

Assignment 1

by Rhys Carter

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Scenario 1

For this build I have set out a price limit of £300 to £600.

CPU

The CPU (which stands for Central Processing Unit) is an important part of the computer that acts like the brain of the computer. This is because this is the part of the computer that all the other parts of computer that go through and get instructions from so the computer can operate. Because of this a good CPU is important because the operation of the computer depends on the quality of the CPU.

So, with the importance of the CPU for the wants and needs of the elderly persons computer I have chosen the AMD Ryzen 3 3200G 3.6 GHz Quad-Core Processor. This is because the AMD Ryzen 3 3200G 3.6 GHz Quad-Core Processor is a four-core central processor unit which means that the computer can complete more operations at a quicker speed than a single core or dual core. This is important because the amount of operations it can make will reduce loading times and the four cores will also allow more components to be added to the PC without slowing the computer because of the additional cores that can do the operations separate to the others. An additional reason I have chosen this processor is that the clock speed is 3.6 GHz with the boost speed of 4GHz because this speed is more than enough for what the user wants to use on the computer. Another reason that I chose this CPU is because of its memory. The CPU has a maximum supported memory of 64GB which is more than enough to hold data that is needed to run the operations need on the computer.

Overall, I picked this Central Processing Unit because of its overall use and the ability to compete the options asked of it with no slow down or other issues. The price of this CPU is around £75 to £85 but the best deal that I found was £76 from Amazon.com.

Motherboard

The Motherboard is an extremely important part of the computer because it is what connects the different parts of the computer. So, because of this a good motherboard is needed so all the other parts of the computer can work the best that is can. Because of this I have chosen the Gigabyte B450M DS3H Micro ATX AM4 Motherboard. I chose the Gigabyte B450M DS3H Micro ATX AM4 Motherboard because of many reasons. The first reason is its memory. The memory type of this motherboard is DDR4 which is a good all-around budget memory type which will be fine for the purpose of this computer. Another advantage of the motherboard's storage is there is four memory slots available which will allow more storage to be added to the computer to increase the storage of the computer at a later date. Another reason is the memory speed because the speed of the data to be sent between the motherboard and the other components of the computer because the speed can be between DDR4-2133 and DDR4-3200. This means that the computer can run quickly because the data can be retrieved from the storage and sent to the CPU quicker so the data can then be presented to the other components of the computer. Another reason I picked this motherboard is because three PCI-E slots. PCI-E stands for Peripheral Component Interconnect Express and it is used to connect internal components to the motherboard. It is important to have these slots because it allows more components to be connected but this computer only needs a few so there is no point going overboard. Another reason that I picked this motherboard is that it has four SATA ports on it. This is important because it allows four storage methods and/or CD and DVD players to be connected to the computer. This allows more freedom to add what the users wants from the computer and the ability to add more if required because not all the slots have to be filled there if they are needed.

RAM

RAM stands for Random Access Memory and is used to store data and other operations that are needed at the moment but do not need to stay on the computer so after the computer is turned off the data is deleted. This is good because it reduces the amount of data that is not critical being stored on the internal storage that is kept on the computer.

Because of this I have chosen the Team 8 GB (1 x 8 GB) DDR4-2400 Memory for the computer's RAM. This is because of many reasons. The first reason is that the speed of the RAM is at DDR4-2400. This is a basic 8GB RAM which is fine for a basic computer when only basic functions are conducted on the computer and will allow the computer to run quicker because it does not have to go get the storage to get what it needs which is slower than it takes to retrieve data from the Random Access Memory.

Non-volatile storage

Non-volatile storage is the storage that is in the computer that saves all the data that is important. The non-volatile part is important because it allows saved data to be still accessed after the computer is turned off by the plug. The option that I have picked is the Western Digital Caviar Blue 1 TB 3.5" 7200RPM Internal Hard Drive. I picked this because it's a good size for keeping data safe when the computer is turned off.

Graphics card

The graphics card that I have chosen for this computer is the MSI GeForce GT 1030 DDR4 2 GB Video Card. I picked this because it more than enough to do what is wanted by the user's request. It comes with a fan so cooling is not an issue. It is connected to the computer via a HDMI cable. It has a 2 GB memory which is the type DDR4 so it is compatible to the rest of the PC components.

Case

For the case I chose the NZXT H510 ATX Mid Tower Case. This is what I chose because it is the correct size with enough ports to hold the rest of the components that are in this computer build. It has 2 USB slots, 4 internal bays and 7 expansion slots.

