# Performance Assessment 2 Building a Custom PC.

## Operating System

Windows 10 Pro 64-bit – OEM Cost $139

OEM version is tied down to a single PC Forever but it is significantly cheaper.

I will be using a 64 Bit processor so the 64Bit version will be appropriate.

There are some major advantages that the Windows 10 Pro has over the Home edition. Create and join a domain, BitLocker, Group Policy Management, Remote desktop, Hyper-V Virtulisation, Assigned Access, Enterprise mode Internet explorer, trusted boot, Max ram supported 2TB. The main reason why I am going with the pro edition is BitLocker it’s an encryption software that allows the user to fully secure their hard drives from potential hackers.

## System Board Asus TUF Z270 Mark1 LGA 1151

The reason why I chose the Asus Tuf Z270 is I was looking for a motherboard that was extremely durable and has the ability to dissipate heat quickly. It comes with a 3 year warranty from the manufacturer Asus. If I needed to add a second video card to improve performance for gaming I have that option with the additional PCI Express 3.0x16 slots.

The form factor will be ATX which meets the required size parameters for the case that I have chosen. The socket type would be LGA 1151 which supports the New intel processor Kaby Lake. The chipset would be the Intel Z270 and the bus speed is 8 GT/s DMI3 which will accommodate the new Intel Kaby Lake CPU Support ram is DDR4 3866(OC)/ 3733(OC)/ 3600(OC)/ 3466(OC)/ 3400(OC)/ 3333(OC)/ 3300(OC)/ 3200(OC)/ 3000(OC)/ 2800(OC)/ 2666(OC)/ 2400(OC)/ 2133. It supports 4 slots of 288pin DDR4 Ram totaling 64GB. 2 X PCI Express 3.0/2.0 x16 slots for the Video Card

3 X PCI Express 3.0/2.0 1x slots for expansion cards. There are plenty of slots for future expansion and meet the current needs of the system I am putting together. For storage there is 6 x SATA 6Gb/s 1 x M.2 1 Socket 3 1 x vertical M.2 Socket 3. The cost of the motherboard is $250

## Video Card

Since this PC will be used for gaming we will be going with the heavy duty Asus Geforce Gtx 1080 Strix edition with 8G of video ram. The reason why I am going with the Asus Strix edition is it runs cooler than other cards due to its triple wing blade design and it allows the card to stay cool during a full load while gaming. Asus also has a reputation for create products that are durable and will last a long time. Also keeping the GPU and Motherboard manufacturer the same it assures me that it will work flawlessly since they have been tested on their boards. Since I will be adding a high resolution monitor this will ensure that while gaming I will have high frames rates. The cost is $649 It will be compatible with my motherboards PCI Express 3.0 16x slot .The output port I would need is the Display Port for my monitor. The display port supports high resolution monitors.

## Case

The reason why I chose the Corsair Crystal Series 460x Case is the low Cost of $119. Building a computer full of amazing components you would like to be able to display it. The case has a tempered class side panel. This allows to display the computers components. You can also place mods inside your case such as lighting and case fans that light up with LED’s. It has great airflow to cool all of my components sufficiently and has plenty of space for future upgrades in a compact package. I can use the top mounts to place 2 exhaust 140 mm fans and 3 front 120mm or 2 140 mm fans for intake air flow. The cost is relatively low so I can invest in other components. It also has great cable management and with the use of a full modular power supply I will be able to keep my case nice and tidy. Keeping your cables nice and tidy allows for good air flow and thus keeping your components nice and cool and prolonging its life.

## Power Supply

The reason I went with EVGA 1000 watt power supply is comes with a 10 year manufacturer warranty and has more power than I currently need in order to facilitate future upgrades. It will support power for additional video card when I am ready to add another card. I chose a fully modular version of the power supply in order to limit and control the flow of cables in my system. It has all of the necessary connectors to power my system. It fits my case perfectly. In addition it is also has a silent fan operation.

