

Assignment Title

Computer System Component Specification

Module Title and Code

Computer Systems Fundamentals – ACCA4028

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Task 1: Computer System Specification for an Elderly User

This task has the purpose of building a desktop PC for an elderly user. The system is intended for basic tasks, such as internet browsing, word processing tasks, watching YouTube videos, and using Skype or comparable applications for video calling and communication purposes [1]. The system needs to be both cost-effective and user-friendly. The system must incorporate both virus protection software and a compatible Microsoft Windows version. The build requires a monitor with sufficient size to meet the user's needs. The build targets cost-effectiveness as well as reliability and ease of use while meeting these requirements [2]. The PCPartPicker website was used to choose parts, and it was complemented with additional searches on Amazon and other sites for missing items.

CPU and Motherboard Selection

The central processing unit (CPU) selected for this build is the AMD Ryzen 5 5600G. The processor has six cores and twelve threads, while providing integrated Radeon Vega graphics and maintaining a base clock speed of 3.9 GHz. The specified user will find the light workload completely enough. The AMD Ryzen 5 5600G has a much better performance than both the AMD Athlon 3000G [3] and Intel Pentium Gold CPUs [4]. This system delivers enhanced multitasking capabilities and better video playback performance. The included Wraith Stealth stock cooler maintains both simple construction and cost-effectiveness.

The motherboard selected is the MSI B550M PRO-VDH Wi-Fi. It supports the chosen processor right out of the box and features built-in Wi-Fi 5 along with Bluetooth. Separate Wi-Fi adapters can complicate setup, so this avoids that need. Modern connectivity is also offered, like it has HDMI, USB 3.2 ports, DisplayPort, and several USB 2.0 ports. The micro-ATX size enables a smaller case, making it space-efficient. This design meets the needs of a small form factor system.

Memory (RAM)

In a configuration of 2x8 GB, the build will feature 16 GB of DDR4 RAM. While 8 GB suffices for basic tasks, opting for 16 GB enhances multitasking, ensures smoother video calls, and makes it future-proof – especially with Windows 11. Today, significant memory is consumed by many browsers and video conferencing software, especially when multiple tabs are open or during HD video calls. This option balances functionality and cost, reducing the risk of slowdowns in everyday use [5].

Storage

A 500 GB NVMe SSD is specified for storage. Traditional hard drives are slower than SSDs. System boot and application launch times decrease significantly which leads to improved user interactions. To save money, a 500 GB storage capacity is more than enough. The storage provided has enough capacity to accommodate software installations as well as media files like videos and photos and document storage.

Graphics

The integrated Radeon Vega graphics of the Ryzen 5 5600G is sufficient for this use. The built-in GPU supports both video conferencing and full HD video playback without issues. A dedicated graphics card is not necessary since the user will not be involved in gaming or 3D applications. Integrated graphics offer similar performance for general media consumption compared to budget cards. They also make the system simpler, cost is reduced, just like power consumption [6].

Input/Output Features

The motherboard offers several input/output solutions through multiple USB ports of USB 3.2 and USB 2.0 types, along with HDMI and DisplayPort outputs. It also has audio jacks and wireless connectivity via

Wi-Fi and Bluetooth. The system offers full compatibility for standard peripherals, including external storage devices, as well as webcams or printers.

Case and Power Supply

The CiT S003B MicroATX Case is chosen because of its small form factor and cheap price. The case includes a 5.25-inch bay which enables users to install an internal Blu-Ray or DVD writer. Many older users still rely on DVDs for photos, music, or software, so the inclusion of an optical drive is important [7]. The case is simple in design and easy to access.

The case already provides a 300W power supply that makes buying a separate one obsolete. 300W will be sufficient for this build, because of the integrated graphics. If it turns out that a video card is needed, the PSU might be inefficient.

