

Computer System component specification

by Umar Rashid

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Module name: Computer systems fundamentals

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Task 1

Component	Name	Price	Link
CPU	AMD ryzen2400g 3.6ghz	£70	https://www.amazon.co.uk/dp/B07DYKNXKG?tag=pcp0f-21&linkCode=ogi&th=1&psc=1
Motherboard	MSI b450-a pro max micro	£60	https://www.amazon.co.uk/dp/B07WC8QVCB?tag=pcp0f-21&linkCode=ogi&th=1&psc=1
RAM	Crucial CT8G4DFRA32A 8GB DDR4-3200 CL22 Memory	£20	https://www.amazon.co.uk/dp/B08C4VHQV2?tag=pcp0f-21&linkCode=ogi&th=1&psc=1
Storage	PNY CS900 500 GB 2.5" Solid State Drive	£36	https://uk.pcpartpicker.com/product/XshmP6/pony-cs900-500-gb-25-solid-state-drive-ssd7cs900-500-rb
Case	Aerocool CS-106 MicroATX Mini Tower Case	£20	https://uk.pcpartpicker.com/product/m3wmP6/aerocool-cs-106-microatx-mini-tower-case-cs-106-s-bk-v1
Power supply	GameMax GP 650 W 80+ Bronze Certified ATX Power Supply	£40	https://www.awd-it.co.uk/components/power-supplies/game-max-psu/game-max-gp-650-80-plus-bronze-rated-psu-650w-power-supply-unit.html?w
Monitor	Asus VP228DE 22.8" 1920 x 1080 60 Hz Monitor	£65	https://www.amazon.co.uk/dp/B01MEETICH?tag=pcp0f-21&linkCode=ogi&th=1&psc=1
Network card	TP-LINK TL-WN7200ND USB adapter	£10	https://www.amazon.co.uk/dp/B003HVVH1SS?tag=pcp0f-21&linkCode=ogi&th=1
Peripherals	Adesso cybertrack H3 webcam AmazonBasics V620 2.4 W Speakers Logitech MK270 Wireless Keyboard and Mouse Combo	£13 £15 £20	https://uk.pcpartpicker.com/product/JXzFf7/adesso-cybertrack-h3-webcam-cybertrackh3 https://www.amazon.co.uk/dp/B07DDK3W5D?tag=pcp0f-21&linkCode=ogi&th=1 https://www.amazon.co.uk/Logitech-Wireless-Keyboard-Windows-Connection/dp/B00CL6353A/ref=sr_1_3?crid=1I0FTRESYRDUY&keywords=keyboard+and+mouse&qid=1704903671&sprfix=keyboard+and+mouse%2Caps%2C65&sr=8-3
Total £		£369	

CPU

The Ryzen 5 2400G offers smooth multitasking capabilities, allowing for efficient handling of office applications simultaneously. It's capable of handling typical office tasks like word processing, spreadsheets, presentations, and web browsing with ease. The Ryzen 5 2400G comes with Radeon RX Vega 11 graphics, which are significantly better than most integrated graphics solutions. For office tasks like document editing, web browsing, and light graphics work, it can handle these without needing a dedicated graphics card, saving cost and power consumption.



MOTHERBOARD

The MSI B450M-A PRO MAX Micro AT4 AM4 motherboard can be a suitable choice for an office build because compatibility: The MSI B450M-A PRO MAX is designed for AMD processors, making it a compatible choice for the Ryzen 5 2400G. The motherboard's AM4 socket ensures proper fitting and support for this CPU. Micro ATX Form Factor: This form factor is smaller compared to standard ATX motherboards, making it suitable for smaller PC cases, a micro ATX motherboard allows for a more compact build without sacrificing functionality.

RAM

The Crucial CT8G4DFRA32A 8GB DDR4-3200 CL22 memory module can be suitable for an office PC thanks to its capacity: 8GB is sufficient for most office tasks such as web browsing, email, document editing, and basic multitasking. For an office PC used primarily for these purposes, 8GB of RAM is a decent amount that should handle these tasks without issues. DDR4-3200 Speed: While CL22 latency might not be the fastest, the DDR4-3200 speed offers decent performance for everyday office tasks. It provides a good balance between cost and performance for an office environment where extreme speed isn't necessarily a priority.

