

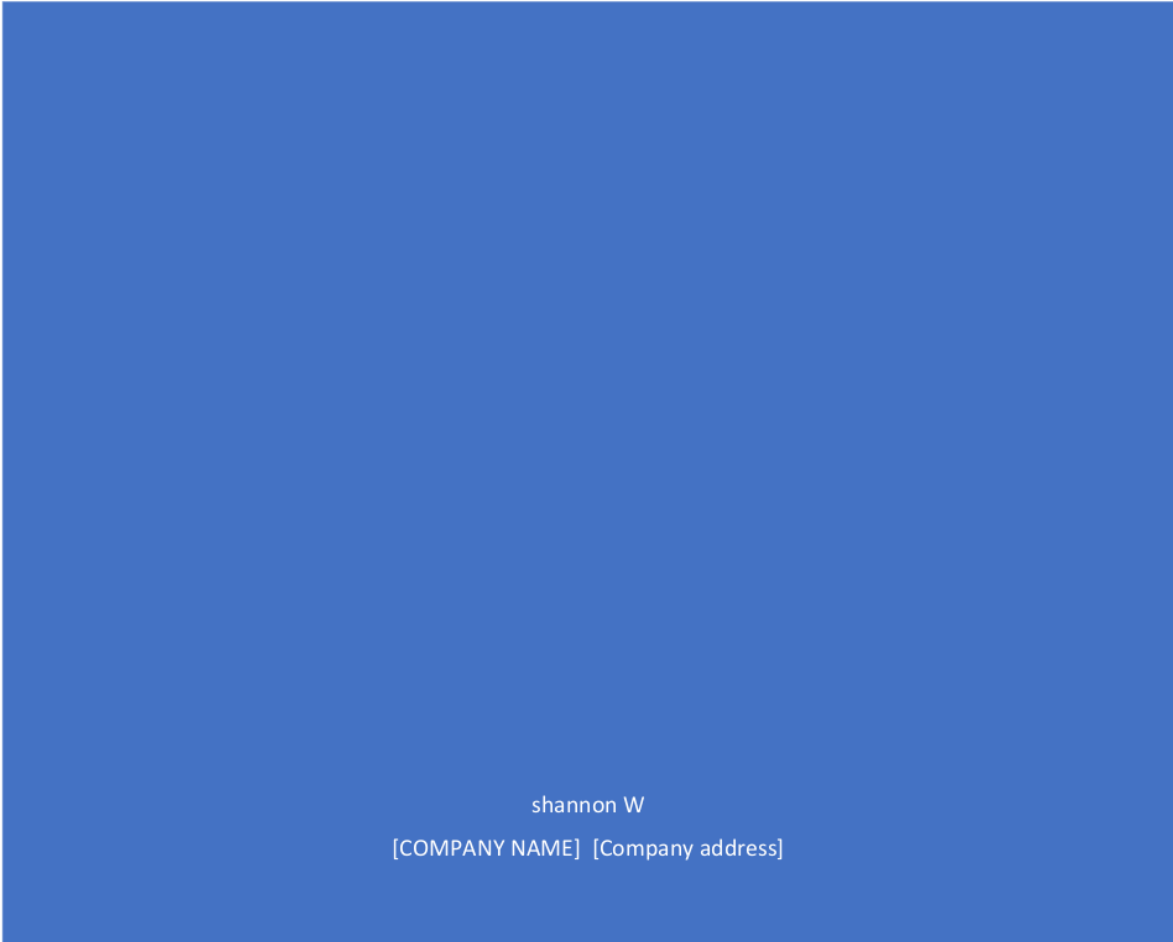
Assignment exam replacement

by Shannon Wallace

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COMPUTER ARCHITECTURE AND NETWORKS



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1. Low Cost Desktop PC – Scenario 1

1.1 Introduction

The computer needs a decent monitor for eyesight and need to run basic software as well as watch YouTube content, and skype video calls. The computer must be a small form factor but have a full-size keyboard and a decent size monitor. The components below show the cheapest, and decent performance for the PC to do these things.