Monitor

A recommended monitor is the AOC 24B2XH, which features a Full HD resolution of 1920x1080 and measures 23.8 inches. For an elderly user, this monitor offers clear readability while not occupying too much space, as it is large enough. It has an IPS panel that has better colours and better viewing angles. This is crucial for eye comfort. Due to its poorer viewing angles, reading could become difficult, so monitors with TN panels were not considered [8].

Network Connectivity

The system includes Wi-Fi 5 and Bluetooth through the motherboard. Wi-Fi is essential since the user may not want wires everywhere. Bluetooth may be useful for connecting wireless peripherals like headphones or the chosen wireless keyboard and mouse.

Additional Software

The system will run Microsoft Windows 11 Home. Windows 11 is the current supported version of Windows and ensures long-term compatibility with courses and software, because Windows 10 will not be supported any longer after end of 2025 [9]. For protection against malware, Microsoft Defender is included, providing built-in antivirus and firewall protection [10]. While free, it is recognised as a highly effective solution for general users. Optionally, free tools like Malwarebytes Free can be installed for occasional additional scans.

Component Shopping List

Component	Product	Price (Approx.)	Retailer
CPU	AMD Ryzen 5 5600G	£132.95	pcpartpicker.com (AWD-IT)
Motherboard	MSI B550M PRO-VDH Wi-Fi	£104.99	Amazon UK
RAM	Corsair Vengeance LPX 16 GB (2 x 8 GB) DDR4-3200 CL16 Memory	£35.99	pcpartpicker.com (Amazon UK)
Storage	Western Digital WD Green SN3000	£31.99	pcpartpicker.com (SanDisk)
Case	CiT S003B MicroATX Desktop Case w/300 W Power Supply	£50.47	pcpartpicker.com (SCAN)
PSU	The case has a 300 W Power Supply	£0	-
Optical Drive	ASUS DRW-24D5MT DVD Writer	£22.99	pcpartpicker.com (Overclockers)
Monitor	AOC 24B2XH 23.8" Full HD	£74.99	pcpartpicker.com (Currys)
Keyboard & Mouse	Logitech MK120	£15.99	Amazon UK
Operating System	Microsoft Windows 11 Home	£110	pcpartpicker.com (Amazon UK)
Total	Various	£580.36	Various

Component	Selection	Base	Promo	Shipping	Tax	Price	Where
CPU	 AMD Ryzen 5 5600G 3.9 GHz 6-Core Processor	£132.95	—	FREE	—	 £132.95	
CPU Cooler	+ Choose A CPU Cooler						
Motherboard	 MSI B550M PRO-VDH WIFI (CEC) Micro ATX AM4 Motherboard	—	—	—	—	 No Prices Available	—
Memory	 Corsair Vengeance LPX 16 GB (2 x 8 GB) DDR4-3200 CL16 Memory	£35.99	—		—	 £35.99	
	+ Add Additional Memory						
Storage	 Western Digital WD Green SN3000 500 GB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	£31.99	—	—	—	 £31.99	
	+ Add Additional Storage						
Video Card	+ Choose A Video Card						
Case	 GIGABYTE S003B MicroATX Desktop Case w/300 W Power Supply	£44.99	—	£5.48	—	 £50.47	
Power Supply	+ Choose A Power Supply						
Optical Drive	 Asus DRW-24D5MT DVD/CD Writer	£22.99	¹	FREE	—	 £22.99	
	+ Add Another Optical Drive						
Operating System	 Microsoft Windows 11 Home Retail - USB 64-bit	£110.00	—	—	—	 £110.00	
Monitor	 AOC 24B2XH 23.8" 1920 x 1080 75 Hz Monitor	£69.00	—	£5.99	—	 £74.99	
	+ Add Another Monitor						
Keyboard	 Logitech MK120 Wired Slim Keyboard With Optical Mouse	—	—	—	—	 No Prices Available	—

List Made with PCPartPicker Website [11]

Task 2: In-Depth Analysis of a Personal Laptop

The student’s primary laptop will be examined in Task 2. Academic work and daily to-dos are both done on this laptop. Providing a detailed description of the characteristics of this laptop is the main point of this task. This HP 15-dy series laptop is capable of conducting ordinary computer operations reliably. This laptop is capable of supporting both the typical activities at home as well as school-related ones, such as writing assignments and conducting research. This laptop helps the user participate in online meetings, manage email, access the internet, and prepare assignments.