STORAGE

The PNY CS900 500GB 2.5" Solid State Drive (SSD) could be suitable for an office PC due to, Performance: SSDs like the PNY CS900 offer significantly faster read/write speeds compared to traditional hard disk drives (HDDs). This results in quicker boot times, faster application launches, and overall snappier system responsiveness. For office tasks like opening documents, browsing the web, and running office applications, the improved performance can enhance productivity. Reliability: SSDs have no moving parts, making them more durable and less prone to mechanical failure compared to HDDs. SSDs are better equipped to handle accidental drops or shocks, reducing the risk of data loss due to physical damage.

CASE

The Aerocool CS-106 MicroATX Mini Tower Case could be a suitable choice for an office build with the components thanks to its compact size. The CS-106 is a MicroATX Mini Tower case, which means it's small and compact. In an office setting where space might be limited or where a smaller footprint is preferred, this case can fit well on or under a desk without taking up too much space. MicroATX Compatibility: This case is specifically designed for MicroATX motherboards, like the MSI B450M-A PRO MAX. It ensures a proper fit for your motherboard without wasted space, providing just enough room for the components.

POWER SUPPLY

The GameMax GP 650W 80+ Bronze Certified ATX Power Supply could be a suitable choice for the office PC. Power Efficiency: Being an 80+ Bronze certified power supply, it meets a certain level of energy efficiency, ensuring that it operates at a higher efficiency level under typical office workloads. This can result in lower electricity bills and less wasted energy. Sufficient Power Output: A 650W power supply provides ample power for the components in your build, including the AMD Ryzen 5 2400G processor with integrated graphics, 8GB RAM, and an SSD. It leaves room for potential upgrades in the future without needing to replace the power supply.

NETWORK CARD

The TP-LINK TL-WN7200ND 150 Mbps High Power Wireless USB Adapter could be beneficial in the office/home set up thanks to its easy compatibility with OS like windows or even Linux. Sufficient speeds, While the maximum speed of 150 Mbps might not be the fastest available, it can provide adequate bandwidth for standard office tasks like browsing, emailing, and document sharing. The antenna Design: The adapter typically comes with detachable external antennas, which can be adjusted or replaced for better signal reception, potentially improving connectivity in environments with interference or obstacles.

Peripherals

I've selected an Asus VP228DE 22-inch 1920 x 1080 60Hz monitor will be suitable for an office setup due to a few factors. Resolution and Size: The 1920 x 1080 resolution on a 22-inch screen offers a good pixel density, providing sharp and clear images without straining your eyes. This resolution is suitable for office work, including document editing, spreadsheets, web browsing, and general office tasks. Affordability: This monitor tends to be budget-friendly compared to higher-resolution or larger-sized displays. For an office environment where multiple monitors might be needed for productivity, affordability is often a key consideration. 60Hz Refresh Rate: A 60Hz refresh rate is sufficient for typical office tasks, having a higher refresh rate that 60Hz would add unnecessary increase to the overall total cost of the build.

As well as having The AmazonBasics V620 2.4W speakers for one of the key output devices to give out sound so that the user can hear their video/audio calls clearly for a low-cost

reliable option. The Adesso CyberTrack H3 Webcam is also a suitable choice for its affordable price and built in mic to allow the user to speak in their calls and be seen by the caller via skype, finally I have selected the Logitech MK270 Wireless Keyboard and Mouse Combo, mainly thanks to its wireless nature, the lack of wires on the overall setup will definitely be noticeable when used and it doesn't add unnecessary cost to the build.

OS and anti-virus

For the operating system iv selected to use windows 10 home OS as it is a widely used OS and commonly used in home office builds for its easy to use and recognizable user interface, in conjunction with windows 10 OS I've selected a 1-year subscription to McAfee to protect against malware, ransomware and to keep the users data safe and secure. McAfee software will actively protect against these cyber threats, another layer of protection that could be added on top of the antivirus would be the purchase of a VPN service like NordVPN, both used together will provide more than enough protection

To conclude the links and prices to the components for the home/office build, can all be found on amazon except for 1 piece being the PSU which will have to be purchased through another website. The build comes up to a sub £400 cost for a brand-new pc build from scratch that also has room to be upgraded if the need arises.

Task2

My computer

The computer in my possession that I will be analysing in depth is my 2020 Lenovo legion Y540. It is a midrange gaming laptop that I use for my studies, occasional gaming when I am away from my normal setup.