2. Components

The **motherboard** that would be suitable for this build would be a ITX motherboard. It is called ASUS h110I-plus **LGA1151** DDR4 ITX motherboard. It requires a 6th gen intel, and the memory it supports is DDR4 with the max speed of 2133MHZ. It also has 4 USBs, and audio. Which is important for the keyboard and mouse to connect. It also allows you to connect speakers or earphones to the PC for audio. The motherboard cost £77.49.



The **CPU** must be compatible with the motherboard. The CPU has 2 cores. The clock speed is 2.8 ghz. The name of the CPU is called Intel Celeron Dual-Core g3900. The socket of the motherboard is **LGA1151** which supports this CPU. The CPU comes with graphics which are suitable for this build for the scenario. It is a 510 on board intel graphics. The CPU also supports DDR4-2133. The CPU is an intel CPU which does not come with a fan. This will make the PC overheat if no fan is in the PC. The CPU fan I recommend is ARCTIC ALPHINE 12 CPU cooler. The CPU and the CPU cooler cost: £58.75 for the CPU and £4.99 for the cpu cooler



There will be no separate component for the **graphics**. The CPU will have on board intel graphics which is 510. Which is suitable to watch YouTube and use word processing. There is no need for a graphic card if it's not for gaming or high designing like graphic designing.

A suitable **case** for this build would be a ITX case. The motherboard is ITX motherboard this is suitable for the build because the build is supposed to be a small form factor. The case which would be suitable is called "Fractal Design Define Nano S ITX case- Black. It is a decent looking case. Which is cheap for a PC case. The fan comes with the case which allows air flow.



A suitable **monitor** that would be good for eyesight would be the HannsG HL205DPB. It is a 1600 x 900, It has 5MS response time however, the user will not be playing games. The reason why this monitor was picked because it has speakers in the monitor. The user can watch YouTube content, and use skype and hear the audio through the monitor speakers. The monitor is suitable for the purposes. The HannsG monitor is £70.96 pound. The monitor is also DVI which is suitable for the graphics of the PC.



The wattage of the PC is estimated 93Watts. So, picking a **power supply** was easy. The suitable power supply wattage was 300W. This is suitable for the PC because the PC is supposed to run word processing, YouTube video, skype, etc. The power supply will be enough to run the PC components. It is a small form factor which the power supply would fit. Pure power is the power supply which is recommended for this build. It is 300 W. It cost £39.98.



The memory I recommend is Corsair 4GB DDR4 2133 MHZ. The memory must be compatible with the motherboard for it use the max speed so picking out the memory was important. The reason why it is only 4GB because they do not really need

8GB for what the user is going to be doing. When researching you must research the socket, and the speed to see if the motherboard supports. The memory kit cost £21.97 from Amazon.



The operating system of the PC is important. You will always want the newest version of Windows on a PC. The old operating systems are no longer support therefore windows 10 home is the most suitable for the PC.

2.1 Inputs/outputs

The Xenta Full Size black **keyboard** would be suitable for this scenario. It is a full-size keyboard with a USB connection. Easy to plug in. It includes a window start key, and a number pad. It is a cheap keyboard which is suitable. The price of this keyboard is £4.18.



The Cherry MC 1000 corded Optical **mouse** would be suitable for the scenario. It is 1200 DPI mouse, and it is easily connected via wire. It is a USB mouse. It has a scrolling wheel which allows you to easily scroll down the pages. It is cheap as well with the price at £4.68.



3. Conclusion

This build would cost altogether 346.34 if to include operating system Windows 10 it will go up to £442.32. The parts that were recommended will fit the build together nicely. It is an appropriate build for the scenario. It is a small form factor. There were certain sites like USERBENCH which allowed me to bench the PC when creating it. it allowed me to see if the PC was ok, and suitable. I had help from the websites that are listed below which allowed me to know the specifications of the components mentioned. There were alternatives parts that could have been used to make the PC cheaper, such as the mouse and keyboard. The mouse and keyboard can come as a set so that would reduce prices. The monitor can also be reduced in price but found that it was more suitable to have than the other monitor because it has audio. Which allow the user to watch youtube, and talk with family. The PC build is 442 which is a decent price for this build. It has decent components and can do the basics which the user would like.