Power supply

For the power supply I have chosen the Antec EarthWatts Green 500 W 80+ Bronze Certified ATX Power Supply. I chose this because it has a maximum wattage of 500w which will be enough to power the computer.

Monitor

For the monitor I have chosen the basic HP V270 27.0" 1920x1080 60 Hz Monitor. This is because of its aspect ratio of 16:9 which allows the text and images on the computer to be bigger so they can be more clearly seen by the user of the computer.

Shopping List

Name	Price	Image
AMD Ryzen 3 3200G 3.6 GHz Quad-Core Processor	£76 (Amazon.com)	
Gigabyte B450M DS3H Micro ATX AM4 Motherboard	£59 (Amazon.com)	
Team 8 GB (1 x 8 GB) DDR4-2400 Memory	£25 (Amazon.com)	
Western Digital Caviar Blue 1 TB 3.5" 7200RPM Internal Hard Drive	£45 (DELL)	
MSI GeForce GT 1030 DDR4 2 GB Video Card	£68 (Amazon.com)	
Antec EarthWatts Green 500 W 80+ Bronze Certified ATX Power Supply	£91 (Amazon.com)	
NZXT H510 ATX Mid Tower Case	£62 (Amazon)	
HP V270 27.0" 1920x1080 60 Hz Monitor	£140 (Amazon)	

Altogether the price was £566.

Scenario 2

This computer is designed for having the ability to produce and edit 4K video with the ability to use the main CPU with the ability to use GPU acceleration. The computer will need to be fast and be fast at rendering. The budget is around £2500.

CPU

For the computer to do what is asked to it will need a good central processing unit (CPU) to be able to do the operations that it needs to in compliance with the other components of the computer and needs to do calculations fast. Because of this I have chosen the AMD Ryzen 9 3900X 3.8 GHz 12-Core Processor. I chose this because for the computer to be able to do what is asked for it will need a strong central processor to complete the answers. This central processing unit has 12 Cores so more calculations and actions can be performed and quicker. The core has a clock speed of 3.8 GHz which means that it is very quick at performing the users request. When the program needs to have more speed and calculations the cores have a boost clock of 4.6 GHz for when it is needed. Another reason that I pick this CPU is its memory. The memory of the CPU is 128 GB meaning that it can remember a lot of important operations that it can keep within itself so it can load them up quicker. Also, this CPU has 3 different storage cache with one meant for instructions and data being store with the other two being additional storage. This CPU also comes with its own cooler, so it has a reduced chance of overheating when work hard.

Motherboard

The Motherboard is one of the most important parts of the PC because it connects all of the PC components together. Because of this the motherboard needs to be compatible with the other parts of the PC and it also needs to be fast. Because of this I have chosen the Asus ROG Strix X570-E Gaming ATX AM4 Motherboard. I chose this motherboard because of many different factors and because it suits the users' needs. The first reason I chose this motherboard is the memory. The memory is DDR4 and has a max memory of 128GB which means that it has a good amount of storage to store important data including its ability to operate and other calculations. The second reason I picked this motherboard is that its memory speed is between DDR4-2133 and DDR4-4400. This means that all the parts that are connected will be able to go their highest speed and will not have to slow down to connect to the motherboard. The third reason that I chose this motherboard is that it has 5 PCI-E slots (3 x16 and 2 x1) which allows more equipment to be able to connect to the motherboard. It also has connectors for USB3.0 to be connected to the computer.

RAM

The RAM is an important storage item because it is designed to only hold data that is needed at the time instead of forever. This is good because it allows the storage to be free of data is not needed so important data can be retrieved quickly. Because of this I have chosen the Corsair Vengeance RGB Pro 64 GB (4 x 16 GB) DDR4-3200 Memory. I chose this for many reasons. One reason is its size. This RAM is 64 GB (4x16 GB) so it can store a huge amount of data that can be quickly received by the user of the computer without having to go through the main storage. Another reason that I picked this one was that these cards include heat spreaders. These allow the cards to share the heat gained through out use around the card instead of having all the heat in a single area that could damage the card.

Non-volatile storage

The non-volatile storage is important to have in this computer because it stores data saved and created by the user. So, for this build it is important for good storage I have chosen the Samsung 860 Evo 1 TB 2.5" Solid State Drive. This has 1 Terabyte of non-volatile store as can store important data that needs to remain on the computer after it is turned off.

Graphics card

The graphics card is one of the most important parts of the build because of the users' needs. So, because of this, I have chosen the Gigabyte GeForce RTX 2070 SUPER 8 GB WINDFORCE OC 3X Video Card. This is because of the speed of the hardware. This is important for bring up images and videos in high speed and 4k graphics.