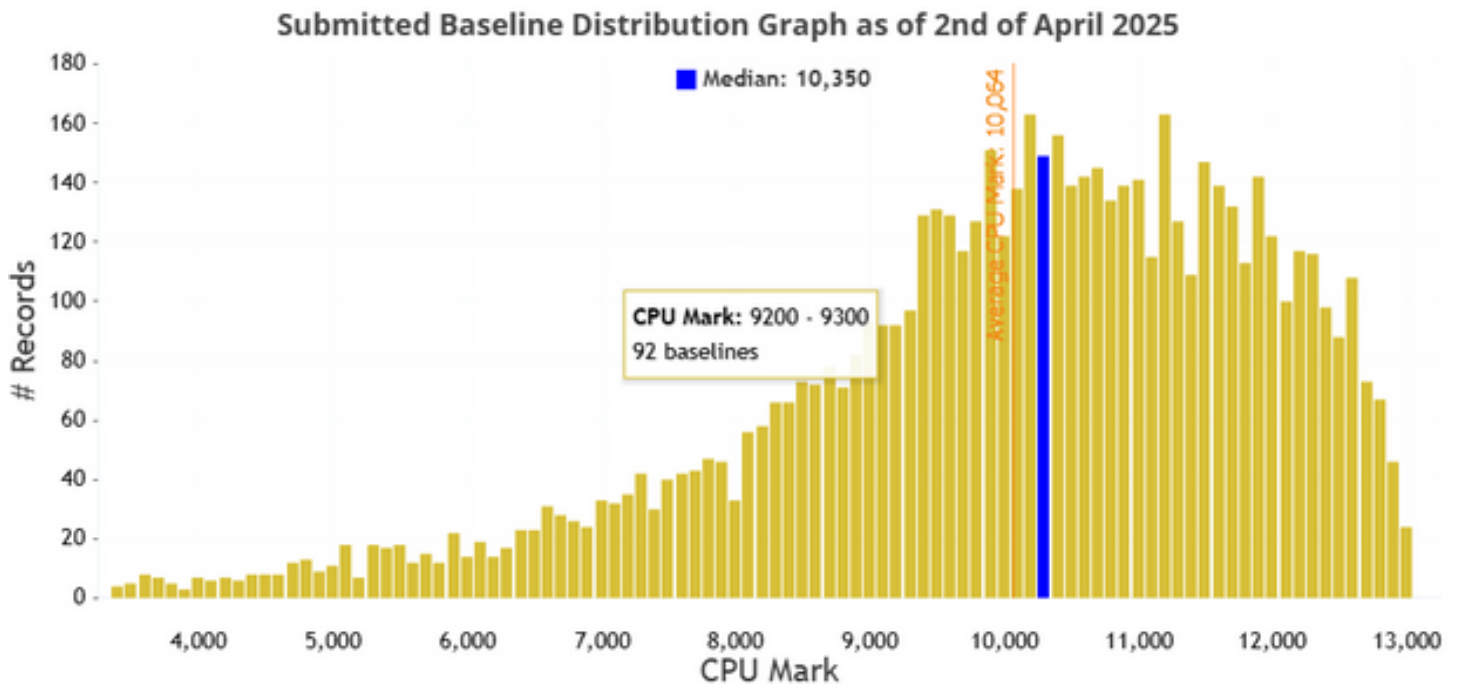
Overview and Purpose

For all of the university-related responsibilities, the student relies on this laptop as their primary device. In addition to being able to participate in online meetings or using email, the major function of this device is to access educational platforms and write assignments. The laptop has decent performance when it comes to routine chores such as browsing the internet and watching videos. The machine is capable of doing fundamental office tasks and academic work with a high degree of efficiency. This particular PC configuration is able to meet all of the requirements for studying xxx. Standard software is able to operate easily and dependably on the laptop, and there are no serious concerns to report.

