, and suitability for real-world needs. By selecting components like an **Intel Core i7-12700 CPU**, an **ASROCK B760M motherboard**, **16GB of RAM**, a **512GB NVMe SSD**, and an appropriate power supply and case, the team has created a PC configuration that balances performance with cost-effectiveness.
- + This system fully meets the demands of a modern office, from processing documents quickly and smooth online meetings to handling accounting software and large datasets, while still allowing for future upgrades. Additionally, peripherals such as an **IPS monitor**, **Logitech keyboard and mouse**, and a headset for conferences provide a convenient and professional work experience.
- + Through this project, I have not only honed my practical skills but also gained a deeper understanding of how to optimize costs and build an efficient computer system for a practical work environment.