Case

For the case I need to find one that could fit in the components that are needed in the computer. I choose Cougar MX330 ATX Mid Tower Case. This is because it has 2 USB slots, and 7 expansion slots for customizability. It also has 5 internal bays for other software.

Power supply

For the computer to work it will need a power supply that can transfer enough electricity for all the components to work inside the PC. Because of this I have chosen the Corsair RM (2019) 750 W 80+ Gold Certified Fully Modular ATX Power Supply. This is because the power wattage is 750W which will be enough to power the computer. It also has multiple SATA connectors so it can connect to other equipment within the computer to power them.

Monitor

Because of what is asked for the monitor needs to have 4K capabilities. Because of this I have chosen the ViewSonic VP2768-4K 27.0" 3840x2160 Monitor. This will enable video and pictures to be presented to the user so they can work with it.

Shopping List

Name	Price	Image
AMD Ryzen 9 3900X 3.8 GHz 12-Core Processor	£400 (Curry/PC World)	
Asus ROG Strix X570-E Gaming ATX AM4 Motherboard	£242 (Newegg.com)	
Corsair Vengeance RGB Pro 64 GB (4 x 16 GB) DDR4-3200 Memory	£276 (Amazon.com)	
Samsung 860 Evo 1 TB 2.5" Solid State Drive	£ 137 (Amazon.com)	
Gigabyte GeForce RTX 2070 SUPER 8 GB WINDFORCE OC 3X Video Card	£483 (Amazon.com)	
Cougar MX330 ATX Mid Tower Case	£50 (Amazon.com)	
Corsair RM (2019) 750 W 80+ Gold Certified Fully Modular ATX Power Supply	£120 (newegg.com)	
ViewSonic VP2768-4K 27.0" 3840x2160 Monitor	£410 (Curry/PC World)	

Total Cost = £2118

Additional storage for scenario 2**Internal storage for working drives**

For increasing the internal storage of the computer, I have chosen the Seagate IronWolf 4TB NAS Internal Hard Drive HDD – 3.5 Inch SATA 6Gb/s 5900 RPM 64MB Cache for RAID Network Attached Storage which costs £101 on Amazon.

**External storage**

For the external storage I have selected the Western Digital My Book 10 TB External Hard Drive. This is 10000 GB of storage for the computer to save data too. This cost £110.

**RAID**

RAID stands for redundant array of independent disks and is meant for duplicating data and storing it on another storage device in a different location. So, in the event of incident the data is backed up. NAS stands for Network attached storage and is a storage device that can be access to nodes that are on the network. This allows multiple uses to use the files and share between them on the network

Because of this I have picked the BUFFALO LinkStation SoHo 2-Bay Desktop 4TB Home Office NAS to fulfil this role. The cost is £280. This will allow the data to be shared between the network and any nodes on it and will also back up the data so it will be saved if something happened to the computer and the data is lost or destroyed.



Altogether the price was £2609.

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GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

Instructor

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GRADING FORM: GJ_2019

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ENGAGEMENT WITH LITERATURE



While the information within the assignment isn't incorrect, 'engagement with literature' means you have to show you've read up on the various sections, and can back up your assertions/choices with evidence. This is the weakest section here. Just as one example,

there are numerous sources out there who test and recommend hardware configurations for video editing. These should have been read and cited. You need to produce a reference list and cite the sources of your research in your report - this hasn't been done.

KNOWLEDGE AND UNDERSTANDING



Some knowledge and understanding demonstrated, with most areas giving reasonable information - but you should really have tried to add reference sources to back them up.

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COGNITIVE AND INTELLECTUAL



Despite the outcomes being mostly sensible, Could have done more in looking at the alternative solutions, and providing solid justification as to why your chosen components are the most suitable compared to others. Citing more researched material would have helped here. Its mostly stating what things are, as opposed to WHY they were chosen. Lots of sources exist giving advice on minimum and recommended specifications – read them and cite them!

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PRACTICAL APPLICATION



The specs of the two systems are generally ok - although one again - there are no references to any test sites etc showing WHY those components have been shown to work well with the scenarios. The NAS configuration however doesn't do what the brief asked.

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Do not use the “I” first person style – it is considered bad practice for technical reports such as this. You should write in the third person. All assignments should have a neat cover page, with your name, course and title of the assignment as a minimum. Would have benefited from a more formalised layout, such as breaking down the assignment into more detailed numbered sections that follow the 1. 1.1 1.2 2. Style There are grammatical errors in the text of the report - need to proof read before submitting.