## Processor

The intel Core i7-7700k Kaby Lake its Socket 1151. It’s a 64 bit CPU compatible with the intel 200’s Chipsets and supports DDR4 Memory. It runs at 4.2GHz making it perfect for gaming. Cost of the CPU is $349. I chose intel over AMD due to the fact that AMD has been recently behind in CPU’s performance when compared to intel for gaming. The Kaby Lake is the latest CPU from intel. It is considered the 7th Generation Core i7 processor and it performs up to 20% better than previous generations. This can be signification when you are gaming.

## CPU Cooler

Since I am going to do gaming a closed loop liquid cooling system will be used to keep the CPU cool while under full load. The reason why I chose the Corsair Hydro Series H75 fits in my case perfectly. The Cooler only utilizes a 120MM fan slot which will go into the rear exhaust fan slot of the case. In addition I Its compatible with the 1151 Socket on my motherboard and on corsairs website it is listed as being compatible with the Case that I chose.

## RAM

The reason why I chose CORSAIR Vengeance LPX 32GB is that I currently own and I have owned Corsair memory in the past and I they have always exceeded my expectation when it came to performance . I am going to utilize a lot of ram while gaming in addition I wanted to get ram that has a higher clock speed DDR4 3200 instead of the stock speed of 2133. It is also covered with pure aluminum heat spreader to dissipate heat faster. It’s also on the qualified vendors list from the manufacturer of the motherboard. I will get 2 sticks of 16GB each totaling 32GB in case I wanted to expand to 64GB in the future I still had two slots left to upgrade the ram. 32GB is more that I currently need but it will allow my system to be able to meet the demands of games in the future. The cost of the Ram is $239

## Peripherals

A printer will be not needed since the primary purpose of this computer will be gaming and streaming high definition video. I would recommend a gaming Keyboard and Mouse from Logitech. I personally had great customer service experience in the past with the company. They make some of the best peripherals for gaming and they stand behind their product. The cost is $68 for the mouse and $49 for keyboard. The mouse has a great deal of sensitivity and additional buttons over a standard mouse which makes it ideal for gaming. The keyboard Logitech G105 has back lit LED and it has 6 programmable keys. Both the keyboard and mouse were designed with the gamer in mind so it would be ideal for gaming system.

I would get a combo of headphones and speaker system. The headphones would be used for gaming in order not to disturb others. While speakers would be for streaming video or listening to music.

The headphones I recommend is the Hyper X Cloud 2 Cost is $99. It has virtual 7.1 surround sound. It can take the place of a full surround sound system. In addition it has microphone for voice chat while gaming or can be used while making skype calls.

For speakers I highly recommend Creative Gigaworks T40 Series cost is $124 and it has excellent base for music and movies.

## Video

The reason I chose the LG Electronics 34UC87C it has a curved screen which enables you to have a more immersive experience. Its perfect for gaming and streaming video The resolution is 3440 x 1440 and it has excellent image quality. Its an IPS panel which gives you a greater viewing angle. The resolution is fully supported by the video card and cane be connected via HDMI and Display Port. I recommend connecting via Display port to get the full 60 Hz refresh rate.

## Data Storage

The reason I am going to go with the Corsair Force MP500 M.2 2280

Its 480GB and is compatible with the motherboards M.2 Slot

It als got Atto disk benchmark performance rating of 3000mbs for read and 2400mbs write. If I run out of space I can further expand using the SATA ports on the motherboard. I have had great experience with their storage hardware in the past. In addition it is up to 4 times faster than the SATA 3.0 Drives.

## Input/Output ports and Cables

You would need USB input ports 2.0 or 3.0 for the Mouse Keyboard and Headphones. The motherboard has 4 usb 2.0 ports 2 usb 3.0 ports and 1 usb 3.1 type A and usb 3.1 type c. Giving you plenty of space for additional inputs. An Output Display port version 1.4 to support the high resolution of the monitor. The cable that is provided by the LG manufacture is sufficient enough. The max length of the Display port cable is 3 meters.