4. TABLE – Components links

Component name	Description	Price	Link	Where product from?
Monitor	HannsG HL205DPB 19.5" WIDE DVI LED MONITOR	£70.96	Link Here	Ebuyer
Keyboard	Xenta Full Size UK layout Black Keyboard-USB	£4.18	Link Here	Ebuyer
Mouse	Cherry Mc 1000 Corded Optical Mouse White/Grey	£4.68	Link Here	Ebuyer
Motherboard	Asus H110I-PLUS Mini ITX LGA1151 Motherboard	£77.49	Link Here	Ebuyer
RAM	Corsair 4GB DDR4 2133MHz	£23.37	Link Here	Ebuyer
CPU	Intel Celeron Processor G3900 2.8 GHZ Dual core	£58.75	Link Here	Amazon
CPU cooler	Arctic Alphine 12-Low profile	£4.99	Link Here	SCAN
Graphics	Intel graphics 510-DVI – on board CPU	N/A	N/A	N/A
Case	Fractal Design Nano ITX case Its will fit the motherboard. The motherboard is a ITX form factor, and this will fit.	£61.97	Link Here	Amazon
Power supply	Pure Power 11 300 W	£39.98	Link Here	SCAN
Calculations		346.37	OS included: 442.34	
Operating system if included		95.97	Link Here	LaptopDirect

5. High End Desktop PC – Scenario 2

5.1 Introduction

The user wants to become SELF EMPLOYED- own company. The user wants to produce and edit 4k videos. The CPU and GPU will take advantage of the software which are needed. When building the PC the speed and productivity is important of this build. A SSD, RAM, CPU and GPU is most important for this. The budget of this build is £2500.

6. Components

The start of building the PC is the **motherboard**. The motherboard must support the new Ryzen which is Ryzen 9. Which is considered one of the best CPUs currently. The motherboard socket is AM4, it is DDR4 which max support is 128gb - 4 slots. Which also has a speed of 2933 MHZ. It is HDMI and a ATX FORM FACTOR. It has 9 USB SLOTS, which can support external hard drives, mices, keyboards, microphones, etc. It has one S/PDIF and audio jack, and microphone port. It is raid supported. RAID 0,1,10. And SATA supported. This motherboard is from CCLONINE and cost £208.12. The PCI Express slot is important to for the graphics card.



The next component of this build is the **CPU**. The CPU is the second most expensive. The CPU right now is considered one of the best CPUS. It is fast. The performance of the CPU is very high. When looking at the CPU. You must make sure that the CPU support the motherboard. The CPU is £418.13 from Amazon. The CPU comes with a fan.



The next component of this build is the **graphics card**. This graphic card is called "MSI GEFORCE RTX 2070 SUPER GAMING X 8GB". It is one of highest performing graphics card. The computer needs to produce and edit 4k videos and this graphic card support 4K. The graphics card PCI is 3.0 x6 interface which supports the motherboard. The graphics card cost 549.97 from cclonine.

The next component of this build which is suitable for this type of build is the **memory**. When researching memory for this build. I decided to go with DDR4 2933. Which is the highest. It allows the motherboard and the ram to get max transfer speed. However, this memory is called "Corsair Vengeance Pro 32GB (2 sticks of 16) and it cost 190.02 with the speed of 2933. It is from a new site called NewEgg.



The next important component of this build which is suitable is the **Power Supply Unit**. The PC will need enough power to run the CPU, gpu etc. It will need a decent amount of power. The power supply which is recommended for this type of build is Corsair 750W power supply. It is £119.9 from a site called Box. This will give enough power to power the whole PC.



Another component that is suitable for this scenario would be an **SSD**. The speed and productivity is important. A SSD allow the computer to boot up fast, or load anything faster. The SSD that is suitable for this build "Samsung 970 EVO 1TB" the speed of the SSD Is 3400. Which is supported on the motherboard. The SSD cost 172.40 from a site called ALZA.



The last part of the PC is to put all the components in which is called a **case**. A case that is suitable for this build would be NZXT white mid tower. It cost £80.33 and its from a site called AriaPC. This would be suitable for the PC build because of the components of the motherboard, gpu, etc. it will require more than a small form factor.



The **monitor** is important for this build. The suitable monitor for this build would require 4k since the user would want to produce 4k videos. The monitor is called "Samsung LU28E570DS/EN-28-INCH LED 4K monitor". It is ultra HD. It is 1ms which is a fast response time, and it is 1920 x 1080 which is perfect for editing videos. The monitor is HDMI which supports the graphic card. This monitor is perfectly suited for the build.