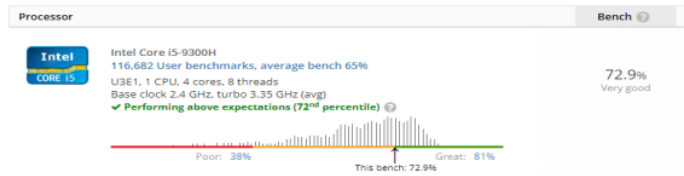
CPU

The Central processing unit otherwise known as the CPU is the heart and brain of the computer that brings together all the other components of the computer and controls what everything does and in what order it should do it. It is responsible for the execution of the tasks that the computer must do, like calculations or data processing for example.

The CPU withing this laptop is an intel I5 9300H 2.40Ghz processor, this model of CPU is widely used and found in gaming and other high-end laptops for its ideal performance and pricing. Using free software called User benchmark the following is a result of running a benchmark test for this computers CPU

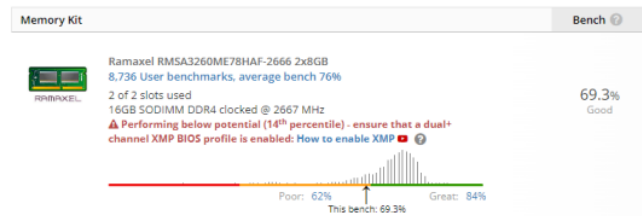
✓ PC Performing as expected (47th percentile) ?

Actual performance vs. expectations. The graphs show user score (x) vs user score frequency (y).



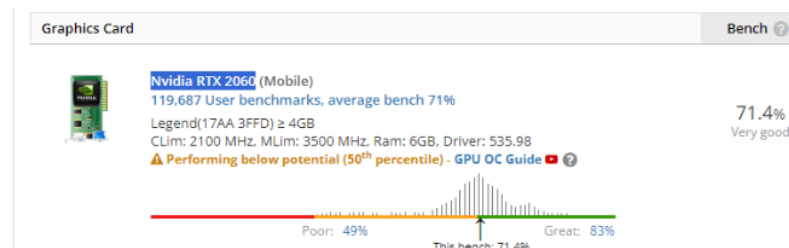
RAM

RAM is the random-access memory used as temporary memory for actively used and processed data that helps with the overall performance and responsiveness of any computer, any laptop with low RAM will be noticeably slow and take more time to complete its task. My laptop is currently fitted with 2x 8gb DDR4 Ramaxel giving it total of 16gb of Ram.



GPU

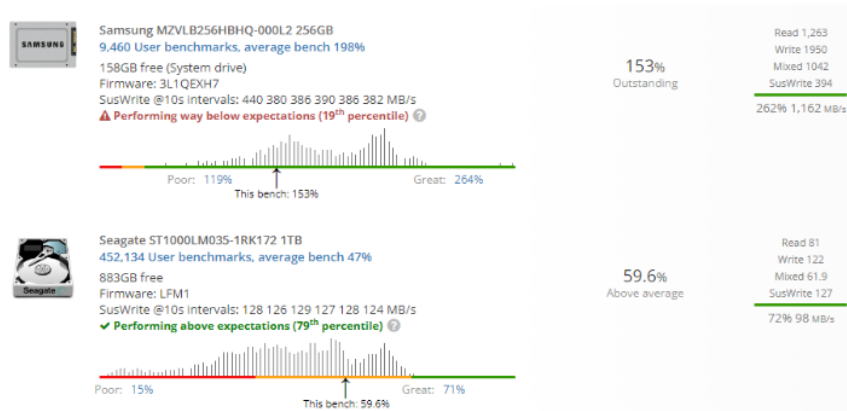
The graphic processing unit is a specialised computer component that is dedicated to render graphical and visual data for task such and gaming. GPUs usually work closely with the CPU and now come with its own built in Vram to not take up precious resources away from other computing needs. This laptop is fitted with Nvidias GeForce RTX2060 a powerful card released in January 2019 and still holds up well with its graphical performance.



Storage

This laptop is currently fitted with 2 memory storage devices, 1 TB Seagate HDD and a 256gb Samsung SSD, The SSD has on it the main OS installed on it along with the programs that I use frequently as the SSD has a superior read write speeds so it makes a noticeable difference in how fast the laptop is and how quick it can perform. However, from a pricing perspective although SSDs have the faster speeds thanks to having no moving parts it makes

them costly so the 1TB HDD is used to store the rest of the files like large game folders and pictures/videos that are not frequently used but still require safe reliable storage.