On Board high definition Audio has a 3.5mm audio output that would be perfect for the Creative speakers and it comes prewired. All of the needed cabling tends to be bundled with the hardware that you purchase.

## Network

Wireless Asus PCE AC56 802.11ac

It can download up to 867 Mbs with the 802.11ac chipset on the card which would be perfect for gaming. It will fit into the motherboards pci express slot. The reason for wireless is its one less cable to worry about. It will utilize Dynamic addressing since there is a cost to having a static ip address from your internet service provider. Cost is $57 for the card.

# Links for each component

## Operating System

<https://www.newegg.com/Product/Product.aspx?Item=N82E16832588491>

## **MotherBoard**

[**https://www.newegg.com/Product/Product.aspx?Item=N82E16813132934&ignorebbr=1**](https://www.newegg.com/Product/Product.aspx?Item=N82E16813132934&ignorebbr=1)

## Video Card

<https://www.newegg.com/Product/Product.aspx?Item=N82E16814126106&ignorebbr=1>

## Case

<https://www.newegg.com/Product/Product.aspx?Item=N82E16811139082>

## Power Supply

[**https://www.newegg.com/Product/Product.aspx?item=N82E16817438010**](https://www.newegg.com/Product/Product.aspx?item=N82E16817438010)

## Processor

<https://www.newegg.com/Product/Product.aspx?Item=N82E16819117726>

## **Cpu Cooler**

<https://www.newegg.com/Product/Product.aspx?Item=N82E16835181058>

## **Ram**

<https://www.newegg.com/Product/Product.aspx?Item=N82E16820233984>

## Peripherals

## Keyboard

<https://www.amazon.com/Logitech-G105-920-003371-Gaming-Keyboard/dp/B00BBUCCKO/ref=sr_1_1?ie=UTF8&qid=1485693380&sr=8-1&keywords=gaming+keyboard&refinements=p_89%3ALogitech>

## Mouse

<https://www.amazon.com/Logitech-Shifting-Personalized-Programmable-Customizable/dp/B00IRHE892/ref=sr_1_3?ie=UTF8&qid=1485693542&sr=8-3&keywords=gaming+mice&refinements=p_89%3ALogitech>

## Speakers

[**https://www.amazon.com/Creative-GigaWorks-Multimedia-BasXPort-Technology/dp/B001S14DYO/ref=sr\_1\_3?s=electronics&ie=UTF8&qid=1485693771&sr=1-3&keywords=creative+speakers**](https://www.amazon.com/Creative-GigaWorks-Multimedia-BasXPort-Technology/dp/B001S14DYO/ref=sr_1_3?s=electronics&ie=UTF8&qid=1485693771&sr=1-3&keywords=creative+speakers)

## Headphones

<https://www.amazon.com/HyperX-Cloud-Gaming-Headset-PS4/dp/B00SAYCVTQ/ref=sr_1_2?ie=UTF8&qid=1485693734&sr=8-2&keywords=hyperx+headphones+usb>

## Video

<https://www.amazon.com/LG-Electronics-34UC87C-34-Inch-LED-Lit/dp/B00Y09G6JG/ref=sr_1_1?s=electronics&ie=UTF8&qid=1485693959&sr=1-1&keywords=34UC87C-B>

## Data Storage

<https://www.newegg.com/Product/Product.aspx?Item=N82E16820236158&cm_re=Corsair_Force_MP500-_-20-236-158-_-Product>

## Input/Output Ports and Cables

USB cable

<http://www.microcenter.com/product/432837/3ft_USB_20_High_Speed_Male_to_Male_Cable_-_Black>

## Display Port cable

<http://www.microcenter.com/product/458991/3_ft_DisplayPort_Digital_A-V_UltraHD_Cable_w-_Latches_-_White>

## Audio Cable

<http://www.microcenter.com/product/443244/3ft_35mm_A-V_Cable_Mini_Stereo_Dub>

## Network

<https://www.newegg.com/Product/Product.aspx?Item=N82E16833320181&cm_re=asus_ac_card-_-33-320-181-_-Product>