6.1 Input/Outputs

The mice and keyboard are important when producing videos. You will need a mouse and keyboard to be able to access the computer. The keyboard and mouse which are suitable for this build is called "Xenta Wired Keyboard and mouse set". It came in a bundle. Which is cheap. The set cost £7.97 from Ebuyer. This is suitable for the build because you would not need a LED keyboard or mouse for it. you will just need a basic keyboard and mouse which allows you to do what you need to do.



The NAS drive which is suitable for this build is the TerraMaster 2gb ram 4 bay. It will get better speed because it is 2gb of ram. It has read/write speeds of more than 114MB/s. Starting with an 8TB HDD it can be expanded to 56TB by using an additional 3 16TB HDDs in the remaining bays. The NAS drive cost 239.99. it is from Amazon. Also will need 8tb which cost 160.00 from amazon.



4 Conclusion

This build required researching. The sites that were used were Userbench. Userbench allow you test pre-built the pc. When choosing components from this build all the components must be compatible which each other. I needed to check the components specifications to be able to do this. The main part was the CPU. The CPU which was picked was the Ryzen 9 which is a very good CPU but if you want something more expensive it would be threadripper which is a grand. So picking the CPU was ryzen 9 it was cheap compared to the threadripper. When picking the motherboard, I had to make sure that the motherboard was compatible with the CPU. The ram was suitable for this build. The reason why 32gb and not the max which is 128gb which would be suitable for editing and producing videos because the build had to require an SSD, and nas drive which is bit more expensive, and these were more suitable than just more ram. An SSD boost up speed transfers so much and the booting of the PC, and a NAS drive is an external hard drive which allows you to easily access and gives you more memory. The graphics card had to support 4k and the 2070 super is considered the best right now, and it was important that the monitor could support 4k otherwise it would be useless for 4k picture. All these things are the reasons why I did not go for alternative components such as a hybrid to an SSD, ETC. The PC build came up to £2,436 including the operating system and without the operating system came to £2,340.42.

5 Table of components

Component name	Description	Price	Link	Where product from?
Monitor	Samsung LU28E570DS 28INCH 4K MONITOR	£249.97	Link here	Amazon
Keyboard	Xenta wired keyboard and mouse set	£7.97	Link here	Ebuyer
Mouse	Xenta wired keyboard and mouse set	£7.97	Link here	Ebuyer
Motherboard	Gigabyte X570 AORUS ELITE AM4 DDR4 ATX Motherboard	£208.12	Link here	CCLONINE.COM
RAM	Corsair Vengeance 32GB	£190.02	Link here	NEWEGG
CPU	AMD Ryzen 9 3900x Processor	£384.82	Link here	Amazon
Graphics	MSI GEFORCE RTX 2070 Super gaming X	£549.97	Link here	CCLONINE
Case	NZXT White Mid tower	£84.67	Link Here	ARIA
Power supply	CORSAIR RM 750	£119.99	Link Here	BOX
SSD	Samsung 970 EVO 1TB	£164.90	Link here	alza
NAS DRIVE	NAS DRIVE 4 BAY	£239.99	Link here	Amazon
HDD	8TB HDD	£160.00	Link here	Amazon
Calculations		£2,340.42	OS included: £2,436.39	
Operating system if included		95.97	Link Here	LaptopDirect

Assignment exam replacement

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

Instructor

45/100

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GRADING FORM: GJ_2019

SHANNON
WALLACE

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ENGAGEMENT WITH LITERATURE

While the information within the assignment is good,



'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. Not just quoting sales/product websites 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 really been done apart from mentioning Userbench.

10

KNOWLEDGE AND UNDERSTANDING



Reasonable knowledge and understanding with most areas giving sensible information - but you should really have tried to add more reference sources to expand on the information.

55

COGNITIVE AND INTELLECTUAL



Despite the outcomes being 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!

45

PRACTICAL APPLICATION



appropriate systems specified with no glaring omissions or obvious errors. The NAS configuration doesn't offer any protection though and no explanation of the RAID setup has been done.

57

TRANSFERABLE SKILLS



Reasonably well presented and laid out. Try not to write in the first person.

60