Input/output devices

With regards to the I/O devices I can connect to multiple monitors and tv using the HDMI port on the back, it has the 3.5mm headphone jack so I can plug in speakers or headphones with the same connection port. The laptop form factor gives my set up the ability to quickly add and take away peripherals like monitors and keyboards just by plugging and unplugging cables for when I need to be on the move. It has 3 additional USB ports to add other accessories such as Bluetooth keyboard and mouse or charge up my phone with the USB or type C output. The screen on this laptop is a 144hz 1920x1080 display, the high refresh rate of the screen gives it a performance edge when playing games like FPS such as COD or Fortnite and the display can show beautiful detail to immerse the user. Along with having the ability to connect to the internet wirelessly there is an ethernet port that grants the user to have a wired connection if desired.

Operating system

The operating system in a computer is the software intermediary that brings together the hardware with the user applications. Its responsible for tasks like, Memory Management, Process Management Resource Management, and networking just to name a few. The operating system installed and running on my laptop is the 64bit version of windows 11 home by Microsoft, it came installed by default and is one of the widely used Computer OS to date and is compatible with most software's that get developed. on laptops/desktops you can find that popular OS like Linux OS, windows OS, or mac OS. There are OS that specially developed for mobiles phones like android or iOS. Each is specially made for bringing software and hardware together for its designated purpose e.g. phones laptops.

Installed applications

One application that is use every day on this laptop is my Microsoft team's app. It is used by the education institutes that I attend such as university and college to hold online classes and directly communicate with my peers and lectures, it also gives me quick access to use Word/PowerPoint to write up my reports and create presentations for my assignments and lets my peers collaborate with me effectively and smoothly. Another application that I use is steam. It's a service that lets its customers manage install and play their games onto any device that can run it. Having a central gaming centre where you can meet new people that you have common interests and games with makes it an ideal place to socialise and make new friends from the comfort of sitting behind a screen.

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GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

55/100

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PAGE 3



Comment 1

Citation is required throughout the report to support and backup your statements !

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GRADING FORM: GRADING

UMAR RASHID

55

ENGAGEMENT WITH LITERATURE

Marks will be awarded based on the extent of research and/or own reading, selection of credible sources, application of appropriate referencing conventions. Your research sources should extend beyond simply using the links provided in the moodle content. You MUST include evidence of sources that you have discovered yourself during the course of your own student centred work.



Little or no evidence of reading and/or reliance on inappropriate sources.

1

Views and findings mostly unsupported and non-authoritative.

Referencing conventions used incoherently or largely absent.

No citation and references throughout the report!

KNOWLEDGE AND UNDERSTANDING

Marks will be allocated based on the demonstration and extent of knowledge and understanding of the general concepts and underlying principles covered in this module.



Competent knowledge of the basic underlying concepts and principles. Exhibits very good understanding. Yet there is no references to backup the statement stated in the report!

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COGNITIVE AND INTELLECTUAL

This section covers your ability to look at the alternative solutions, and provide solid justification as to why your chosen components are the most suitable compared to others.



Good evaluation of the underlying concepts and principles.

An emerging ability to use evidence to support the argument.

Mostly valid arguments and logical judgements.

Yet, no evidence of literature reviewed to support the arguments made within the report!

12

PRACTICAL SKILLS

This section will allocate marks based on the real life practicality of overall system. Have you come up with a sensible, balanced, usable system with no obvious omissions or unsuitable choices etc.



A good and appropriate application of basic methods, materials, tools and/or techniques.

Clear appreciation of the context of the application.

Good evidence of different approaches to problem-solving in particular contexts and proposes mostly appropriate solutions.

10

TRANSFERABLE SKILLS FOR LIFE

This section will be assessed based on the written and presentational quality of the report. Style, structure, grammar, spelling etc. Make sure it conforms to the layout conventions previously discussed in class.



Work is accurate, coherent, fluent, well-structured and organised.

Can work effectively independently and/or as part of a team, with very good contribution to group activities. Demonstrates very good skills for employment requiring the exercise of some

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personal responsibility, with just occasional minor weakness, that is evident by the lack of supporting references!