Component	Specification
Series	HP 15-dy series
Processor	Intel Core i7 (base frequency 2.8 GHz, turbo up to 2.8 GHz)
RAM	16 GB DDR4
Storage	120 GB SSD
Graphics	Integrated Intel Graphics
Display	15.6-inch Full HD (1920x1080)
Operating System	Windows 10 Home
Connectivity	Wi-Fi, Bluetooth, USB, HDMI, SD card reader, audio jack

Hardware Specs

The laptop is from the HP 15-dy series and utilises an Intel Core i7 CPU. The number of physical cores in the CPU is four, and its basic clock speed is 2.8GHz. It is reasonable to anticipate that users would experience outstanding performance while carrying out numerous activities simultaneously with this configuration. It is possible for the laptop to run apps at once due to the fact that it has a memory capacity of 16GB of random access memory (RAM). These storage requirements are satisfied by a solid-state drive (SSD) with a capacity of 120GB. The use of this storage solution results in greatly improved file access speeds and drastically reduced boot times in comparison to the utilisation of conventional hard drives; however, it is an outdated technology.



The CPU Benchmark Shows the CPU at a High Rank Considering its Age [12]

The integrated graphics in the laptop is capable of handling basic tasks, such as video playback and simple visual processing, without requiring additional processing. There is support for Full HD quality on the display, which is 15.6 inches. The system allows for quick document editing while also providing a comfortable environment for reading documents and watching videos.

Input and Output Devices

The input and output capabilities of the laptop are in line with industry standards. Users are able to attach external devices such as flash drives and keyboards to the laptop thanks to its array of USB ports. The laptop comes equipped with an HDMI port, which enables users to connect it to projectors or monitors. It is possible to transfer files from memory cards using a built-in reader. In addition to a microphone, the laptop also has a connector for headphones. The webcam and microphone are also incorporated, making it a good choice for video chats and online meetings.

Operating System

The operating system on this laptop is Windows 10. It works great for the typical programs that the student uses on a daily basis. It offers assistance for programs that are necessary for the completion of academic duties. Every single software that is used for academic work functions well, and the system

continues to be reliable. However, Windows 10 support will end in 2025 [9], so the operating system should be upgraded to Windows 11 soon.

Installed Applications

This laptop has all the programs that are a part of the student's usual routine, and all the programs are used frequently. The web browser helps in research and exploring the internet. When it comes to performing academic work, Microsoft Office continues to be the primary software to use. This feature is necessary for the creation of documents, presentations, and spreadsheets. There is a video playback software installed as well. This configuration, even if it's a bit old, makes it possible to take part in online meetings without any issues. A solid-state drive (SSD), together with an adequate amount of RAM and the capable CPU, makes it possible for all apps to operate without much latency [13].

Connectivity

Wi-Fi connection makes it possible to connect the laptop to the internet. Downloading study materials, participating in video chats, and surfing are all excellent uses for this. Bluetooth is another method that is used to connect wireless devices, such as a mouse or headphones. The Wi-Fi connection is reliable and efficient enough for all the tasks that require internet.

Summary

In a nutshell, with regard to a student's requirements, this HP laptop is a good choice for its price. Capable of handling day-to-day responsibilities such as participating in online meetings, accessing the internet, and composing assignments in an efficient manner. SSD storage, 16 gigabytes of RAM, and an Intel Core i7 CPU work together to create an experience that is both quite smooth and comfortable for the user. Although it is not intended to utilise it for heavy professional work, it is enough for day-to-day use and the requirements for educational purposes.

References

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